AD PORTS GROUP

Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola

GENERAL INDEX

VOLUME I - ESIA

VOLUME II - ESMP

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August 2025

TYPSA has an Integrity Management System in place that has been ISO 37001 (Anti-bribery Management System) certified since 2019. Please consult our Corporate Integrity Policy statement and Code of Ethics at www.typsa.com/en/ethics-and-integrity/ where a communication channel is also available to forward complaints, questions, grievances or suggestions.

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ESIA

VOLUME I

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1. LIST OF ACRONYMS

ACRONYM	MEANING
AAL	Average Annual Loss
ACMs	Asbestos-containing materials
AD	Activity Data
ADPG	AD Ports Group
AIA	Environmental Impact Assessment
AKZ	Angolan Kwanza
AMP	Action Management Plan
ANR	Agência Nacional de Resíduos *(National Waste Agency)*
ANRS	Autoridade Nacional de Resíduos Sólidos *(National Solid Waste Authority)*
ANSI	American National Standards Institute
ANSS	Advanced National Seismic System
ASTM	American Society for Testing and Materials
AQG	Air Quality Guidelines
AQI	Air Quality: Data
ARC2	African Rainfall Climatology
ASQ	American Society for Quality
ATA	Admission Temporaries/Temporary Admission
As/Aw	Tropical Savanna
AW	All workers
BAU	Business-As-Usual
BDFE	Database of Emission Factors
BLD	Workers Welfare Building
BMS system	Building Management System
BOD	Biochemical Oxygen Demand
BOE	Boletín Oficial del Estado (Official State Gazette of Spain)
BREEAM	Building Research Establishment Environmental Assessment Method
BS	British Standard
BSc	Bachelor of Science
BSh	Hot semi-arid climate
BWh	Hot Desert
BWM	Ballast Water Management
BWMP	Ballast Water Management Plan
BWMS	Ballast water management systems
C-ESMP	Contractor's Environmental and Social Management Plan
CAE	Child abuse and exploitation
CARs	Corrective Action Requests
CBD	Convention on Biological Diversity
CBGM	Cement Bound Granular Material
CBR	California Bearing Ratio
CBU	Completely Built Up
CCKP	Climate Change Knowledge Portal
CCKP	Climate Change Knowledge Portal of the World Bank Group
CM	Construction Manager

ACRONYM	MEANING
CCMAR	Centro de Ciências do Mar (Centre of Marine Sciences)
CCME	Canadian Council of Ministers of the Environment
CCTV	Closed-Circuit Television
CEDAW	Convention on the Elimination of All forms of Discrimination against Women
CEDEX	Spanish Center for Studies and Experimentation in Public Works
CEEIA	Community of Exporting and Internationalized Companies of Angola
CERD	Committee on the Elimination of Racial Discrimination
CESCR	United Nations Committee on Economic, Social and Cultural Rights
C-ESMP	Construction Environmental and Social Management Plan
CFMT	maritime traffic carbon footprint
CFU	Colony Forming Unit
CGIAR	Consultative Group on International Agricultural Research
CHIRPS	Climate Hazards Group InfraRed Precipitation with Station
CIA	cumulative impact assessment
CIMA	Centro de Investigação Marinha e Ambiental (Centre for Marine and Environmental Research)
CIMA-UAlg	Centro de Investigação Marinha e Ambiental, Universidade do Algarve (Centre for Marine and Environmental Research, University of Algarve)
CLRTAP	Convention on Long-range Transboundary Air Pollution
CMIPs	Coupled Model Inter-comparison Projects
CMT	Crisis Management Team
CoC	Code of Conduct
CORDEX	Coordinated Regional Climate Downscaling Experiment
CR	Critically Endangered
CRC	Convention on the Rights of the Child
CRPD	Convention of the Rights of Persons with Disabilities
CRU	Climatic Research Unit
CT	Container Terminal
DAR	Detailed Assessment Report
DBSA	Development Bank of Southern Africa
DGNB	Deutsche Gesellschaft für Nachhaltiges Bauen
DGVs	Default Guideline Values
DIA	Direct Influence Area
DSA	Directorate of Safety and Environment of the Port of Luanda
DSE	Corporate Security Department
DUE	Delegation of the European Union in Angola
E&S	Environmental and Social
EA	Environmental Assessment
EAS	Estudo Ambiental Simplificado
EBRD	European Bank for Reconstruction and Development
EBSA	Ecologically or Biologically Significant Marine Area
EC	European Commission
EEA	European Environment Agency
EF	Emission Factors
EHS	Environment, Health and Safety

ACRONYM	MEANING
EHSMS	Environmental, Health, and Safety Management System
EIA	Environmental Impact Studies
EIB	European Investment Bank
ELP	Estratégia de Desenvolvimento de Longo Prazo Angola 2050 (Long-Term Strategy "Angola 2050")
EMEP	European Monitoring and Evaluation Program
EMEP-EEA	European Monitoring and Evaluation Programme – European Environment Agency
EN	Endangered
ENAC	National Strategy on Climate Change
ENSA	National Insurance Company of Angola
EPAL	Public Water Company of Luanda
EPAS	Environmental Protection and Assessment System
EPC	Engineering, Procurement, and Construction
EPDA	Estudo de Pré-Viabilidade Ambiental e Definição do Âmbito (Environmental Pre-Feasibility Study and Scope Definition)
EPDs	environmental product declarations
EPFIs	Equator Principles Financial Institutions
EPL	Empresa Portuária de Luanda (Port Company of Luanda)
EPRP	Project Specific Emergency Preparedness & Response Plan
EQS	Environmental Quality Standards
ERP	Emergency Response Plan
ESAP	Environmental, Social, Health and Safety Action Plan
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESLs	Extreme Sea-levels
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESSs	Environmental and Social Standards
EU	European Union
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
EW	Extinct in the wild
EX	Extinct
EXO	EXO Water Quality Sonde
EuDASM	European Digital Archive of Soil Maps
FAO	Food and Agriculture Organization of the United Nations
FEC	Fire Extinguishing Control
FEED	Front-End Engineering Design
FIs	Financial Institutions
FO	Fiber Optic
FPIC	Free, prior, and informed consent
GADM	Global Administrative Areas
GAP III	EU Gender Action Plan III
GAR	Global Assessment Report on Disaster Risk Reduction - Risk Data Platform
GBV	Gender-Based Violence

ACRONYM	MEANING
GBVH	Gender-Based Violence and Harassment
GCT	General Cargo Terminal
GDP	Gross Domestic Product
GHG	GreenHouse Gases
GIS	Geographic Information System
GPS	Global Positioning System
GRM	Grievance Redress Mechanism
GRP	Glass Reinforced Plastic
GT	gross tonnage
GTS	Global Telecommunication System
GV-high	'Upper' guideline values
$GtCO_2$	Gigatonne of carbon dioxide
HAB	harmful algal bloom
HDPE	High-density polyethylene
HOC	Heat of Combustion
HOC	Hydrophobic Organic Compounds
HSE	Health, Safety and Environment
HSEMP	Health, Safety and Environmental Management Plan
HSSE	Health, Safety, Security and Environment
HVAC	Heating, Ventilation, and Air Conditioning
HiH	Hand-in-Hand
IA	Interactive Atlas
IBAT	Integrated Biodiversity Assessment Tool
IBAs	Important Bird Areas
ICC	Incident Command Operation Centre
IFC	International Finance Corporation
IHSE BC	Integrated Health, Safety and Environment Business Continuity
IHSE MS	Integrated Health, Safety and Environmental Management System
IIA	Area of Indirect Influence
ILO	International Labor Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IMPA	Instituto Marítimo e Portuário de Angola (Maritime and Port Institute of Angola)
IMS	Integrated Management System
INAMET	Instituto Nacional de Meteorologia e Geofísica (National Institute of Meteorology and Geophysics)
INDC	Intended Nationally Determined Contribution
INE	National Institute of Statistics
IPCC	Intergovernmental Panel on Climate Change
IPCC WGI	Working Group I
ISO	International Standard Organization
ISPS	International Ship and Port Facility Security
IT	Information Technology
IUCN	International Union for Conservation of Nature
JV	Joint Venture

ACRONYM	MEANING
KBAs	Key Biodiversity Areas
LAT	Lowest Astronomical Tide
LAeq	A-weighted sound pressure level
LAR	Lista Angolana de Resíduos *(Angolan Waste List)*
LCA	life cycle assessment
LCI	life cycle inventory
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LOA	Length Overall
LPA	Luanda Port Authorithy
LV	Low Voltage
Lmax	Maximum sound level
Lmin	Minimum sound level
MARPOL	Marine Pollution Convention
MASFAMU	Ministry of Social Action, Family, and Women's Promotion
MD	Millennium Declaration
MEP	Ministry of Economy and Planning
MHC	Mobile Harbour Crane
MINAMB/ MINAM	Ministry of Environment of Angola
MINEA	Ministry of Energy and Water
MINPERMAR	Ministry of Fisheries and Marine Resources
MINTRANS	Ministry of Transport
MIREX	Ministry of Foreign Affairs
MODIS	Moderate Resolution Imaging Spectroradiometer
MT	Multipurose Terminal
MV	Medium Voltage
MVT	Multivalent Terminal
NAP	National Adaptation Plan
NAPA	National Adaptation Program of Action
NASA	National Aeronautics and Space Administration
NBSAP	National Biodiversity Strategy and Action Plan
NDC	Nationally Determined Contribution
NGOs	Non-Governmental Organizations
NIF	Tax Identification Number
NPAE	Nominal Power of a vessel's auxiliary engines
NPME	Nominal Power of the Main Engines
NTU	Nephelometric Turbidity Unit
OC	Organic Carbon
ODO	Optical Dissolved Oxygen
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational health and safety
OP	Operational Policies
PAHs	Polycyclic Aromatic Hydrocarbons
PAVA	Public Address and Voice Alarm
PCBs	Polychlorinated Biphenyls
PDN	National Development Plan

ACRONYM	MEANING
PET	Polyethylene Terephthalate
PFSO	Port Facility Security Officer
PGA	Plano de Gestão Ambiental *(Environmental Management Plan)*
PGRS	Plano de Gestão de Resíduos Sólidos
PIANC	Permanent International Association of Navigation Congresses
PM	Particulate Matter
PMC	Project Management Consultant
PMCM	Project Management and Construction Management Consultant
PNE	National Emissions Plan
PNQA	National Environmental Quality Program
POPs	Port Operating Procedures
PPE	Personal Protective Equipment
PPR	polypropylene random copolymer
PS	Performance Standards
PSC	Project Stakeholder Committee
PSS	Power Supply System network
PSU	Practical Salinity Unit
PVC	Polyvinyl Chloride
PWDR	Port Waste Delivery Receipt
QA	Quality Assurance
QC	Quality Control
RCB	Remaining Carbon Budget
RCPs	Representative Concentration Pathways
ROM	Recomendaciones de Obras Marítimas (Maritime Works Recommendations)
RTG	Rubber-Tyred Gantry crane
SADC Region	Southern African Development Community Region
SAIEA	Southern African Institute for Environmental Assessment
SDGs	United Nations Sustainable Development Goals
SEA	Sexual exploitation and abuse
SEDE	Headquarters
SEP	Stakeholder Engagement Plan
SES	Simplified Environmental Study
SH	Sexual harassment
SHED	Customs Inspections Shed
SIA	Integrated Environmental System / Sistema Integrado do Ambiente (Integrated Environment System)
SLR	Sea-level Rise
SMART	Specific, Measurable, Attainable, Realistic, Timely
SQC	Sediment Quality Criteria
SRTM	Shuttle Radar Topographic Mission
SSP	Shared Socioeconomic Pathways
SSW	South-Southwest
STS	Ship-to-Shore
SW	Southwe
SWL	Specific Warming Level

ACRONYM	MEANING
SWMP	Solid Waste Management Plan
Sp Conductivity	Specific Conductivity
TDR	Terms of Reference
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
TPU	Multipurpose Terminal
TSP	Total Suspended Particulate Matter
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNE-EN ISO	Spanish Standard adopted from a European Standard (EN)
UNECE	United Nations Economic Commission for Europe
UNEP WCMC	United Nations Environment Programme World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reductio
URN	Underwater Radiated Noise
USB	Universal Serial Bus
USD	United States Dollar
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VOCs	Volatile Organic Compounds
VU	Vulnerable
WBCSD	World Business Council for Sustainable Development
WC	Water Closet
WDPA	World Database on Protected Areas
WHO	World Health Organization
WMO	World Meteorological Organization
WMP	Waste Management Plan
WQC	Water Quality Criteria
WRI	World Resources Institute
WWTP	Wastewater Treatment Plant
XLPE	Cross-Linked Polyethylene

2. INTRODUCTION

AD Ports Group, a leading facilitator of global trade, logistics, and industry, has signed several agreements with Unicargas and Multiparques leading to securing a 20-year concession agreement (extendable for another 10 years) with the Luanda Port Authority for the operation and upgrade of the existing Unicargas multipurpose port terminal in Angola. The agreements with Unicargas and Multiparques, well-known logistics and transport companies in the country, saw the Group acquire an 81% stake in a joint venture (JV) that will operate the terminal, and a 90% stake in another joint venture that will serve the facility and the broader Angolan logistics market.

AD Ports Group as part of the Joint Venture ADPG Luanda Operador de Terminal, LDA, will be the responsible for upgrading and modernization the existing multipurpose facility of Unicargas Terminal in the province of Luanda to a modern container, general cargo and Ro-Ro terminal, encompassing concession area (192,000 sqm), an upgraded quay wall; additional ship-to-shore cranes, gantry cranes and other state-of-the-art equipment; expanded draft (9.5 meters to 16 meters); and, modernized IT systems [1].

The present report corresponds to deliverable 6 of contract 2800-302 related to project *Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola*. This document constitutes the final ESIA report, in which impact assessments are conducted and necessary mitigation measures are established for the successful development of all phases, based on key findings and scoping included in the previous stage. In this document, the results of the environmental assessment procedure carried out by the Ministry of Environment of Angola (MINAMB) are also included, as a result of which the environmental installation license for the project was obtained.

This Environmental and Social Impact study is conducted in compliance with Presidential Decree 117/20 *Regulamento Geral de Avaliação de Impacte Ambiental e do Procedimento de Licenciamiento Ambiental*, which regulates the environmental procedure in Angola, as well as with the standards and guidelines of IFC and the World Bank Group.

The aim of the Unicargas Terminal rehabilitation project is to achieve maximum utilization of its capacity, which can effectively meet transportation and development expectations. This project for the rehabilitation and improvement of the Unicargas Terminal is a strategic decision rooted in various compelling factors and informed by the recent developments surrounding the concession agreement and the endorsements from key stakeholders.

Furthermore, the endorsements and statements from prominent authorities, including Minister of Transport of Angola, highlight the strategic significance and broader implications of the Project for Angola's economic development and maritime trade landscape. Minister's acknowledgment of the transformative potential of the strategic partnership between AD Ports Group and the Angolan government reflects a shared vision for modernizing infrastructure, expanding global trade access, and stimulating economic growth across Central-West Africa.

[1] *https://www.adportsgroup.com/en/news-and-media/2024/04/23/ad-ports-group-agreement-to-operate-and-upgrade-the-multipurpose-port-terminal-in-angola*

Moreover, the specific provisions outlined in the concession agreement, including the upgrade of the terminal to a container and Ro-Ro terminal, expansion of concession area, installation of modern equipment, and modernization of IT systems, further solidify the rationale for this Project. These provisions not only address existing infrastructure limitations and capacity constraints but also position the Unicargas Terminal as a state-of-the-art maritime facility capable of meeting the evolving demands of global trade and commerce.

In summary, the Project for the rehabilitation and improvement of the Unicargas Terminal is justified by its comprehensive scope, robust financial backing, strategic endorsements from key authorities, and alignment with the objectives outlined in the concession agreement. By prioritizing infrastructure modernization, operational efficiency, and sustainable development, the project represents a transformative opportunity to propel Angola's maritime industry forward, enhance global competitiveness, and foster socio-economic prosperity across the region.

As part of this ESIA report, detailed assessments will be presented concerning the potential environmental and social impacts of the Unicargas Terminal rehabilitation project, along with strategies to mitigate these impacts effectively. Additionally, this report will outline a framework for monitoring and evaluating the implementation of mitigation measures to ensure compliance with regulatory requirements and international best practices.

2.1. Identification of the proponent

Identification of the Company Responsible for the Project	
Company Name	ADPG Luanda Operador de Terminal, LDA.
Tax Identification number (CIF/NIF)	5002047810
Full Adress	Largo 4 de Fevereiro, Luanda 1229, Angola
Telephone number	+244 934 910 601 / +244 919737789 / +244 995747042
Legal Representative	
Responsible party	Joaquim Nazaré Pimentel da Piedade
Telephone number	+244 923 345 121
e-mail	Joaquim.piedade@unicargas.co.ao

Table 1. Identification of the Company responsible for the Project

2.2. Identification of the consultant

This document is presented by SOAPRO, a company registered as an Environmental Consultant at the Ministry of the Environment under number 119840242, valid until 25-01-2025. All the credentials

Identification of the National Consultant	
Company Name	SOAPRO
Tax Identification number (CIF/NIF)	540 3011382
Full Adress	Av. 4 de Fevereiro, n.º 82 – 1º Floor - Luanda
Telephone number	+244 931 878 469
Website	http://www.soapro.ao
e-mail	soapro@soapro.ao
Legal Representative	
Chairman of the Board of Directors	Hugo de Albuquerque Guimarães
Telephone number	+244 933 864 444

e-mail	ambiente@soapro.ao
Contact	
Director	Marta Oliveira
Telephone number	+244 931 538 084
e-mail	marta.oliveira@soapro.ao

Table 2. Identification of the National Consultant

Identification of the International Consultant	
Company Name	Técnica y Proyectos, S.A. (TYPSA)
Tax Identification number (CIF/NIF)	A-28.171.288
Full Adress	Calle Gomera, 9. San Sebastián de los Reyes. Madrid. Spain
Telephone number	+34 911108606
Website	www.typsa.com
Legal Representative	
Director of the Environmental Division	Patricia Rullán
Telephone number	+34 917227300
e-mail	prullan@typsa.es
Contact	
Project Manager	Ana Baró
Telephone number	+34 911108606 – Ext.7872
e-mail	abaro@typsa.es

Table 3. Identification of the International Consultant

2.3. Identification of the ESIA Technical Team

National Team

Name	Academic background	Function/Specialty
Marta Oliveira	Degree in civil engineering	Area Manager
Ângela Alves	Degree in Environmental Engineering and Natural Resources	Project Manager Physic Environment Stakeholders/Public Consultation
Nuno Gomes	Master in Economic and Applied Geology	Geology and GIS
Margarida Matos	Degree in Environmental Engineering and Natural Resources	Legal framework Physic Environment
Divaldo Pereira	BSc in Sociology	Consult entities Preparation of socio-economic surveys Public consultation
Vivaldo Matias	Degree in Environmental Engineering and Natural Resources	Physic Environment Field survey
Joice Henriques	Degree in Environmental Engineering	Environment Impact Assessment
Surene Antonio		Environmental specialist for surveys
Emiliano Novais		Environmental specialist for surveys

Name	Academic background	Function/Specialty
Aristides Xavier		Environmental specialist for surveys
Jonilson Andre		Environmental specialist for surveys

Table 4. National technical team

International Team

Name	Academic background	Function/Specialty
Patricia Rullán	Master´s degree in Private Enterprise Environmental Management	Division Director Quality Control
Ana Baró	Master´s degree in Chemical Sciences	International Team Leader Project Manager
Nuria Garrido	Master´s degree in Environmental Engineering	Environmental Impact Assessment Climate Change Biodiversity
Marta Muriel	Graduate in Environmental Science. Postgraduate course in Rural Planning based on the Environment	Environmental Impact Assessment
María González Fernández	Graduate in Environmental Impact Assessment and Mitigation Measures	Environmental Impact Assessment
Inmaculada Calama	Master´s degree in Chemical Industry Technology and Management	Waste Management

Table 5. International technical team

3. RESUMO EXECUTIVO

3.1. Introdução

Com o objectivo de obter a Licença Ambiental exigida nos termos da Lei Ambiental (Decreto Presidencial nº. 117/20 – Regulamento Geral de Avaliação de Impacte Ambiental e Procedimento de Licenciamento Ambiental) para o Desenvolvimento do Porto da Unicargas em Luanda – Angola (doravante denominado "Projecto"), o AD Ports Group (ADPG) desenvolveu um Processo de Avaliação de Impacte Ambiental e Social (AIAS).

A AIAS é uma ferramenta importante para identificar e mitigar potenciais impactes negativos na área do projecto, pois estabelece os critérios a serem adoptados durante a fase de construção.

A AIAS foi elaborada considerando tanto os Regulamentos Nacionais como os Padrões Internacionais. Caso a legislação nacional seja diferente das medidas estabelecidas nos Padrões e Directrizes do Grupo Banco Mundial e da IFC ou dos Princípios do Equador, foram seguidas as regulamentações mais rigorosas como referência para o projecto.

Neste contexto, alguns dos objectivos mais relevantes da AIAS são:

- Identificar e avaliar os riscos e impactes ambientais e sociais do projecto.

- Adoptar uma hierarquia de mitigação para antecipar e evitar, ou, quando não for possível evitar, minimizar e, quando persistirem impactes residuais, compensar/mitigar os riscos e impactes para os trabalhadores, partes interessadas e o meio ambiente.
- Promover o desempenho ambiental e social melhorado dos clientes através da utilização eficaz de sistemas de gestão.
- Assegurar que as reclamações das partes interessadas e as comunicações externas sejam respondidas e geridas de forma apropriada.
- Promover e proporcionar meios para o envolvimento adequado com as partes interessadas ao longo do ciclo do projecto sobre questões que possam afectar e garantir que as informações ambientais e sociais relevantes sejam divulgadas e disseminadas.

3.2. Descrição do Projecto

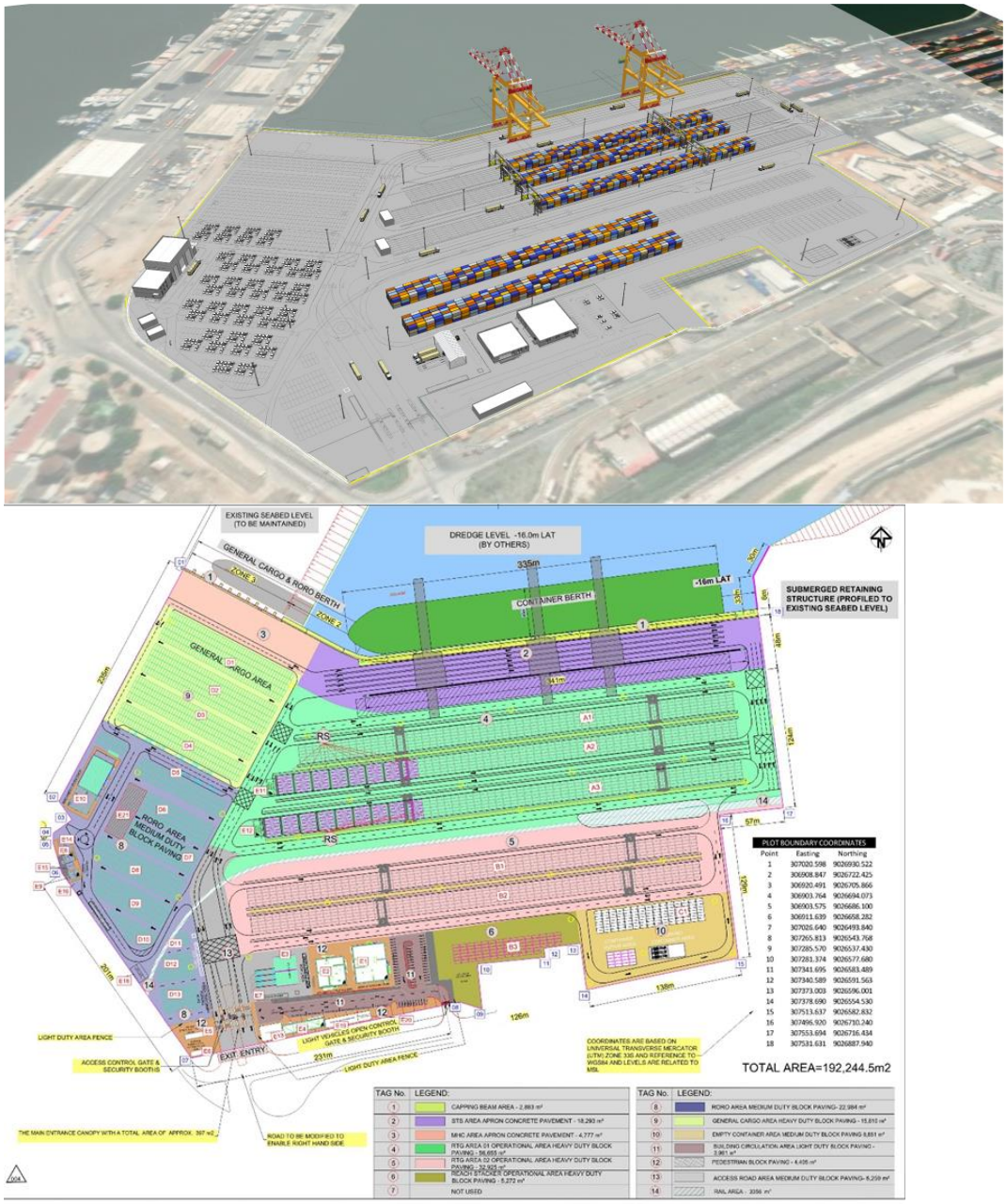
O Projecto está localizado no Porto de Luanda, Província e Município de Luanda, Distrito Urbano de Ingombota, Angola (Lat: -8.800274°; Long: 13.247499°).

Localização do Projecto

Situado no coração de Luanda, capital de Angola, ao longo da costa atlântica norte, o Porto de Luanda actua como o principal porto do país, além de ser um centro industrial, cultural e urbano de grande relevância. Adicionalmente, o porto funciona como um ponto estratégico de entrada, apoiando o comércio regional essencial.

O desenvolvimento do projecto do Terminal da Unicargas visa expandir e modernizar a infra-estrutura marítima e terrestre existente para satisfazer e ampliar a procura pelos serviços actuais de Cais de Contentores e Carga Geral/Ro-Ro.

O Projecto envolve o planeamento de aproximadamente 192,000 m² de área de parque e instalações associadas/edifícios/infra-estrutura de apoio para os terminais de Contentores e de Carga Geral/Ro-Ro, além do muro de cais e suas ligações com cais adjacentes.



Plano Preliminar do Projecto (Plano Director)

A **parte marítima** do projecto contempla a modernização do cais existente no Terminal da Unicargas, alcançando um comprimento total de 536 metros. O cais reformado será composto por duas secções:

- Cais de Contentores: Esta secção terá uma profundidade de água de -16.0 metros LAT, para receber navios de até 335 metros de comprimento. Será equipada com carris para operação de gruas STS (Ship-to-Shore).
- Cais de Carga Geral/Ro-Ro: Esta secção manterá uma profundidade de água de -9.0 metros LAT, para acomodar navios de carga geral de até 133 metros de comprimento.

A modernização e reabilitação do muro de cais incluirá todos os elementos necessários para o seu funcionamento adequado, bem como os detalhes de ligação com os cais adjacentes existentes.

A **parte terrestre** do projecto envolve:

- Preparação da área do terminal: remoção do pavimento actual, nivelamento da superfície, demolição e remoção de edifícios/oficinas/armazéns.
- Escavações para fundações e gruas: escavação para instalação de fundações de edifícios e gruas.
- Instalação de infra-estrutura: iluminação, vedações e demais elementos necessários.
- Delimitação da área: definição das diferentes zonas de trabalho para evitar exceder os limites ou causar perturbações desnecessárias.
- Execução das obras: execução das tarefas de construção, incluindo instalações de infra-estrutura e utilidades, rede eléctrica, subestações, remoção e substituição do pavimento

3.3. Caracterização da Linha de Base

A análise das condições de base para o futuro projecto em Angola envolveu múltiplas fontes de dados e visitas ao local, proporcionando uma compreensão abrangente do contexto ambiental.

As condições ambientais básicas onde se pretende desenvolver o projecto foram inicialmente obtidas a partir de fontes bibliográficas disponíveis. Posteriormente, para confirmar os dados analisados nessa primeira fase de pesquisa bibliográfica detalhada e exaustiva, foram realizadas diversas campanhas na área de estudo. Estas serviram para caracterizar com maior precisão o ambiente onde o projecto será desenvolvido, constituindo assim o suporte fundamental para a avaliação de impactes e a definição de medidas de mitigação adequadas. Neste sentido, foram conduzidas campanhas de ruído, qualidade do ar, qualidade das águas marinhas, sedimentos marinhos, estudos de solo e levantamentos ecológicos.

Antes da realização das campanhas documentadas neste relatório, os planos correspondentes foram submetidos ao Grupo ADP para aprovação prévia à mobilização de pessoal e equipamentos.

Todas as metodologias utilizadas nas campanhas foram elaboradas de acordo com os requisitos e padrões da IFC e do Grupo Banco Mundial.

3.3.1. Condições físicas da linha de base

Fontes de dados: Informações sobre parâmetros climáticos como precipitação, temperatura e velocidade do vento foram obtidas a partir de diversas fontes, incluindo o Instituto Nacional de Meteorologia e Geofísica (INAMET), Climate Change Knowledge Portal (CCKP), Weatherspark e pesquisas do Projecto Waterfront de Luanda.

Clima

- Características: Luanda apresenta clima tropical com estações chuvosas (setembro a maio) e seca (maio a setembro) bem definidas. A cidade é classificada como tendo um clima semiárido quente (BSh), com temperaturas médias anuais acima de 18°C e baixa pluviosidade.
- Padrões de precipitação: Luanda recebe significativamente menos chuva do que a média nacional, com os maiores volumes de precipitação ocorrendo entre abril e novembro. Eventos extremos de chuva estão se tornando mais frequentes, gerando preocupações com cheias e secas

Qualidade do ar e ruído

- Qualidade do ar: Dados sobre NO_2, PM_1, PM_{10} e $PM_{2.5}$ foram obtidos do Índice de Qualidade do Ar (AQI). Embora os níveis de NO_2 tenham permanecido dentro dos limites aceitáveis, as

concentrações de PM, especialmente $PM_{2.5}$, indicam níveis moderados a insalubres, provavelmente associados à actividade industrial, emissões automóveis e queima de biomassa.

- Ruído: Não há dados específicos de medições sonoras para Luanda disponíveis. No entanto, informações qualitativas sugerem níveis elevados de ruído em áreas urbanas devido ao tráfego intenso, actividades industriais e desenvolvimento de infra-estrutura.
- Levantamento da qualidade do ar (realizado em março de 2024): O levantamento da qualidade do ar realizado no Terminal Unicargas revelou descobertas significativas sobre diversos poluentes, destacando potenciais preocupações ambientais. Embora poluentes específicos como monóxido de azoto (NO) e dióxido de azoto (NO_2) tenham apresentado picos localizados, o monóxido de carbono (CO) esteve notavelmente ausente em toda a área pesquisada. Os níveis de dióxido de enxofre (SO_2) foram particularmente elevados em certas áreas, indicando possíveis fontes de actividade industrial. Além disso, as concentrações de ozono (O_3) ultrapassaram os limites recomendados em pontos específicos, juntamente com níveis excessivos de material particulado PM2.5 e PM10, sugerindo a presença de poluentes atmosféricos acima das orientações da OMS. Essas constatações ressaltam o impacte mais amplo das operações do terminal e das emissões de tráfego sobre a qualidade do ar, enfatizando a necessidade de medidas proativas para mitigar a poluição e proteger a saúde pública e o meio ambiente ao redor, especialmente nas áreas adjacentes ao terminal.
- Levantamento de ruído (realizado em março de 2024): A análise destacou várias fontes de ruído na área portuária, sendo o tráfego de veículos, especialmente os pesados, identificado como um dos principais contribuintes. Isso reforça a necessidade de implementação de medidas de mitigação de ruído, especialmente durante as fases de construção. Algumas áreas apresentaram níveis de ruído superiores aos limites recomendados para zonas residenciais, indicando impactes ambientais potenciais e destacando a importância do monitorização e gestão contínuos. Embora os níveis de ruído geralmente tenham ultrapassado as recomendações da OMS para zonas industriais/comerciais, houve variações entre os diferentes parâmetros e pontos de medição, sugerindo uma exposição sonora complexa nas imediações do porto. Reconhecendo o potencial da poluição sonora para afetar áreas residenciais próximas e rotas de transporte, estratégias proativas são essenciais para minimizar as perturbações e garantir o bem-estar da comunidade. Considerando o papel das actividades industriais no complexo portuário, abordagens abrangentes para controlar as emissões sonoras das operações do terminal e de fontes industriais em geral são cruciais para o desenvolvimento sustentável e uma convivência harmoniosa entre o porto e as comunidades vizinhas.

Topografia, Geologia e Geomorfologia

- Topografia: Luanda está situada na região costeira, caracterizada por planícies baixas e planaltos elevados. A área do projecto apresenta variações de altitude, com o terreno do terminal terrestre variando entre +3.8 e +1.85 metros acima do nível do mar.
- Geologia: Estudos geológicos indicam a presença de sedimentos marinhos que datam do Cretáceo ao Pleistoceno, incluindo formações como Quifangondo e Rio Dande. A investigação geotécnica revelou a presença de camadas superficiais arenosas, sobrepostas por areias argilosas e camadas de argila compacta, o que requer fundações superficiais para as estruturas a serem construídas.
- Solos: A área do projecto encontra-se na zona de transição entre luvisolos férreos e cambissolos eútricos.

- Estudo de solos: Com base nas informações recolhidas, o Terminal da Unicargas apresenta vários pontos com potencial risco de contaminação: actividades com máquinas pesadas, veículos estacionados, armazenamento de produtos/substâncias, entre outros. Em diversos pontos de amostragem de solo, foram observados derrames de hidrocarbonetos, além da presença de substâncias químicas e matéria orgânica provenientes da ruptura de um contentor. Destaca-se a existência de sinais relevantes que sugerem possível contaminação do solo por hidrocarbonetos na área. Além disso, o pavimento deteriorado, possivelmente com perda de suas características de impermeabilização, pode permitir que contaminantes atinjam camadas mais profundas do solo (areias) e, assim, se dispersem por uma área mais ampla.

Hidrologia

- Bacias hidrográficas: Luanda está inserida na bacia hidrográfica do rio Bengo, que por sua vez faz parte da maior bacia hidrográfica da Costa de Angola. O rio Bengo apresenta variações sazonais na qualidade da água, com um aumento da poluição durante a estação chuvosa devido ao escoamento superficial que carrega poluentes orgânicos e resíduos fecais.
- Águas subterrâneas: Durante as investigações geotécnicas, foram encontradas águas subterrâneas a profundidades que variam entre 1.4 e 1.6 metros abaixo da superfície do solo. As flutuações das marés e a actividade das ondas influenciam o comportamento dessas águas subterrâneas na área do projecto.

Condições Marinhas

- A baía de Luanda é caracterizada por águas salinas semi-fechadas, com pressões antropogénicas significativas provenientes de actividades comerciais, descargas de águas residuais, efluentes industriais e produção de petróleo.
- Levantamento da qualidade da água marinha (realizado entre janeiro e fevereiro de 2024): O levantamento da qualidade da água marinha foi realizado entre janeiro e fevereiro de 2024. O relatório da campanha destaca a importância crítica da qualidade da água para a saúde dos ecossistemas marinhos da região. As principais constatações incluem quedas significativas nos níveis de oxigénio dissolvido e a presença de hidrocarbonetos, óleos e metais, que representam riscos à vida marinha.

  Embora os organismos actuais tenham se adaptado às condições predominantes, qualquer aumento na concentração de poluentes pode provocar efeitos prejudiciais à saúde do ecossistema. A monitorização contínuo e as medidas de mitigação são essenciais para salvaguardar a biodiversidade marinha e a resiliência dos ecossistemas nessa área fortemente impactada pela acção humana.

  Em todo caso, é importante observar que, conforme confirmado pelo levantamento ecológico, o ambiente actual não apresenta valores de relevância especial para a biodiversidade, não sendo identificadas espécies sob ameaça ou protecção segundo a UICN (União Internacional para a Conservação da Natureza).
- Levantamento da qualidade dos sedimentos marinhos (realizado entre janeiro e fevereiro de 2024): o levantamento dos sedimentos marinhos foi realizado no mesmo período, entre janeiro e fevereiro de 2024. A análise da qualidade dos sedimentos destaca seu papel essencial na formação dos ecossistemas marinhos, particularmente para as espécies bentónicas. Os principais resultados

revelaram níveis baixos de oxigénio, concentrações elevadas de metais e compostos derivados de actividades portuárias.
Esses parâmetros podem limitar a biodiversidade e o desenvolvimento dos ecossistemas.
O monitorização contínuo é indispensável, considerando o elevado nível de actividade antrópica e os riscos de contaminação na área. Isso reforça a importância de medidas proativas para proteger a qualidade dos sedimentos e a vida marinha.
Tal como mencionado para as águas marinhas, é importante destacar que, segundo o levantamento ecológico, o ambiente actual não apresenta valores de relevância especial para a biodiversidade, não tendo sido identificadas espécies sob ameaça ou protecção, conforme os critérios da UICN

3.3.2. Condições Biológicas da Linha de Base

Uma visão geral detalhada das condições de biodiversidade da linha de base na área do projecto está incluída neste estudo de AIAS, abrangendo diversos aspectos como áreas protegidas, habitats, habitats críticos, áreas-chave para a biodiversidade (KBAs), flora e fauna. Abaixo segue um resumo de cada secção:

Áreas Protegidas

O projecto está localizado fora de áreas protegidas ou de espaços designados com qualquer classificação de protecção de acordo com critérios nacionais ou internacionais. Esta informação foi obtida da base de dados UNEP_WCMC_Data_Publisher.

Habitats

Os tipos de habitats terrestres são analisados com base na classificação da União Internacional para a Conservação da Natureza (UICN), sendo que a maior parte da área do projecto foi classificada como Zona Urbana.

A análise começa destacando a importância de compreender a área onde o projecto será desenvolvido e os tipos de habitats presentes. Utiliza-se o esquema de classificação de habitats da UICN, que categoriza os habitats como modificados, naturais e críticos.

- Zonas Urbanas: A área do projecto é predominantemente classificada como Zona Urbana segundo a UICN, caracterizada por espaços metropolitanos e comerciais dominados por infra-estrutura humana como asfalto, betão e edifícios. Esta classificação também inclui relvados, parques e outros espaços verdes dentro do ambiente urbano.
- Habitats Críticos: O Padrão de Desempenho 6 (PS6) da Corporação Financeira Internacional (IFC) define habitats críticos como áreas de importância significativa para espécies ameaçadas, ecossistemas únicos e processos evolutivos essenciais. A área do projecto contém zonas classificadas como Potencialmente Habitats Críticos, indicando alta probabilidade de serem críticas para determinadas espécies ou ecossistemas.
- Habitats Naturais e Modificados: Os dados sobre habitats naturais e modificados são essenciais para a tomada de decisões de investimento. A área do projecto inclui zonas classificadas como Potencialmente Modificadas e Provavelmente Modificadas, o que indica graus variados de alteração humana. Essas informações ajudam a avaliar impactes potenciais na integridade dos habitats e na biodiversidade.

- Áreas-Chave para a Biodiversidade (KBA): Existem duas áreas classificadas como Áreas-Chave para a Biodiversidade (KBA) de acordo com a UICN e a BirdLife International, situadas a aproximadamente 11 km e 40 km do local do projecto, respectivamente: Mussulo e Quiçama. Essas áreas são reconhecidas internacionalmente por sua grande biodiversidade, incluindo uma variedade de habitats como mangais, planícies aluviais, florestas e savanas. Essas KBAs contribuem significativamente para os esforços globais de conservação da biodiversidade.

Flora e Fauna

A ferramenta Integrated Biodiversity Assessment Tool (IBAT) foi utilizada para identificar a biodiversidade existente. Para a flora, foram listadas as espécies classificadas como ameaçadas, juntamente com suas respectivas categorias segundo a UICN. Para a fauna, foram apresentados dados sobre espécies ameaçadas, incluindo suas categorias na UICN e tendências populacionais.

Levantamento de avaliação ecológica

A área do projecto corresponde a uma zona industrial, com intensa actividade de transporte, incluindo camiões e navios. O porto está localizado em uma região com edifícios institucionais, como ministérios, embaixadas e sedes corporativas, o que a torna uma zona mais comercial e administrativa do que residencial. Existe um passeio marítimo à beira-mar, onde é possível observar pessoas a praticar desporto ou caminhando, embora a maioria seja composta por hóspedes de hotéis. Apesar de não ser uma área turística, há uma presença significativa de estrangeiros que vêm a trabalho.

Ao longo das diferentes fases de amostragem, observou-se que as aves são as espécies mais abundantes, algumas delas classificadas como "Pouco Preocupantes" (Least Concern) na Lista Vermelha da UICN, sem qualquer tipo de protecção nacional ou internacional. Nas actividades de observação marinha, apenas aves foram avistadas, sem registros de cetáceos ou tartarugas marinhas.

Os resultados obtidos nesta campanha são consistentes com os esperados para uma área portuária: um ambiente com alta poluição, sedimentos muito finos semelhantes a lodo e baixa presença biológica. Foram observadas poucas formações rochosas na região, o que limita ainda mais a diversidade biológica da área de estudo.

Assim, não foram observados organismos de interesse biológico significativo, excepto em algumas zonas onde se encontrou uma pequena concentração de invertebrados associados a habitats de fundo macio. No entanto, mesmo nesses casos, tratava-se de indivíduos isolados, sem constituir uma comunidade biológica.

A conclusão deste estudo é, como esperado, a de um fundo marinho altamente antropizado, com grande quantidade de resíduos de diferentes tipos, pouca riqueza biológica aparente e homogeneidade no leito marinho, característica de portos comerciais influenciados por intensa actividade humana e portuária.

Vale destacar que o ecossistema onde o porto está inserido encontra-se fortemente degradado, com declínio nas populações de flora e fauna. O impacte das obras sobre a fauna terrestre será mínimo, e as poucas aves presentes na área portuária deverão se deslocar para áreas mais tranquilas. As comunidades marinhas são escassas, devido à ressuspensão de sedimentos provocada pelo fluxo diário de navios, resultando em condições ambientais subótimas.

Com base nas observações e entrevistas com pescadores realizadas durante os levantamentos, verificou-se que a maioria das actividades pesqueiras ocorre fora da Baía de Luanda

3.3.3. Meio Socioeconómico

A avaliação do meio socioeconómico do projecto baseia-se em dados provenientes de literatura, relatórios e anuários disponíveis até janeiro de 2024. A análise considera a legislação angolana e as melhores práticas internacionais em avaliações de impacte ambiental. A caracterização tem como objetivo facilitar a identificação e avaliação dos impactes esperados decorrentes da implementação do projecto.

A província de Luanda, onde está situada a área de estudo, é caracterizada por uma população predominantemente urbana, com elevada densidade demográfica e altas taxas de fecundidade. A região enfrenta desafios relacionados à infra-estrutura, governança e diversificação económica. Composta por 9 municípios e 41 distritos urbanos, a província de Luanda representa um polo de actividade económica, embora existam desigualdades no desenvolvimento regional. As taxas de emprego indicam uma população economicamente activa numerosa, com destaque para os sectores de comércio por grosso e a retalho e administração pública. A área de estudo, especificamente o Terminal da Unicargas, encontra-se cercada por indústrias relacionadas ao porto e zonas habitacionais de elevada densidade, com presença limitada de actividades pesqueiras. A acessibilidade, especialmente pela Estrada Nacional nº. 100, apresenta desafios devido ao intenso fluxo de tráfego. De forma geral, a avaliação fornece uma compreensão básica e necessária para projetar e avaliar os impactes do projecto dentro deste cenário socioeconómico complexo.

3.4. Avaliação de Impacte Ambiental e Social e Medidas de Mitigação

A seguir apresenta-se um resumo da análise de impacte realizada no AIAS, juntamente com as medidas de mitigação. A significância dos efeitos é determinada pela combinação do valor ambiental (ou sensibilidade) de um receptor ou recurso e a magnitude do valor de impacte do projecto (mudança). Em outras palavras, é o produto do impacte que atua sobre o receptor que resulta em um efeito ambiental.

As cores da coluna “Significância Potencial do Impacte” refletem o caráter do impacte. Aquelas em verde escuro indicam impactes positivos, enquanto as em tons suaves indicam impactes negativos. Entre os impactes negativos, diferentes cores são utilizadas para distinguir a significância.

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
Qualidade do Ar	Construção	Geração de poeira	**Moderado**	▪ Irrigação com água nas vias internas/próximas ao local da obra, se necessário ▪ Camiões pesados não serão carregados até a capacidade máxima ▪ Definição de limites de velocidade adequados no local ▪ Materiais geradores de poeira deverão ser cobertos durante armazenamento e transporte

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
				▪ Materiais com poeira deverão ser removidos o quanto antes
		Emissões gasosas	**Moderado**	▪ Utilização de veículos e equipamentos com eficácia energética ▪ Programa de manutenção preventiva e periódica ▪ Utilização de equipamentos de acordo com as especificações do fabricante ▪ Instruções aos conductores para reduzir o consumo de combustível
	Operação	Geração de poe emissões gasos actividades manutenção	**Negligível ou Menor**	-
		Geração de poe emissões g provenientes motores a (propulsão de motores aux veículos etc.)	**Moderado**	▪ Operações portuárias: minimizar e controlar as emissões de combustão relacionadas a actividades terrestres ▪ Manutenção adequada dos equipamentos de movimentação de carga e redução do tempo ocioso dos motores durante operações de carga e descarga ▪ Reduzir as actividades de carga/descarga durante episódios de má qualidade do ar em Luanda ▪ Promoção de veículos de baixa emissão, fontes de energia alternativas e/ou misturas de combustíveis
Ruído e Vibrações	Construção	Ruído no estaleiro de obras	**Moderado**	▪ Programa de manutenção para garantir o funcionamento adequado de equipamentos/veículos ▪ Equipamentos de supressão de ruído, quando necessário ▪ Limites de velocidade para veículos pesados de construção ▪ Somente veículos e máquinas homologadas serão utilizados, conforme especificações do fabricante ▪ Barreiras temporárias anti-ruído
			Negligível ou Menor (para	▪ Boas práticas durante a execução das obras

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
			espécies marinhas)	
	Operação	Lado terrestre (movimentação de carga, tráfego de veículos, carga/descarga de contentores, etc.)	**Moderado**	▪ Equipamentos ruidosos devem ser instalados em compartimentos fechados ▪ Controlo da velocidade de circulação de veículos pesados ▪ Equipamentos e máquinas devem ter sua potência sonora devidamente identificada e estar em conformidade com os limites aceitáveis
		Lado marítimo (aumento no número e dimensões das embarcações)	**Negligível ou Menor**	▪ Manutenção dos níveis de ruído dentro dos limites aceitáveis ▪ Boas práticas, além da implementação de normas/recomendações internacionais (ex.: criação de zonas de baixa potência de propulsão próximas ao porto)
Qualidade da Água Marinha	Construção	Poluição da água devido ao aumento de sólidos suspensos	**Menor ou Moderado**	▪ Métodos de escavação/drenagem devem ser selecionados para minimizar a suspensão de sedimentos ▪ Considerar a programação com base nas marés, ventos, turbidez natural, etc. ▪ Técnicas e equipamentos adicionais para minimizar os impactes, como barreiras/estacas-pranchas, cortinas de sedimentos ou de bolhas ▪ Inspeções e monitorização periódica das actividades de dragagem (com retorno adaptativo, se necessário)
		Poluição da água devido a derramamentos acidentais durante a execução das obras	**Menor**	▪ Derramamentos acidentais de óleos e combustíveis serão removidos pelos métodos usuais (bombas de sucção) ▪ Haverá instalações disponíveis para limpeza da água ▪ Boas práticas e medidas de prevenção durante as actividades na superfície para evitar derrames/descargas acidentais no meio marinho
	Operação*		**Negligível**	▪ Resíduos oleosos e águas residuais devem ser coletados em barcaças, veículos ou sistemas de recolha central e tanques de armazenamento ▪ O porto deve fornecer aos operadores de navios informações sobre os requisitos aplicáveis à gestão de água de lastro ▪ Instalações portuárias que realizam limpeza ou reparo de tanques de lastro devem estar

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
				equipadas com instalações adequadas de recepção para evitar a introdução de espécies invasoras ▪ Efluentes sanitários provenientes de navios devem ser coletados e tratados no local ou externamente
Sedimentos Marinhos	Construção	Efeitos sobre a fauna e flora devido ao aumento de sólidos suspensos	**Menor**	▪ Utilizar os meios adequados (sistema de extração de materiais) e realizar as actividades em condições climáticas apropriadas ▪ Sempre que possível, utilizar barreiras anti-dispersão para evitar a dispersão de finos e minimizar ou eliminar efeitos fora da área imediata das obras ▪ Planejar a duração dessas operações para reduzir, tanto quanto possível, o tempo de intervenção de embarcações e máquinas no ambiente
		Perda directa do leito marinho, modificando a sua morfologia	**Negligível ou Menor**	▪ Boas práticas durante a execução das obras
	Operação*		**Negligível**	Ver medidas correspondents à Qualidade da Água
Solo	Construção	Aumento do risco de poluição do solo	**Menor**	▪ O armazenamento de óleos, combustíveis e outros materiais perigosos ou potencialmente contaminantes será feito em áreas impermeáveis, com cobertura e estruturas de contenção ▪ Para evitar o risco de poluição acidental nas áreas destinadas ao armazenamento e estacionamento de máquinas, será construída uma drenagem perimetral para reter o escoamento superficial ▪ As máquinas devem ser mantidas adequadamente para controlar vazamentos potenciais. Os serviços de manutenção dos veículos/equipamentos devem ser realizados em oficinas autorizadas, sempre que possível ▪ Kits de contenção de derramamentos acidentais devem estar disponíveis. Qualquer derrame deve ser imediatamente contido, e qualquer solo contaminado identificado e removido
		Contaminação potencial devido	**Negligível ou Menor**	▪ Qualquer solo contaminado deve ser localizado e removido do local por um prestador de serviços licenciado e autorizado,

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
		à presença de solos poluídos na superfície		garantindo um destino ambientalmente adequado
	Operação*	Poluição do proveniente actividades operacionais	**Negligível ou Menor**	▪ Produtos para limpeza e contenção de derramamentos estarão bem localizados e visíveis em áreas estratégicas do local ▪ Garantir a disponibilidade de kits de emergência e criar barreiras para contenção e absorção do produto derramado ▪ As áreas de armazenamento de resíduos perigosos e não perigosos serão bem construídas, com barreiras de impermeabilização do solo, sistema de drenagem separado e cobertura contra chuva, para evitar qualquer possível escoamento ▪ Implementação eficaz de controlos de gestão de resíduos conforme o plano de gestão de resíduos do local
Biodiversidade	Construção	Efeitos sobre a fauna e flora devido ao aumento de sólidos suspensos	**Menor**	▪ Utilizar os meios adequados (sistema de extração de materiais) para reduzir a ressuspensão de sedimentos ▪ O planeamento das operações de limpeza deve considerar o uso de equipamentos de alta capacidade para minimizar o tempo de intervenção de embarcações e máquinas no ambiente marinho e costeiro. Evitar sobrecarga dos tanques para prevenir transbordamentos de materiais ▪ Caso seja detetada a presença de mamíferos marinhos, quelônios ou elasmobrânquios durante as actividades de limpeza do leito marinho, será estabelecida a paralisação ou redução temporária das obras
		Efeitos sobre a fauna e flora devido à extração de sedimentos	**Negligível ou Menor**	▪ Boas práticas durante a execução das obras
		Exclusão de espécies da fauna devido ao aumento de perturbações	**Menor**	▪ Deve-se evitar o descarte de resíduos nas proximidades da área que possam atrair aves ▪ Sempre que possibilidade de, ajustar o cronograma das obras para evitar os períodos mais críticos para a fauna, especialmente para as espécies de interesse
		Possível introdução/disse	**Menor**	▪ Aplicação rigorosa de protocolos de biossegurança

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
		minação de espécies invasoras		▪ Inspeção e descontaminação de todos os materiais e equipamentos de construção e dragagem antes de entrarem em águas locais ▪ Manutenção e limpeza periódica
	Operação*		Negligível	-
Meio Socioeconómico	Construção	Incómodo à pop (desvios de t aumento de tráfe vias locais interrupções serviços públicos)	Menor o Moderado	▪ O cronograma das obras será definido de forma adequada para que não ultrapasse o tempo previsto ▪ Programar a entrega de materiais e equipamentos de construção, bem como seu transporte, fora dos horários de pico ▪ Cumprir as normas de trânsito e evitar, sempre que possível, vias com alto volume de tráfego, receptores sensíveis ou restrições de capacidade
		Risco ambienta saúde e seguranç trabalhadores dur fase de construçã	Moderado	▪ Realizar formações e campanhas de sensibilização eficazes para garantir que os colaboradores do projecto compreendam, valorizem e sigam os requisitos de gestão ambiental e social ▪ Garantir a oferta e manutenção de instalações de apoio adequadas para o bem-estar dos trabalhadores ▪ Assegurar a implementação de medidas de segurança para proteger o pessoal, os bens e as informações sensíveis, mitigando riscos externos e permitindo um ambiente seguro para as actividades do projecto
		Crescimento económico local/provincial através da contratação de empresas locais/provinciais	Moderado	-
		Potencial presença de conflitos sociais devido ao afluxo de trabalhadores migrantes	Moderado	▪ Garantir a transparência e a equidade nos procedimentos de recrutamento e contratação; ▪ Transferir competências técnicas para a força de trabalho local ▪ Dar prioridade a trabalhadores locais (com as competências necessárias), incluindo mulheres e jovens ▪ Assegurar o respeito pela legislação laboral nacional e pelos direitos dos trabalhadores,

	Fase	Impacte Potencial	Significância do Impacte Potencial	Medidas de Mitigação
				bem como o cumprimento do Plano de Gestão de Saúde e Segurança ▪ Desenvolver e implementar um Sistema de Gestão de Reclamações Laborais ▪ Controlar possíveis conflitos relacionados com a violência baseada no gênero (GBV)
		Impacte potencia as activ pesqueiras	**Negligível**	
	Operação	Reforço competitividade g promoção prosperidade socioeconómica região	**Maior**	-
Paisagem	Construção	Degradação temporária da paisagem nas áreas de trabalho	**Menor**	▪ Será garantido o cuidado com o ambiente por meio da organização adequada dos materiais armenazados e limpeza diária das zonas ocupadas e de trabalho ▪ Em nenhum caso a maquinaria será dispersa pelo local da obra; será colocada na zona destinada ▪ Nenhuma área costeira será afetada temporária ou permanentemente, exceto aquela prevista ▪ Os resíduos gerados serão depositados apenas nos contentores instalados para esse fim, e todos os resíduos serão devidamente geridos ▪ Todas as áreas deverão ser restauradas após a conclusão das obras
	Operação	Melhoria da aparência e organização da paisagem	**Moderado**	-
*Não se preveem alterações significativas neste parâmetro devido ao desenvolvimento do Terminal da Unicargas em relação ao que já existe atualmente no terminal em operação. Apesar de a capacidade prevista ser superior à atual, com a implementação das medidas preventivas e corretivas previstas no estudo, espera-se que a situação se mantenha estável. No entanto, nos planos de gestão foram estabelecidas medidas de monitorização para determinar se, durante a fase operacional, haverá variações nos resultados obtidos a partir da análise dos dados sobre os parâmetros de qualidade recolhidos durante as campanhas de campo realizadas no âmbito do projecto, que estabelecem a situação de referência (linha de base).				

Resumo dos impactes potenciais e medidas de mitigação

Para garantir que as medidas de mitigação estabelecidas atingem seus objetivos e para aplicar medidas adicionais caso se revelem insuficientes ou surjam efeitos inesperados durante a fase de construção e/ou operação do projecto, foram elaborados planos de gestão e controlo.

A monitorização estabelecerá o cronograma e os procedimentos de control, bem como os requisitos de elaboração de relatórios necessários para avaliar a eficácia das ações, garantir a conformidade com os valores de referência regulamentares e identificar a necessidade de implementar novos controlos ou ações adicionais, se necessário.

3.5. Alterações Climáticas

A análise das alterações climáticas para o projecto envolve a avaliação de tendências históricas e cenários futuros para identificar riscos potenciais e orientar medidas de adaptação. Isso é feito com base em dados de fontes fidedignas, como o IPCC e o Grupo Banco Mundial.

O clima de Angola varia entre regiões, influenciado por factores como geografia e correntes oceânicas. Dados históricos e projecções futuras foram analisados com o uso de modelos como o CMIP6, que fornecem diferentes cenários baseados em trajectórias de desenvolvimento social.

As tendências de temperatura indicam um aumento consistente nas temperaturas máximas e mínimas, com possibilidade de ondas de calor e mais noites tropicais com temperaturas acima de 26ºC. Espera-se também um aumento na pluviosidade, embora não em níveis que provoquem chuvas torrenciais ou risco significativo para o projecto.

Adicionalmente, outros riscos climáticos, como tsunamis, inundações, ciclones e incêndios florestais, foram avaliados com base em dados da plataforma de mapeamento da UNISDR. Felizmente, não há evidências de aumento desses riscos na área do projecto.

De forma geral, a análise aponta uma tendência de aquecimento com aumento da pluviosidade, mas risco mínimo de eventos climáticos extremos durante a vida útil do projecto. Essas informações vão orientar as medidas de adaptação e mitigação para garantir a resiliência do projecto frente às alterações climáticas

3.6. Plano de Envolvimento das Partes Interessadas

O Plano de Envolvimento das Partes Interessadas (SEP) oferece a oportunidade de interagir com o público e, conforme estabelecido nos padrões da PS1 da IFC (2012), constitui "*a base para construir relações sólidas, construtivas e responsivas, essenciais para a gestão bem-sucedida dos impactes ambientais e sociais de um projecto*".

O SEP busca definir uma abordagem tecnicamente adequada e culturalmente apropriada para consulta e divulgação. Seu objetivo é melhorar e facilitar a tomada de decisões, criando um ambiente de compreensão que envolva ativamente as pessoas afetadas pelo projecto e outras partes interessadas, de forma atempada, garantindo que esses grupos tenham oportunidade suficiente para expressar opiniões e preocupações que possam influenciar as decisões do Projecto.

Todas as partes interessadas foram notificadas sobre quaisquer questões significativas e serão envolvidas ativamente nas discussões durante o processo de construção.

Vale destacar que, além de órgãos governamentais como Ministérios, Governos Regionais ou outras Entidades Públicas que possam estar envolvidas durante o desenvolvimento do plano de envolvimento, há também empresas cuja proximidade com o local de desenvolvimento do projecto e atuação em actividades portuárias partilhadas as tornam partes interessadas chaves e directamente afetadas.

Foram identificados os seguintes grupos de partes interessadas:

- Instituições/Organizações – incluindo órgãos governamentais locais, provinciais e nacionais, autoridades tradicionais, sociedade civil e organizações comunitárias.
- Outras empresas operando no Porto de Luanda
- Prestadores de serviços no Terminal
- População – incluindo bairros e áreas residenciais formais etc.

3.7. Plano de Gestão Ambiental e Social (PGAS)

A gestão ambiental de uma actividade proposta é uma ferramenta essencial para garantir o desempenho ambiental de qualquer projecto. Este PGAS tem como objetivo estabelecer orientações para a melhor prática de gestão ambiental do Projecto, por meio da definição clara de ações ambientais e procedimentos de gestão a serem implementados em cada fase do desenvolvimento do Projecto, conforme definido no Estudo de Impacte e Avaliação Ambiental.

O PGAS visa definir e estruturar as medidas a serem implementadas para mitigar ou potencializar os impactes do Projecto. Com base na avaliação de impactes realizada, serão implementados os seguintes programas principais para tratar os impactes potenciais nas fases de construção e operação:

- Programa de Gestão da Qualidade do Ar e Ruído
- Programa de Gestão da Qualidade da Água Marinha
- Programa de Gestão da Qualidade dos Sedimentos Marinhos
- Programa de Gestão da Biodiversidade
- Plano de Gestão de Resíduos
- Programa de Comunicação e Sensibilização Comunitária
- Plano de Gestão da Saúde e Segurança Comunitária
- Plano de Resposta a Emergências
- Mecanismo de Tratamento de Reclamações (GRM)

Com base nos requisitos do PGAS, o Empreiteiro deverá desenvolver um PGAS para a fase de construção, incluindo todos os requisitos ambientais e sociais, bem como outros planos de gestão a serem acordados com o proponente (para além dos já incluídos no PGAS).

3.8. Indicadores de Desempenho do PGAS

3.8.1. Programa de Gestão da Qualidade do Ar e do Ruído

A monitorização da qualidade do ar será realizada para os seguintes parâmetros:

- Concentrações de material particulado (PM2,5 e PM10),
- Concentrações de ozono (O3),

- Gases de combustão associados ao funcionamento de equipamentos a combustível e à circulação de veículos: NOx, monóxido de carbono (CO), dióxido de enxofre (SO2) e dióxido de carbono (CO2),
- Identificação visual de plumas de poeira resultantes do movimento de máquinas e equipamentos de construção.

Relativamente ao ruído, nos locais mencionados acima será realizada monitorização para LAeq, Lmax, Lmin, L10 e L90. As Diretrizes da OMS para Níveis de Ruído, já mencionadas, estabelecem os padrões a cumprir, dado que não existe legislação aplicável em Angola. Devem ser aplicados os valores relativos a atividades industriais (70 dB, tanto no período diurno como noturno).

As condições meteorológicas também poderão ser medidas, para analisar se existe algum efeito relacionado com os registos obtidos.

3.8.2. Programa de Gestão da Qualidade da Água Marinha

Os seguintes parâmetros serão medidos para monitorizar a qualidade da água:

- Temperatura, salinidade, condutividade, pH, dH, turbidez e penetração de luz, oxigénio dissolvido, Clorofila a.
- Transparência com disco de Secchi
- Condição das comunidades biológicas
- Sólidos suspensos totais (TSS)
- Fósforo total
- Fosfato reativo filtrável
- Azoto total
- Óxidos de azoto
- Amónia
- Substâncias tóxicas: metais e metaloides, compostos orgânicos não metálicos, álcoois orgânicos, alcanos e alcenos clorados, anilinas, hidrocarbonetos aromáticos (incluindo fenóis e xilenóis), compostos orgânicos de enxofre, ftalatos, pesticidas organoclorados e organofosforados, herbicidas e fungicidas.
- Sedimento (metais e metaloides, organometálicos, orgânicos)
- Outros parâmetros específicos do local, conforme relevante
- Em caso de derrame ou fuga inesperada que não seja tratada prontamente e/ou conforme especificado no Plano de Gestão de Resposta a Emergências, poderá ser necessário realizar análises adicionais. Os parâmetros poderão variar em função das substâncias derramadas, bem como da frequência e do calendário exigidos.
- Adicionalmente, conforme já mencionado, serão realizadas análises adicionais da qualidade da água para cumprimento das licenças de instalação ou operação, caso necessário.
- Identificação visual da propagação de plumas de sedimento resultantes da limpeza necessária do leito marinho para a reabilitação/reparação do muro de cais.

As condições meteorológicas também poderão ser registadas para eventualmente relacioná-las com os dados obtidos.

3.8.3. Programa de Gestão da Qualidade dos Sedimentos Marinhos

Os seguintes parâmetros serão medidos no âmbito do controlo da qualidade dos sedimentos marinhos:

- Cor, odor e potencial redox (in situ)
- Derivados de enxofre (ex.: sulfitos)
- Carbono Orgânico Total (TOC)
- Hidrocarbonetos (Hidrocarbonetos Totais de Petróleo – TPH)
- Hidrocarbonetos Aromáticos Policíclicos Totais (PAHs)
- Compostos Orgânicos Voláteis (VOCs)
- Bifenilos Policlorados Totais (PCBs)
- Óleos minerais (Óleos, Gorduras e Hidrocarbonetos Totais)
- Nutrientes – Azoto Total
- Nutrientes – Fósforo Total
- Nutrientes – Matéria Orgânica
- Distribuição granulométrica
- Metais e metais pesados: Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr e Zn

3.8.4. Programa de Gestão do Controlo da Biodiversidade

A monitorização será limitada a avistamentos de espécies protegidas ou invulgares que possam ocorrer durante as obras.

3.8.5. Programa de Gestão de Resíduos

Conforme estabelecido no Plano de Gestão de Resíduos Sólidos e Efluentes da Luanda Port Company E.P., a monitorização consiste em avaliações e acompanhamentos exaustivos e periódicos de todos os procedimentos inerentes ao sistema de gestão de resíduos da empresa, bem como em orientar os seus colaboradores para adotarem uma atitude e decisões ambientalmente adequadas no desempenho das suas atividades laborais.

Para garantir que o plano de gestão de resíduos e efluentes é cumprido e atualizado, recomendase:

- A indicação e nomeação de um responsável pela monitorização, encarregado de fazer cumprir as recomendações definidas neste Plano de Gestão de Resíduos (PGRS) e de garantir, em toda a empresa, o compromisso dos demais colaboradores com a segregação, manuseamento, transporte e correta eliminação dos resíduos;
- A atualização contínua do responsável sobre serviços de recolha, manuseamento, armazenamento e destino final de resíduos, visando a melhoria do plano;
- Realização de inspeções nos locais com maior ocorrência de poluição ou fontes de produção de resíduos;
- Monitorização e avaliação dos programas de recolha, transporte e tratamento de resíduos e efluentes, para corrigir ações que possam comprometer o PGRS;
- Elaboração mensal de um relatório de avaliação do sistema de gestão de resíduos e efluentes líquidos.

Aspetos a monitorizar	Ação	Periodicidade	Responsável
Instalações de armazenamento de resíduos	Verificação periódica dos contentores, seu estado de conservação e necessidade de substituição, bem como da sua sinalização	Mensal	Responsável pela manutenção ou monitorização
Processo de gestão	Verificar o cumprimento integral do processo de segregação, acondicionamento, transporte e destino dos resíduos	Semanal	Responsável pela manutenção ou monitorização
Gestão de efluentes	Definir um plano de limpeza das fossas sépticas	Sempre que necessário	Gestor de manutenção ou monitorização
Área dos geradores	Verificar conformidade da área, como: depósito da área contaminada, sinalização, bem como depósito para contaminantes	Sempre que houver manutenção dos geradores	Responsável pela manutenção ou monitorização
Operador de limpeza	Verificação do processo de transporte de resíduos, bem como entrega do manifesto de recolha e depósito dos resíduos no destino	Semanal	Responsável pela manutenção ou monitorização
Segurança e energia	Verificar a instalação de extintores e o kit de primeiros socorros, garantindo que não faltem os medicamentos mais utilizados	Mensal	Responsável pela manutenção ou monitorização
Área de armazenamento	Verificar se as instalações são adequadas para o armazenamento de resíduos, bem como a manutenção dos tanques e sua sinalização	Trimestral	Responsável pela manutenção ou monitorização

Monitorização do Sistema de Gestão de Resíduos.

3.8.6. Programa de Comunicação e Sensibilização Comunitária

Os indicadores a monitorizar neste programa são os seguintes:

- Eventos planeados / realizados
- Número de participantes
- Reclamações recebidas / resolvidas em 30 dias
- Relatórios de incidentes (número)
- Relatórios de incidentes (acompanhamento)

3.8.7. Mecanismo de Resolução de Reclamações

A monitorização do MRR deve consistir na verificação da eficácia do procedimento, assegurando que as reclamações/sugestões das comunidades estão a ser tratadas. Devem ser registados os seguintes parâmetros:

- Número de reclamações/sugestões recebidas, das quais o total poderá ser resolvido;
- Cumprimento dos prazos estabelecidos para gerir as reclamações/sugestões;

- Número de vezes que o Comité de Arbitragem teve de analisar um caso e decidir;
- Número de vezes que foi necessário recorrer ao canal judicial apropriado ou equivalente.

3.9. Consulta pública

De acordo com o procedimento estabelecido na legislação angolana, cabe ao Departamento Ministerial responsável pelo Setor do Ambiente realizar consultas públicas, caso estas sejam consideradas necessárias para um projeto (artigo 8.1g do Decreto Presidencial 117/20). Se o responsável ministerial decidir que uma consulta pública deve ser realizada, é o próprio Departamento Ministerial responsável pelo Setor do Ambiente que promove e executa as atividades correspondentes. Uma vez terminado o período de consulta pública, o Ministério elabora, nos oito dias seguintes, um relatório sucinto especificando as ações realizadas, a participação registada e as conclusões a serem tiradas.

Como nem o proponente do projeto nem a consultora acreditada para a elaboração do AIAS estão autorizados a realizar essa consulta pública, e tendo em conta que os resultados da avaliação ambiental realizada pelo MINAMB foram emitidos como favoráveis à emissão da licença, sem a necessidade de realizar essa consulta pública. Neste sentido, e para garantir que todas as entidades oficiais relacionadas com o projeto estivessem informadas, foram enviadas cartas informativas sobre o projeto, incluindo um folheto informativo e oferecendo a possibilidade de agendar uma reunião ou disponibilizar um contacto adicional caso fossem necessárias mais informações.

Portanto, é importante salientar que, uma vez que o MINAMB não considerou necessária a realização de uma consulta pública durante o processo de tramitação ambiental, e conforme explicado anteriormente, essa atividade recai sob sua responsabilidade, de acordo com a legislação nacional angolana.

No entanto, foi desenvolvido um Plano de Envolvimento das Partes Interessadas que procura definir uma abordagem técnica e culturalmente adequada para a consulta e divulgação. O objetivo deste plano é melhorar e facilitar a tomada de decisões e criar uma atmosfera de compreensão que envolva ativamente as pessoas afetadas pelo projeto e outras partes interessadas em tempo útil, e que estes grupos tenham oportunidades suficientes para expressar as suas opiniões e preocupações que possam influenciar as decisões do projeto.

A seguir, são enumeradas as partes interessadas identificadas no projeto no âmbito do Plano de Envolvimento das Partes Interessadas. Além disso, é incluído um resumo das diversas atividades realizadas no contexto do desenvolvimento do plano de participação das partes interessadas no projeto.

Classes of Stakeholders	Stakeholders (PT)
Regional Institution	Gabinete Provincial de Luanda
Regional Institution	Gabinete Provincial da Saúde
Regional Institution	Gabinete Provincial das Infra-estruturas
Regional Institution	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos
Regional Institution	Gabinete Provincial da Educação
Local institution	Administração Municipal de Luanda
Local institution	Administração do distrito Urbano de Sambizanga, Ingombota
National Institution	Ministério do Ambiente
National Institution	Ministério da Energia e Águas
National Institution	Direcção Nacional de Águas
National Institution	Ministério dos Transportes
National Institution	Instituto Marítimo e Portuário de Angola
National Institution	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos
National Institution	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros
National Institution	Instituto Nacional de Investigação Pesqueira
Regional Institution	Porto de Luanda
Private sector	Empresas dentro da área portuária mais próximas das áreas de intervenção (See Figure 243 & Figure 244)
Communities	Colaboradores/trabalhadores do Porto
Communities	Residentes na envolvente - Comunidades envolventes à área portuária
Education and training	Academia Portuária de Luanda
Private sector	NESR Art Foundation
Culture and Heritage	Fortaleza do Penedo - Museu
Private sector	Clínica da Sagrada Esperança - SONILS
Private sector	Medline - Assistência médica
Private sector	CEEIA - Comunidade de empresas exportadoras e internacionalizadas de Angola

Partes interessadas identificadas

Atividades	Objetivo	Método proposto	Público-alvo	Frequência	Tempo e local indicativos	Responsabilidade	Monitorização e comunicação
Contato preliminar com entidades portuárias	Apresentação do projeto e recolha de informações para a ESIA	Comunicação escrita e reuniões agendadas	Autoridade Portuária de Luanda e Unicargas	Atividade única	28-30 de novembro de 2023	Empresa de consultoria ambiental	Relatório final apresentando as principais conclusões
Envolvimento com autoridades e reguladores	Apresentar o projeto e recolher informações técnicas e recomendações	Comunicação escrita e reuniões agendadas, quando necessário	Partes interessadas identificadas como instituições nacionais, regionais ou locais	Não aplicável	Cartas enviadas entre 10/05/2024 e 24/06/2024 Reunião com: Gabinete Provincial de Saúde de Luanda (08/07/2024) Distrito de Ingombota (15/07/2024) Distrito de Sambizanga (15/07/2024)	Empresa de consultoria ambiental	Ata da reunião Relatório final resumindo as contribuições feitas
Envolvimento com as partes interessadas na área do projeto e arredores	Informar as partes interessadas sobre: - Atividades planeadas; - Possíveis perturbações; - Mecanismo de reclamação; - Contactos do ponto focal do projeto	Comunicação escrita e reuniões previamente agendadas, incluindo o envio de agendas de reuniões, resumos do projeto e distribuição de folhetos	Empresas, associações e utilizadores do terminal	Atividade única	Cartas enviadas entre 02/07/2024 e 11/07/2024 Reunião com empresas - entre o período (18/06/2024 e 19/07/2024))	Empresa de consultoria ambiental / Ponto Focal responsável	Ata da reunião Relatório final resumindo as contribuições feitas
Envolvimento com as comunidades locais nos bairros vizinhos ao projeto	Informar as partes interessadas sobre: - Atividades planeadas; - Possíveis perturbações; - Mecanismo de reclamação; - Contatos do ponto focal do projeto	Reunião agendada com antecedência, incluindo o envio de agendas de reuniões, resumos do projeto e distribuição de folhetos	Líderes das comunidades locais	Uma reunião com cada líder	Reunião com as comunidades: Bairro Mata Gato (17/07/2024) Bairro Boavista (17/07/2024)	Empresa de consultoria ambiental	Ata da reunião Relatório final resumindo as contribuições feitas

Plano estratégico para consulta às partes interesadas.

3.10. Resumo do orçamento

O resumo geral do orçamento necessário para a implementação do ESMP e outros planos e ações definidos no AIAS são:

- Fase de construção: Os custos decorrentes do cumprimento das medidas incluídas nos planos de gestão ambiental e social durante a fase de construção estão integrados no preço fixo do empreiteiro responsável pela construção do projeto
- Fase de operação: O orçamento para a implementação das medidas durante a fase operacional está dividido em duas categorias:
    - As medidas de gestão, controlo e comunicação, que não requerem amostragem ou análise, estão incluídas nos custos de supervisão do ESS.

      A função ambiental e social (parte da unidade HSSE) contará com um especialista sénior e pessoal de apoio adicional, conforme necessário. O custo anual estimado com funcionários de E&S é de US$ 50,000 (≈46,266,500 AOA), sujeito a alterações com base no mercado e na tabela salarial em Angola.
    - Controlos periódicos para monitorização de parâmetros ambientais (incluindo DCT, equipamento necessário e laboratório)
        - Qualidade do ar: US$ 3,500 (≈3,238,655 AOA)/campanha
        - Ruído: US$ 3,500 (≈3,238,655 AOA)/campanha
        - Qualidade da água marinha e dos sedimentos (a ser feito simultaneamente): US$ 7,600 (7,037,508 AOA)/por campanha

Além do acima exposto, os custos específicos estimados para a implementação de outros planos são os seguintes:

- A implementação do PROGRAMA DE COMUNICAÇÃO E SENSIBILIZAÇÃO DA COMUNIDADE (CCAP) e do PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS (SEP), incluindo reuniões e o desenvolvimento de materiais (brochuras, folhetos, cartazes, outros itens) pode atingir um total anual de US$ 4,000 (3,701,320 AOA).
- Plano de Gestão de Saúde e Segurança Comunitária: O desenvolvimento de materiais (brochuras, folhetos, cartazes, outros itens) pode custar até US$ 2,000 (1,850,660 AOA) por ano.
- Formação e capacitação. O custo anual da formação será coberto como parte do:
    - Equipa HSSE e ESS, que realizarão formação periódica às equipas de operação do terminal.
    - Formação online corporativa da ADPG
    - Prestadores de serviços de formação externos, quando necessário. Um valor provisório de US$ 5,000 (9,253,300 AOA) /ano

- Material necessário: US$ 1.000 (925,330 AOA)

- As auditorias anuais para cumprir os requisitos dos credores, incluindo os Padrões de Desempenho da IFC, visita ao local de 5 dias e 2 especialistas, podem atingir um total de US$ 20,000 (18,506,600 AOA) por ano.

3.11. Conclusão

A AIAS foi desenvolvida considerando tanto os Regulamentos Nacionais quanto os Padrões Internacionais. Caso a legislação nacional difira das medidas estabelecidas nos padrões e orientações da IFC, EHS ou Princípios do Equador, foram seguidos os regulamentos mais restritivos como referência para o projecto.

Considerando o exposto, este projecto representa um avanço para o sistema de desenvolvimento do país, pois, ao promover o desenvolvimento e a optimização do Terminal da Unicargas, é possível fomentar o crescimento sustentável, melhorar a eficiência operacional e minimizar os efeitos ambientais adversos no Porto de Luanda.

Para implementar o projecto em harmonia com o meio ambiente, foi realizado um estudo de impacte ambiental e social no qual foram analisados os impactes potenciais e estabelecidas medidas para preveni-los, mitigá-los ou corrigi-los.

Tanto durante a fase de execução quanto na fase operacional, o projecto implementará as medidas de mitigação estabelecidas, bem como o protocolo de monitorização necessário para avaliar sua eficácia e determinar a necessidade de medidas adicionais, conforme previsto nos programas incluídos no PGAS de acordo com os padrões de desempenho da IFC. Para além dos programas incluídos no PGAS, o Empreiteiro deverá elaborar e implementar diversos planos de gestão adicionais para a fase de construção.

4. EXECUTIVE SUMMARY

4.1. Introduction

In order to obtain the Environmental License required in terms of the Environmental Law (Presidential Decree No 117/20 - General Regulation of Environmental Impact Assessment and Environmental Licensing Procedure) for the Development of Unicargas Port in Luanda – Angola (hereafter the “Project”), ADPG developed an Environmental and Social Impact Assessment (ESIA) Process.

The ESIA is an important tool for identifying and mitigating potential negative impacts in the project's area as it establishes the criteria to be adopted during construction.

The ESIA has been developed considering both National Regulations and International Standards. If national laws differ from the measures established in the IFC and World Bank Group Standards and guidelines or the Equator Principles, the most stringent regulations have been followed as a reference in the project.

In this context, some of the most significant objectives of the ESIA are listed below:

- To identify and evaluate environmental and social risks and impacts of the project.

- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, stakeholders, and the environment.
- To promote improved environmental and social performance of clients through the effective use of management systems.
- To ensure that grievances from Stakeholders and external communications from other stakeholders are responded to and managed appropriately.
- To promote and provide means for adequate engagement with stakeholders throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.

4.2. Project description

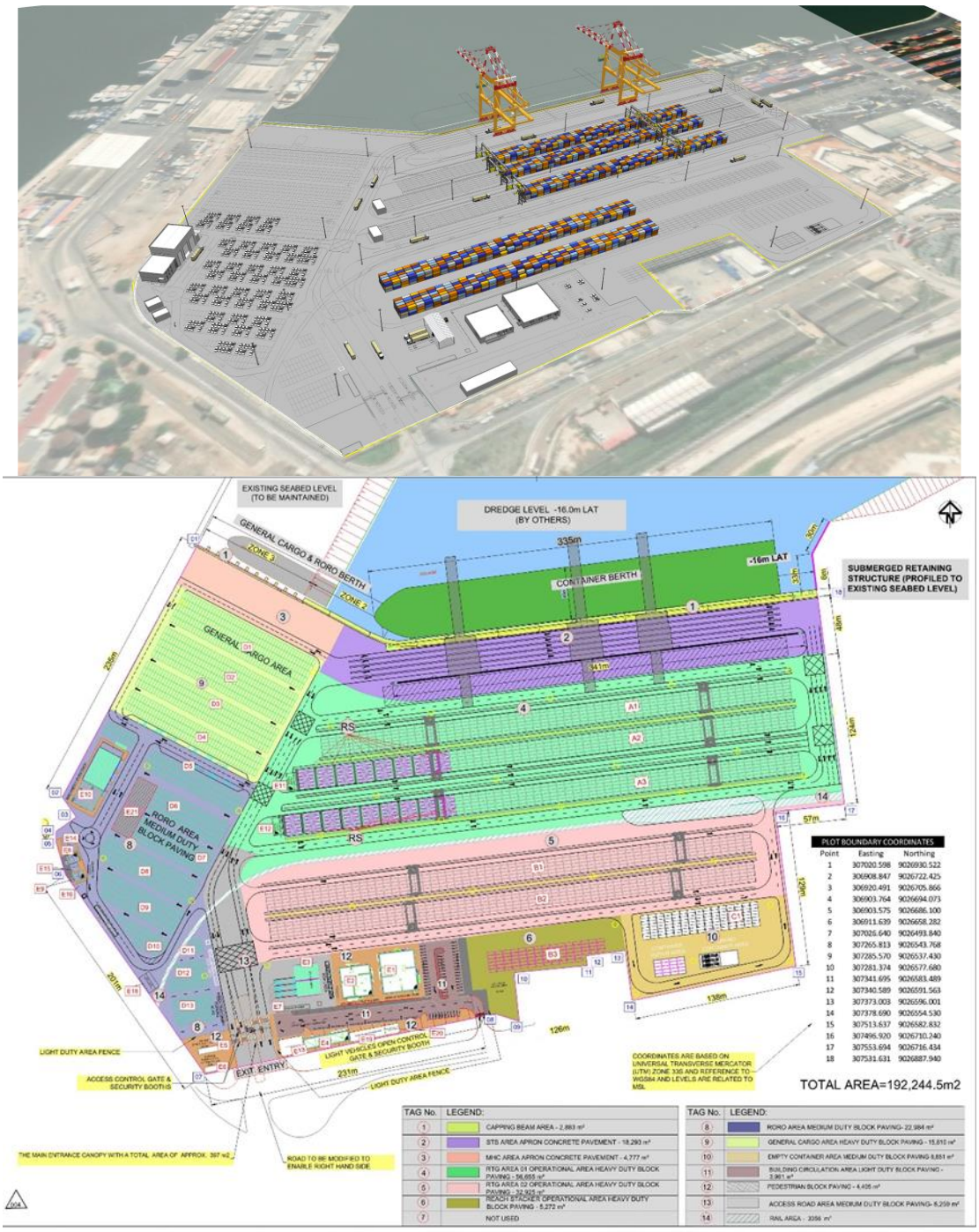
The Project is located in the Port of Luanda, Province and Municipality of Luanda, Urban District of Ingombota, Angola (Lat: - 8.800274°; Long: 13.247499°).

Project location

Located in the heart of Luanda, the capital city of Angola, along the northern Atlantic coastline, the Port of Luanda serves as Angola's primary port and its major industrial, cultural, and urban center. Additionally, the Port of Luanda acts as a strategic gateway port, supporting key trade in the region.

The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo.

The Project involves the design of approximately 192,000 m^2 yard area and associated facilities/buildings/support infrastructure of the Container and General Cargo/Ro-Ro terminals, quay wall and the tie-ins with adjacent berths.



Preliminary Project layout (Master Plan)

The **marine side** of the project involves upgrading the existing berth at Unicargas Terminal to a total length of 536 meters. The upgraded berth will consist of two sections:

- Container Berth: This section will have a water depth of -16.0 meters LAT to accommodate container vessels up to 335 meters in length. It will be equipped with crane beams to support STS (Ship-to-Shore) cranes.
- General Cargo/Ro-Ro Berth: This section maintains a water depth of -9.0 meters LAT to accommodate general cargo vessels up to 133 meters in length.

The quay wall upgrade and rehabilitation will encompass all necessary elements required for proper functionality as well as the tie-in details to the existing adjacent berths.

The topside of the project develops:

- Terminal area preparation: remove current pavement from the Terminal area, level the surface, demolish and remove all buildings/workshops/warehouses.
- Foundation and crane excavation: excavate for building foundations and crane installation.
- Infrastructure installation: Install lighting, fencing, and other necessary infrastructure.
- Area delineation: delineate different working areas, to avoid exceeding boundaries and unnecessary disruptions.
- Construction tasks: execute building tasks including infrastructure and utilities work, installation of electrical network and substations and pavement removal and replacement.

4.3. Baseline characterization

The analysis of the baseline conditions for the upcoming project in Angola involved multiple data sources and on-site visits, providing a comprehensive understanding of the environmental context.

The base conditions of the environment in which the project is intended to be developed have been initially obtained from available bibliographic sources. Subsequently, in order to contrast the data analyzed in this first stage of detailed and exhaustive bibliographic research, various surveys have been carried out in the study area, which have served to characterize the environment in which the project will be developed more precisely, thus constituting the fundamental support for impact assessment and the establishment of appropriate mitigation measures. In this regard, noise campaigns, air quality, quality of marine waters, quality of marine sediments, soil surveys, and ecological assessment surveys have been conducted.

Before commencing the surveys documented in this report, the plans related to them were submitted to the ADP Group to obtain their approval prior to the mobilization of personnel and equipment.

All methodologies corresponding to the surveys have been developed in accordance with the requirements and standards of the IFC and the World Bank Group.

4.3.1. Physical baseline conditions

Data Sources: Information on climate parameters such as rainfall, temperature, and wind speed were gathered from various sources including the Instituto Nacional de Meterologia e Geofísica (INAMET), Climate Change Knowledge Portal (CCKP), Weatherspark and Luanda Waterfront Project Research.

Climate

- Characteristics: Luanda experiences a tropical climate with distinct rainy (September to May) and dry (May to September) seasons. The city falls under the hot semi-arid climate classification (BSh), with temperatures above 18°C annually and limited rainfall.
- Rainfall Patterns: Luanda receives significantly less rainfall compared to the national average, with the highest precipitation occurring from April to November. Extreme precipitation events are increasing in frequency, leading to concerns about floods and droughts.

Air Quality & Noise

- Air Quality: Data on air quality parameters like NO_2, PM_1, PM_{10}, and $PM_{2.5}$ were obtained from the Air Quality Index (AQI). While NO_2 levels have remained within acceptable limits, PM concentrations, especially $PM_{2.5}$, indicate moderate to unhealthy levels, likely attributed to industrial activities, vehicle emissions, and biomass burning.
- Noise: No specific noise measurement data for Luanda was available. However, qualitative information suggests elevated noise levels in urban areas due to traffic congestion, industrial activities, and infrastructure development.
- Air quality survey (conducted in March 2024): the air quality survey conducted at Terminal Unicargas unveiled significant findings concerning various pollutants, highlighting potential environmental concerns. While specific pollutants like nitrogen monoxide (NO) and nitrogen dioxide (NO_2) exhibited localized peaks, carbon monoxide (CO) was notably absent throughout the survey area. Sulfur dioxide (SO_2) levels were particularly elevated in certain areas, indicative of potential sources of industrial activity. Additionally, ozone (O_3) concentrations surpassed recommended limits at specific points, alongside excessive levels of $PM_{2.5}$ and PM_{10} particulate matter, suggesting the presence of airborne pollutants exceeding WHO guidelines. These findings underscore the broader impact of terminal operations and traffic emissions on air quality, emphasizing the necessity for proactive measures to mitigate pollution and safeguard public health and the surrounding environment, especially in areas adjacent to the terminal.
- Noise survey (conducted in March 2024): the analysis highlighted various noise sources in the port area, with vehicle traffic, particularly heavy vehicles, identified as significant contributors. This emphasizes the necessity of implementing noise mitigation measures, especially during construction phases. Some areas exhibited noise levels exceeding recommended limits for residential zones, indicating potential environmental impacts and emphasizing the importance of ongoing monitoring and management efforts. Although noise levels generally surpassed WHO recommendations for industrial/commercial zones, there were variations across different parameters and measurement points, suggesting nuanced noise exposure within the port vicinity. Recognizing the potential for noise pollution to affect neighboring residential areas and transportation routes, proactive strategies are essential to minimize disruptions and ensure community well-being. Considering the role of industrial activities within the port complex, comprehensive approaches addressing noise emissions from terminal operations and broader industrial sources are crucial for sustainable development and harmonious coexistence between port operations and surrounding communities.

Topography, Geology, and Geomorphology

- Topography: Luanda is situated within the coastal region characterized by low-lying plains and elevated plateaus. The project area exhibits varying elevations, with the topside terminal plot ranging from +3.8 to +1.85 meters above sea level.
- Geology: Geological studies indicate the presence of Cretaceous to Pleistocene marine sediments and formations such as Quifangondo and Rio Dande. The geotechnical investigation revealed shallow sandy layers underlain by clayey sands and stiff clay layers, necessitating shallow foundations for structures.
- Soils: The project area lies within the transition zone between ferric luvisols and eutric cambisols.

- Soils survey: based on the information gathered, Unicargas Terminal contains several spots which are a potential source of contamination: heavy machinery activity, vehicles parked, products / substances storage, etc. At several soil sampling points hydrocarbons spills have been observed, as also chemical substances and organic matter due to the breakage of a container. It might be highlighted that there are significant signs suggesting potential soil contamination by hydrocarbons in the area. In addition, the deteriorated pavement, which might have loss impermeability characteristics, can enable contaminants to reach the lower soil layers (sands) and thus, spread to a wider area.

Hydrology

- River Basins: Luanda falls within the Bengo river basin, which is part of the larger Angola Coast hydrological basin. The Bengo river exhibits seasonal variations in water quality, with increased pollution during the rainy season due to runoff carrying organic pollutants and faecal waste.
- Groundwater: Groundwater was encountered during geotechnical investigations, with depth varying between 1.4 to 1.6 meters below ground surface. Tidal fluctuations and wave activity influence groundwater behavior in the project area.

Marine conditions

- Luanda's bay is characterized by semi-enclosed saline water with significant anthropogenic pressures from commercial activities, wastewater discharges, industrial effluents, and oil production.
- Marine water quality survey (conducted between January and February 2024): the marine water quality survey was conducted in January-February 2024. Survey report underscores the critical importance of water quality for the health of marine ecosystems in the area. Key findings reveal significant declines in dissolved oxygen levels and the presence of hydrocarbons, oils, and metals, posing threats to marine life. While current organisms have adapted to prevailing conditions, any increase in pollutant concentrations could lead to detrimental effects on ecosystem health. Ongoing monitoring and mitigation efforts are crucial to safeguarding marine biodiversity and ecosystem resilience in this highly anthropogenic area. In any case, it is important to note that, as confirmed by the ecological survey, the existing environment shows a lack of values of special relevance for biodiversity, with no species found to be under any threat or protection according to the IUCN.
- Marine sediments quality survey (conducted between January and February 2024): the marine sediments survey was conducted in January-February 2024. The sediment quality analysis underscores its crucial role in shaping marine ecosystems, particularly for benthic species. Notable findings include low oxygen levels, elevated metal concentrations, and compounds derived from port activities. These parameters may limit biodiversity and ecosystem formation. Continuous monitoring is essential given the high level of anthropogenic activity and contamination risks in the area. This underscores the importance of proactive measures to protect sediment quality and marine life. In any case, as it has been mentioned for marine waters, it is important to note that, as confirmed by the ecological survey, the existing environment shows a lack of values of special relevance for biodiversity, with no species found to be under any threat or protection according to the IUCN.

4.3.2. Biological baseline conditions

A detailed overview of biodiversity baseline conditions in the project area is included in this ESIA, covering various aspects such as protected areas, habitats, critical habitats, key biodiversity areas (KBAs), flora, and fauna. Below is a summary of each section:

Protected Areas

The project is located outside of protected areas or spaces designated with any classification of protection according to national or international criteria. This information has been obtained from the UNEP_WCMC_Data_Publisher.

Habitats

Terrestrial habitat types are analyzed according to the International Union of Conservation of Nature (IUCN) classification, with most of the project area being classified as Urban Area. The analysis begins by emphasizing the importance of understanding the area where the project will be developed and the types of habitats present. The International Union of Conservation of Nature (IUCN) habitat classification scheme is used, which categorizes habitats into modified, natural, and critical.

- Urban Areas: The project area is predominantly classified as an Urban Area under the IUCN classification, characterized by metropolitan and commercial spaces dominated by human infrastructure like asphalt, concrete, and buildings. This classification includes lawns, parks, and other green spaces within urban settings.
- Critical Habitats: The International Finance Corporation's (IFC's) Performance Standard 6 (PS6) defines Critical Habitats as areas of significant importance for threatened species, unique ecosystems, and key evolutionary processes. The project area contains zones classified as Likely Critical Habitat, indicating a high probability of being critical for certain species or ecosystems.
- Natural and Modified Habitats: Data regarding Natural and Modified Habitat are crucial for investment decision-making. The project area includes zones classified as Potential Modified and Likely Modified, indicating areas with varying degrees of human alteration. This data helps assess potential impacts on habitat integrity and biodiversity.
- Key Biodiversity Areas (KBA): There are two areas classified as Key Biodiversity Areas (KBA) according to the International Union for Conservation of Nature (IUCN) and BirdLife International, although they are approximately 11 and 40 km away, respectively: Mussulo and Quiçama. These areas are internationally recognized for their significant biodiversity, including diverse habitats like mangroves, floodplains, forests, and grasslands. These KBAs contribute significantly to global biodiversity conservation efforts.

Flora and Fauna

The Integrated Biodiversity Assessment Tool (IBAT) is used to determine existing biodiversity. For flora, species classified as threatened are listed along with their IUCN categories. For fauna, data on threatened species are provided, including their IUCN categories and population trends.

Ecological assessment survey

The project area is an industrial zone with a lot of transportation activity, including trucks and ships. The port is situated in an area with institutional buildings like ministries, embassies, and corporate headquarters, making it more commercial and work-oriented than residential. There is a large promenade by the sea where people can be seen playing sports or strolling, but most of them are usually hotel guests. Although it is not a tourist area, it does have a considerable number of foreigners who come for work purposes.

Throughout the different sampling stages, it was observed that birds are the most abundant species, some of them classified as Least Concern in the IUCN Red List and have no national or international protection. In the marine observation activities, only birds were spotted, and no sightings of cetaceans or sea turtles were made.

The results obtained in this campaign are those expected for a port area: an area with high pollution, very fine sludge-like sediment and little biological presence. Few rock outcrops have been observed in the area, further limiting the biological diversity of the study area.

Thus, no organisms of significant biological interest have been observed, except in certain areas where a small concentration of invertebrates was found associated with soft-bottom habitats. However, in any case, solitary individuals are located, not representing a biological community.

Thus, the conclusion of this study is, as expected, a very anthropogenic seabed with large amounts of garbage of different types, little apparent biological richness and homogeneity in the seabed characteristic of commercial ports influenced by port and human activity.

It's worth noting that the ecosystem in which the port is located is heavily degraded, with a decline in both flora and fauna populations. The impact of the works on terrestrial fauna will be minimal, and the few birds found in the port area will move to quieter areas. The marine communities present are scarce due to the resuspension of sediments caused by the daily influx of ships, resulting in sub-optimal environmental conditions.

Based on the observations and interviews with fishers conducted during the surveys, most fishing activities occur outside Luanda Bay.

4.3.3. Socio-economic environment

The social and economic environment assessment for the project relies on data from literature, reports, and yearbooks as of January 2024. The analysis considers Angolan legislation and environmental impact assessment best practices. The characterization aims to facilitate the identification and evaluation of expected impacts from the project's implementation.

The province of Luanda, where the study area is situated, is characterized by a predominantly urban population with significant demographic density and high fertility rates. The area faces challenges in infrastructure, governance, and economic diversification. Luanda province, with its 9 municipalities and 41 urban districts, represents a hub of economic activity, although there are disparities in regional development. Employment rates indicate a large economically active population, with sectors such as wholesale/retail trade and public administration playing significant roles. The study area, specifically the Unicargas Terminal, is surrounded by port-related industries and high-density housing areas, with a limited presence of fishing

activities. Accessibility, particularly via National Road nº100, poses challenges due to heavy traffic flow. Overall, the assessment provides a foundational understanding for projecting and evaluating the project's impacts within this complex socio-economic landscape.

4.4. Environmental and social impact assessment and mitigation measures

The following is a summary of the impact analysis conducted in the ESIA, together with the mitigation measures. The significance of effects is determined by the combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project's impact value (change). In other words, it is the product of the impact acting on the receptor that results in an environmental effect.

The Potential Impact Significance column's colors reflect the character of the impact. Those colored deep green indicate positive impacts, while the soft colored ones mean negative impacts. Among the negative ones, different colors are used to distinguish significance.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
Air quality	Construction	Dust generation	**Moderate**	▪ Irrigation with water of internal pathways/streets near worksite, if needed ▪ Heavy trucks will not be loaded to full capacity ▪ Setting appropriate speed limits onsite ▪ Dust generating materials stockpiled and transported shall be covered ▪ Dusty materials shall be removed as soon as possible
		Gaseous emissions	**Moderate**	▪ Fuel-efficient equipment and vehicles ▪ Preventive and regular maintenance program ▪ Machinery and equipment must be used according to manufacturer's specification ▪ Reduce fuel consumption practices instructed for drivers
	Operational	Dust generation and gaseous emissions from maintenance works	**Negligible or Minor**	-
		Dust generation and gaseous emissions from diesel engines used for the propulsion of ships, ship-based auxiliary engines, use of vehicles, etc.	**Moderate**	▪ Ship Operations in port areas: minimize and control combustion emissions related to land-based activities ▪ Cargo transfer equipment correct maintenance and reduction of engine idling during on/off-loading activities ▪ Reduce loading/unloading activities when episodes of poor air quality conditions in the area/Luanda city ▪ Low emission vehicles, alternative energy sources and/or fuels/fuel mixtures to promote
Noise and vibrations	Construction	Construction Site Noise	**Moderate**	▪ Maintenance program to assure correct functioning equipment/vehicles ▪ Noise suppression equipment when needed

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				▪ Speed limits for construction heavy vehicles ▪ Only approved vehicles and machinery will be employed, and as per manufacturer's specifications ▪ Temporary noise barriers
			Negligible or Minor (for marine species)	▪ Good practices during works
	Operational	Terrestrial side (Cargo handling, vehicular traffic, loading/unloading of containers, etc.)	**Moderate**	▪ Noisy equipment should be installed in enclosed compartments ▪ Controlling the speed of heavy vehicle circulation ▪ Sound equipment/machines should have their sound power properly identified and comply with acceptable limits
		Marine side (Vessels will raise in number and dimensions)	**Negligible or Minor**	▪ Maintaining noise levels within acceptable limits. ▪ Good practices as well as implement international regulations/recommendations (i.e. establishment of low power propulsion zones near the Port)
Marine water quality	Construction	Water pollution due to an increase in suspended solids	**Minor or Moderate**	▪ Excavation/dredging methods to be selected to minimize suspension of sediments ▪ Schedule consideration based on tide, wind, natural turbidity, etc. ▪ Additional techniques and equipment to minimize adverse impacts such as barriers/sheet piles, silt or bubble curtains/screens, ... ▪ Inspection and monitoring (such as feedback or adaptive monitoring) of dredging activities should be conducted regularly
		Water pollution due to accidental spillages during the execution of the works	**Minor**	▪ Accidental spills of oils and fuels will be removed by the usual methods (suction pumps). ▪ Facilities will be available for the cleaning of the water ▪ Good practices and prevention measures during upside works to avoid spillages/accidental dumps, etc. to marine water
	Operational*		**Negligible**	▪ Oily waste and wastewater should be collected in barges, vehicles, or central collection systems and storage tanks. ▪ Port should provide ship operators with details on the pertaining ballast water management requirements

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				▪ Port facilities that conduct cleaning or repair of ballast tanks should be equipped with adequate reception facilities able to prevent the introduction of invasive species ▪ Sewage from ships should be collected and treated on-site or off-site.
Marine Sediments	Construction	Effects on fauna and flora due to increased suspended solids	Minor	▪ Use the appropriate means (material extraction system), and carry out in suitable weather conditions ▪ Whenever possible, anti-dispersion barriers will be used to prevent the possible dispersion of fines and minimize or eliminate possible effects outside the immediate vicinity of the works. ▪ The duration of these operations shall be planned to reduce, as far as possible, the time of intervention of vessels and machinery on the environment.
		Direct loss of seabed, modifying its morphology	Negligible or Minor	▪ Good practices during works
	Operational*		Negligible	See Water Quality ones
Soil	Construction	Increase risk of soil pollution	Minor	▪ The storage of oils, fuel and other hazardous and potentially materials will be made in impervious areas, with cover and containment structures. ▪ To avoid the risk of accidental pollution around the area designated for storing and parking machinery, a network perimeter drainage for retaining the surface water runoff shall be built ▪ Machinery must be properly maintained to keep potential leaks in check. Service and maintenance of machinery/vehicles shall be carried out in authorized garages, whenever possible ▪ Accidental spillage kits must be available. Any spill must be contained immediately, and any contaminated soil located and removed
		Potential contamination due to surface polluted soils appearance	Negligible or Minor	▪ Any contaminated soil must be located and removed from site by a licensed, legal service provider for environmentally acceptable disposal.
	Operational	Soil pollution from operational activities	Negligible or Minor	▪ Spills and cleaning supplies will be well located and visible in key areas of the site. ▪ Ensure the availability of emergency kits and create barriers for containment and absorption of the spilled product.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				▪ Hazardous and non-hazardous waste storage areas will be well constructed with impermeable soil barrier protection, separate drainage system and rain shelter to avoid any possible runoff ▪ Effective waste management controls implementation through the site's waste management plan
Biodiversity	Construction	Effects on fauna and flora due to increased suspended solids	**Minor**	▪ Use the appropriate means (material extraction system) to reduce potential re-suspension of sediments ▪ The duration of cleaning operations must be planned and the capacity of the means used must be high to reduce as far as possible the intervention time of vessels and machinery on the marine and coastal environment. In this regard, the overloading of tanks will be avoided to prevent the overflow of materials. ▪ If the presence of any marine mammal, chelonian or elasmobranch is detected during seabed cleaning activities, a temporary cessation or reduction in performance of works will be established
		Effects on fauna and flora due to sediment extraction	**Negligible or Minor**	▪ Good practices during works
		Exclusion of fauna species due to increase of disturbance	**Minor**	▪ Care shall be taken not to dump rubbish in the vicinity of the area that could attract the attention of birds ▪ Whenever possible adjust the schedule of works to try to avoid the most critical periods for the fauna, especially for the species of interest
		Possible introduction/spread invasive species	**Minor**	▪ Enforcement of strict biosecurity protocols ▪ Inspections and decontamination of all construction and dredging materials equipment before entering local waters ▪ Regular maintenance and cleaning
	Operational*		**Negligible**	-
Socioeconomic	Construction	Annoyance to inhabitants (traffic diversions, traffic increase in local roads and disruption to utilities)	**Minor or Moderate**	▪ Work will be scheduled appropriately so that it does not take longer than planned. ▪ Schedule delivery of construction materials and equipment as well as transport of materials or equipment during non-peak hours. ▪ Comply with traffic regulations and avoid, when possible, roads with higher traffic volumes, sensitive receptors, or capacity constraints.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
		Environmental, health and safety risk for workers during construction phase	**Moderate**	▪ Conduct suitable and effective staff training and awareness activities to ensure the project employees understand, appreciate and adherence to the suggested environmental and social management requirements ▪ Ensure the provision and maintenance of sufficient welfare facilities and arrangements for the well-being of employees at work. ▪ Ensure security arrangements are in place to ensure the safety and protection of all personnel, assets, and sensitive information, mitigating risks from external threats and enabling a secure operating environment for the project activities.
		Local/provincial economic growth by hiring local/provincial business	**Moderate**	-
		Potential presence of social conflicts due to influx of migrant workers	**Moderate**	▪ Ensure transparency and just manner on recruitment and hiring procedures ▪ Transfer technical skills to local labor force ▪ Priority to local workers (provided necessary skills), including women and young workers ▪ Ensure respect for local labor laws and workers' rights, as well as compliance with Health and Safety Management Plan ▪ Develop and implement a worker's Grievance Management System ▪ Control possible GBV conflicts
		Potential impact on fishing activities	**Negligible**	
	Operational	Enhancing global competitiveness, and foster socio-economic prosperity across the region	**Major**	-
Landscape	Construction	Temporary degradation of landscape at worksites	**Minor**	▪ Care will be taken of the environment with an adequate and orderly situation of the stockpiles and daily cleaning of the occupied and work areas. ▪ In no case shall such machinery be dispersed throughout the site but will be placed in the space destined for it ▪ No coastal areas will be affected temporarily or permanently, except for the foreseen one

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				▪ Waste generated will be deposited only in the containers installed for that purpose, as well as all waste will be managed properly ▪ All areas shall be restored after completion of works
	Operational	Improved landscape appearance and distribution	**Moderate**	-
* No significant changes are expected in this parameter due to the development of Unicargas Terminal with respect to those already existing in the terminal currently in operation, given that, although the planned capacity will be greater than the current one, with the implementation of the preventive and corrective measures foreseen in the study, the situation is expected to remain similar. However, in the management plans, monitoring measures have been established to determine whether during the operation phase there are variations in the results obtained from the analysis of the data on the quality parameters collected during the field campaigns carried out within the framework of the project and which establish the baseline situation				

Summary of potential impacts and mitigation measures

To ensure that the established mitigation measures achieve their objectives and to apply additional ones if they prove insufficient or unexpected effects arise during the construction and/or operation of the project, management and control plans have been designed. Monitoring will establish the schedule and procedures for control, as well as the reporting requirements necessary to assess the effectiveness of actions, ensure compliance with regulatory reference values, and identify the need for implementing further controls or actions if necessary.

4.5. Climate change

The analysis of climate change for the project involves assessing historical trends and future scenarios to identify potential risks and inform adaptation measures. This is done by utilizing data from reputable sources like the IPCC and World Bank Group.

Angola's climate varies across its regions, influenced by factors such as geography and ocean currents. Historical data and future projections are analyzed using models like CMIP6, which provide different scenarios based on societal development pathways.

Temperature trends show a consistent increase in both maximum and minimum temperatures, with potential heat waves and more tropical nights with temperatures above 26°C. Precipitation is also expected to increase, though not to the extent of causing torrential rainfall or significant risk to the project.

Additionally, other climate-related risks like tsunamis, floods, cyclones, and wildfires are assessed using data from the UNISDR mapping platform. Fortunately, within the project area, there's no evidence of increasing trends in these risks.

Overall, the analysis suggests a warming trend with increased precipitation but minimal risk from extreme weather events for the project's lifespan. This information will inform both adaptation and mitigation measures to ensure the project's resilience against climate change impacts.

4.6. Stakeholder Engagement Plan

The Stakeholder Engagement Plan (SEP) provides an opportunity to work with the public and, as mentioned in the IFC's PS1 (2012) standards, is "*the basis for building strong, constructive and responsive relationships that are essential for the successful management of a project's environmental and social impacts*".

The Stakeholder Engagement Plan seeks to define a technically and culturally appropriate approach to consultation and disclosure. The goal of the SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project-affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions.

All interested parties received notifications about any significant issues and will be actively involved in the discussions that occur throughout the construction process.

It is worth noting firstly that, in addition to governmental entities such as Ministries, Regional Governments, or other Public Entities that may be involved during the development of the stakeholder engagement plan, there are some companies that, due to their proximity to the project development site and their involvement in port activities sharing spaces, are considered as key stakeholders and directly affected parties.

The following stakeholder groups have been identified:

- Institutions/Organizations – including local and provincial/national government bodies, traditional authorities, civil society, and community-based organizations.
- Other Companies operating in the Port of Luanda
- Service providers at the Terminal
- Population - this includes the neighborhoods, formal residential areas, etc.

4.7. Environmental and Social Management Plan (ESMP)

Environmental management of a proposed activity is a crucial tool to ensure any project's environmental performance. This ESMP aims to establish the guidelines for best practice environmental management of the Project, through a clear definition of the environmental actions and management procedures to be implemented in each phase of Project development, as defined in the Environmental Impacts Study and Assessment.

The ESMP aims at defining and structuring the measures to be implemented to mitigate or enhance the Project's potential impacts. Based on the impact assessment carried out, the following main programs will be implemented to address potential impacts during construction and operational project phases:

- Air Quality and Noise Management Program
- Marine Water Quality Management Program
- Marine Sediment Quality Management Program
- Biodiversity Management Program
- Waste Management Plan
- Communication and Community Awareness Program
- Community Health and Safety Management Plan
- Emergency Response Plan

- Grievance Redress Mechanism (GRM)

Based on the requirements of the ESMP, the Contractor will develop a Construction ESMP including all E&S requirements, as well as other management plans to be agreed upon with the proponent (in addition to those already outlined in the ESMP).

4.8. ESMP Performance Indicators

4.8.1. Air and Noise Quality Management Program

Air quality monitoring will be carried out for the following parameters:

- Particulate Matter ($PM_{2.5}$ and PM_{10}) concentrations,
- Ozone (O_3) concentrations,
- Combustion gasses associated with fuel-based equipment operation and circulation of vehicles: NO_x, carbon monoxide (CO), Sulphur dioxide (SO_2) and carbon dioxide (CO_2),
- Visual identification of dust plumes resulting from the movement of construction machinery and equipment.

Regarding noise, at the locations mentioned above, noise monitoring will be undertaken for LAeq, Lmax, Lmin, L10 and L90. The WHO Noise Level Guidelines, state the standards to comply with, as no Angolan legislation is applicable. Values related to industrial activities are to be applied (70 dB during both day and night periods).

Weather conditions might also be measured, to analyze if there is any related effect with recorded registers.

4.8.2. Marine Water Quality Management Program

The following parameters during marine works will be measured:

- Temperature, salinity, conductivity, pH, dH, turbidity and light penetration, dissolved oxygen, Chlorophyll a.
- Secchi disk transparency
- Condition of biological communities
- Total suspended solids (TSS)
- Total phosphorus
- Filterable reactive phosphate
- Total nitrogen
- Oxides of nitrogen
- Ammonia
- Toxics: metals and metalloids, non-metallic organics, organic alcohols, chlorinated alkanes and alkenes, anilines, aromatic hydrocarbons (including phenols and xylenols), organic sulfur compounds, phthalates, organochlorine and organophosphorus pesticides, herbicides and fungicides.
- Sediment (metals and metalloids, organometallics, organics)
- Other site-specific parameters, as relevant
- In case of an unexpected spillage or leakage that is not dealt with promptly and/or as specified in the Emergency Response Management Plan, it may be necessary to conduct additional analysis.

Parameters may vary depending on the substances spilled, as well as the required frequency and schedule.

- Additionally, as already mentioned, additional water quality analytics will be carried out to comply with the installation or operating licenses if required.
- Visual identification of sediment plume propagation resulting from the required seabed cleaning to accomplish rehabilitation/repair of quay wall.

Weather conditions might also be registered in order to potentially relate them with recorded data.

4.8.3. Marine Sediment Quality Management Program

The following parameters will be measured as part of marine sediment quality control:

- Color, odor, and redox potential (in situ)
- Sulfur derivatives (i.e. sulfites)
- Total Organic Carbon (TOC)
- Hydrocarbons (Total Petroleum Hydrocarbons (TPH)
- Total Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Total Polychlorinated Biphenyls (PCBs)
- Mineral oils (Oils, Fats and Total Hydrocarbons)
- Nutrients – Total Nitrogen
- Nutrients – Total Phosphorus
- Nutrients – Organic Matter
- Grain Size Distribution
- Metals and heavy metals: Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr and Zn

4.8.4. Biodiversity Control Management Program

Monitoring will be limited to sightings of protected or unusual species that may occur during construction.

4.8.5. Waste Management Program

As established in the Solid Waste and Effluent Management Plan of Luanda Port Company E.P. (Annex 6), monitoring consists of exhaustive and periodic evaluations and follow-ups of all the procedures inherent in the company's waste management system, as well as guiding its employees to adopt an environmentally appropriate attitude, attitudes and decisions when carrying out their activities at work.

In order to ensure that the waste and effluent management plan is complied with and updated, it is recommended that:

- The indication and appointment of a monitoring officer, responsible for enforcing the recommendations set forth in this Waste Management Plan (PGRS), and ensuring throughout the company the commitment of other employees to the segregation, handling, transportation, and correct disposal of waste;
- Continuous updating of the responsible officer regarding waste collection, handling, storage, and final disposal services, aimed at improving the plan;

- Conducting inspections at locations with the highest occurrence of pollution or waste production sources;
- Monitoring and evaluating waste and effluent collection, transportation, and treatment programs in order to correct actions that may compromise the Waste Management Plan (PGRS);
- Monthly preparation of a report assessing the waste and liquid effluent management system.

Aspects to monitor	Action	Period	Responsible
Waste Storage Facilities	Periodic checking of waste bins, their state of repair and need for replacement, as well as their signage	Monthly	Responsible for the maintenance or monitoring area
Management process	Verify full compliance with the waste segregation, conditioning, transportation and destination process	Weekly	Responsible for maintenance or monitoring
Effluent management	Define a septic tank cleaning plan	Whenever necessary	Maintenance or monitoring manager
Generators area	Check that the area is compliant, such as: contaminated area deposit, signage, as well as a deposit for contaminants.	Whenever generators are serviced	Responsible for the maintenance or monitoring area
Cleaning operator	Checking the waste transportation process, as well as the delivery of a collection manifest and depositing the waste at the destination where it is sent.	Weekly	Responsible for the maintenance or monitoring area
Safety and Energy	Check the installation of fire extinguishers and the first aid kit so that the most used medicines are not missing.	Monthly	Responsible for the maintenance or monitoring area
Storage area	Check that the facilities are adequate for the waste storage area, as well as the upkeep of the waste tanks and their signage.	Quarterly	Responsible for the maintenance or monitoring area

Monitoring of the Waste Management System.

4.8.6. Communication and Community Awareness Program

The indicators to be monitored in this program are the following:

- Events planned / held
- Number of participants
- Complaints received / resolved within 30 days
- Incident reports (number)
- Incident reports (follow-up)

4.8.7. Grievance Redress Mechanism

Monitoring the GRM must consist in checking the effectiveness of the procedure, assuring communities grievance/complaints/suggestions are being addresses. The following parameters will be recorded:

- Number of grievance/complains/suggestions received, of which the total might be solved;
- Adjustment to the fixed times to manage the grievance/complains/suggestion;
- Number of times the Arbitration Committee has to analyze any case and decide;

- The number of times appropriate judicial channel or similar must be escalated.

A complaint form for the GRM is included in Annex 7 of Volume III.

4.9. Public consultation

According to the procedure established in Angolan legislation, it is the responsibility of the Ministerial Department in charge of the Environment Sector to conduct public consultations if deemed necessary for a project (article 8.1g of Presidential Decree 117/20). If the responsible Ministry official decides that a public consultation should be conducted, it is the Ministerial Department in charge of the Environment Sector itself that promotes and carries out the corresponding activities. Once the public consultation period has ended, the Ministry prepares, within the following eight days, a brief report specifying the steps taken, the participation recorded, and the conclusions to be drawn.

Since neither the project owner nor the consultancy accredited for the preparation of the ESIA is authorized to conduct this public consultation and given that the results of the environmental evaluation carried out by MINAMB have been issued as favorable for the issuance of the license without the need to carry out this public consultation. In this regard, and in order to ensure that all official entities related to the project were informed, letters were sent informing them about the project, including an informational brochure and offering the possibility of scheduling a meeting or providing any additional contact if further information was needed.

Therefore, it is important to note that since MINAMB did not consider it necessary to conduct a public consultation during the environmental processing procedure, and as previously explained, this activity falls under its responsibility according to Angolan national legislation.

However, a Stakeholder Engagement Plan has been developed that seeks to define a technically and culturally appropriate approach to consultation and dissemination. The objective of this plan is to improve and facilitate decision-making and create an atmosphere of understanding that actively involves people affected by the project and other stakeholders in a timely manner, and that these groups have sufficient opportunities to express their opinions and concerns that may influence project decisions.

The following is a list of the stakeholders identified in the project under the Stakeholder Engagement Plan. In addition, a summary of the various activities carried out in the context of developing the project's stakeholder engagement plan is included.

Classes of Stakeholders	Stakeholders (PT)	Stakeholders (EN)
Regional Institution	Gabinete Provincial de Luanda	Provincial Cabinet of Luanda
Regional Institution	Gabinete Provincial da Saúde	Provincial Health Office
Regional Institution	Gabinete Provincial das Infra-estruturas	Provincial Office of Infrastructure
Regional Institution	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos	Provincial Office of Environment and Solid Waste Management
Regional Institution	Gabinete Provincial da Educação	Provincial Office of Education
Local institution	Administração Municipal de Luanda	Municipal Administration of Luanda
Local institution	Administração do distrito Urbano de Sambizanga, Ingombota	Urban District Administration of Sambizanga, Ingombota
National Institution	Ministério do Ambiente	Ministry of Environment
National Institution	Ministério da Energia e Águas	Ministry of Energy and Water
National Institution	Direcção Nacional de Águas	National Water Directorate
National Institution	Ministério dos Transportes	Ministry of Transport
National Institution	Instituto Marítimo e Portuário de Angola	Angola Maritime and Port Institute
National Institution	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Ministry of Fisheries - Ministry of Fisheries and Marine Resources
National Institution	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	National Directorate of Fisheries and Fishery Resources Protection
National Institution	Instituto Nacional de Investigação Pesqueira	National Institute of Fisheries Research
Regional Institution	Porto de Luanda	Port of Luanda
Private sector	Empresas dentro da área portuária mais próximas das áreas de intervenção (See Figure 243 & Figure 244)	Companies within the port area closest to the intervention areas (See Figure 243 & Figure 244)
Communities	Colaboradores/trabalhadores do Porto	Port employees/workers
Communities	Residentes na envolvente - Comunidades envolventes à área portuária	Residents in the surrounding area - Communities surrounding the port area
Education and training	Academia Portuária de Luanda	Port Academy of Luanda
Private sector	NESR Art Foundation	NESR Art Foundation
Culture and Heritage	Fortaleza do Penedo - Museu	Fortaleza do Penedo - Museum
Private sector	Clínica da Sagrada Esperança - SONILS	Sagrada Esperança Clinic - SONILS
Private sector	Medline - Assistência médica	Medline - Medical assistance
Private sector	CEEIA - Comunidade de empresas exportadoras e internacionalizadas de Angola	CEEIA - Community of Exporting and Internationalized Companies of Angola

Stakeholders identified

Activities	Objective	Proposed method	Target audience	Frequency	Indicative time and location	Responsibility	Monitoring and communication
Preliminary contact with Port entities	Present the project and gather information for the ESIA	Written communication and scheduled meetings	Luanda Port Authority and Unicargas	Single activity	28-30 November 2023	Environmental Consulting Company	Final report presenting key findings
Engagement with Authorities and Regulators	Present the project and gather technical insights and recommendations	Written communication and scheduled meetings when required	Stakeholders identified as National, Regional or Local Institutions.	Not applicable	Letters sent between 10/05/2024 and 24/06/2024 Meeting with: Luanda Provincial Health Office (08/07/2024) Ingombota District (15/07/2024) Sambizanga District (15/07/2024)	Environmental Consulting Company	Minutes of meeting Final report summarizing the contributions made
Engagement with stakeholders in and around the project area	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Written communication and previously scheduled meetings, including the sending of meeting agendas, project summaries, and the distribution of leaflets	Companies, associations and users of the Terminal	Single activity	Letters sent between 02/07/2024 and 11/07/2024 Meeting with companies - between the period (18/06/2024 and 19/07/2024)	Environmental consulting company / Focal Point responsible	Minutes of meeting Final report summarizing the contributions made
Engagement with local communities in the neighborhoods surrounding the Project	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Meeting scheduled in advance, including the sending of meeting agendas, project summaries, and the distribution of leaflets	Local community leaders	One meeting with each leader	Meeting with the Communities: Mata Gato Neighborhood (17/07/2024) Boavista Neighborhood (17/07/2024)	Environmental consulting Company	Minutes of Meeting Final report summarizing the contributions made

Strategic plan for stakeholder consultation

4.10. Budget summary

The overall summary of the budget required for the implementation of the ESMP and other plans and actions defined in the AIAS is as follows:

- Construction phase: The costs arising from compliance with the measures included in the environmental and social management plans during the construction phase are integrated into the fixed price of the contractor responsible for the construction of the project
- Operational phase: The budget for implementing the measures during the operational phase is divided into two categories:
    - Management, control, and communication measures that do not require sampling or analysis are included in the ESS supervision costs.
      The environmental and social function (part of the HSSE unit) will have a senior specialist and additional support staff as needed. The estimated annual cost for E&S staff is US$ 50,000 (≈46,266,500 AOA), subject to change based on the market and salary scale in Angola.
    - Periodic controls for monitoring environmental parameters (including DCT, necessary equipment, and laboratory)
        - Air quality: US$ 3,500 (≈3,238,655 AOA)/campaign
        - Noise: US$ 3,500 (≈3,238,655 AOA)/campaign
        - Marine water and sediment quality (to be done simultaneously): US$ 7,600 (7,037,508 AOA)/per campaign

  In addition to the above, the estimated specific costs for the implementation of other plans are as follows:
    - The implementation of the COMMUNITY COMMUNICATION AND AWARENESS PROGRAM (CCAP) and the STAKEHOLDER ENGAGEMENT PLAN (SEP), including meetings and the development of materials (brochures, leaflets, posters, other items) may reach a total of US$ (3,701,320 AOA) per year
    - Community Health and Safety Management Plan: The development of materials (brochures, leaflets, posters, other items) may cost up to US$ 2,000 (1,850,660 AOA) per year.
    - Training and capacity building. The annual cost of training will be covered as part of:
        - HSSE and ESS teams, which will conduct periodic training for terminal operation teams.
        - ADPG corporate online training
        - External training service providers, when necessary. A provisional amount of US$ 5,000 (9,253,300 AOA) /year
        - Required materials: US$ 1,000 (925,330 AOA)
    - Annual audits to comply with creditor requirements, including IFC Performance Standards, a 5-day site visit, and 2 specialists, may total US$ 20,000 (18,506,600 AOA) per year

4.11. Conclusion

The ESIA has been developed considering both National Regulations and International Standards. If national laws differ from the measures established in the IFC and EHS standards and guidelines or the Equator Principles, the most stringent regulations have been followed as a reference in the project.

Considering all the above, this project represents progress for the country's development system, as by pursuing the development and optimization of the Unicargas Terminal, stakeholders can support sustainable growth, improve operational efficiency, and minimize adverse environmental effects in the Port of Luanda.

To implement the project in harmony with the environment, an environmental and social impact study has been conducted, in which potential impacts are analyzed, and measures are established to prevent, mitigate, or correct them.

Both during the execution phase and the operational phase, the project will implement the established mitigation measures as well as the necessary monitoring protocol to determine their effectiveness and assess the need for additional measures, as outlined in the programs included in the ESMP according to the IFC performance standards. Further to the programs included in the ESMP, the Contractor will be required to develop and implement several additional management plans for the construction phase.

5. LEGAL FRAMEWORK AND STANDARDS

This ESIA has been carried out in accordance with:

- National Laws & Regulations.
- International Conventions and Treaties relating to the environment to which the host country is a party.
- IFC Performance Standards 2012;
- IFC World Bank Group Environmental, Health and Safety General Guidelines (2007);
- World Bank EHS Guidelines for Ports, Harbors and Terminals;
- OECD Common Approaches;
- Equator Principles 4, 2020 and associated guidance on climate change risk assessment, human rights assessment, biodiversity best practice
- All relevant host country laws, regulations and permits that pertain to environmental and social issues

For the activities included in this ESIA, Angolan legislation is applicable. Therefore, the summary of this legislation is provided below, with other international standards and requirements deferred to subsequent reports.

All regulations, codes and standards would be analyzed regarding all the activities involved in the project. If national laws differ from the measures established in the IFC and EHS standards and guidelines or the Equator Principles, the most stringent regulations will be followed as a reference in the project.

5.1. Institutional and administrative structure in Angola

5.1.1. Ministry of Environment

The Ministry of Environment (Ministério do Ambiente – MINAMB) is the body responsible for formulating, conducting, supervising, evaluating and executing the policies of the Executive in the field of environment, and conducting strategies of programs and projects of promotion of environmental management. In the environmental field, the Ministry of Environment has, among others, the following attributions:

- Promote the public dissemination of information on the state of the environment in the country;

- To ensure the protection and preservation of environmental components, as well as the maintenance and improvement of ecosystems of recognized ecological and socio-economic value;
- To promote environmental training and education, dialogue and citizen participation for a better understanding of the phenomena of environmental balance;
- Coordinate national action in response to global environmental problems by implementing the recommendations of international conventions and agreements;
- Carry out environmental audits and environmental licensing of the activities that may cause potential significant environmental and socio-economic impacts and set up environmental monitoring systems;
- Promote the management of conservation areas, including national parks, natural and biosphere reserves and landscape protection and preservation.

These attributions are executed by bodies and executive services of the Ministry of Environment. In Presidential Decree No. 117/20 of 22 April, it is presented:

- the obligation to register projects in the Integrated Environmental System (SIA);
- the categorization of projects to be licensed (Article 7) and which are listed in Annexes I, II, IV and V;
- the distribution of competences to the central body (ministerial department) and local administration services (provincial governments) on the evaluation of projects and the issuing of the respective licenses (Article 8);
- the pre-evaluation of projects for their subsequent categorization (Article 9) and the inclusion of the EPDA only required for Category A projects (Article 12).

The Ministry of Environment is responsible for the assessment of EPDAs and Environmental and Social Impact Assessment (ESIA) of projects likely to cause potential environmental and socio-economic impacts in each locality or region. However, after submission of this ESIA (in the portal of the Integrated Environmental System - SIA), the MINAMB must issue an opinion on it and indicate the most appropriate EIA process to follow including the action plans/programs, which must be elaborated in such a way as to guarantee the sustainability of the Project to be implemented.

As part of the Ministry of Environment (MINAMB), the National Waste Agency (Agência Nacional de Resíduos-ANR) is responsible for reviewing and certifying the corresponding waste management plans included as part of the ESIA for projects.

5.1.2. Ministry of Transport

The Ministry of Transport, abbreviated as "MINTRANS," is the ministerial department assisting the Head of the Executive Power, whose mission is to propose the formulation, management, execution, evaluation, and control of the Executive's policy in the field of transportation and logistics.

According to Article 2 of the organic statute, the Ministry of Transport (MINTRANS) has the following responsibilities within its activities:

a) Propose and implement the Executive's policies in the field of transportation and logistics;

b) Approve the macroeconomic indicators for the development of transportation activity and evaluate its performance;

c) Promote the development and optimization of service provision in road, rail, civil aviation, maritime and port, logistics, and related activities, without prejudice to the responsibilities and competencies of other state bodies and services.

d) Ensure, organize, and supervise competition and competitiveness among different means of transportation;

e) Regulate, license, inspect, and supervise the economic agents' activity in the Transportation Sector, in accordance with the current legislation;

f) Actively participate in defining the investment policy of the Sector;

g) Contribute to defending consumer rights by controlling the quality of services provided by companies in the Transportation Sector;

h) Promote road, rail, and maritime safety, as well as civil aviation system security;

i) Regulate, license, inspect, and supervise the activity of driving schools, as well as issue driving licenses;

j) Regulate, license, inspect, and supervise vehicle inspection activity;

k) Propose and draft the legislation and regulations necessary for the full and effective functioning of the Transportation and logistics Sector;

l) Promote cooperation in the field of transportation and logistics with other States, international, regional, or national organizations, ensuring compliance with the obligations arising from conventions, agreements, or other legal instruments to which the country is or may become a party;

m) Participate in the formulation and conclusion of conventions, agreements, or other international legal instruments related to the Transportation Sector, without prejudice to the competencies assigned to other state bodies in this matter;

n) Represent the State in international instances in the field of transportation, without prejudice to the competencies assigned to other state bodies in this matter;

o) Participate in the preparation, conduct, evaluation of public-private investment projects, as well as public-private partnerships in the Transportation Sector;

p) Approve the policy for the development and specialized training of human resources in the Sector;

q) Ensure the preparation, implementation, coordination, and monitoring of institutional communication and press policies related to the Transportation Sector;

r) Exercise other responsibilities established by law or determined by higher authorities.

5.1.3. Ministry of Fisheries and Marine Resources

The Ministry of Fisheries and Marine Resources, abbreviated as MINPERMAR, is the auxiliary Ministerial Department of the Holder of Executive Power, which is responsible for proposing, formulating, conducting,

executing, evaluating, controlling and supervising the policy for the management and ordering of marine resources and activities sustainable fishing and aquaculture, salt production, research, experimentation and technological innovation in the sea area, prospecting, use, exploration and enhancement of aquatic resources, and a sea economy, from a sustainable development perspective.

The Ministry of Fisheries and Marine Resources has, among others, the following responsibilities:

- Propose the strategy and implement policies for the development of fisheries, aquaculture and salt production, especially with regard to the exploration and use of marine resources, the production in the field of aquaculture, salt and other aquatic resources;
- Design and implement, in coordination with the competent bodies of the Executive, National Strategies for the Sea, for the Conservation of Marine Biodiversity and for the integrated Management of the Coastal Zone;
- Promote the sustainable development of the Sector and ensure, in collaboration with other competent bodies, the implementation of measures for the preservation and sustainable management of aquatic resources and ecosystems;
- Ensure the harmonious integration of the Fisheries, Aquaculture and Salt Planning Plan into the Country's National Development Plan;
- Develop the necessary regulations for efficient and sustained management of aquatic resources;
- Ensure, in accordance with the guidelines of the general fisheries and industry policy, the harmonious development of the fleet and the national fishing industry, through regulatory and control instruments for fishing effort and the transformation and processing of fishery products and aquaculture;
- Issue a title for the use of maritime space for uses and activities at sea and on the coast in conjunction with the Ministerial Departments and State Local Administration Bodies in accordance with the Law;
- Develop, on the basis of plans for the management of marine resources, programs for granting rights and attributing fishing and aquaculture licenses, ensuring the protection of competition;
- Ensure the control, registration and monitoring of data relating to the capture of fishing resources and related operations in maritime and continental waters under Angolan jurisdiction, as well as those relating to fishing rights, production in the field of aquaculture and salt extraction , in collaboration with the competent authorities;
- Promote and monitor, in collaboration with other Executive bodies, the execution of projects related to the construction, repair and management of ports and fishing terminals, anchorages, docking works and other marine and river infrastructure to support fishing vessels ;
- Issue opinions and recommendations on plans and projects for infrastructure installations and the carrying out of works at sea, in coordination with other relevant bodies or entities, especially regarding maritime hydraulics, or dredging, which may alter the hydraulic regime of the ports, and on work that may cause marine pollution;
- Develop marine spatial planning and management policies under Angolan sovereignty or jurisdiction, and ensure their execution and evaluation, promoting their articulation with coastal planning policies; w) Carry out studies to diagnose, control and mitigate marine pollution.

5.1.4. Ministry of Energy and Water

Presidential Decree No. 116/14 of May 30, which approves the Organic Statute of the Ministry of Energy and Water (MINEA), defines the Ministry as an Auxiliary Ministerial Department of the President of the Republic

and the Executive Power. The Ministry's purpose is to propose, guide, execute, and oversee the government's policy in the areas of energy and water.

The Ministry of Energy and Water has among others, the following responsibilities:

- Propose and promote the execution of policies to be pursued in the energy and water sectors;
- Establish strategies, promote, and coordinate the rational use and exploitation of energy and water resources, ensuring their sustainable development;
- Develop sectoral plans within the framework of the country's overall economic and social development planning;
- Propose and promote national policies for electrification, the general use of water resources, their protection and conservation, as well as water supply and wastewater management policies;
- Propose and draft legislation that establishes the legal framework for activities in the energy, water, and wastewater sectors;
- Propose the institutional model for capturing, transporting, distributing, and commercializing drinking water in the water and wastewater sectors and promote its implementation;
- License, supervise, and inspect hydraulic projects and water supply and sanitation systems

5.1.5. Provincial Government of Luanda

The Government of the Province of Luanda is the decentralized body of the Central Administration, aimed at ensuring the fulfillment of the functions of the Executive Power in the Province of Luanda.

In pursuit of its mission, it has the following responsibilities:

- Ensure compliance with the Constitution and the law;
- Direct the preparation, execution, and control of public investment programs and the provincial budget;
- Promote the good performance and functioning of municipal administrations, aiming at their capacity building for the transition to local authorities;
- Promote and monitor the implementation of measures aimed at achieving sustainable development goals by 2030, particularly at the municipal and community levels;
- Guide, supervise, and monitor the provision of municipal services;
- Coordinate studies, planning, and statistics in the Province;
- Plan and manage public investments in primary and secondary schools, teacher training institutes, and polytechnic institutes;
- Promote the construction of general secondary schools, sharing with the Ministry responsible for the Education sector the responsibility for constructing technical secondary schools;
- Evaluate the budget and public investment program, in accordance with the law;
- Ensure support for the realization of working visits by Deputies to the National Assembly within their respective electoral districts and provincial institutions;
- Promote mechanisms that ensure dialogue, collaboration, monitoring, and autonomy of traditional power institutions;
- Promote measures aimed at environmental defense and preservation;
- Cooperate in the fulfillment of defense, security, and internal order actions, in institutional coordination with the Central Administration;

- Monitor initiatives for the conclusion of twinning agreements between municipalities under its jurisdiction and promote protocols of decentralized cooperation between the Provincial Government and counterpart territorial entities, consulting the organs of the Central Administration, according to the legislation in force;
- Propose the Provincial Territorial Planning Plan, urban projects, and respective land divisions;
- Submit to the Head of the Executive Power for the transfer of land from the public domain to the State's private domain;
- Conduct self-directed construction programs and social housing;
- Encourage increased production and productivity in companies producing goods and providing essential services;
- Combat delinquency, speculation, hoarding, smuggling, economic sabotage, idleness, and other manifestations contrary to administrative, economic, social, and cultural development;
- Coordinate with competent bodies on voter registration activities and elections within the Province's territory;
- Ensure the implementation of political measures, programs, projects, actions, and activities in the field of public health and medical and pharmaceutical assistance in the Province;
- Ensure the implementation of political measures, programs, projects, actions, and activities in the field of education and teaching at the provincial level, as well as coordinate provincial programs aimed at scientific and technological development, research, and innovation;
- Coordinate the execution of measures, policies, programs, projects, actions, and activities in the field of conducting censuses, military and electoral registration, and administrative modernization;
- Ensure the economic development of the Province and territorial units and ensure the implementation of policies, programs, projects, actions, and activities in the field of trade, industry, and mineral resources;
- Ensure the implementation of policies, programs, projects, actions, and activities in the fields of construction, public works, territorial planning, and housing at the provincial level;
- Ensure the implementation of policies, programs, projects, actions, and activities in the fields related to agriculture, forestry, livestock, aquaculture, and fisheries;
- Implement measures, policies, programs, projects, actions, and activities related to transportation, traffic, and urban mobility;
- Execute policies, programs, projects, actions, and activities in the fields of social action and family, with special attention to children, the elderly, and people with disabilities, proposing and coordinating measures to ensure gender equality and the performance of traditional communities;
- Coordinate, supervise the execution of measures, policies, programs, projects, actions, and activities in the field of social assistance and reintegration of Former Combatants and Veterans of the Homeland;
- Implement policies, programs, projects, actions, and activities in the cultural, tourism, youth, and sports fields;
- Ensure the implementation of measures, policies, programs, projects, actions, and activities in the field of the environment, waste management, and community services, as well as coordinate provincial programs aimed at promoting best practices in the sector;
- Exercise other duties established by law

5.1.6. Provincial Office of Infrastructure

The Provincial Office of Infrastructure and Technical Services (Gabinete Provincial das Infra-estructuras) belongs to the provincial government of Luanda and has the following main objectives:

- Collaborate with municipal administrations in providing reliable data for better planning and monitoring of projects;
- Evaluate the condition status of all infrastructure within the sector;
- Monitor municipal administration projects and the impact of investments

5.1.7. Maritime and Port Institute of Angola

The Maritime and Port Institute of Angola (Instituto Marítimo e Portuário de Angola), abbreviated as (IMPA), is a public institution endowed with legal personality and administrative, financial, and patrimonial autonomy, created to carry out the functions of coordination, guidance, control, supervision, licensing, and regulation of all activities related to merchant shipping and ports.

The Maritime and Port Institute of Angola (IMPA) has the following attributions:

a) To support the Minister in defining the policy and strategy for the development of maritime and port activities in the country;

b) To exercise technical oversight over branch activities;

c) To ensure compliance with current laws and regulations;

d) To approve the type of equipment to be used in the branch;

e) To study and propose the maritime and port policy in the national territory, defining principles and respecting the development of general plans, master plans, service plans, and environmental protection plans;

f) To promote the development of all activities related to merchant shipping and ports, including research, training, and personnel training in scientific and technological domains;

g) To analyze and propose the approval and application in the national territory of recommendations, standards, and other provisions emanating from international and regional entities and conventions in maritime and port sectors;

h) To study and propose laws, regulations, and administrative measures aimed at guaranteeing, guiding, and coordinating the exercise of merchant shipping and port activities;

i) To present proposals on the tariff bases to be adopted by entities and operators engaged in maritime and port activities;

j) To prepare performance indicators for activities and present statistics on branch operation according to defined methodologies;

k) To ensure the licensing of maritime transport activities, port work, maritime public domain, and other related activities, in accordance with the respective legislation, and inspect compliance with

the conditions imposed in the respective licensing titles, authorizations, concession contracts, and others;

l) To organize public tenders related to public areas that are not an absolute reserve of the State and are open to competition, in accordance with current legislation;

m) To organize the sector's participation and intervention in international organizations, ensure their rights and commitments assumed by the administration in them, and coordinate the distribution of documents and information related to international affairs;

n) To standardize search and rescue operations systems and procedures, and perform any other tasks that are incumbent upon them by law or by superior determination;

o) To license, certify, authorize, and approve activities, procedures, entities, personnel, ships, infrastructure, equipment, and other means related to merchant shipping and ports, whose exercise, qualifications, and use are conditioned, according to applicable law and regulations;

p) To promote the application and monitor compliance with laws, regulations, standards, and technical requirements within its attributions;

q) To coordinate with the competent entity the procedures related to maritime surveillance and prevention of marine environmental pollution;

r) To collaborate in the negotiation of treaties and international agreements, and coordinate their execution;

s) To conclude contracts or collaboration protocols with counterparts from other countries, with a view to pursuing their attributions, particularly regarding education and the execution of technical and scientific projects and works;

t) To conclude research contracts or service provision contracts within their attributions, with natural or legal persons, public or private, in accordance with the law;

u) To perform any other tasks determined by higher authority

5.2. National Regulations

For the development of this section, the 'Handbook on Environmental Assessment Legislation in the SADC Region' has been consulted (Walmsley, B and Hussleman, S, 2020. Handbook on environmental assessment legislation in selected countries in Sub-Saharan Africa. 4th edition. Pretoria: Development Bank of Southern Africa (DBSA) in collaboration with the Southern African Institute for Environmental Assessment (SAIEA)).

The fourth edition of the 'Handbook on Environmental Assessment Legislation in the SADC Region' is published by the Southern African Institute for Environmental Assessment (SAIEA) and the Development Bank of Southern Africa (DBSA). This edition follows on from earlier editions published in 2007, 2009 (second edition), and 2012 (third edition). Regular updates of the Handbook have been undertaken to keep pace with the rapidly evolving environmental legislation and landscape.

Referring to National Regulation, the following laws must be considered:

Law No. 5/98 - Environmental Framework Law

Dated June 19th, this law provides legal support for Environmental Protection in Angola, and establishes, in its Article 16, the Environmental Impact Assessment (AIA) as one of the main instruments of Environmental Management. For this purpose, it defines the concepts and basic principles of environmental protection, preservation, and conservation, promotion of quality of life, and rational use of natural resources, in accordance with the constitutional Law of the Republic of Angola.

Presidential Decree No 117/20 - General Regulation of Environmental Impact Assessment and Environmental Licensing Procedure

The Presidential Decree No 117/20 of 22 April 2020 approves the General Regulation for Environmental Impact Assessment and the Environmental Licensing Procedure. This Regulation, consisting of 53 articles divided into five Chapters and five Annexes, establishes requirements to perform any environmental activity, rules and procedures that regulate the environmental impact assessment of public and private projects and the environmental licensing procedure for activities that, by their nature, location or size, are likely to cause significant environmental and social impact.

According to this legislative regulation, three types of environmental licenses are distinguished, each of which involves an individual procedure:

- Installation Environmental License, a document issued by the entity responsible for environmental policy with the purpose of authorizing the implementation and alteration of the project, in accordance with the specifications contained in the executive project;
- Operation Environmental License, a document issued by the entity responsible for environmental policy, with the purpose of initiating the operation of the enterprise or the units, facilities, and systems integral to the activity in the area of interest, after verifying compliance with all the requirements contained in the environmental impact assessment study;
- Deactivation Environmental License, a license required in case of the cessation of activities subject to the operation environmental license, to ensure that potential environmental liabilities are properly identified and addressed in accordance with current legislation.

It outlines:

- The mandatory project registration procedure using the Integrated Environment System (Sistema Integrado do Ambiente – SIA) - an online platform created by the Ministry of Environment (Article 6);
- The categorization of projects to be licensed (Article 7) and which are listed in annexes I, II, II, IV and V of the Decree;
- Decentralization from MINAMB to local administrations and provincial governments of competences, such as project evaluation, the issue of Environmental Licenses (Article 8), and project pre-evaluation for further categorization (Article 9);
- The inclusion of the mandatory Environmental Pre-Feasibility Study and Scope Definition (Estudo de Pré-Viabilidade Ambiental e Definição do Âmbito – EPDA), which is only required for Category A projects (Article 12);
- The minimum content required for the Simplified Environmental Study – SES (Estudo Ambiental Simplificado – EAS) is presented in Article 15 and the Terms of Reference for such documents must be submitted to the Provincial Environmental Department.

- The rules for public consultations are established in Article 16 and should be guided by the Public Consultation Regulations approved by Executive Decree No. 87/12 of 24 February.

Executive Decree No. 92/12 - Terms of Reference for Environmental Impact Studies

Executive Decree No. 92/12, dated March 1st, approves the Terms of Reference for the preparation of Environmental Impact Studies (EIA) and specifies their general content. This decree establishes that the EIA report must be prepared in accordance with the legislation on Environmental Impact Assessment (AIA) and includes three annexes providing guidelines on the information to be submitted to the Ministry.

Executive Decree No. 87/12 - Public Consultations for Projects Subject to Environmental Impact Assessment

Executive Decree No. 87/12, dated February 23rd, defines and establishes the objectives of public consultations for projects that require Environmental Impact Assessment (AIA). In cases where public consultation is required by the decision of the competent Ministry, before approving and issuing an Environmental License, Executive Decree No. 87/12 should be followed, which provides a detailed and comprehensive explanation of the objectives and requirements of public consultations.

Presidential Decree No. 83/22, dated April 12th

Establishes the fees to be charged for the issuance and renewal of environmental licenses for the Environmental Impact Assessment, as well as the registration and renewal of environmental consulting companies.

Decree No. 1/10, dated January 13th

Decrees environmental audits for public or private activities that are likely to cause significant environmental damage. The Decree explains the types of audits that may be conducted, and that such audits must be conducted by authorized public or private bodies. It makes provision for the registration and accreditation of environmental auditors. The costs of the audits are carried by the entity being audited.

Dispatch No. 2746/13, dated December 6th

Determines that any Company submitting Environmental Impact Studies for assessment by the competent Directorate of the Ministry of the Environment must attach the identifying data and recognized qualifications of the Technicians, Specialists, or Consultants who prepared the respective Study, as well as proof of the Project's investment value for calculation purposes leading to the issuance of the Installation or Operation License, under the Regulation on the Technical Registration of Environmental Consultancy Companies, approved by Executive Decree No. 86/12, dated February 23rd.

Dispatch No. 2745/13, dated December 6th

Establishes the formation of a Commission for each case of Environmental Licensing Impact Study, coordinated by the National Director for Environmental Impact Assessment and Prevention, indicating the entities that comprise it.

Executive Decree No. 86/12, dated February 23rd

Regulates the technical registration of environmental consultancy firms.

Presidential Decree No. 194/11, dated July 7th

Establishes the responsibility regarding the risk and degradation of the environment based on the "polluter pays" principle in order to prevent and remedy environmental damage.

Presidential Decree No. 190/12 of August 24th

Establishes that all public and private entities that produce waste or carry out activities related to waste management shall prepare a Waste Management Plan (WMP) prior to the commencement of their activity, containing at least all information set out in Appendix I and II, respectively.

Executive Decree No. 17/13 of January 22nd

Establishes legal regulations relating to waste management resulting from the construction or demolition of buildings or landslides, briefly referred to as construction and demolition wastes, including its prevention and reuse and operations of collection, transport, storage, sorting, treatment, recovery, and disposal

Law No. 3/14 of February 10th

Aims to regulate a range of conduct, aiming to exercise the criminal laws of Angola to regarding the protection of certain fundamental legal rights, including crimes against the environment.

Law No. 6/17 of January 24th

Establishes the norms that aim to guarantee the conservation and sustainable use of the forests and the fauna within the national territory.

Presidential Decree No. 171/18 of July 23rd

Provides the regulation for sustainable use of forestry resources and its ecosystems and establishes norms and procedures for its conservation and sustainable use.

Presidential Decree No. 26/20 of February 6th

The National Strategy and the Biodiversity Action Plan aims to ensure the conservation and sustainable use of biodiversity components, considering the fair and equitable sharing of the benefits from the use of resources conservation, preservation, protection and restoration of biodiversity in Angola.

Decree No. 53/03 of July 11th

"Regulation of the Operation of Angolan Ports" in its article 39 of chapter III, imposes responsibility on port operators for the cleaning of facilities as well as the removal of garbage, waste, or other materials resulting from the movement of goods.

Law 25/2011 of July 24th

Provides regulation against Domestic Violence. It establishes the legal regime for the prevention of domestic violence, protection, and assistance to victims and aims to:

a) Prevent, combat, and punish the perpetrators of acts of domestic violence;
b) Inform victims of domestic violence crimes about their rights;

c) Ensure swift and effective police and judicial protection for victims of domestic violence;
d) Establish specialized services for assisting victims of domestic violence within the competent authorities;
e) Encourage associations and other civil society organizations dedicated to preventing domestic violence;
f) Promote awareness policies in the areas of education, information, health, and social support;
g) Hold perpetrators of acts of domestic violence accountable administratively, civilly, and criminally;
h) Create counseling and temporary shelter spaces for those involved;
i) Discourage any act that, based on customs and practices, undermines the dignity of the human person;
j) Remove the perpetrator from the victim's proximity when necessary, given the seriousness of the situation;
k) Respond quickly, effectively, and holistically to emergency social services supporting the victim. Published in Series I of the Official Gazette No. 133 on July 14, 2011, Page 2 of 9, emphasizing proximity, care, natural relationships, and education, particularly in:
    a) Kindergartens;
    b) Nursing homes for the elderly;
    c) Hospitals;
    d) Schools;
    e) Boarding schools for girls or boys;
    f) Equivalent spaces of relevant community or social interest

Presidential Decree No. 124/13 of August 28th

This Presidential Decree aims to regulate Law No. 25/11 of July 14, Against Domestic Violence. In attending to the victims, administrative entities must adhere to the following principles:

a) Dignified treatment: understanding and respect: to prevent unnecessary questions being asked to the victim or the aggressor that may violate the modesty or morality of those involved;
b) Non-discrimination: to ensure that both aggressors and victims are treated equally, without discrimination based on age, culture, sexual orientation, religious belief, or political affiliation, and also prevent questions that may create a feeling of discrimination among the subjects involved;
c) Professional secrecy: to prevent the entities responsible for conducting the process from making unnecessary comments or disclosures to third parties about the private life issues of those involved in the process;
d) Promptness in treatment: to ensure that the instruction of domestic violence processes is completed in the shortest possible time, taking into account the deadlines established in this Regulation

Presidential Decree No. 222/13 of December 24th

Approves the National Policy for Gender Equality and Equity and the respective Advocacy and Resource Mobilization Strategy for the Implementation and Monitoring of the Policy.

In this law, it is considered that strengthening the institutional and operational capacity to integrate gender issues at central, local, and institutional levels, including legislative and administrative actions on equality of rights between men and women, reinforces and values the condition of women, ensuring their exercise of full citizenship and their social and economic inclusion.

Likewise, women's emancipation and gender equality are the result of a complex process of removing barriers that often requires a thoughtful practice of positive discrimination in favor of women. Hence the engagement in the struggle for the inclusion of gender issues at all levels of development, which promote changes in attitudes and behaviors aimed at the structured and organized participation of women throughout the country.

In a country with an estimated population of about 20 million inhabitants, more than 50% of the population is female, 45% are of childbearing age, and 51% of this population are young people under 15 years old, where the construction of an equitable society is projected, the issue of gender equality and equity becomes a fundamental assumption. These indicators demonstrate, in quantitative terms, the weight of women as a productive force, potentially active population of the country, and also the largest population in terms of demand for social services, such as education, training, health, and social protection. The weight and significant importance of this segment in society demonstrate that all interventions to reduce poverty, promote growth, build and consolidate a governance model that respects human rights and promotes sustainable development are only achievable if gender equity issues are taken into account in relationships. This fact is now recognized by the various development actors in Angola. Promoting this equality implies intervention in four dimensions:

i. Eliminating gender disparity and discrimination;

ii. Ensuring that Programs, Policies, and Development Plans take into account the needs and interests of women and men;

iii. Bringing men, women, and society as a whole into the process of changing attitudes and behaviors;

iv. Eliminating factors that constrain women's access and control over resources and decision-making bodies.

5.3. Other relevant policies

Constitutional requirements for environmental protection

As stated in the Handbook on Environmental Assessment Legislation in the SADC Region, a key aspect to consider when seeking to understand environmental policy and legislation of a country is whether its Constitution addresses citizens' right to health and wellbeing and the protection of the environment and life it supports.

First signed into law in 1992, the Constitution of the Republic of Angola (Lei Constitucional da República de Angola) was replaced in 2010 and provides the basis for the Environment Framework Law through Article 39.

Article 39 (Environmental rights):

1. Everyone has the right to live in a healthy and unpolluted environment and the duty to defend and preserve it.
2. The state shall take the requisite measures to protect the environment and species of flora and fauna throughout the national territory, maintain the ecological balance, ensure the correct location of economic activities and the rational development and use of all natural resources, within the context

of sustainable development, respect for the rights of future generations and the preservation of species.

3. Acts that endanger or damage conservation of the environment shall be punishable by law.

In addition, Article 90(e) reads that the state shall promote social development by "ensuring that all citizens enjoy the benefits resulting from collective efforts in terms of development, specifically with regard to quantitative and qualitative improvements to standards of living." Article 15 recognizes that local communities have access to, and the use of land without prejudicing the possibility of expropriation for public use on the basis of fair compensation in terms of the law.

The constitutional provisions mentioned above play a crucial role in promoting sustainable development, which encompasses enhancing both the well-being of individuals and the state of the environment. These Articles specifically address the preservation and safeguarding of natural resources, biodiversity, and a favorable environment. The objective is to sustain the natural ecological equilibrium and fulfill fundamental human necessities.

National Development Plan

The National Development Plan (2023-2027) in accordance with the provisions of the General Framework Law of the National Planning System (Law No. 1/11 of January 14), is a medium-term planning instrument designed to implement the Long-Term Strategy "Angola 2050" (ELP).

Thus, the development of the PDN 2023-2027 aims to address the strategic objectives defined in the ELP, ensuring alignment and coherence between medium- and long-term planning instruments while maintaining continuous monitoring of the country's progress toward the goals set in the ELP.

Angola 2050: Long-Term Development Strategy (Estratégia de Desenvolvimento de Longo Prazo Angola 2050)

Angola 2050" is the country's new long-term strategy, replacing the previous "Angola 2025" strategy. It is guided by three key principles:

- Clarity of Action and Measurability: ensuring a direct link between the macro elements of the strategy and specific initiatives with concrete, quantifiable, and time-bound indicators.
- Economic and Financial Coherence: establishing cross-cutting macroeconomic and financial assumptions directly linked to sectoral modules, ensuring the realism of the commitments made by the State.
- Intersectoral Coordination and Adaptability: guaranteeing balance and coordination among various sectors and stakeholders while enabling a swift response to changes, whether positive or negative, in the country's environment.

The strategy defines four critical elements for long-term national planning:

- A clear aspiration for the next 30 years.
- A growth narrative based on factual data.
- The definition of key sectoral priorities.
- The identification of the main drivers of growth and macroeconomic balance.

Climate change

Angola has recently acknowledged escalating risks and climate variations, such as a rising frequency of record-setting hottest days, desertification, and heightened semi-arid conditions along the southern and coastal regions. Elevated temperatures are adversely affecting agriculture due to increased evaporation. In the medium term, institutional hurdles in addressing climate risks include a shortage of reliable data to facilitate a precise estimation of anticipated climate changes in specific regions of the country, as well as a lack of adaptive capacity and resilience. There is a need to facilitate the incorporation of climate change adaptation into pertinent new and existing policies, programs, and activities to enhance resilience and adaptation in the upcoming years.

Although Angola is a Party to the United Nations Framework Convention on Climate Change, the country has been slow to develop policies, plans and programs to combat this threat. The National Adaptation Program of Action (NAPA) was developed in 2011, but the first training on the National Adaptation Plan (NAP) was only held in July 2015.

In this context, in 2022 the National Strategy on Climate Change was approved (ENAC 2022-2035). ENAC arises from the need to articulate objectives, instruments and institutions in the pursuit of sustained economic growth and sustainable development, against the backdrop of the provisions of the Paris Agreement, the Sustainable Development Goals and the need to articulate Angolan policy in terms of mitigation and adaptation to the impacts of climate change, according to the document. The approved instrument will lead to the development of the National Emissions Plan (PNE) and the National Adaptation Plan for Climate Change (NAPAs).

Environmental Regulation of the port area

Establishes a set of rules aimed at protecting the environment during port activities, ensuring its preservation, particularly regarding health, water, soil, air, ecosystems, and atmosphere.

Gender Based Policy

In the context of Gender-Based policies, Angola has developed the document Gender Equality Diagnosis Angola 2022. This document is an initiative framed within the implementation of the “Technical Assistance for the Implementation of the EU-Angola Dialogue Facility” Project, which aims to deepen political dialogue in priority areas identified in the EU-Angola Joint Way Forward Agreement. The coordination of the EU-Angola Dialogue Facility includes the Ministry of Economy and Planning (MEP), the Ministry of Foreign Affairs (MIREX), and the Delegation of the European Union in Angola (DUE).

This action was developed at the initiative of the Delegation of the European Union in the Republic of Angola, in collaboration with the Ministry of Social Action, Family, and Women's Promotion (MASFAMU).

The overall objective of the diagnosis is to contribute to the effectiveness of the Dialogue and Cooperation between the European Union and Angola in priority areas of the Joint Way Forward. More specifically, it aims to analyze the situation of gender equality in Angola, in all its dimensions, to support the European Union, its Member States, the Government of Angola, and national and international development actors in integrating gender issues into development programs and projects and to contribute to the achievement of the objectives of the EU Gender Action Plan III (GAP III).

The new EU Gender Action Plan (GAP III), approved in November 2020, guides the EU's external actions in favor of gender equality and women's empowerment. GAP III requires greater integration and transformation of the gender perspective in all sectors of European foreign policy, focusing on six priority intervention areas:

1. Ensuring the absence of all forms of gender-based violence
2. Promoting sexual and reproductive health and rights
3. Strengthening economic and social rights and empowering women and girls
4. Promoting equal participation and leadership
5. Integrating the women, peace, and security agenda
6. Responding to challenges and seizing opportunities offered by the green transition and digital transformation

5.4. Framework of International Legislative Reference

At the international level, Angola is a signatory to several multilateral environmental agreements (treaties, conventions, and regional and international protocols), with a focus on environmental matters.

Instruments indicated below are noteworthy in this regard:

Climate Change

- United Nations Framework Convention on Climate Change: Ratified by Angola in 1998 through Resolution No. 13/98 on August 28th, which entered into force in Angola on August 28th, 1998 (Resolution No. 13/98). Establishes the basis for international cooperation on technical and policy matters related to global warming.
- Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol: Ratified by Angola in 2000, committing to participating in the defense of the ozone layer.
- Kyoto Protocol: Ratified by Angola in 2007, committing to reducing greenhouse gas emissions.

Natural Risks

- United Nations Convention to Combat Desertification: Ratified by Angola in 2000 through Resolution No. 12/00 on May 5th, establishes the basis for international cooperation on policy matters related to combating the global problem of soil degradation.

Water Resources

- Revised SADC Protocol on Shared Watercourses: Signed by Angola on August 7th, 2000, with the objective of cooperation, coordination, and sustainable development of shared water resources in the SADC region and their utilization.

Ecology

- Convention on Biological Diversity (CBD): Ratified by Angola in 1997 through Resolution No. 23/97 on July 4th, subsequently developing its National Biodiversity Strategy and Action Plan (NBSAP).

Establishes the basis for international cooperation on policy matters related to the need to reconcile nature conservation with development concerns, based on principles of equality and shared responsibilities.

- SADC Protocol on Wildlife Conservation and Law Enforcement: Signed by Angola on August 18th, 1999, envisioning the conservation and sustainable use of wildlife, excluding forestry and fisheries resources, and the effective enforcement of related laws.
- Convention on the Conservation of Migratory Species of Wild Animals: Ratified by Angola in 2003 through Resolution No. 14/03 on April 15th, establishing the basis for international cooperation on policy matters related to endangered species.
- African Convention on the Conservation of Nature and Natural Resources: Signed by Angola (Resolution No. 5/2014 on January 20th), with the objective of protecting the environment, promoting the conservation and sustainable use of natural resources, harmonizing policy coordination in this domain, creating ecologically sustainable, economically sound, and socially acceptable development programs and strategies.
- Convention on Wetlands of International Importance (Ramsar Convention): In the process of proposed accession by the Angolan Government (approved for accession by the National Assembly in 2013), the Ramsar Convention declares the importance of designated national wetlands due to their biological and economic value and their role in maintaining ecosystems and biodiversity.

Human Development

- Millennium Declaration (MD): Adopted by Angola in September 2000, establishing the basis for countries to commit to ensuring global sustainability.

Cultural Heritage

- Convention Concerning the Protection of the World Cultural and Natural Heritage: Ratified on November 7th, 1991, by Angola, outlining the duties of member states regarding the identification of potential sites and their role in protecting and preserving World Cultural and Natural Heritage. By signing the Convention, each country commits to conserving not only classified World Heritage sites within its own territory but also protecting its national heritage.

Other Conventions

- Stockholm Convention on Persistent Organic Pollutants: Ratified by Angola in 2006, aiming to protect human health and the environment from persistent organic pollutants by promoting their elimination through the prohibition of the production and use of the set of POPs.
- MARPOL 73/78 Convention "Prevention of Pollution from Ships" focuses on preventing pollution of the marine environment from ships considering both routine and accidental operational scenarios.
- IMDG Code "Transport of Dangerous Goods" establishes all conditions for the packaging, labeling, documentation, stowage, and entire process up to the consignee related to dangerous goods to provide greater care and reduce risks of accidents to the cargo.

5.5. IFC and other relevant Codes and Standards to be considered

5.5.1. IFC performance Standards

Regarding the codes and standards of the **International Finance Corporation (IFC)**, Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced.

A number of cross-cutting topics such as climate change, gender, human rights, and water, are addressed across different Performance Standards listed below:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

A brief summary of each of the IFC Performance Standards is presented below:

Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts

The IFC Performance Standard 1 establishes the importance of (i) integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project.

Performance Standard 1 applies to all projects that have environmental and social risks and impacts. Depending on project circumstances, other Performance Standards may apply as well.

- **Objective:** Establish an Environmental and Social Management System to identify and manage environmental and social risks and impacts.
- **Key Aspects:**
  - Integration of ESMS into business operations.
  - Identification and assessment of potential risks and impacts.
  - Stakeholder engagement and disclosure.

Performance Standard 2: Labor and Working Conditions

- **Objective:** Promote fair labor practices, safe working conditions, and social benefits for workers.

- **Key Aspects:**
  - Employment standards and conditions.
  - Occupational health and safety.
  - Workers' rights, collective bargaining, and nondiscrimination.

Performance Standard 3: Resource Efficiency and Pollution Prevention

- **Objective:** Promote sustainable resource use, minimize pollution, and reduce adverse environmental impacts.
- **Key Aspects:**
  - Resource efficiency and conservation.
  - Pollution prevention and control.
  - Hazardous materials management.

Performance Standard 4: Community Health, Safety, and Security

- **Objective:** Ensure the health, safety, and security of project-affected communities and personnel.
- **Key Aspects:**
  - Identification and assessment of risks.
  - Emergency preparedness and response.
  - Public safety and security measures.

Performance Standard 5: Land Acquisition and Involuntary Resettlement

- **Objective:** Avoid or minimize displacement and ensure fair compensation for affected communities.
- **Key Aspects:**
  - Land acquisition and use planning.
  - Grievance mechanisms.
  - Livelihood restoration and development.

Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

- **Objective:** Promote the conservation of biodiversity and sustainable management of natural resources.
- **Key Aspects:**
  - Identification and assessment of impacts on biodiversity.
  - Conservation and sustainable management measures.
  - Protection of critical habitats.

Performance Standard 7: Indigenous Peoples

- **Objective:** Recognize and protect the rights of Indigenous Peoples, including their cultural heritage and land.
- **Key Aspects:**
  - Free, prior, and informed consent (FPIC).
  - Cultural heritage preservation.
  - Livelihood enhancement.

Performance Standard 8: Cultural Heritage

- **Objective:** Protect and manage cultural heritage, including tangible and intangible cultural assets.
- **Key Aspects:**
  - Identification and assessment of cultural heritage.
  - Avoidance or minimization of adverse impacts.
  - Appropriate management and protection measures.

These standards are designed to help businesses and projects manage their environmental and social impacts responsibly, fostering sustainable development and positive contributions to communities.

5.5.1.1. IFC Performance Standards to be considered for the Project

Taking as reference the fields of application outlined in the document "World Bank Environmental and Social Framework." World Bank, Washington, DC (2016), and considering the typology and location of the project, the environmental and social standards listed below will be applicable to it:

Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.

Sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs). It applies to all projects supported by the Bank through Investment Project Financing.

Environmental and Social Standard 2: Labor and Working Conditions.

Recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. It promotes safety and health at work and the fair treatment, nondiscrimination and equal opportunity of project workers.

Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management.

Recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. Its main objectives are:

- To promote the sustainable use of resources, including energy, water and raw materials.
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To avoid or minimize project-related emissions of short and long-lived climate pollutants.
- To avoid or minimize generation of hazardous and non-hazardous waste.

- To minimize and manage the risks and impacts associated with pesticide use

Environmental and Social Standard 4: Community Health and Safety.

Recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

This ESS addresses potential risks and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in ESS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESS3.

Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Biodiversity often underpins ecosystem services valued by humans. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem service.

Other IFC Environmental and Social Standards

In addition, taking as reference the fields of application outlined in the document 'World Bank Environmental and Social Framework,' World Bank, Washington, DC (2016), and considering the typology and location of the project, environmental and social standards 5, 7, and 8 are not applicable, as explained and justified below:

- Environmental and Social Standard 5 - Land Acquisition and Involuntary Resettlement: as stated in Performance Standard 5 (IFC, 2012), *Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and individuals who use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use*. It is also stated that this Performance Standard *does not apply to impacts on livelihoods where the project is not changing the land use of the affected groups or communities*. The project involves the renovation of an existing and currently operational terminal, to be carried out within the grounds of the port facility, under the terms of a concession agreement. Therefore, it does not involve the use of land belonging to any groups or communities, nor the economic displacement of any stakeholder. Regarding the latter point, related to economic displacement, it is important to consider what is established in the following points:
  - The project to upgrade and develop the Unicargas Terminal will involve the temporary relocation of port operations to an alternative facility. This ensures that economic activities related to the port, including shipping and logistics, will not be interrupted. Therefore, there is no expected economic displacement of businesses that rely on these operations. The temporary facility will

maintain the operational flow, thus avoiding any loss of income or employment for those dependent on the port activities.

- Relevant communications have been made with the Ministry of Fisheries and Marine Resources, as well as the National Directorate of Fisheries and Fishery Resources. In particular, a response from the Ministry of Fisheries and Marine Resources indicated no objections to the project (refer to Annex 9 for additional information). This response suggests that the project, including its construction and operational phases, has been reviewed by relevant authorities without concerns being raised about adverse effects on local fisheries or fishing communities.
- A deeper analysis has been conducted on the situation of the potential affected fishing communities, considering not only the possible impact of the project but also the potential impact of the dredging project as an associated facility. In this regard, it is important to note that the fishing activities in Luanda Bay are officially recognized as only subsistence fishing according to Angolan law (Aquatic Biological Resources Law No. 6-A/04). Despite the importance of these activities for local livelihoods, they are often informal and not fully regulated, contributing to a lack of official data on the exact number of fishermen or the spatial extent of their operations.

  It should also be considered that these are port waters, where there are usually police controls that force fishermen to interrupt their activities, urging them to fish in other locations. As indicated in document *Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola)* (Faria et al. 2021), the predominant species targeted by fishermen (e.g., *Pomadasys jubelini, Mugil cephalus, Dentex spp.*, and various bivalves) and the fishing methods (line/hooks, trawl nets, and manual harvesting of bivalves) are mainly confined to the shallower and more inner areas of the bay. These areas are less likely to overlap with the deeper channels where dredging would occur. Moreover, the artisanal methods described in the study are adaptable and can be relocated temporarily if necessary. So, no economic displacement or significant disruption in fishing activities is considered to be caused by the project or it associated facilities.

- Environmental and Social Standard 7 - Indigenous Peoples: As stated in Performance Standard 7 (IFC, 2012), this ESS applies whenever Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities (as they may be referred to in the national context) are present in, or have collective attachment to a proposed project area, as determined during the environmental and social assessment. The project under this study is being developed in an area within the port of Luanda, which is a restricted access space with controlled entry where no indigenous peoples reside, thus this standard does not apply. Additionally, it has to be noted that it is a rehabilitation project for an existing and currently operational port terminal.
- Environmental and Social Standard 8 – Cultural Heritage: As stated in Performance Standard 8 (IFC, 2012), the requirements of this ESS8 will apply to all projects that are likely to have risks or impacts on cultural heritage. As previously explained, this is a rehabilitation project for an existing and operational terminal, so it will not affect any potential cultural values in the area, which is within a restricted and controlled access space designated for port activities. There are no plans to occupy new spaces for the terminal's operation that could lead to new Cultural Heritage findings.

5.5.2. World Bank Operational Policies

The World Bank's Environmental and Social Safeguard Policies are considered a cornerstone of its support to sustainable poverty reduction projects. The policies require governments and private developers receiving funding from the World Bank to address certain environmental and social risks in order to receive Bank support for investment projects. As a rule, the WB policies include requirements that projects should include such as the need for environmental and social impact assessments, consulting with affected communities about the impacts that such projects would have, as well as the need for the livelihoods of affected people to be restored (i.e. either re-establish their pre-existing conditions or improve upon them). The effectiveness and overall positive impacts of projects and programs supported by the Bank has substantially increased as a result of the attention focused on these policies. Safeguard policies have often provided a useful platform for the participation of stakeholders in project design and have been an important instrument for building ownership among local populations.

The World Bank's key Operational Policies (OP) and associated Bank Procedures are critical to ensuring that potentially adverse environmental and social consequences are identified, minimized, and mitigated, and receive attention during the project preparation and approval processes.

The key objectives of the World Bank's environmental and social safeguard policies are the following:

- Environmental Protection: Ensure that Bank-financed projects avoid, minimize, and mitigate adverse environmental impacts on air, water, land, biodiversity, and cultural resources.
- Social Inclusion and Equity: Promote the inclusion of affected communities, including vulnerable and marginalized groups, in the decision-making process regarding project design, implementation, and benefits.
- Resettlement and Rehabilitation: Provide adequate compensation, assistance, and livelihood restoration for people displaced or adversely affected by Bank-supported projects.
- Indigenous Peoples: Recognize and protect the rights of indigenous peoples, respecting their cultures, traditions, and ancestral territories, and ensuring their free, prior, and informed consent in project planning and implementation.
- Labor and Working Conditions: Uphold labor standards and working conditions, ensuring fair treatment, safe working environments, and adequate remuneration for workers involved in Bank-funded projects.
- Community Health and Safety: Protect the health and safety of project-affected communities, minimizing risks associated with project activities and ensuring access to essential services and infrastructure.
- Stakeholder Engagement and Consultation: Facilitate meaningful consultation and engagement with stakeholders throughout the project cycle, fostering transparency, accountability, and active participation in decision-making processes.
- Biodiversity Conservation and Sustainable Resource Management: Conserve biodiversity, natural habitats, and ecosystems by integrating principles of sustainability and environmental management into project planning, implementation, and monitoring.
- Climate Change Resilience: Enhance the resilience of communities and ecosystems to climate change impacts, promoting adaptive measures, disaster risk reduction, and climate-smart development practices.

- Compliance and Accountability: Ensure compliance with environmental and social safeguard policies and standards, conducting regular monitoring, evaluation, and reporting to track project performance and address any non-compliance issues promptly.

5.5.2.1. World Bank Operational Policies to be considered for the Project

OP 4.01 Environmental Assessment

The specific OP triggered by activities under the Project is OP 4.01 (Environmental Assessment), in which point 1 states that "*The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making*".

The aim of OP 4.01 is to ensure that World Bank-financed projects are environmentally and socially sustainable and ensure better decision making through the integration of environmental and social impact considerations throughout the different phases of development project and actions (i.e. design, planning, and implementation). The main objectives of Environmental Assessment (EA) are to ensure the consideration of environmental aspects (air, water, and land), human health and safety, social aspects (involuntary resettlement, local communities and cultural heritage), as well as consideration of trans-boundary and global environmental effects such as climate change. OP 4.01 is applicable whenever a proposed project or actions have the potential to cause negative environmental effects to the surroundings.

OP 4.04 Natural habitats

Although considered in this project, it must be stated upfront that the impacts of the project on important natural habitats are considered highlight unlikely as development activities of the project will be on already existing sites that will likely already have been transformed/impacted upon and will not experience any relevant transformation.

OP 4.10 Indigenous People and OP 4.12 Involuntary Resettlement

The term Indigenous People is no longer in use in Angola since March 2020. The substitute term is Ethno-Linguistic Minorities.

Regarding these social aspects, OP4.10 Ethno-linguistic Minorities and OP 4.12 Involuntary Resettlement do not apply, as the project is located in a currently operational port terminal within the delimited area of Luanda port. Only individuals involved in port activities have access to this area, with no populations residing within the confines.

5.5.3. World Bank Group Environmental Health and Safety Guidelines

In addition, **the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines)** are technical reference documents with general and industry-specific examples of good international industry practice. IFC uses the EHS Guidelines as a technical source of information. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

Environmental, Health, and Safety Guidelines for Ports, Harbors and Terminals are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS

issues potentially applicable to all industry sectors, as mentioned before. These guidelines are applicable to marine and freshwater ports, harbors, and terminals for cargo and passengers.

5.5.4. Other International Policies

On the other hand, the **Equator Principles Financial Institutions (EPFIs)** have adopted the Equator Principles to ensure that the Projects to be financed and advised on are developed in a manner that is socially responsible and reflects sound environmental management practices. EPFIs acknowledge that the application of the Equator Principles can contribute to delivering on the objectives and outcomes of the United Nations Sustainable Development Goals (SDGs). The Equator Principles are intended to serve as a common baseline and framework for financial institutions to identify, assess and manage environmental and social risks when financing Projects.

Regarding the OECD Common Approaches, the current agreement is the OECD Recommendation of the Council on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence (the "Common Approaches"), which was adopted on 28 June 2012 and revised by the OECD Council on 6 April 2016 (OECD/LEGAL/0393). This agreement sets common approaches for undertaking environmental and social due diligence to identify, consider and address the potential environmental and social impacts and risks relating to applications for officially supported export credits as an integral part of Members' decision-making and risk management systems.

As stated in these Common Approaches, adherents should identify the potential positive and negative environmental and social impacts relating to the applications to be classified. In this context:

- Potential environmental impacts may include, but are not limited to, generation of significant air emissions, including greenhouse gas emissions, effluents, waste, hazardous waste, wastewater, noise and vibrations, significant use of natural resources, and impacts on endangered species.
- Potential social impacts may include, but are not limited to, labor and working conditions, community health, safety, and security, land acquisition and involuntary resettlement, indigenous peoples, cultural heritage, and project-related human rights impacts, including forced labor, child labor, and life-threatening occupational health and safety situations.

5.6. Comparison between local environmental regulatory requirements and IFC PS

Water and Sediments Quality Standards

Angola has enacted comprehensive water quality standards through Presidential Decree No. 261/11, demonstrating a commitment to safeguarding natural environments and water resources. In this regard, the World Bank and IFC emphasize sustainable development and environmental protection in their policies, aligning with Angola's focus on water quality standards. They often require adherence to recognized international standards in their funded projects.

The parameters selected in the project to determine the quality of marine waters are in line with those established by IFC standards and Guidelines. According to the document "Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals" published by IFC in February 2017, the construction and operation of new port and terminal facilities, or the expansion of existing facilities, involve activities such as land reclamation, clearing and paving (or compacting) for loading/unloading zones, bulk dry/liquid and

containerized cargo storage areas, fuel depots, buildings, and roads. It also includes the alteration of coastlines for the construction of breakwaters, shipyards, dockyards, wharves, piers, and vessel berths, as well as the transformation of the seabed to establish vessel basins (including areas for vessel turning) and navigation channels through dredging.

These activities, along with related infrastructure and typical port operational activities, may lead to alterations in terrestrial, freshwater, brackish, and marine habitats, with potential impacts on flora and fauna and related biodiversity.

To control potential impacts, the mentioned document establishes the following:

Monitoring of water and sediment quality during construction and operational activities of ports and terminals (in particular dredging and disposal activities) should generally include the monitoring parameters listed in Table 1 as part of a feedback (also known as 'adaptive') monitoring program. The selection of parameters should be based on local site considerations and the objectives of the monitoring program, including local water quality issues and water uses of interest.

TABLE 1: WATER AND SEDIMENT QUALITY MONITORING PARAMETERS[a]
Dissolved oxygen
Temperature
pH
Turbidity
Secchi disk transparency
Conductivity/Salinity
Condition of biological communities
Total suspended solids (TSS)
Chlorophyll
Total phosphorus
Filterable reactive phosphate
Total nitrogen
Oxides of nitrogen
Ammonia
Toxics: Metals and metalloids; non-metallic organics; organic alcohols; chlorinated alkanes and alkenes; anilines; aromatic hydrocarbons (including phenols and xylenols); organic sulfur compounds; phthalates; organochlorine and organophosphorus pesticides; herbicides and fungicides
Sediment (metals and metalloids; organometallics; organics)[b]
Other site-specific parameters, as relevant[c]
[a] Parameters adapted from CCME (2006) *The Canadian-Wide Framework for Water Quality Monitoring* (Table 3, Page 16, http://www.ccme.ca/files/Resources/water/water_quality/wqm_framework_1.0_e_web.pdf; *The Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CCME 1991-2015), http://st-ts.ccme.ca/en/index.html?chems=all&chapters=1; *The Canadian Sediment Quality Guidelines for the Protection of Aquatic Life* (CCME 1997-2015), available at: http://st-ts.ccme.ca/en/index.html?chems=all&chapters=3); and *The* Australian and New Zealand *Guidelines for Fresh and Marine Water Quality* (Chapter 3 Aquatic Ecosystems, http://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf. [b] Further guidance is available from *The OSPAR Guidelines for the Management of Dredged Material at Sea (Agreement 2014 – 06)*, in particular, the sections on 'Action Lists' and 'Levels for Dredged Materials', www.ospar.org/documents?d=34060, and the London Convention / Protocol's *Guidelines on the Assessment of Dredged Material (IMO 2014)*, http://www.imo.org/en/OurWork/Environment/LCLP/Publications/waq/Pages/default.aspx. [c] Additional good practice information related to water and sediment quality monitoring is available from The *Canadian Council of Ministers Environmental Quality Guidelines* (CCME 2003), http://ceqg-rcqe.ccme.ca/en/index.html; and *Guidance on the Site-Specific Application of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives* (CCME 2003), http://ceqg-rcqe.ccme.ca/download/en/221.

Table 6. Water and sediment quality monitoring parameters. Source: Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals. (IFC, 2017)

In this regard, the methodology established for the marine surveys considers IFC standards, selecting from the previous table those analysis parameters for each aspect to be analyzed that are applicable to the

project's characteristics and its location. Additionally, international standards, recommendations, and guidelines have been considered, as mentioned in the *Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals*.

Similarly, since the dredging project is considered an associated facility according to IFC criteria, this area has been included in the scope of the samplings.

Environmental and Social Impact Assessments

Angola is in the process of developing specific guidelines for EISAs to support developers and practitioners. Most significant projects in Angola follow World Bank guidelines and IFC Standards, ensuring a standardized and comprehensive approach to impact assessments.

Professional Standards for EIA

The requirement in Angola for professionals from registered environmental consultancy firms to conduct the ESIA aligns with the emphasis on expertise in the World Bank and IFC Standards. These institutions emphasize the use of qualified professionals and often require the engagement of certified environmental and social experts in project teams.

Public Consultation

The Angolan ESIA process mandates public consultation, aligning with transparency and community involvement principles. Both WB and IFC stress the importance of meaningful public consultation in project development. They provide guidelines on inclusive stakeholder engagement to address concerns and gather local perspectives.

Monitoring and Compliance

Competent environmental authorities in Angola are responsible for monitoring project implementation, showcasing a commitment to oversight and compliance. Regarding WB and IFC, both institutions emphasize the need for monitoring and compliance with environmental and social safeguards throughout the project lifecycle.

5.6.1. Gaps in Angolan legislation

As presented before, Angola has enacted robust environmental legislation, with a focus on preserving water quality and ensuring sustainable development. In tandem, the nation is in the process of developing guidelines for Environmental Impact Assessments (EIAs), crucial for evaluating projects' environmental implications. Presently, many major initiatives adhere to World Bank guidelines and IFC Standards, aligning with both national and lender-specific requirements. This regulatory framework mandates that only professionals from registered environmental consultancy firms undertake Environmental and Social Impact Studies, ensuring a high standard of expertise.

An integral component of the ESIA process is the Environmental Pre-feasibility Study and Scoping Report (EPDA), a desktop-based analysis proposing the Terms of Reference for the comprehensive ESIA. While public participation is not mandatory during EPDA preparation, stakeholder engagement is strongly emphasized in subsequent stages of the ESIA development process.

The ESIA process itself demands a meticulous analysis of baseline conditions, thorough project descriptions, evaluation of technological alternatives, and systematic identification and assessment of environmental impacts. This process ensures consideration of positive and negative impacts, reversibility, and the distribution of social burdens and benefits.

Public consultation is a cornerstone of the ESIA process, involving the release of non-technical summaries, consideration of presentations and comments, and the compilation of a brief report. This inclusive approach aims to engage interested and affected parties, fostering transparency and community involvement.

Upon submission of ESIA reports, the Ministry provides a binding opinion within a specified timeframe. A favorable outcome results in the issuance of an Environmental Installation License, enabling the project to proceed. Conversely, a negative opinion halts the project, with all decisions made public.

To uphold accountability, competent environmental authorities are tasked with monitoring specific projects. Despite resource constraints, efforts are underway to increase monitoring activities. Collaboration with local institutes further enhances monitoring capabilities.

In conclusion, Angola's environmental legislation establishes a comprehensive framework that prioritizes sustainable development, and rigorous impact assessment processes. These measures underscore the nation's commitment to responsible environmental stewardship.

In any case, strictly speaking, the existence of certain gaps in Angolan legislation can be considered, which will be addressed by adopting the requirements established in the IFC standards and the EHS Guidelines. In summary, while Angolan environmental legislation mandates the EIA process and recognizes pollution control, it lacks specific provisions found in World Bank requirements, such as prioritizing preventative measures and addressing pollution prevention and abatement comprehensively. This is the case of the absence of legislation regarding noise limits.

With the absence of any Angolan standards or regulations regarding environmental noise, focus is made on the International Finance Corporation (IFC), World Bank Group: Environmental, Health and Safety (EHS) Guidelines. The IFC EHS Guidelines address impacts of noise beyond the property boundary of the facility under study. Noise impacts are assessed against the World Health Organization's (WHO) guideline levels as presented below. Noise levels should not exceed these levels or result in a maximum increase in background levels of 3 dB(A) at the nearest receptor location off-site.

World Health Organization Guidelines for Community Noise together with the Organization for Economic Cooperation and Development (OECD) are the main international bodies that have collected data and developed assessments on the effects of exposure to environmental noise. This has provided the following summary of thresholds for noise nuisance in terms of the outdoor day-time equivalent continuous A-weighted sound pressure level (LAeq) in residential districts:

- At 55 - 60 dB(A) noise creates annoyance.
- At 60 - 65 dB(A) annoyance increases considerably.
- Above 65 dB(A) constrained behavior patterns, symptomatic of serious damage caused by noise.

As set out in the table, the World Health Organization recommends a maximum outdoor daytime LAeq of 55 dB(A) in residential areas and schools to prevent significant interference with normal activities. It further recommends a maximum night-time LAeq of 45 dB(A) outside dwellings. No distinction is made as to

whether the noise originates from road traffic, from industry, or any other noise source. The WHO guideline for industrial noise is set at 70 dB(A) over a period of 24 hours. Anything above this level would cause hearing impairment, however, a peak noise level of 110 dB(A) is allowable on a fast response measurement.

Receptor	One Hour L_{Aeq} (dB(A))	
	Daytime (07:00 – 22:00)	Night time (22:00 – 07:00)
Residential, institutional; educational	55	45
Industrial; commercial	70	70

Table 7. Noise limits (World Health Organization)

As stated in the IFC Environmental, Health, and Safety (EHS) Guidelines, typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays). Monitors should be located approximately 1.5 m above the ground and no closer than 3 m to any reflecting surface (e.g., wall). In general, the noise level limit is represented by the background or ambient noise levels that would be present in the absence of the facility or noise source(s) under investigation.

In this regard, noise monitoring will be carried out for the purpose of establishing the existing ambient noise levels in the area just before the construction works, following the IFC Environmental, Health, and Safety (EHS) Guidelines.

Another gap between Angolan laws and the World Bank Safeguard Policies and IFC Standards lies in the absence of explicit protocols and standards concerning the protection of health, safety, and security for both the local populace residing in project areas and the project workforce. While Angolan legislation does address workplace safety to some extent, it lacks specific provisions for projects. To address this disparity in health, safety, and security protocols, it is advisable for project proponents to adhere to the World Bank Group Environmental Health and Safety Guidelines (2007) throughout all project phases. These guidelines offer direction and recommend suitable mitigation measures to be implemented.

Finally, while Angolan environmental legislation addresses aspects of environmental assessment and management, it lacks the depth and specificity found in World Bank and IFC requirements, particularly regarding the content and scope of Environmental Assessment Reports and Environmental Management Plans. This indicates a potential gap between Angolan laws and international standards, which will be addressed by considering the International Guidelines.

This classification could be modified in the event of identifying any irreversible impacts or other conditions during the analysis and evaluation of impacts.

5.6.2. Risks and opportunities of the project by adopting the IFC standards

Adopting IFC (International Finance Corporation) Standards instead of relying solely on Angolan National Legislation carries both risks and opportunities.

Risks:

1. **Compliance Challenges:** IFC Standards may set higher requirements than the existing national legislation. This could pose challenges for project developers in meeting these stricter standards and ensuring compliance throughout the project lifecycle.

2. **Increased Costs:** Meeting the requirements of IFC Standards, especially in areas where they exceed national legislation, may lead to increased costs for the project. This could include investments in technology, processes, and human resources to comply with these standards.

3. **Potential Delay:** Adapting to IFC Standards may require additional time for project planning, implementation, and monitoring. Delays could occur if there are disputes or difficulties in interpreting or complying with these standards.

Opportunities:

1. **Enhanced Environmental and Social Safeguards:** IFC Standards are designed to ensure robust environmental and social safeguards for projects. By adopting these standards, projects can mitigate potential negative impacts on the environment and local communities, leading to more sustainable outcomes.

2. **Improved Reputation and Access to Finance:** Adhering to IFC Standards signals a commitment to best practices in environmental and social responsibility. This can enhance the project's reputation among stakeholders, including investors, lenders, and the public, potentially improving access to financing and reducing investment risks.

3. **Alignment with International Best Practices:** IFC Standards are based on international best practices and expertise in sustainable development. By aligning with these standards, projects can benefit from global expertise and knowledge, ensuring that they meet or exceed recognized benchmarks for sustainability and social responsibility.

4. **Long-Term Viability:** Projects that adhere to IFC Standards are more likely to be socially accepted and environmentally sustainable in the long term. This can reduce the risk of future legal or reputational challenges and contribute to the project's overall success and longevity.

In summary, while adopting IFC Standards alongside Angolan National Legislation presents challenges and complexities, it also offers opportunities to enhance environmental and social safeguards, improve project credibility, and achieve long-term sustainability goals. The key lies in carefully assessing and managing the risks while leveraging the opportunities to maximize the project's positive impacts.

6. ENVIRONMENTAL LICENSING PROCEDURE – CLASSIFICATION OF THE PROJECT

The ESIA Process, as defined in the ESIA Regulation, is a preventive environmental management tool, which aims to identify and assess the positive and negative environmental effects of a proposed project, and to define the necessary mitigation, to reduce the negative effects and enhance the positive ones. The approach to this ESIA complies with all applicable Angolan environmental legal requirements and is in line with relevant international guidelines and policies.

IFC Categories

As part of the review of environmental and social risks and impacts of a proposed investment, IFC uses a process of environmental and social categorization to reflect the magnitude of risks and impacts. The resulting category also specifies IFC's institutional requirements for disclosure in accordance with IFC's Access to Information Policy.

These categories are:

- **Category A**: Business activities with potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible, or unprecedented.
- **Category B**: Business activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.
- **Category C**: Business activities with minimal or no adverse environmental or social risks and/or impacts.
- **Category FI**: Business activities involving investments in financial institutions (FIs) or through delivery mechanisms involving financial intermediation. This category is further divided into:
    - FI–1: when an FI's existing or proposed portfolio includes or is expected to include substantial financial exposure to business activities with potential significant adverse environmental or social risks or impacts that are diverse, irreversible, or unprecedented.
    - FI–2: when an FI's existing or proposed portfolio is comprised of, or is expected to be comprised of, business activities that have potential limited adverse environmental or social risks or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures; or includes a very limited number of business activities with potential significant adverse environmental or social risks or impacts that are diverse, irreversible, or unprecedented.
    - FI–3: when an FI's existing or proposed portfolio includes financial exposure to business activities that predominantly have minimal or no adverse environmental or social impacts.

Angolan legislation categories

According to the requirements of National Legislation (*Decreto Presidencial nº 117/20 de 2022 sobre Regulamento Geral de Avaliaçao de Impacte Ambiental e Procedimento de Licenciamento Ambiental*), categorization of the projects is done under the following criteria:

> *ARTICLE 7 (Categorization)*
>
> *For the purposes of the EIA process, the activities listed in the annexes of this Decree are categorized as follows:*
>
> - ***Category A** activities: actions that, considering their complexity, location, or irreversibility and magnitude of potential impacts, not only deserve a high level of social and environmental monitoring but also involve specialists in environmental impact assessment processes.*
> - ***Category B** activities: actions that significantly affect living beings and environmentally sensitive areas or those whose impacts are of great duration, intensity, magnitude, and significance.*

- ***Category C*** *activities: actions that do not affect living beings or environmentally sensitive areas, compared to Category B activities.*
- ***Category D*** *activities: actions that cause negligible, insignificant, or minimal negative impacts, characterized by the absence of irreversible impacts, with positive impacts being greater and more significant than the negative ones, and exempt from the EIA procedure and environmental licensing.*

The criteria established by the IFC to classify a project as category B could be considered in certain aspects to be more aligned with the criteria established by Angolan legislation for category C projects. However, in any case, given the lack of precision in the criteria established in national legislation, the most restrictive criterion is considered for establishing measures for this project. For this reason, it is considered that the project is classified as category B, taking as reference both the IFC standards and those corresponding to national legislation.

Below is the justification detailing why the project fits into this category, based on its specific characteristics, operational context, and the mitigation measures in place.

- The existing operational nature of the terminal: one of the key factors supporting the Category B classification is that the Unicargas Terminal is an already existing and operational port facility. This project does not involve new development in a previously untouched or ecologically sensitive area but focuses on upgrading and modernizing existing infrastructure within a highly industrialized zone of the Port of Luanda. The impacts are, therefore, more predictable and manageable compared to a greenfield project, where unanticipated environmental and social disruptions might occur.
- The Unicargas Terminal is located in an area that is already subject to significant industrial and commercial activities. The environmental baseline, including air quality, marine water quality, and biodiversity, shows low biological richness due to ongoing port operations. There are no protected areas or critical habitats directly within the project's footprint. The ESIA confirms that no species of special concern are present, and the limited biodiversity observed in the area reduces the likelihood of significant, irreversible environmental damage.
- Site-specific and limited environmental impacts: the environmental impacts associated with this project are well-contained within the immediate area of the port. The impacts remain largely site-specific to the port's operational area and are contained within a manageable scope. The port's existing industrial nature also means that the baseline environmental conditions are already influenced by human activity, further limiting the scope of potential impacts.
- Reversible and Mitigable Environmental Effects: many of the impacts will occur solely during the construction phase, allowing the environment to return to its previous state once the works are completed, and can therefore be considered reversible. Moreover, several strategies and techniques applied during both the construction and operational phases are aimed at minimizing potential impacts on the surrounding environment. Combined with the monitoring measures outlined in the Environmental and Social Management Plan, these efforts help prevent and mitigate potential effects, enabling the timely detection of any unexpected deviations, which allows for corrective actions to be taken when necessary.
- Comprehensive mitigation and monitoring strategies: the project has detailed and robust mitigation measures to address all identified risks. These include air and noise quality management, waste management, soil and marine water protection, and biodiversity preservation plans. A continuous

monitoring framework ensures that environmental performance is closely tracked, and corrective actions can be taken as necessary. The project also complies with international standards, including those set by the IFC, ensuring the highest levels of environmental and social protection.

- Restricted Access and Limited Social Impacts: the project area is a restricted zone within the Port of Luanda. Access is tightly controlled, meaning that the social impacts on local communities are far less significant than they would be for projects situated in densely populated or open-access areas. The port is primarily surrounded by industrial activities, institutional buildings, and commercial zones, reducing the potential for significant disruption to local populations. The limited number of stakeholders affected further reduces the complexity of social engagement and impact management.
- Unlike projects implemented in residential or rural areas, where local communities might experience significant disruptions in their daily lives, the restricted and industrial nature of the port limits social interference. While there might be minor impacts on workers and nearby neighborhoods, these are not expected to cause severe social conflicts or unrest.
- Absence of significant, irreversible, or unprecedented impacts: unlike Category A projects, which involve diverse, irreversible, or unprecedented environmental and social impacts, the Unicargas Terminal rehabilitation project's impacts are limited, predictable, and manageable. The mitigation measures outlined in the ESIA ensure that the project does not pose significant threats to the environment or surrounding communities. Additionally, the impacts are reversible, and the management plans in place are sufficient to address any residual effects.

6.1. Environmental assessment procedure at the Ministry of Environment (MINAMB)

As outlined previously, Angolan environmental legislation (Presidential Decree 117/20) mandates that the first step in the Environmental Impact Assessment (ESIA) process is the registration of the project through the Integrated Environment System (*Sistema Integrado do Ambiente* – SIA), an online platform established by the Ministry of Environment (Article 6).

The project was registered on the MINAMB platform (SIA) on August 14, 2024, and the acceptance of the registration was communicated by MINAMB on August 29, 2024.

Subsequently, MINAMB issued a notification requesting a site inspection of the project area, a routine procedure established in the ESIA protocol. The site inspection was conducted on October 22, 2024, by a technical officer from MINAMB assigned to the project, accompanied by representatives from Unicargas and SOAPRO, the national environmental consultancy engaged to represent the project in interactions with MINAMB.

On November 20, 2024, MINAMB issued a communication regarding the acceptance of the ESIA in its entirety, announcing the issuance of the environmental installation license for the project:

> *We hereby inform you that the project titled Development of the Unicargas Port in Luanda, Angola, located in Bairro Bungo Largo 4 de Fevereiro, Luanda 1229, Ingombota District, Municipality of Luanda, and proposed by ADPG Luanda - Operador de Terminal, Lda, has been completed and is now awaiting the issuance of the corresponding Environmental License.*

According to national environmental legislation, the environmental assessment process for a project includes separate procedures for the environmental installation license and the environmental operation license. The

environmental installation license precedes the operation license. The Environmental Installation License aims to authorize the implementation of the work or project, in accordance with the specifications outlined in the project approved by the authority overseeing the activity.

Once the payment of the corresponding fees is made according to the payment document that accompanies the issuance license, the environmental installation license is issued, along with the conditions and the corresponding mitigation measures. If the measures included in the conditions of the environmental installation license for Unicargas differ in any aspect or requirement from those outlined in this document, they will be addressed in the C-ESMP, always ensuring full compliance with the established requirements.

According to this procedure, the environmental installation license was officially issued on December 17, 2024, and is valid until December 17, 2027.

The Environmental Operation License is issued after the fulfillment of all the requirements outlined in the Environmental Impact Study and the mitigation measures from the installation phase, following an inspection.

Documentation of all communications, including the environmental license issuance as well as receipts related to the fees associated with these activities, is provided in Annex 10 of Volume III.

7. PROJECT DESCRIPTION

In support of its objective of developing and expanding its operations internationally, AD Ports Group plans to further develop and upgrade the 'Unicargas Terminal' located in the Port of Luanda, Angola (Lat: -8.800274°; Long: 13.247499°). Located in the heart of the capital city of Luanda along the northern Atlantic coastline of Angola, the Port of Luanda serves as Angola's primary port, and its major industrial, cultural and urban center. The Port of Luanda also serves as a strategic gateway port supporting key trade in the region.

ADP Group intends to operate a multipurpose port terminal on this site. The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo.

The Project involves the design of approximately 192,000 m^2 yard area and associated facilities/buildings/support infrastructure of the Container and General Cargo/Ro-Ro terminals, quay wall and the tie-ins with adjacent berths.

Figure 1 and Figure 2 show the general location and the project location respectively.

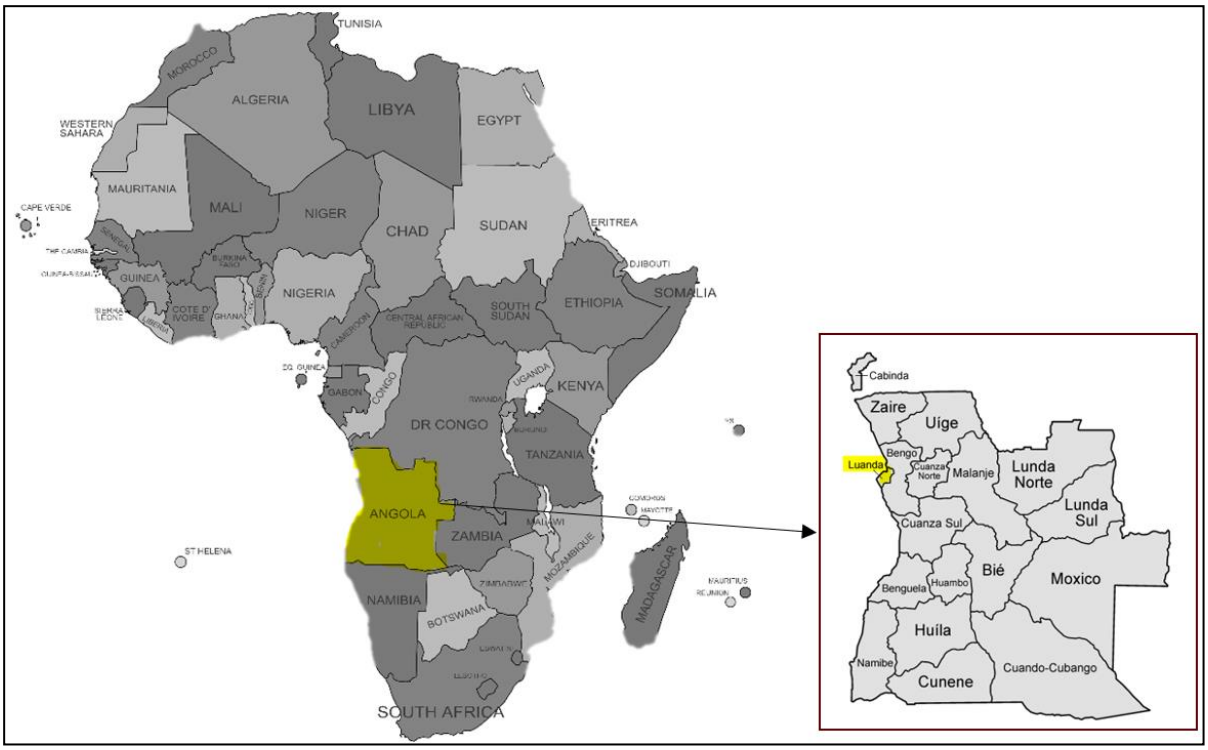


Figure 1. General location

Figure 2. Project location

The Project comprises of the further development and upgrade of both marine and topside elements of Unicargas Terminal, showing the following figures, Figure 3, the project layout:

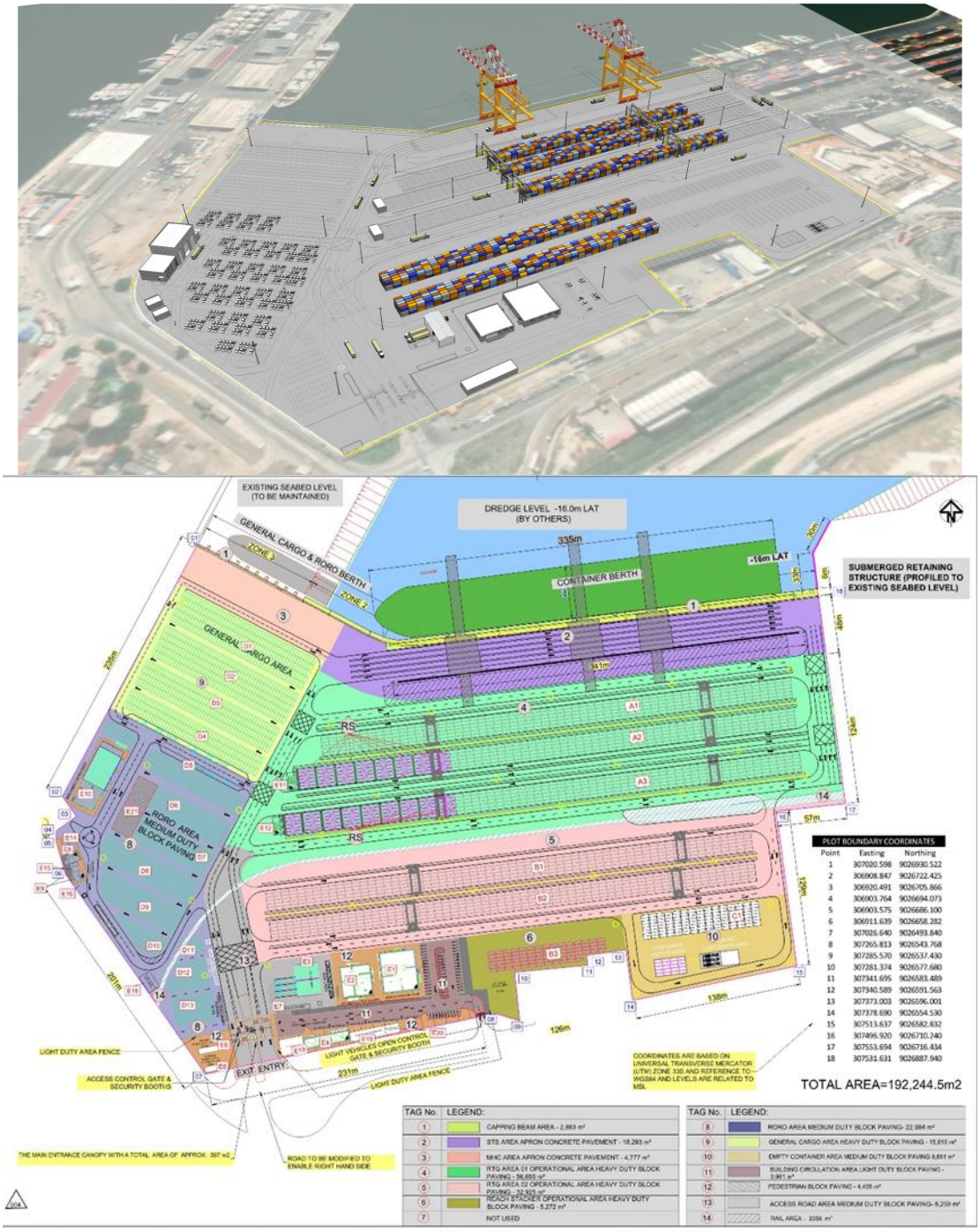


Figure 3. Preliminary Project layout (Master Plan)

7.1. Marine side

The marine side of the project develops the design of:

- Container Berth of approximately 396 m length
- General Cargo/Ro-Ro Berth of approximately 138 m length
- All quay wall elements as the capping beam, furniture and associated infrastructures
- Tie-in details to the existing adjacent berths.

7.1.1. Quay wall

The project foresees the rehabilitation and repair of the existing quay wall located along the Container Berth, providing the -16m LAT depth. The new quay wall will accommodate container vessels up to 335 m in length.

In addition, the rehabilitation and repair of the existing quay wall along the General Cargo/Ro-Ro Berth will maintain the existing depth (-9 m LAT) with the capacity to accommodate general cargo vessels up to 133 m in length.

The preliminary structural system of the container berth upgrade whose design is ultimately to be proposed by the EPC contractor, consist of (see Figure 4):

- 1-Contiguous piles supporting a front beam
- 2-Rail Pile supporting a rail beam
- 3-Dead Man pile supporting an Anchor beam
- 4-Steel tie rod connecting the front beam and the anchor beam
- 5- Reinforced concrete capping beam with quay furniture such as bollards and fenders
- 6- Ani-scour protection layer

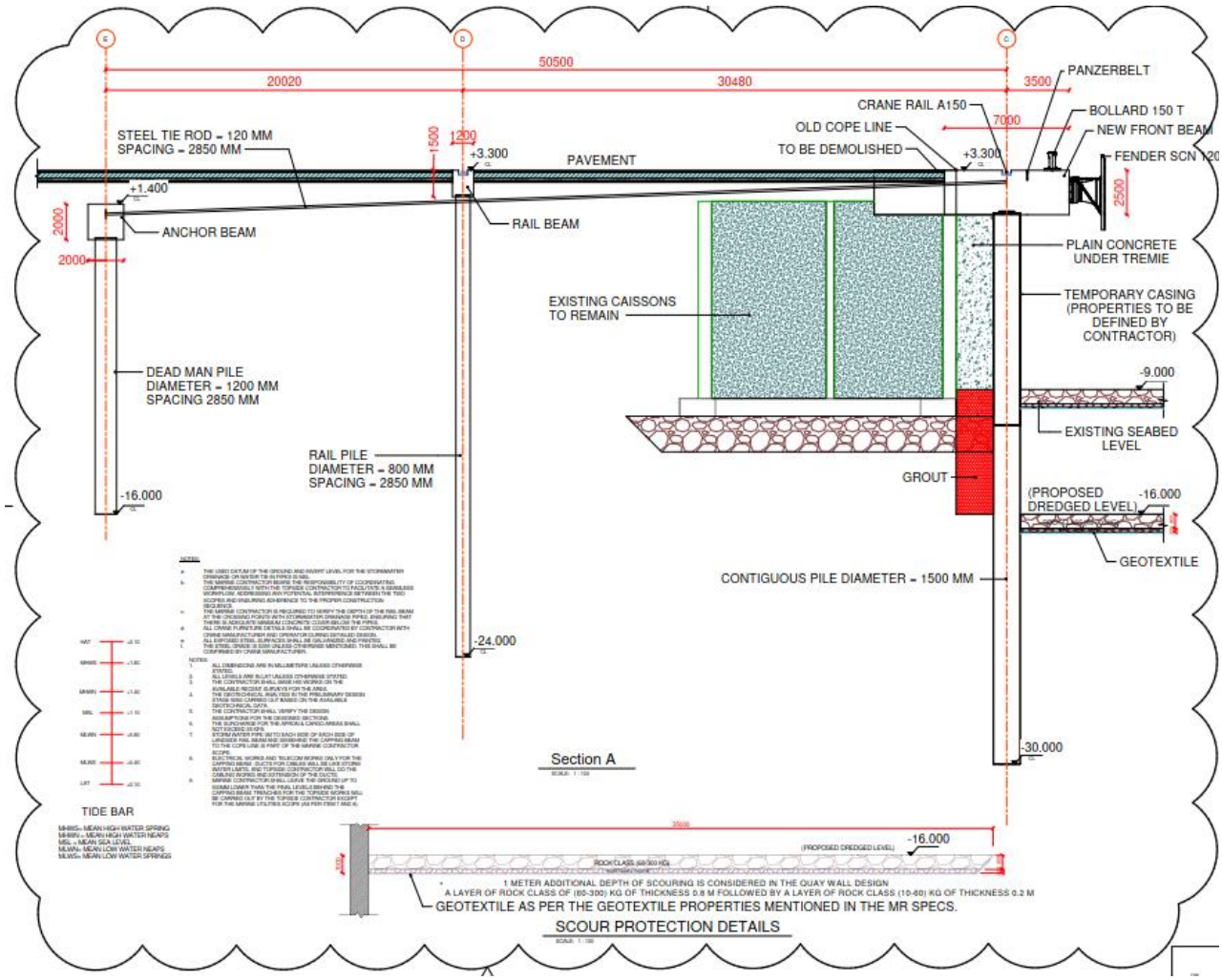


Figure 4. Structural Cross Section Container Berth. Marine Works. Source: Marine Preliminary Design. DAR, 2024

The proposed maintenance of general cargo berth, whose design is also ultimately to be proposed by the EPC contractor consists of (see Figure 5):

- 1-Maintaining existing caisson
- 2- New concrete front beam (cantilever) equipped with quay furniture such as bollard and fenders
- 3-Dead Man pile supporting an Anchor beam
- 4-Steel tie rod connecting the front beam and the anchor beam

It should be noted that the final design will be proposed by the EPC contactor.

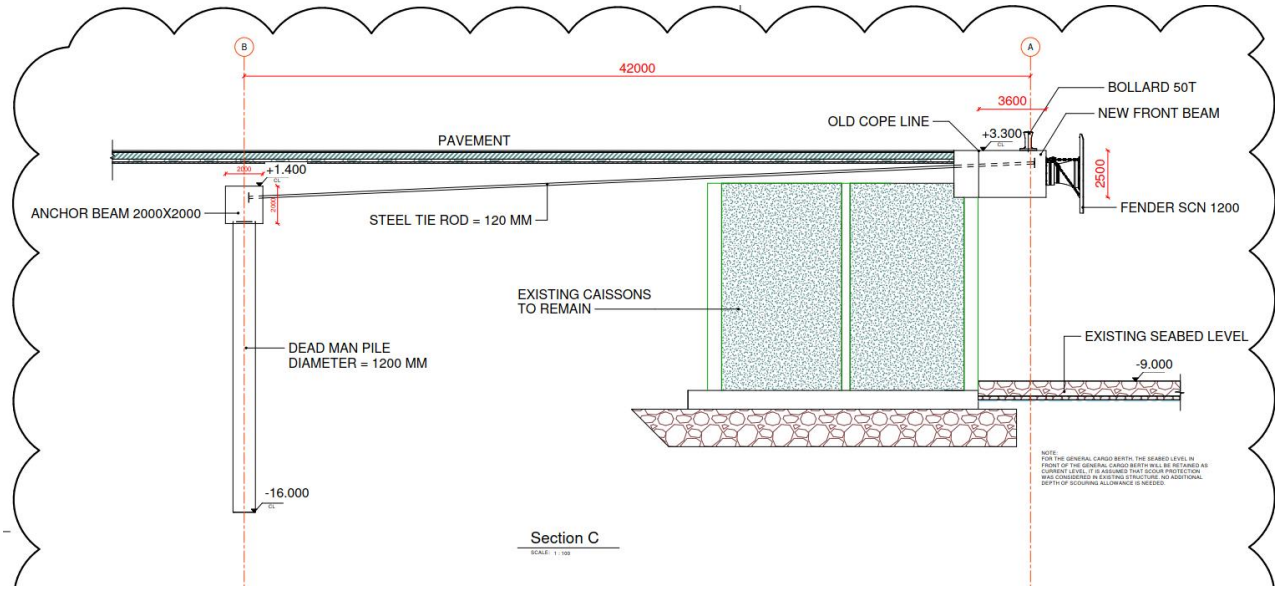


Figure 5. Structural Cross Section General Cargo Berth. Marine Works. Source: Marine Preliminary Design. DAR, 2024

Quay wall elements

In addition to the rehabilitation, repair and new construction of the quay wall for both berths, other elements will be repaired/reinforced or added to accomplish with the necessary requirements for their commissioning and fully operation.

- The concrete's capping beam must be reinforced, including all elements such as pits, rails and any penetrations. Capping beam works will involve rectification in the existing caissons. It is anticipated that the marine crane rail shall be integrated into the capping beam, minimizing its impact on the wall stability.
- The landside of the STS crane will also require the associated rail beam and foundations. The capping beam shall solely be a cast in-situ reinforced concrete structure. STS crane elements, such as crane stops/buffer, funnel/panzer pits, or storm pin, tie-down and jack up points will also be included.
- Tie-ins structures to the adjacent berths will be designed in such a manner that causes minimum interference to operations of the neighboring berth (east side), and in a smooth transition of the dredging depth between the level of -16.0 m LAT (Containers Berth) and the existing seabed (-9.0 m LAT) (on the General Cargo/Ro-Ro Berth).
- The marine furniture, such as bollards, fenders, ladders, mooring rings or life rings, will be replaced and relocated along the Berths.

The project construction activities will include pile driving, concreting, capping beam and crane-beam formwork, concreting, and installation of scour protection (rocks). Prior to commencing any work, the recovery of all waste/materials found at the bottom of the pier (such as tires, steel sheets, concrete blocks, and stones, etc.) will be essential.

7.2. Topside

Regarding the necessary works to be carried out for the topside, it will be necessary to remove the current pavement of the Terminal Area (almost the entire plot), level the surface (although no deeper works are foreseen), demolish and remove all buildings/workshops/warehouses (which will require proper waste management), excavate for building foundations and cranes, dig ditches to accommodate utilities and required systems, install lighting, fencing, etc.

Prior to commencing any work, delineating the different working areas will help ensure that each area's limits are not exceeded, thus avoiding unnecessary disruptions/misunderstandings. Additionally, construction works will include typical building tasks: infrastructure and utilities work, electrical network and substations, pavement removal, and replacement.

7.2.1. Topside terminal buildings

All existing warehouses/workshops/buildings will be demolished and removed. The following figure shows the Demolished Site Plan:

Figure 6. Demolished Site Plan. Source: Preliminary Design - Topside Facilities, Unicargas Port Layout (DAR, February 2024)

Service buildings and utilities are planned to be constructed at the topside area of Unicargas Terminal. All building and utility projects will include the following components in their design: architectural; structural; HVAC; electrical; mechanical and plumbing; stormwater; roofing; fire detection and firefighting; telecommunication; CCTV, Access Control, PAVA, WIFI and BMS system; UPS system; Port Special System; LV System; Future interface and interconnection requirements; any other system required to provide a fully functional and operational facility.

Below is the list of buildings and facilities:

- Administration Building (1,025 m^2)
- Workers Welfare BLD (690 m^2)
- Customs Inspections SHED (CIS Building) (500 m^2)
- Electrical Substation (357.6 m^2)
- Police Container (100 m^2)
- Migration Border Control Container (62 m^2)
- Custom Container (106 m^2)
- GRP Fire Trank Pump Room (89.2 m^2)
- GRP Water Tank Pump Room (76 m^2)
- Machinery Workshop Building (1,152 m^2 Ground floor + 245 m^2 First floor)
- Reefer Substation (114.3 m^2)
- Reefer Substation 2 (114.3 m^2)

7.2.2. Terminal Paving / Road works

Currently, the pavement is degraded in various areas, including the apron, container stacking, cargo, empty containers or Ro-Ro areas.

The area has been divided into different subareas based on the expected use:

- Heavy Duty Areas, with Apron Concrete Pavement (23,070 m^2) for STS and MHC operations area.
- Heavy Duty Block Paving Areas (110,662 m^2), comprise of RTG operations areas, reach stacker operations area, Container Storage Area, General Cargo Area, and the Container Stacking Area.
- Medium Duty Blocks Paving Areas, which comprise the Ro-Ro Area, Empty Containers Area and Access Road Areas.
- Light Duty Areas, which refers to the Building Circulation Area and pedestrian areas.

The whole existing pavement area of (176,128 m^2) will be demolished and removed before installation of the new pavements.

7.2.3. Other topside terminal works

Other topside terminal works include the relocation of the existing weighbridge, currently situated in the west of the Ro-Ro area and two new weighbridges are planned around the reconditioned entrance.

Additionally, the container stack area will include necessary works to accommodate the RTG (Rubber Tired Gantry) cranes, such as foundations, assembling, and erection of the crane, along with the construction of the reefer substation and steel structure.

Moreover, the terminal works will encompass all details related to the installation of the STS (Ship to Shore) cranes and utilities and services in the capping beam/marine structures (also referred to in the marine section). These works will entail required pits, panzer belt for the length and funnel pits, STS rail, water vault, ship-to-shore power vault, pin sockets (for landside and waterside rails), tie-downs (for landside and waterside rails), and stormwater outfalls. Additionally, as detailed below, integration of all utilities (MV/LV Power, Water, Telecom, etc.) will be included.

All areas of the Terminal will be fenced, and security booths will be installed at the entrance/exit, equipped with gate complexes to control access. Works to install the canopy, gate barriers, pedestals, among others, will be necessary to fully operate complete gate systems.

7.2.4. Storm Water - Potable and Fire Water - Sewer - Medium / Low Electrical and Lighting – Telecommunication / Port Special Systems

Works to be undertaken in the new terminal will encompass the installation/improvement of various utility services/systems, aligning them with the layout design. All systems will adhere to local regulations and specifications and will be coordinated with the Authorities if necessary. Nonetheless, the different systems essential for the correct functioning of the terminal are briefly described below.

- Stormwater system: it will be interconnected with the buildings and paved surfaces. It will consist of the stormwater network and manholes, oil interceptors, outfalls to discharge the runoff to the sea (after processing and cleaning the runoff in the oil interceptors), standalone collection system, and standalone oil interceptors for the leaking container areas.
- Potable and fire water system (terminal and logistics zone): it will integrate all necessary interfaces and tie-ins to the existing potable water system. It will include potable water tanks and pump stations, ship-to-shore water tanks and pump stations, fire water tanks and pump stations, suction piping, fire pumps, distributed piping system supplying fire hydrants/sprinklers/hose reels, underground and aboveground fire hydrants, fire hose reels, sprinkler systems, as well as fire detection and protection systems.
- Sewer system: The proposed wastewater collection network shall collect sewage flow from various facilities and to be drained into a holding tank then evacuated by tankers regularly. It will involve gravity networks and chambers/manholes and holding tank.
- Medium and Low Voltage Electrical and Area Lighting System: it will include, at a minimum, the MV network to MV station, switching station and distribution substation, MV 0.4 kV distribution substation and MV switching stations and systems (to confirm voltage levels), reefer substation and systems, Medium and Low Voltage System including network, Power distribution to STS cranes and other elements of the terminal, area lighting system with high mast poles, reefer power distribution, earthing and lighting system, equipment's and controls power distribution system, building and external electrical systems UPS system requirements, ducts and manholes, and redundancy power requirements.
- Telecommunication and Special Port System: it will encompass the following main components: Telecom systems including network to all buildings and facilities, Port Special Network System for external areas (CCTV/PAVA/WIFI, etc.), Primary/Secondary network layout, PSS network to all buildings and facilities, FO cabling for the Fire, CCTV, PAVA, WIFI and Portside Equipment's, FEC and Data center layouts, as well as block diagrams and Passive and Active components.

- The terminal will include the required infrastructure to provide the service of Shore to Ship power supply (referred to as the "Cold Ironing system") for the berthing vessels. The Cold Ironing system will reduce pollution from vessels emissions by eliminating the need for vessels to run their engines while moored, instead providing them with shore-supplied power.

7.3. Brief outline of the future operability of the project

Referred to the operational phase, the upgrade and redesign of the Unicargas terminal aims to develop and expand the current international operations by transforming the marine and topside infrastructure in order to support and grow demand for the existing Container Berth and Ro-Ro/General Cargo. The following table shows 2022 data and forecast of the different areas of Unicargas terminal.

Area	2022 Data	Forecast
Containers	22k to 29k TEU	200k to 350k TEU
General Cargo	139kt to 222kt	222kt
Ro-Ro	16k to 18k CBU	Up to 40,000 CBU

Table 8.- Throughput and demand. Source: Operations Study for Ports Terminal in Angola (CPRDW 2023) & (ADPG press release)

The equipment recommended to the designed Unicargas terminal encompasses the following:

Container yard and berth

- STS cranes with a reach of up to 53 m
- RTG hybrid -Diesel Generator and Battery
- Empty container handlers
- Reach stackers
- Terminal Tractors and trailers

General Cargo Yard and Berth

- For smaller vessels ships gear can be used
- Depending on cargo type and logistics, forklifts may be required.
- Depending on the type of cargo, Mobile Harbor crane may be required in future (to be confirmed)

Ro-Ro Yard and Berth

No equipment required.

The development of the Unicargas Terminal will imply larger vessels visiting Luanda's Bay, as well as an increase of cargo handling operations. These will have implications as freight transport will rise, as also socioeconomic benefits might occur.

7.4. Associated facilities

Associated Facilities are new facilities (e.g., access road to a project site) or additional works on existing facilities, irrespective of the ownership of the facilities or source of financing, that are deemed essential for a project to function. Existing works and/or infrastructure that are in place at the time of the project's E&S risks and impact identification process are not considered new or additional work and/or infrastructure.

The document *World Bank Environmental and Social Framework,* World Bank, Washington, DC (2016), establishes the following regarding associated facilities:

> *Associated Facilities means facilities or activities that are not funded as part of the project and, in the judgment of the Bank, are:*
>
> *(a) directly and significantly related to the project;*
>
> *(b) carried out, or planned to be carried out, contemporaneously with the project; and*
>
> *(c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.*
>
> *For facilities or activities to be Associated Facilities, they must meet all three criteria.*

That document establishes that the environmental and social assessment will identify and assess, to the extent appropriate, the potential environmental and social risks and impacts of Associated Facilities. It also establishes:

> *The risks and impacts of Associated Facilities will be addressed in a manner proportionate to the available control or influence over them. (The Borrower will be required to demonstrate the extent to which it cannot exercise control or influence over the Associated Facilities by providing details of the relevant considerations, which may include legal, regulatory and institutional factors).*

Regarding the dredging area, there is a need for capital dredging operations to increase the depth of the turning basin and approach channel adjacent to the Unicargas Terminal, aiming for a depth of -16.0 m. It is important to note that the responsibility for executing the capital dredging works lies outside the scope of ADPG activities and will be undertaken by external entities, under Luanda Port Authority responsibility.

Under Law n: 11/13 of 3 September, Basic Law for Public Sector Enterprise (*Lei de Bases do Sector Empresarial Público*), the Ports in Angola are formed of Public Enterprises governed by their own legislation, with patrimonial, administrative and financial autonomy. Their revenues are collected through the implementation of the Seaport Tariff Regulation (Combined Executive Decree n: 323/08 of 16 December, complementing Combined Executive Decree n: 19/09 of 12 March) to the services provided to the clients involved in the transport and logistics chain.

In the case of Luanda, the Empresa Portuária de Luanda, E.P. (EPL), in the exercise of its competences in the management, administration and seaport authority (Decree n: 26/98, of 14 August, that approves the Organic Statute of the EPL), acts as Licensing Entity, in the scope of signing of seaport Concession Contracts.

EPL also grants other legal and private entities the exploration of the activity area and associated services with seaport activity, always under the applicable legislation, namely the Law of Public Contracts (*Lei dos Contratos Públicos*), Law n: 9/16, of 16 June, that sets the legal regime for the elaboration and execution of those contracts, and Decree n: 52/97, of 18 July, about the General Basis for Seaport Concessions, that defines the general regime applicable to concessions of this nature.

In this regard, it is important to highlight that the agreements signed between ADPG, Unicargas, and Multiparques, which led to securing a 20-year concession agreement (extendable for another 10 years) with the Luanda Port Authority for the operation and upgrade of the existing Luanda multipurpose port terminal in

Angola, establish that the Luanda Port Authority is responsible for the maritime infrastructure, including access channels and maneuvering areas, to the Unicargas terminal concession area and their maintenance.

Grantor's Obligation related to the dredging works in the concession contract:

> *Obtain all necessary licenses and/or authorizations in relation to the execution of the works for which it is responsible under this Concession Contract, including the execution of dredging works for the access channel.*
>
> *Execute dredging works to allow vessels to have a safe passage to the Terminal and shall be responsible for such regular maintenance dredging as needed during the Concession Term to keep the basin in the area adjacent to the quay wall at an elevation of (- 16.0 m LAT).*

Although it is known that the Port Authority will carry out a dredging project to enable access for vessels planned to operate at the Unicargas terminal following the completion of the works, precise information is not available on this matter. Several meetings held with representatives of the Port Authority, along with specific consultations conducted by ADPG, indicate that LPA is still in the process of making decisions on the design and scope of the dredging project. Therefore, based on the bathymetry of the access area shown in Figure 192, dredging area has been initially estimated by ADPG to cover the area presented in Figure 8.

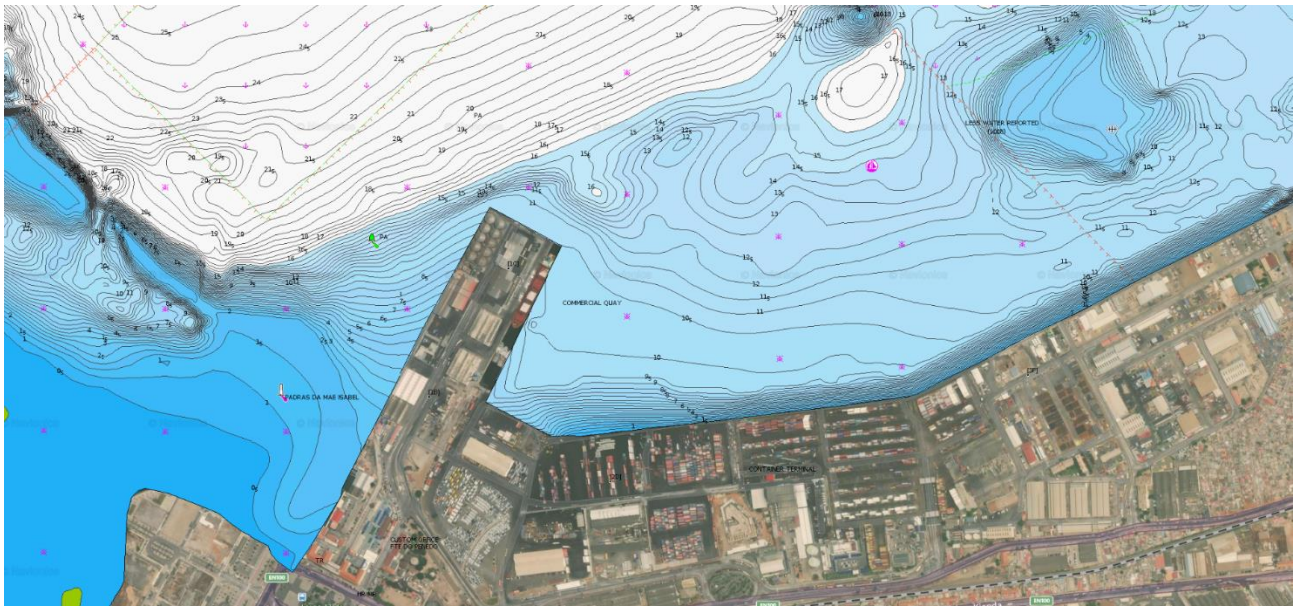


Figure 7. Bathymetric data in the Project area. Source: Navionics

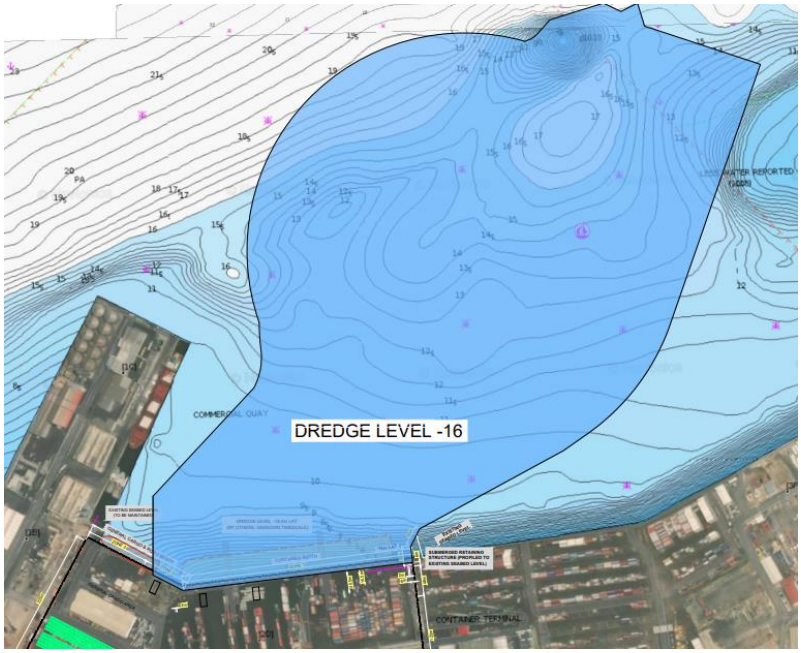


Figure 8. Estimated dredging area. Source: ADPG

Recently, in response to a request for information from ADPG to the Luanda Port Authority regarding the dredging project, a map was provided showing an approximation of one of the layout options under consideration in the design process. This proposal, which is presented in Figure 9, is a preliminary approximation of the area to be dredged.

Although it is not final, it indicates that the Unicargas terminal may not be the only beneficiary of the dredging project, as it may also cover the dredging needs of adjacent terminals. If this is the case, the dredging project may not meet the third criterion for classification as an associated facility of the Unicargas project (*(c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist).*

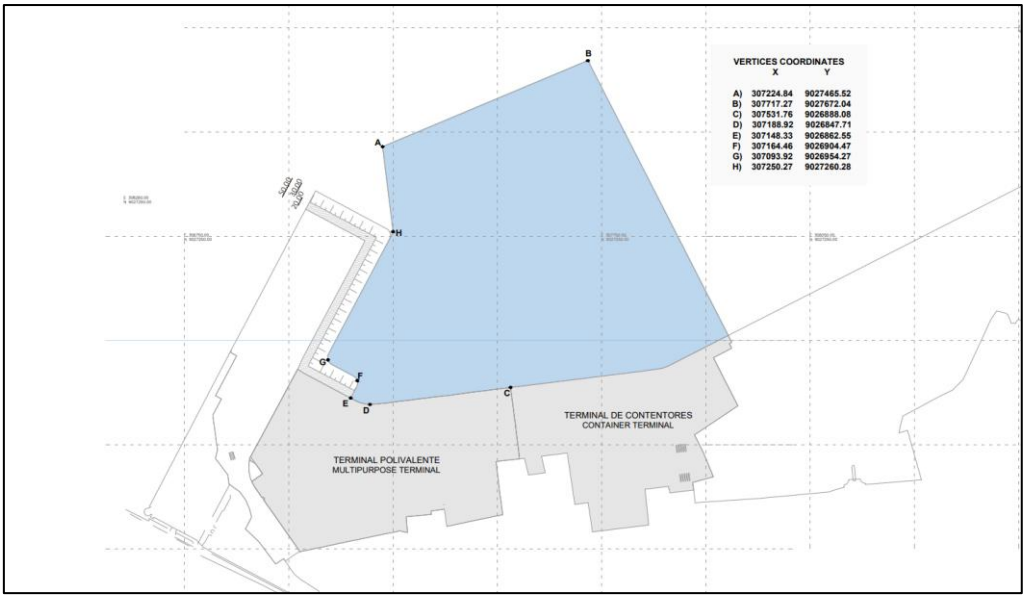


Figure 9. Estimated dredging area. Source: Luanda Port Authority

In any event, pending confirmation of this, the present document analyzes the potential impacts of dredging as an associated facility based on ADPG's initial estimate of the project's extent and layout. Since this estimate encompasses a larger area, it establishes a precautionary standard aimed at ensuring environmental conservation, resulting in a more comprehensive analysis of impacts and application of mitigation measures.

Therefore, since the dredging project is still in the design phase by the Luanda Port Authority, this approximation is used in the present study for considerations regarding potential cumulative impacts and the project's area of influence.

8. ANALYSIS OF ALTERNATIVES

8.1. Formulation of the alternatives

Since this is a rehabilitation project of an already existing and operational terminal in the port of Luanda, for which there are no options considering possible location modifications due to the unavailability of spaces and additional concessions regarding the present project, an analysis is proposed with only two alternatives: the zero or non-action alternative and alternative 1.

8.1.1. Alternative Zero or non-action alternative

The zero or non-action alternative considers the scenario of not implementing the project, maintaining the current situation in all its aspects.

This alternative is essential in project evaluations because it provides a reference point to assess the project's necessity, feasibility, and potential benefits. By comparing the outcomes of other alternatives with the non-action scenario, it can be determined whether the proposed project is the most suitable and beneficial course of action or not.

In this case, the zero alternative would involve maintaining the current situation of the port facilities and their capacity, so the corresponding configuration for this alternative is as described below.

As stated in the document "*Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations*" (DAR, 2023), the main components of Unicargas Terminal are the following:

- Quay 1 and Quay 2
- Storage or Parking Area of Quay 1
- Zone of Loaded Containers
- Zone of Empty Containers
- Traffic Circulation Roads 1 and 2

The figure below reflects various of the main components mentioned above in existing facilities.

Figure 10. Location map of the different evaluated areas of Unicargas Terminal. Source: Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, *DAR 2023.*

Figure 11. Current port yard components. Source: Unicargas Terminal -Port of Luanda-Angola. Masterplan Presentation (Dar, February 2024)

The existing Unicargas Terminal contains port berthing facilities tailored to accommodate a diverse range of vessels. The terminal features a Container Berth, stretching approximately 396 meters, and a General Cargo/Ro-Ro Berth, spanning approximately 138 meters, both situated at approximately (-9.00) LAT seabed level.

The current visiting vessels at the terminal encompass various types and sizes. Container vessels, ranging from small feeders to medium-sized container ships, with a maximum Length Overall (LOA) of 217 meters, find ample space for docking.

Ro-Ro vessels, including car carriers with LOA ranging from 180 to 198 meters, are accommodated seamlessly. Additionally, bulk vessels such as Supramax and Handymax, with LOA ranging from 183 to 200 meters, also find suitable berthing options at the Unicargas Terminal.

The Unicargas Terminal operates under diverse conditions catering to various cargo types. As of 2022, the terminal handled the containers, general cargo, and roll-on/roll-off (Ro-Ro) cargo.

In terms of containers, the terminal processes between 22,000 TEU to 29,000 TEU annually. General cargo throughput ranges from 130,000 tons to 222,000 tons per year, while Ro-Ro cargo volumes typically fall between 16,000 CBU to 18,000 CBU annually. The flow of cargo at the Unicargas Terminal is categorized into export, transshipment, and import.

Efficiency and performance metrics are crucial in assessing the terminal's operational effectiveness. Dwell times, a key indicator, vary across different cargo types. Dwell time at the existing terminal varies between 8-12 days for the different types of cargo.

8.1.2. Alternative 1 (The Project)

The characteristics of this alternative considered for the rehabilitation and improvement of the existing facilities in the current situation of the Unicargas terminal are as follows:

Spatial Plan

The spatial plan encompasses various key facilities and areas essential for port operations and logistics management. It includes designated areas for different facilities and their corresponding activities:

- **Capping Beam:** serving as a foundational element for terminal infrastructure.
- **STS Apron Concrete Pavement:** providing a sturdy surface for the movement and storage of containers.
- **MHC Area Apron Concrete Pavement**
- **RTG Area 01**: operational area heavy duty block paving
- **RTG Area 02**: operational area heavy duty block paving
- **Reach Stacker Operational Area**: area of heavy-duty block paving.
- **Ro-Ro Area:** designated area for roll-on/roll-off operations, accommodating vehicles and other cargo.
- **General Cargo Area:** designated for the handling and storage of various general cargoes.
- **Empty Container Area:** providing storage space for empty containers awaiting further use.
- **Building circulation Area:** light duty block pavement area.
- **Access road Area:** area of medium duty block pavement.
- **Pedestrian Block Paving**
- **Rail Area:** providing facilities for rail operations and cargo transportation.

The Project comprises of the further development and upgrade of both marine and topside elements of Unicargas Terminal, showing the following figure the project layout:

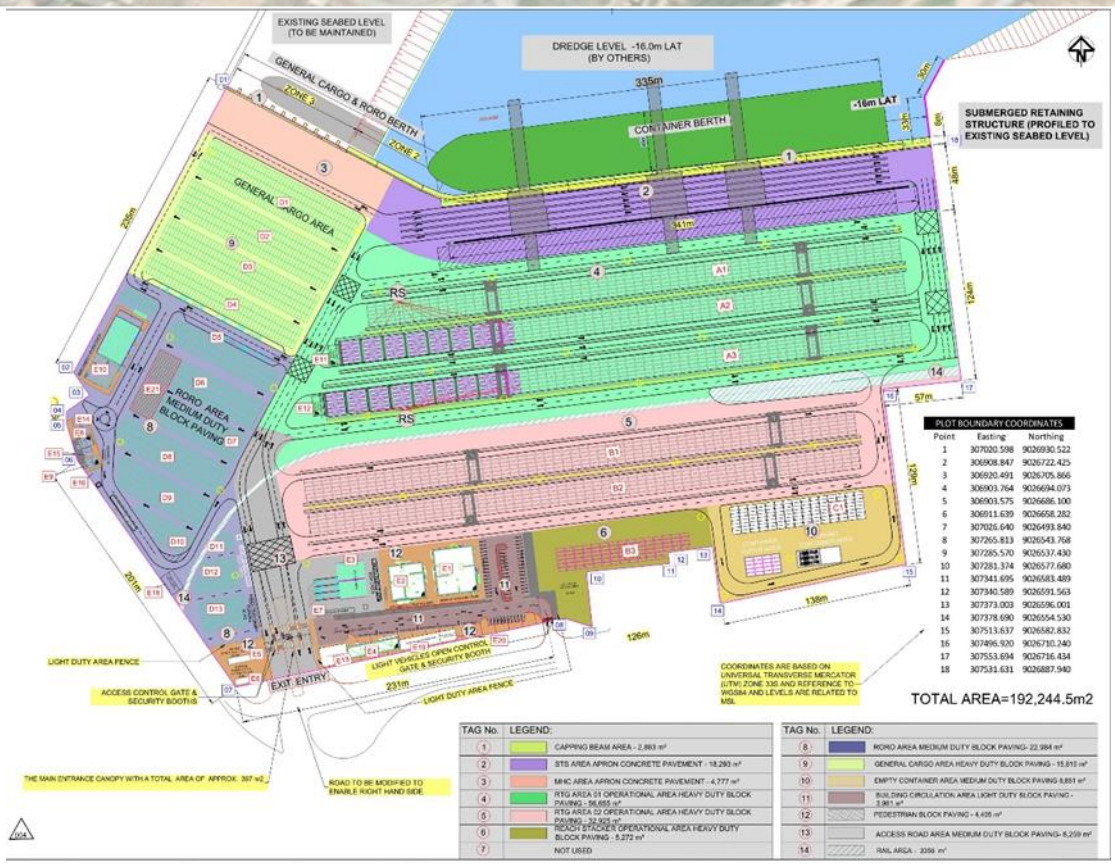


Figure 12. Preliminary Project layout (Master Plan)

Marine side

The marine side of the project develops the design of:

- Container Berth of approximately 396 m length, designed to accommodate container vessels up to length of 335 m with a deepening depth requirement of -16m LAT.
- General Cargo/Ro-Ro Berth of approximately 138 m length, undergoing rehabilitation and repair to maintain existing operational depth.

- All quay wall elements as the capping beam, furniture and associated infrastructures
- Tie-in details to the existing adjacent berths.

Topside

Works to be carried out at the topside will encompass the entire terminal (192,000 m^2 - terminal and facilities areas) including paving, utilities and buildings.

Service buildings and utilities are planned to be constructed at the topside area of Unicargas Terminal. All building and utility projects will include the following components in their design: architectural; structural; HVAC; electrical; mechanical and plumbing; stormwater; roofing; fire detection and firefighting; telecommunication; CCTV, Access Control, PAVA, WIFI and BMS system; UPS system; Port Special System; LV System; Future interface and interconnection requirements; any other system required to provide a fully functional and operational facility.

Below is the list of buildings and facilities:

- Administration Building (1,025 m^2)
- Workers Welfare BLD (690 m^2)
- Customs Inspections SHED (CIS Building) (500 m^2)
- Electrical Substation (357.6 m^2)
- Police Container (100 m^2)
- Migration Border Control Container (62 m^2)
- Custom Container (106 m^2)
- GRP Fire Trank Pump Room (89.2 m^2)
- GRP Water Tank Pump Room (76 m^2)
- Machinery Workshop Building (1,152 m^2 Ground floor + 245 m^2 First floor)
- Reefer Substation (114.3 m^2)
- Reefer Substation 2 (114.3 m^2)

Other topside terminal works include the demolition of the existing weighbridge, currently situated in the west of the Ro-Ro area and two weighbridges are planned around the reconditioned entrance.

Additionally, the container stack area will include necessary works to accommodate the RTG (Rubber Tired Gantry) cranes, such as foundations, installation of rails, assembling, and erection of the crane, along with the construction of the reefer substation and steel structure.

Moreover, the terminal works will encompass all details related to the installation of the STS (Ship to Shore) cranes and utilities and services in the capping beam/marine structures (also referred to in the marine section). These works will entail required pits, panzer belt for the length and funnel pits, STS rail, water vault, ship-to-shore power vault, pin sockets (for landside and waterside rails), tie-downs (for landside and waterside rails), and stormwater outfalls. Additionally, integration of all utilities (MV/LV Power, Water, Telecom, etc.) will be included.

8.2. Analysis of the considered alternatives

8.2.1. Analysis of Zero alternative or non-action alternative

To conduct an analysis of the current situation that allows establishing the starting conditions of the terminal where the project is to be developed, the findings included in the Marine Condition Assessment Report prepared by Dar in January 2024 are collected.

8.2.1.1. Marine side conditions

Based on the comprehensive assessment provided in the "Marine Side: Unicargas Terminal - Underwater Marine Condition Assessment Report" by DAR, it is evident that the current state of the marine side of the Unicargas Terminal demands immediate attention and rehabilitation. The inspection work conducted by RSDIVERS Sociedade Submarina Comercial, LDA revealed significant issues across the three identified zones, namely Zone 1, Zone 2, and Zone 3, each with its own set of challenges.

In Zone 1, which extends along the entire length of the quay wall, a crack was detected in the third base paved with stones, indicating structural instability. This zone, crucial for vessel docking and loading operations, exhibits signs of deterioration that pose risks to operational safety and efficiency.

Moving to Zone 2, damage to the concrete caissons at the base of applied stones was observed, particularly around fender two. The presence of smaller stones and positioning issues further exacerbates the structural integrity concerns, potentially compromising the terminal's ability to accommodate vessels effectively.

Zone 3, where cargo ships are typically moored, presents another set of challenges. Advanced erosion of the concrete caissons at the lower base of the quay wall, coupled with corrosion of steel elements and detachment of guides and end joints, poses serious risks to both structural stability and operational functionality. Moreover, the presence of debris such as tires, steel beams, and wire mesh rolls on the seabed further complicates the situation, posing hazards to vessel movement and docking procedures.

In summary, the Underwater Marine Condition Assessment Report (Dar, 2024)[2] has identified several structural weaknesses to repair, which are shown in the following table, that include cracks and displacement of stones on the pier base or openings between caissons. The Figure 13 locates the inspection points along both berths and several photographs of the current situation.

[2] *Dar Al Handasah Consultant, 2024. Marine side Unicargas Terminal – Underwater Marine Condition Assessment Report. Project title: Unicargas Terminal-Port of Luanda, Angola – Front End Engineering Design & Surveys. Doc number: 2800-107-V3-0000-02003.*

ZONA 1
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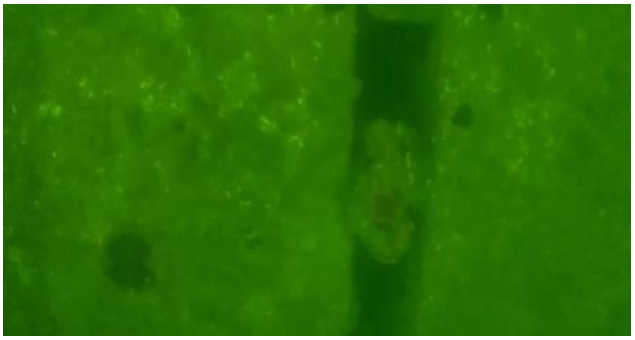


Figure 13. Location of inspection limits and points identified for intervention and photographs taken at points 2, 3, 4, 7, 9, 10., 11 and general materials founded Source: Underwater Marine Condition Assessment Report. (DAR, January 2024)

No.	LATITUDE	LONGITUDE	FINDINGS
1	LAT 8,79923	LON 13,24609	Pier base has considerable 20 mm cracks
2	LAT 8*47,954`S	LON 13*14,761´E	displacement of stones at base of the pier wall
3	LAT 8*47,956´S	LON 13*14,766´E	Stones on the lower base displaced, causing structural misalignment
4	LAT 8*47,961´S	LON 13*14,770´E	stones from the upper base displaced and falling chock stones
5	LAT 8*47,975´S	LON 13*14,803´E	opening between pillar bases of 400 mm
6	LAT 8*47,976´S	LON 13*14,807´E	concrete wear 15% along the surface
7	LAT 8*47,979´S	LON 13*14,814´E	800 mm opening between the pillar bases and 1000 mm towards the interior
8	LAT 8*47,981´S	LON 13*14,822´E	separation of 600 mm between the bases of the pillars and 900 mm towards the interior
9	LAT 8*47,980´S	LON 13*14,831´E	opening between the bases due to falling rocks and structural misalignment
10	LAT 8*47,973´S	LON 13*14,852´E	opening between the lower bases due to stones breaking under the weight
11	LAT 8*47,974´S	LON 13*14,863´E	breakage of the stones at the base due to misalignment structural
12	LAT 8,79909	LON 13,2445852	rolls of steel rod, stones and tires resting on the bottom
13	LAT 8,799035	LON 13,245752	roll of metallic tubes and steel sheets resting on the bottom

Table 9. Findings from the inspection points. Source: Underwater Marine Condition Assessment Report (DAR, January 2024)

It is foreseen that the Container's Berth will require a new structure in front of the existing wall, suitable to support the operation of bigger vessels while the General Cargo/Ro-ro Berth will maintain the existing structure incorporating the suitable modifications. The actions that are foreseen and required for accomplishing the project are summary below:

- Necessary interventions in the integrity of the concrete structure (upper and lower base of the quay wall).
- Recovery of materials (i.e. tires, steel sheets and wire mesh), which are at the Pier's bottom and state a risk for ship collisions in the docking area.
- Fender replacement due to the damaged state of the current ones along the pier. Enhancing ship collision defenses at the Quay Wall is crucial.
- Metal guides and joints recovery and maintenance for sustaining the alignment of top stones at the concrete structure's base.
- Intervention in the pier blocks due to the grade of unevenness and the present damage.
- Bollard repositioning and replacement, since there are damaged ones along the berth, in addition to fender replacement for Capping Beam.

The assessment of the marine side conditions underscores the urgent need for rehabilitation and improvement of the Unicargas Terminal's marine infrastructure. The sandy soil composition and poor visibility add further complexity to the task at hand, emphasizing the importance of swift and comprehensive action to address the identified issues. Failure to address these concerns promptly not only jeopardizes operational efficiency but also poses significant safety risks to maritime activities at the terminal. It is imperative that immediate steps be taken to initiate the necessary rehabilitation efforts to ensure the terminal's continued functionality and safety.

8.2.1.2. Topside conditions

As stated in the document "*Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations*" (DAR, 2023), the following existing conditions were identified:

Water Supply System: the current water supply system relies on storage tanks with booster pumps to ensure an uninterrupted water supply to the terminal buildings. However, the firefighting network is inadequate, with only fire hose cabinets present at building entrances and a single water pipe serving both firefighting and domestic water needs. This setup poses significant risks in the event of fire emergencies and highlights the need for a robust firefighting infrastructure.

Storm Water Drainage System: the main stormwater drainage system comprises channels running below the terminal pavement and across various open areas. However, external drainage passing through the terminal area directs stormwater towards the sea, presenting challenges in managing and controlling water flow. Additionally, the presence of structures built above drainage channels, such as Warehouse 19, further complicates drainage management and may exacerbate flooding risks during heavy rainfall.

Wastewater Collection and Treatment: the wastewater collection system consists of pipes collecting wastewater from bathrooms and toilets, discharged either into septic tanks or the stormwater drainage system. However, the lack of a dedicated wastewater treatment plant poses environmental risks and underscores the need for a comprehensive wastewater management solution.

Structural Facilities: the terminal comprises steel structure sheds and facilities, including dining/lunching areas, offices, and equipment storage partitions. However, their current condition poses significant risks and limitations:

- Structural Integrity: buildings exhibit signs of structural deterioration, compromising their stability and safety. Cracks, corrosion, and wear and tear over time have weakened the buildings' integrity, posing risks to personnel and assets within the terminal.
- Safety Hazards: the deteriorating condition of some of the buildings presents safety hazards to terminal personnel and operations. The presence of structural weaknesses, such as cracks and compromised support elements, increases the risk of collapse or accidents, endangering lives and equipment.
- Operational Impacts: structural deficiencies in buildings hinder their functionality and operational efficiency. Limitations in load-bearing capacity, space utilization, and access restrictions impede storage, handling, and logistics operations within the terminal, affecting productivity and throughput.
- Environmental Concerns: buildings' deteriorating condition may pose environmental risks, such as material leakage, contamination, or hazards from hazardous materials stored or handled within the facilities.
- Electrical Installations and Backup Power: the electrical infrastructure includes a medium-voltage substation and switchgears serving multiple entities within the port. However, there are capacity limitations and obsolete low-voltage panel boards, necessitating the construction of a new electrical substation. The terminal relies on operational generators for backup power, but several generators are currently out of service, affecting power reliability and operational continuity.
- Outdoor Lighting and Pavement Conditions: the terminal's outdoor lighting comprises high masts, but there are concerns about insufficient luminosity and equipment load capacity. Additionally, the warehouse lighting consists of fluorescent lamps, and the pavements are unable to support larger equipment loads, hampering operational efficiency and safety.

It can be summarized that in piers 1 and 2, the pavement exhibits high distress, medium severity in the heavy loaded containers area, poor conditions on road 1, while road 2 and the empty containers zone are in good condition.

Figure 14. Images of current pavement state. Source: Pavement Works' Presentation-Unicargas Terminal Topside. December 2023

In summary, the existing topside infrastructure of the Unicargas Terminal faces various challenges, including inadequate firefighting measures, drainage issues, wastewater management concerns, structural deficiencies, electrical system limitations, and pavement inadequacies. Addressing these issues is imperative to ensure the terminal's functionality, safety, and capacity for future operations. Immediate intervention and rehabilitation efforts are necessary to mitigate risks and enhance operational resilience in line with industry standards and best practices.

8.2.2.Analysis of Alternative 1 (The Project)

The alternative proposed for the rehabilitation and improvement of the Unicargas Terminal represents a comprehensive strategy aimed at enhancing sustainability, increasing terminal capacity and efficiency, and improving safety conditions.

Spatial Plan Optimization: the spatial plan of the alternative is strategically designed to optimize the utilization of terminal space, facilitating smoother operations and logistics management. By allocating designated areas for different facilities such as container storage, Ro-Ro operations, and general cargo handling, the plan ensures efficient cargo handling and storage, thereby enhancing terminal productivity and throughput.

Infrastructure Enhancement: the rehabilitation of key infrastructure components such as the container berth and general cargo/Ro-Ro berth ensures the structural integrity and operational functionality of marine-side

facilities. Reinforcement of the concrete capping beam and replacement of marine furniture enhance safety and operational reliability, contributing to the longevity and resilience of the terminal infrastructure.

Topside Development: the proposed works at the topside area encompass the construction of essential service buildings and utilities, including administration buildings, workers' welfare facilities, customs inspection sheds, and electrical substations. Integration of various systems such as HVAC, electrical, mechanical, and fire detection enhances operational efficiency and safety standards, creating a conducive working environment for terminal personnel.

Demolition and Reconstruction: the demolition of existing structures, such as the weighbridge, allows for the reconfiguration of terminal layout to accommodate new infrastructure and operational requirements. Reconstruction efforts focus on modernizing facilities and optimizing space utilization, aligning with industry standards and best practices for port operations.

Utility Integration and Modernization: integration of modern utilities and services such as MV/LV power, water supply, telecommunications, and CCTV enhances operational efficiency and communication networks, enabling real-time monitoring and management of terminal activities. Modernizing utility infrastructure improves reliability, resilience, and responsiveness to operational demands, contributing to overall terminal performance.

In conclusion, the alternative proposed for the rehabilitation of the Unicargas Terminal represents a holistic approach to enhance sustainability, improve efficiency, and ensure safety in terminal operations. By addressing critical infrastructure needs, modernizing utilities, and optimizing space utilization, the alternative lays the foundation for a resilient, efficient, and future-ready terminal capable of meeting evolving industry demands and challenges.

8.2.3. Comparative analysis of alternatives

In evaluating the future trajectory of the Unicargas Terminal, it is essential to weigh the merits of Alternative Zero, representing the continuation of the current state, against the proposed Alternative 1, which outlines a comprehensive plan for rehabilitation and improvement. This comparative analysis aims to assess the implications of each alternative across multiple dimensions, including infrastructure limitations, capacity constraints, environmental sustainability, social impact, modernization, etc.

Infrastructure Limitations

- **Alternative Zero:** the current condition of the terminal's infrastructure is characterized by a deteriorated quay wall, limited depth for larger ships, poor pavement conditions, and outdated facilities. These limitations restrict terminal operations, hinder equipment usage, and impede overall efficiency.
- **Alternative 1:** the proposed rehabilitation addresses infrastructure limitations by reinforcing the quay wall, increasing depth to accommodate larger ships, improving pavement conditions, and upgrading facilities. These improvements enhance operational efficiency, enable high-volume operations, and support the use of heavy equipment, thereby overcoming existing limitations.

Capacity Constraints

- **Alternative Zero**: perpetuating the current situation maintains capacity constraints that hinder Angola's strategic port development goals. The terminal's limited capacity not only stifles the growth potential of Luanda Port but also undermines the nation's broader economic ambitions. Inadequate infrastructure restricts the handling of larger vessels and high-volume cargo, impeding the port's ability to accommodate growing trade demands and capitalize on emerging market opportunities. The continuation of capacity constraints jeopardizes Angola's position as a regional trade hub and undermines efforts to diversify the economy and attract foreign investment.
- **Alternative 1**: the proposed rehabilitation offers a transformative solution to address capacity constraints and align port development with Angola's strategic interests. By enhancing terminal infrastructure and expanding operational capacity, Alternative 1 strengthens Luanda Port's role as a key gateway for international trade and commerce. The increased handling capacity facilitates the efficient movement of goods, bolstering Angola's competitiveness in global markets and attracting new shipping routes and investment opportunities. Furthermore, the expansion of terminal facilities supports the government's economic diversification agenda, driving job creation, revenue growth, and sustainable development across various sectors of the Angolan economy. In addition, addressing capacity constraints and operational inefficiencies can help mitigate environmental risks associated with port activities. Improving traffic flow, gate activities, and berth utilization can reduce air and noise pollution, minimize habitat disruption, and enhance overall environmental quality in the port area.

Economic Considerations

- **Alternative Zero**: continuing with the current situation may result in increased maintenance costs, operational inefficiencies, and potential revenue losses due to safety hazards and operational disruptions.
- **Alternative 1**: while the initial investment for rehabilitation and improvement works may be significant, the long-term benefits include enhanced operational efficiency, increased throughput capacity, and improved revenue generation potential. The economic viability of Alternative 1 is supported by the anticipated return on investment through improved terminal performance and competitiveness.

Environmental and Sustainability

- **Alternative Zero**: persisting with the current terminal condition exacerbates environmental degradation and undermines sustainability efforts. The degraded state of the site, characterized by structural deficiencies and environmental hazards, as waste accumulation in the marine side, including debris such as tires, steel beams, and wire mesh rolls, further compounds environmental concerns, necessitating immediate intervention to mitigate ecological damage. Maintaining the current situation may lead to further environmental degradation due to the deteriorating infrastructure and inadequate wastewater management systems. Issues such as structural instability, drainage problems, and inadequate utilities pose risks of pollution and habitat disruption. The absence of modern sustainability initiatives and energy/water efficiency measures perpetuates resource wastage and pollution, perpetuating a cycle of environmental harm and diminishing Angola's environmental stewardship credentials.

- **Alternative 1**: the proposed rehabilitation represents a pivotal step towards environmental sustainability and eco-friendly port operations. By introducing modern facilities and adopting sustainable practices, Alternative 1 seeks to mitigate environmental impacts and enhance resource efficiency. The terminal will include the required infrastructure to provide the service of Shore to Ship power supply (referred to as the "Cold Ironing system") for the berthing vessels. The Cold Ironing system will reduce pollution from vessels emissions by eliminating the need for vessels to run their engines while moored, instead providing them with shore-supplied power. This practice enhances local air quality, decreases noise pollution, and contributes to the port's sustainability efforts, ultimately benefiting the health of nearby communities and the environment The cold ironing will significantly reduce the GHG emissions of ships while berthing. Construction works aimed at removing waste from the marine side and upgrading infrastructure align with environmental best practices, minimizing ecological harm. Moreover, the integration of energy and water efficiency measures underscores a commitment to environmental stewardship, reducing carbon emissions and conserving natural resources. Through the implementation of eco-friendly initiatives, Alternative 1 not only promotes environmental sustainability in port operations but also positions Luanda Port as a responsible global maritime hub, fostering long-term ecological resilience and supporting Angola's transition towards a green economy.

Social Impact

- **Alternative Zero**: the absence of investment in terminal rehabilitation under Alternative Zero not only perpetuates capacity constraints but also has adverse social implications for various stakeholders. The local community is adversely affected by the lack of job creation opportunities and limited economic development potential resulting from the stagnant terminal conditions. Moreover, the absence of modernized facilities compromises the safety and well-being of terminal workers, posing risks to their health and livelihoods. The social fabric of the community is strained by the absence of infrastructural development, exacerbating socio-economic disparities and hindering community well-being.
- **Alternative 1**: in contrast, the proposed rehabilitation under Alternative 1 heralds positive social impacts for diverse stakeholders, including the local community and terminal workers. By investing in terminal modernization and infrastructure upgrades, Alternative 1 creates job opportunities and stimulates economic growth, fostering socio-economic development in the region. The modernization of facilities not only enhances operational efficiency but also improves working conditions for terminal personnel, ensuring their safety and well-being. The positive social outcomes of Alternative 1 extend beyond the terminal gates, contributing to community resilience, empowerment, and inclusive growth. By prioritizing social welfare and stakeholder engagement, Alternative 1 aligns with Angola's socio-economic development objectives and fosters a conducive environment for sustainable development and prosperity.

Technical Feasibility

- **Alternative Zero**: maintaining the status quo may exacerbate existing technical challenges such as structural instability, drainage issues, and outdated utilities. Without intervention, these technical limitations may hinder the terminal's functionality and resilience.
- **Alternative 1**: the proposed rehabilitation works are technically feasible and address key infrastructure deficiencies through upgrades and modernization. Integration of advanced systems

and infrastructure improvements enhances operational efficiency and resilience, ensuring the terminal meets industry standards and requirements.

Modernization and Expertise

- **Alternative Zero:** continuing with the current terminal condition limits opportunities for staff training on advanced port systems and modernization initiatives. The absence of modern equipment and technologies hampers skill development and expertise enhancement.
- **Alternative 1:** the proposed rehabilitation modernizes the port, offering opportunities for staff training on advanced port systems, including the operation of STS cranes. By introducing modern equipment and technologies, Alternative 1 enhances expertise, improves operational efficiency, and fosters skill development among terminal personnel.

In summary, while Alternative Zero represents the continuation of the current situation, Alternative 1 offers a comprehensive solution to address existing challenges and improve the Unicargas Terminal's overall performance, safety, and sustainability. By prioritizing infrastructure rehabilitation, modernization, and operational efficiency, Alternative 1 presents a more viable and beneficial course of action for the long-term development and success of the terminal.

8.3. Justification of the selected solution

The aim of the Unicargas Terminal rehabilitation project is to achieve maximum utilization of its capacity, which can effectively meet transportation and development expectations. The selection of Alternative 1 for the rehabilitation and improvement of the Unicargas Terminal is a strategic decision rooted in various compelling factors and informed by the recent developments surrounding the concession agreement and the endorsements from key stakeholders.

Furthermore, the endorsements and statements from prominent authorities, including Minister of Transport of Angola, highlight the strategic significance and broader implications of Alternative 1 for Angola's economic development and maritime trade landscape. Minister's acknowledgment of the transformative potential of the strategic partnership between AD Ports Group and the Angolan government reflects a shared vision for modernizing infrastructure, expanding global trade access, and stimulating economic growth across Central-West Africa.

Moreover, the specific provisions outlined in the concession agreement, including the upgrade of the terminal to a container and Ro-Ro terminal, expansion of concession area, installation of modern equipment, and modernization of IT systems, further solidify the rationale for selecting Alternative 1. These provisions not only address existing infrastructure limitations and capacity constraints but also position the Unicargas Terminal as a state-of-the-art maritime facility capable of meeting the evolving demands of global trade and commerce.

In summary, the selection of Alternative 1 for the rehabilitation and improvement of the Unicargas Terminal is justified by its comprehensive scope, robust financial backing, strategic endorsements from key authorities, and alignment with the objectives outlined in the concession agreement. By prioritizing infrastructure modernization, operational efficiency, and sustainable development, Alternative 1 represents a transformative opportunity to propel Angola's maritime industry forward, enhance global competitiveness, and foster socio-economic prosperity across the region.

In addition to the comprehensive scope and strategic endorsements already outlined, the selection of Alternative 1 for the rehabilitation and improvement of the Unicargas Terminal is further justified by its alignment with international best practices and regulatory requirements, particularly in environmental and social aspects. The International Finance Corporation (IFC), a member of the World Bank Group, sets stringent environmental and social standards for infrastructure projects, aiming to minimize adverse impacts and promote sustainable development. Alternative 1 not only addresses the environmental degradation associated with the current terminal condition but also implements mitigation measures to minimize ecological harm and enhance environmental sustainability. The rehabilitation plan includes the removal of waste from the marine side and the adoption of modern sustainability initiatives, such as energy and water efficiency measures, in compliance with IFC requirements. Moreover, the integration of social impact assessments, stakeholder engagement, and community development programs demonstrates a commitment to addressing social concerns and fostering inclusive growth, as per IFC guidelines.

Furthermore, the selection of Alternative 1 aligns with Angolan legislation requirements regarding environmental protection and social welfare. Angola has enacted laws and regulations to safeguard the environment, promote sustainable development, and protect the rights of local communities. By adhering to these legal frameworks and incorporating environmental impact assessments, Alternative 1 ensures compliance with Angolan legislation, thus mitigating legal risks and reinforcing the project's legitimacy. Additionally, the inclusion of monitoring mechanisms and periodic evaluations enables ongoing compliance with regulatory requirements, facilitating adaptive management and continuous improvement throughout project implementation.

In summary, the adoption of Alternative 1 for the rehabilitation and improvement of the Unicargas Terminal not only meets the technical feasibility and economic considerations but also demonstrates a strong commitment to environmental sustainability, social responsibility, and legal compliance. By integrating environmental and social considerations into the project design, implementing mitigation measures, and ensuring ongoing monitoring and compliance, Alternative 1 not only aligns with international standards and best practices but also contributes to the long-term resilience and prosperity of Angola's maritime sector.

9. PROJECT AREA OF INFLUENCE

According to IFC Performance Standard N° 1, where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, environmental and social risks and impacts will be identified in the context of the project's area of influence.

This area of influence encompasses:

- The area likely to be affected by:

  (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project;
  (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or
  (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.

- Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

9.1. Environmental Area of Influence

Regarding the direct influence area, the information to proceed encompasses the site surveys campaigns carried out during last months as well as the aerial acoustic modelling study (included in Annex 1 of Volume III), in addition to data gathered and analyzed throughout the ESIA itself.

However, some information referring to associated facilities is not available, and some assumptions had to be made (i.e. about the dredging project, which is not part of this project, only its perimeter and depth to achieve is known).

Furthermore, referring to cumulative impacts, EN-100 road is already influencing negatively the area's noise levels. Data considered to accomplish noise modelling of the infrastructure are specified in the report, although no future estimations of traffic have been introduced. Any other project which might be planned in the area for the near future (or in a short period of time) have not been considered, as well as modifications in existing ones either.

In any case, it will be considered that the areas of influence for direct impacts include the physical and biological components that are affected by the project footprint due to:

- The physical space across which all project activities occur.
- Part of the project is located in Protected Areas or a Protected Areas Buffer Zone.
- Project activities which occur on territories of Native or Indigenous Communities.

Thus, the project area of influence is determined to encompass cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned, or reasonably defined developments at the time the risks and impact identification process is conducted.

So, the Direct Influence Area (DIA) includes the surroundings of the area directly impacted by the project. The footprint includes the area occupied by the infrastructures to be established both in the marine and the terrestrial side. In the construction phase, the footprint also includes the temporary facilities area defined, located within the limits of the plot, in the south part.

The area of indirect influence (IIA) consists of the transit routes used by vehicles, personnel and heavy machinery. The area of indirect influence also includes areas close to the project where fauna can be disturbed and repelled during the construction and operational period. This may be the result of machinery noise, personnel movement, vehicle noise and / or generators, among others.

It is important to highlight that the port terminal is already operational and that the project involves its remodeling. This means that the main environmental factors are already altered compared to their original state, and what needs to be considered for impact assessment are the modifications that the project may

bring about to the current state. In this sense, it should be noted that the port has a general operational environmental license that has been recently renewed after relevant checks and monitoring, ensuring that current port activities comply with environmental requirements, regulatory standards and the Management Plan (Annex 4 of Volume III).

As mentioned earlier, this influence area includes the new dredging of the access area as an associated facility, whose effects must be considered alongside the potential impacts of the project on the environment. This has been regarded as a potential cumulative impact, in addition to works such as upgrades to the electrical grid or external roads and facilities beyond the ADPG plot boundary, as they will also benefit users from other terminals operating in the Port. Detailed information is currently unavailable to achieve a coherent assessment. However, this is a separate project that requires a different environmental procedure and is being developed concurrently by another company. Therefore, the impacts identified in the corresponding study, likely stemming mainly from silt dispersion, seabed dredging, and removal of seabed material, should be considered as synergistic effects of the current project. Currently, this information is also unavailable, although the approximate area to be dredged is depicted in the following figure.

Figure 15. Project and associated facilities location

9.2. Social Area of Influence

For social and community health impacts, it is useful to consider Area(s) of Influence for direct impacts and Area(s) of Influence for indirect impacts. The Areas of Influence for direct impacts will include the households and communities that will be affected by the Project Footprint due to:

- their location within the Project Footprint (including footprint of associated facilities);

- their location within the Area(s) of Influence for environmental resources, such as air or water quality, noise and vibration, visual and landscape, etc.
- impacts on livelihood resources that will be affected by the Project (agricultural or grazing land, fisheries, forest resources); or
- their connection to cultural, social or health resources that will be impacted by the Project.

In this regard, it is important to highlight that the area where the project will be developed is within a restricted access zone with strict security measures and access controls. Therefore, the potential social impact and consequently the delineation of the area of influence are not comparable to what might occur in an area near residential areas or with unrestricted vehicle and pedestrian traffic. Both the vehicles and personnel in the vicinity of the project are related to port activities and have the necessary permits and authorizations to transit through the area and carry out the corresponding activities. This access control and activity regulation significantly reduces the social influence area.

The following figure, developed as part of the Noise Study, provides an overview of the land uses in the Unicargas Terminal and adjacent areas, confirming the limited number of residential buildings in the area and its predominantly industrial character.

Figure 16. Land uses at Unicargas Terminal and adjacent areas. Source: Noise study (Acusttel 2024)

The Area(s) of Influence will also typically consider populations that will experience indirect or induced impacts that may not be within the direct control of the Project, such as:

- economic opportunities associated with employment and economic spend;
- interaction with the workforce;
- use of services by the workforce;

The Area(s) of Influence for indirect impacts may be far more geographically extensive than for direct impacts but will commonly focus on larger population centers within this larger geographic extent.

9.3. Project's area of influence

As mentioned in the previous sections, once the baseline has been analyzed to determine the environmental factors present in the project's surroundings that may be affected by it, an assessment of the foreseeable impacts and the establishment of mitigation measures to minimize, correct, or compensate for those impacts has been made. It is important to highlight that fieldwork carried out has also been analyzed and helped verify and confirm some data regarding the project's environment and how it may be affected by it.

To establish the areas in the vicinity that may be affected by the project (along with the potential cumulative impacts resulting from the associated facilities), several assumptions have been made:

- Impacts localized on the terrestrial surface have been depicted, as they will solely affect the terrestrial environment (although it is evident that noise or vibrations, for example, will also have repercussions on the marine environment). Similarly, this applies to marine impacts.

- For the terrestrial impacts, primarily focused on air quality and dust emissions, a buffer area of 200 meters from the project layout has been delineated. This area encompasses the surface where most of the effects will be significant. The same distance for the buffer area has been considered in the marine side, since for the rehabilitation of the quay is considered enough. However, the dredging project will add potential impacts to a larger area.

- Regarding the increase in noise levels, the noise study carried out modeled the construction and operational phase noise levels, achieving threshold values. This modeling was conducted for both daytime and nighttime scenarios. Since it is anticipated that work will be carried out during the daytime, only this information has been considered. Additionally, operational phase data have been selected because construction activities will be temporary, and few residential buildings outside the terminal's boundary are located in areas where values exceed 55 dBA (see the following figure).
  Furthermore, in addition to noise estimation values during the operational phase, road values from EN-100 have been included in the analysis due to the cumulative impact that will be generated (values modeled just for the operational phase activities show that no residential buildings will be affected by exceeded values).
  As a reference noise value, the one for residential, institutional, and educational areas has been selected instead of the industrial one (which rises to 70 dBA). This conservative approach ensures that precautions are taken to avoid/minimize the impact on the surrounding population.

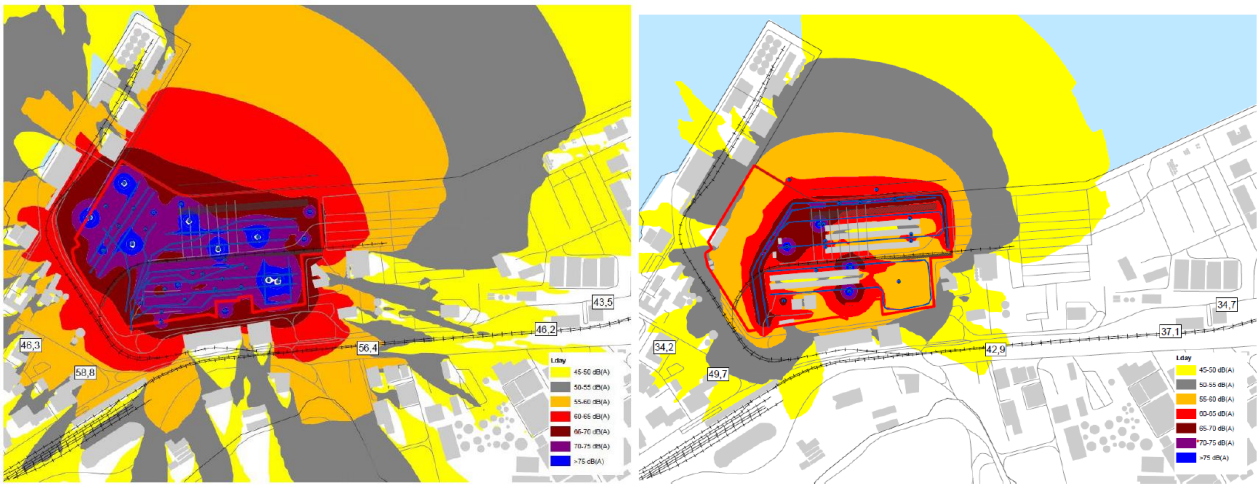


Figure 17. Construction and operational noise levels for day period (07:00-22:00 h). Source: Noise Study (Acusttel, 2024)

Noise lines do not reflect at any moment underwater noise but aerial one at the marine side.

- Regarding the marine impacts, a buffer area of 800 meters from the dredge surface contour of the referred associated facility has been delineated. The fines dispersion, which will be one of the most significant effects, is directly related to the existing currents. Luanda Bay is a semi-enclosed area where extreme waves or strong currents are not expected. This area is where potential cumulative impacts, from rehabilitation of the quay wall and dredging project -associated facility- will occur.

The flowing maps show the process of defining the final area of influence, overlapping information to achieve the final outline.

First, the following map displays the limit of the project with the 200 m buffers area, both marine and terrestrial side, as well as the line which delimitates the 55 dBA noise value during operational phase. It will reflect the area of influence of the project itself, without considering associated facilities or cumulative impacts.

Figure 18. Marine and terrestrial areas that will receive the main impacts of the project

The following figure includes the dredging project boundary, referred to as an associated facility as it is not part of the present project, along with its 800 m buffer potential affected zone. The marine areas where potential cumulative impacts are likely to occur have been identified. These are the zones where the dredging project and its 800 m buffer potential impact area, and the 200 m buffer from the rehabilitation of the quay, coincide.

Aside from the dredging works, the required marine activities (rehabilitation and repair of existing quays, implying seabed cleaning works that could require a certain degree of excavation in some cases) will be situated along the boundary between the terrestrial and marine areas. This area will also experience significant effects.

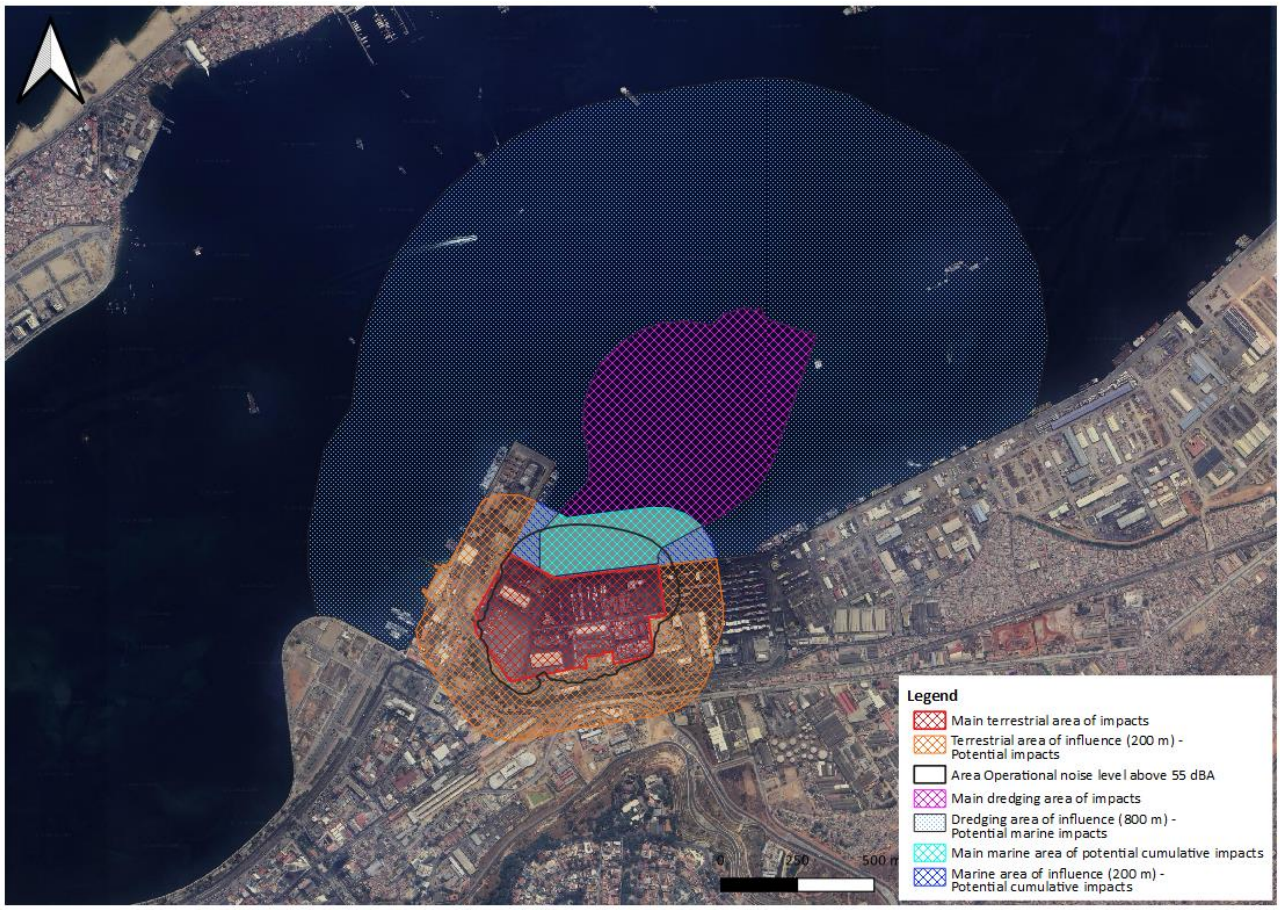


Figure 19. Marine and terrestrial areas that will receive the main impacts of the project adding the dredging project -associated facility-

Aside from the dredging project, as already said, the influence of the road EN-100 in terms of noise is remarkable and thus, it has been included in the analysis to determine the area of influence of the Unicargas development project.

The following map represents the complete extent of the project's area of influence, considering not only the main impacts related to the development itself but as explained, the associated facilities and adjacent infrastructure potential cumulative impact zones.

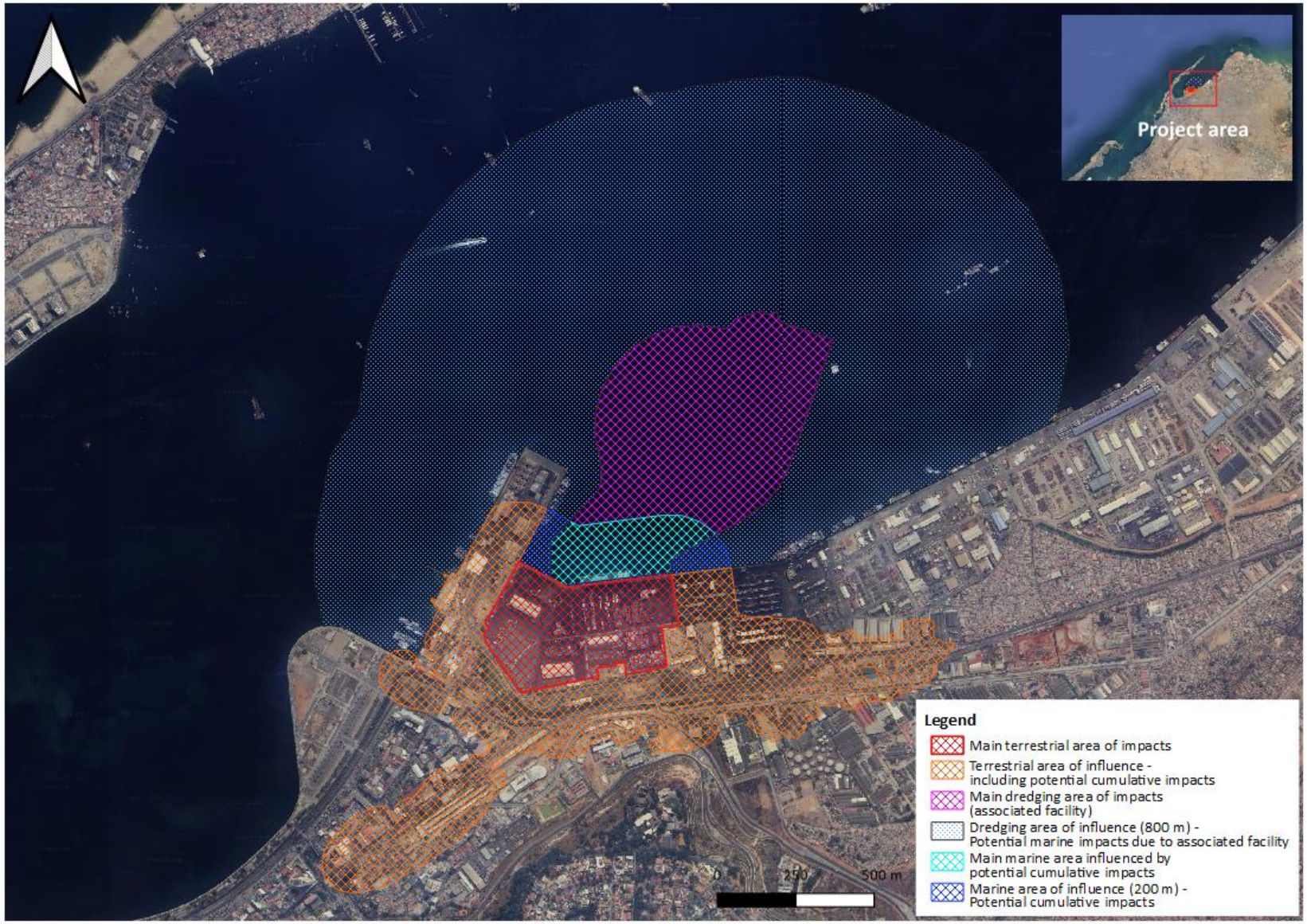


Figure 20. Marine and terrestrial areas that will receive the main impacts for the project

10. PHYSICAL, BIOLOGICAL, AND SOCIO-ECONOMIC BASELINE CONDITIONS

10.1. Data sources

To approach the physical baseline conditions of the project area, several sources have been consulted to obtain relevant information and data. This literature was completed with a site visit, which took place in November 2023 and that was reported in Deliverable 1: Environmental Permit Application.

For climate data, the following sources were explored: Instituto Nacional de Meterologia e Geofísica -INAMET-; Climate Change Knowledge Portal -CCKP- and general website Weatherspark.

In addition, the Environmental Conditions Assessment Document, by Dar Al Handasah Consultant (Doc number 2800-107-V3-0000-02001) October 2023-updated in January 2024) also served as a data source for wind and waves.

Air Quality data were obtained from Air Quality Index -AQI-, as no local/regional data network exists. The index mundi web, https://www.indexmundi.com/, on its section of Environment - Air pollution, has also been consulted. Qualitative information as well as local/regional characterization have been obtained from some research: Pascoal M. D. Campos, José C.M. Pires, Anabela A. Leitão. "*Assessment of aerosols over five cities of Angola based on MERRA-2 reanalysis data*"; Air Quality Policies in Angola (UN Environment Program 2015); to L. Ferreira-Baptista and E. de Miguel (2002) "Geochemistry and risk assessment of street dust in Luanda, Angola: A tropical urban environment"; Sandra Sorte, Vera Rodrigues, Carlos Borrego, Alexandra Monteiro. "*Impact of harbor activities on local air quality: A review*".

No noise data has been collected and the information referred to is qualitative. From the research "*Ruído urbano na área central de Luanda*", by Wilma Fernandes e Júlio César Torres at RAS-Revista Angolana de Sociologia no 14, December 2014, local information has been obtained, including registered data references.

The geotechnical study and the bathymetry survey carried out for the project have been consulted and data extracted from them.

The book "*Biodiversity of Angola. Science & Conservation: A Modern Synthesis*", by Brian J. Huntley, Vladimir Russo, Fernanda Lages, Nuno Ferrand (editors) -2019- was also looked up, in addition to Geological Atlas of Africa with notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country, by Thomas Schlüter -2006-.

Referring to maps, Geological Map of Angola 1/1,000,000 Hoja 1 (Instituto Nacional de Geologia - Ministério da Indústria, República Popular de Angola - 1988) and Soil Map of the World -Africa- 1/5,000,000 approx (FAO/UNESCO 1973) have been consulted. The soils maps of Africa, European Digital Archive of Soil Maps -EuDASM- contains the Angola Erosion Hazard Map 1/2,000,000, which has also been used.

The Hand-in-Hand -HiH- Geospatial Platform from FAO - UN has been used for several chapters as it provides relevant open-access geographic information, as well as its section AQUASTAT, which is the specific geoportal water related information.

The article "Quality assessment of water intended for human consumption from Kwanza, Dande and Bengo rivers (Angola)", by Juliana M. Paca, Francisca M. Santos, José C.M. Pires, Anabela A, Leitão and Rui A.R. Boaventura was looked up to obtain qualitative information about regional hydrology.

Additionally, information has been obtained from the Luanda Waterfront project. This project, carried out from September 2018 to September 2022, aimed to provide a biodiversity database and a deeper understanding of the causes behind poor water quality, particularly focusing on the presence of toxic species in Luanda Bay, with a comparative study to a reference site, Mussulo.

The partner institutions involved in the project include several key research centers and universities from both Portugal and Angola. These include the Centro de Ciências do Mar do Algarve (CCMAR), the Universidade do Algarve, and the Centro de Investigação Marinha e Ambiental (CIMA-UALG) from Portugal. From Angola, the Instituto Nacional de Investigação Pesqueira e Marinha and Universidade Agostinho Neto are key contributors. Together, they bring a collaborative approach to marine and environmental research, drawing on diverse expertise from both countries to achieve the project's objectives.

Since the specific studies are not yet finished and available, complementary information has been collected from different research publications related to the project: "*Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola)*" by Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio and Vânia Baptista; "*Oil, Poverty and Environment in Angola*" by José-León García Rodríguez, Francisco J. García Rodríguez and Carlos Castilla Gutiérrez; and "*Contamination of Luanda coastal areas: solutions for its mitigation*" by José Novais and José Antonio Díaz Duque, *New Records of Fish Species from the Coast of Luanda, Angola* Vânia Baptista, João Encarnação, Ester A. Serrão, Peter Wirtz, Lueji Barros Pestana, Silvana Faria, Maria Alexandra Teodósio.

Apart from these information desk sources, several site surveys have been conducted and the information gathered used to characterized the area's baseline situation. Referred to the physical environment, the campaigns carried out have included: noise survey, ambient air quality survey; ambient marine water quality survey, ambient marine sediments quality survey as well as soil quality and contamination desktop and visual assessment. All the studies have been summarized and included in relative sections.

10.2. Physical baseline conditions

10.2.1. Climate

The Instituto Nacional de Meterologia e Geofísica -INAMET- shows on its website[3] graphics correspondent to the national trimestral rainfall values, "Normais Climatológicas Trimestral Precipitação", for the period 1991-2020 (from September to May), as well as national monthly rainfall graphics (from Sep 2021 to April 2022 - rainfall season).

Data origin, as said in the graphics, are CHIRPS and African Rainfall Climatology (ARC 2). The first one, Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS), combines data from real-time observing meteorological stations with infra-red data to estimate precipitation, and runs from 1981 to near present. The African data set covers the area from 40ºN to 40ºS and from 20ºW to 55ºE and includes data at a 0.10º grid at a 6-hour time step. The African Rainfall Climatology (ARC2) is a 29-year precipitation estimation dataset centered over Africa at 0.1º spatial resolution. It uses inputs from the European Organization for the

[3] http://inamet.gov.ao/ao/monitoramento-climatologico/ and http://inamet.gov.ao/ao/normais-climatologicas/

Exploitation of Meteorological Satellites (EUMETSAT) and Global Telecommunication System (GTS) gauge observations reporting 24-h rainfall accumulations over Africa.

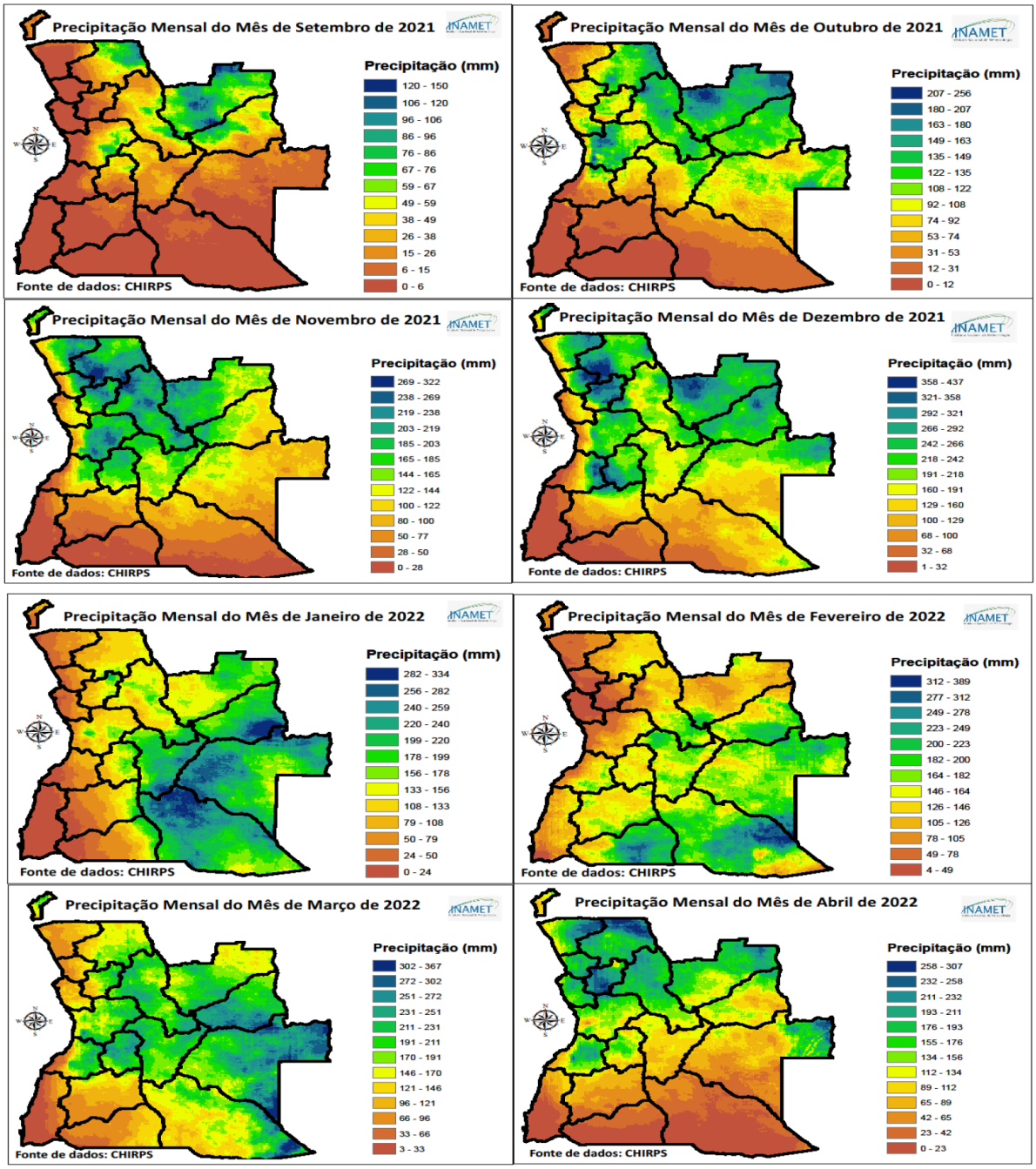


Figure 21. Balance of rainfall season 21-22. Source: INAMET

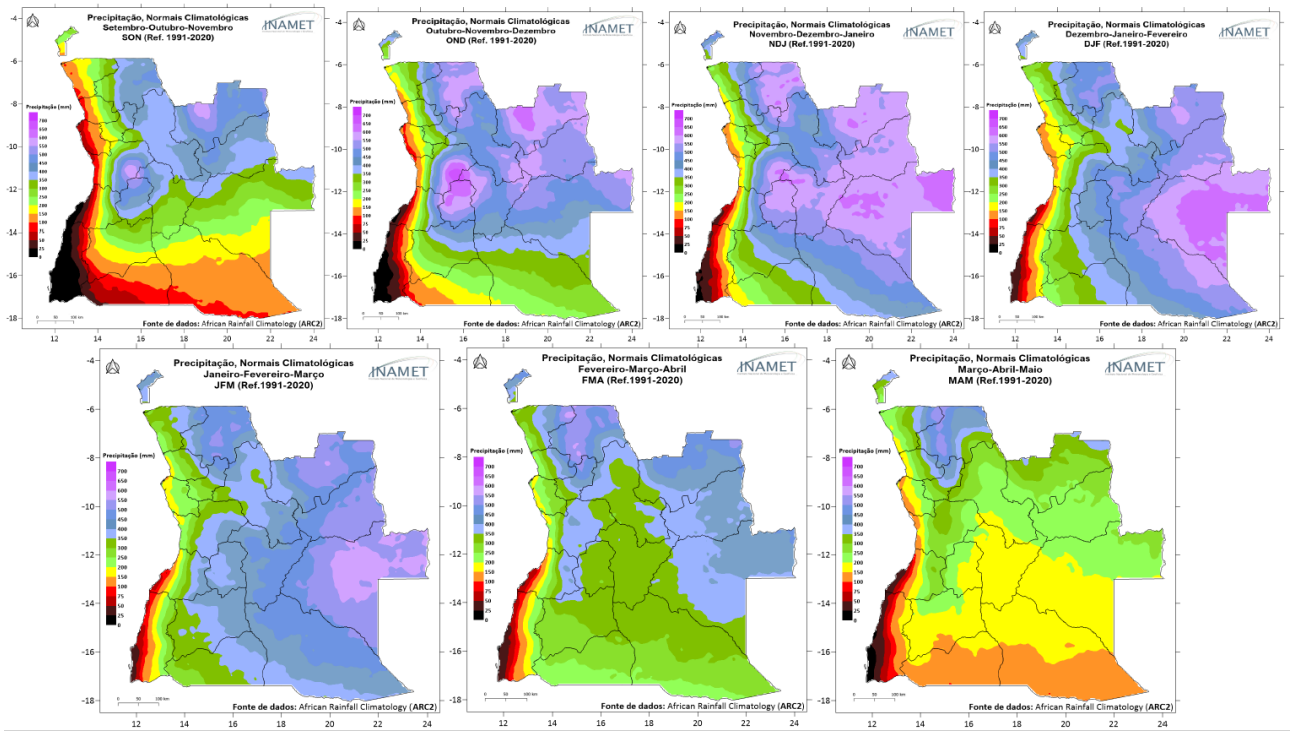


Figure 22. Trimestral average rainfall 1991-2020. Source: INAMET

No temperature, wind or extreme data values are published on INAMET website. As the information has a national scale, other sources to obtain regional data, closer to the project scale, have been sought.

The Climate Change Knowledge Portal[4] -CCKP- is the hub for climate-related information, data and tools for the World Bank Group -WBG-. Angola is characterized by a tropical climate at its North and subtropical at the South, with two differentiated seasons: the rainy one, from September to May, and the dry one, called "Cacimbo", from May to September. Along its longitude, 1.277 km North-South, and latitude, 1.236 km East-West, Angola presents different climate types.

According to Köppen-Geiger Climate Classification[5] (data 1991-2020), as shown on Figure 23, there are five classes along the country. From Northeast to Southeast, these are: tropical savanna (As/Aw), monsoon-influenced temperate oceanic or subtropical highland (Cwb), monsoon-influenced humid tropical (Cwa), hot semi-arid (BSh) and hot desert (BWh). The project, located in Luanda city at the northwest, is included in the hot semi-arid class (BSh), characterized by a mean annual temperature of at least 18ºC or a mean temperature greater than 0ºC in the coldest month. This climate is intermediate between desert climates and humid climates in ecological characteristics and agricultural potential.

[4] https://climateknowledgeportal.worldbank.org/

[5] *Created by Wladimir Köppen in 1884 and lately reviewed, describes each climate with three letters which describes temperatures and rainfall characteristics. Is based on natural vegetation, thus its distribution is directly related with climate, The classes are based on temperatures and rainfall, monthly and annual averages, as well as seasonal rainfall. World is divided in 5 types, and the arid one (low precipitation, annual precipitation is between 50-100% of precipitation threshold, average annual temperature above 18ºC, from low-latitude climates) includes the hot semi-arid one, which is typical from latitudes of the tropics and subtropics, in proximity to tropical savanna and hot desert climate. These climates tend to have hot, or extremely hot, summers and warm to cool winters, with some to minimal precipitation.*

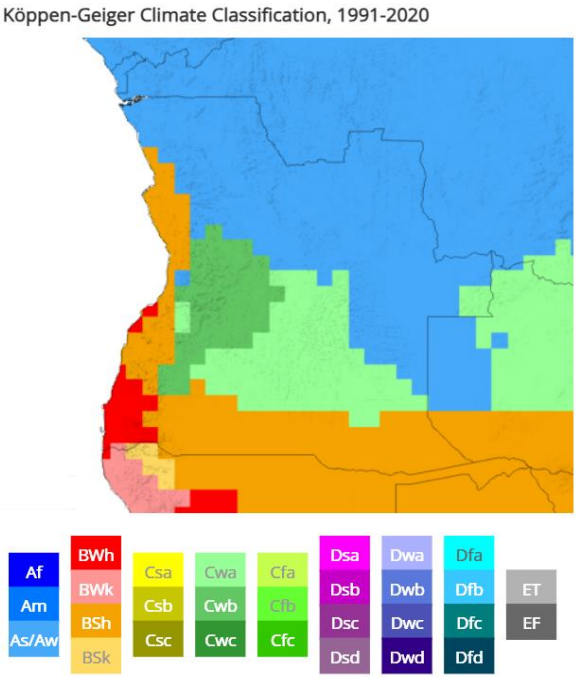


Figure 23. Angola's Köppen-Geiper Climate classification 1991-2020.Source: CCKP (2024)

As said before, to approach closer the project, regional scale is more convenient. The Development of Unicargas terminal in Luanda's Port project is located in Luanda city, and thus data (1991-2022) from Luanda province and from the whole country have been selected for the analysis.

The annual averages temperatures in Luanda region are above national values (21.16 and 24.65ºC for minimum and mean versus 14.96 and 21.77ºC), except for the maximum temperature where no significant difference is found. Regarding monthly values, as shown in Table 10, it can be remark than mean and minimum temperatures are more elevated at Luanda, especially for minimum one (i.e. more than 8ªC in June). Matching with the dry season, national values for average maximum temperature are higher than provincial ones, although during the other months is the opposite.

	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Angola													
Tª mean	21.77	22.77	22.89	22.94	22.48	21.12	18.84	18.48	20.35	22.30	23.36	22.95	22.81
Tª min	14.97	17.19	17.36	17.33	16.20	13.57	10.54	10.05	12.03	14.60	16.63	16.98	17.21
Tª max	28.62	28.39	28.47	28.60	28.82	28.72	27.19	26.96	28.72	30.06	30.13	28.97	28.46
Luanda													
Tª mean	24.65	26.15	26.74	27.00	26.75	25.64	22.88	21.54	21.38	22.60	24.19	25.33	25.63
Tª min	21.16	22.71	23.17	23.43	23.30	22.07	18.87	17.84	17.84	19.16	21.01	22.07	22.44

	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tª max	28.19	29.61	30.38	30.64	30.24	29.26	26.91	25.26	24.96	26.10	27.43	28.64	28.87

Table 10. Average monthly temperatures (mean, minimum, maximum) 1991-2022 -National + project location regional value- Source: CCKP (2024)

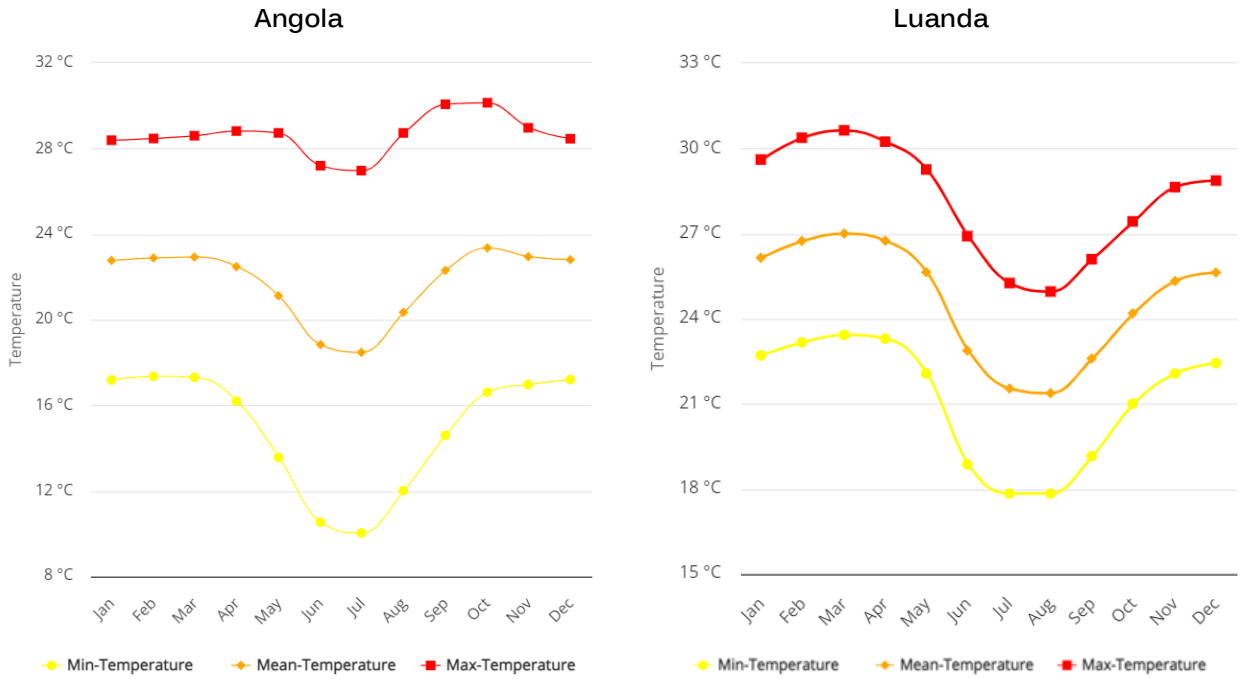


Figure 24. Average monthly mean, minimum and maximum temperature (ºC) for Angola and Luanda provinces 1991-2022 Source: CCKP (2024)

Related to rainfall (see Table 11) Luanda region receives significantly fewer precipitation amount compared to national average: 641 mm versus 1,041 mm. As expected, dry season has the minimum values, with June, July and August showing rain quantities than are nearly 0 mm. Luanda region records the highest precipitation values in during April, March and November, 178, 147 and 105 mm respectively, while national monthly average shows its maximum during nearly the whole rainy season (November to April).

Station\month	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Angola	1040.72	161.43	149.69	180.89	112.46	16.76	0.81	0.79	4.05	22.40	76.85	148.86	165.73
Luanda	640.72	45.3	60.14	147.28	178.49	15.51	0.07	0.05	0.28	3.27	23.15	105.15	62.03

Table 11. Average monthly rainfall -National + project location regional value- Source: CCKP (2024)

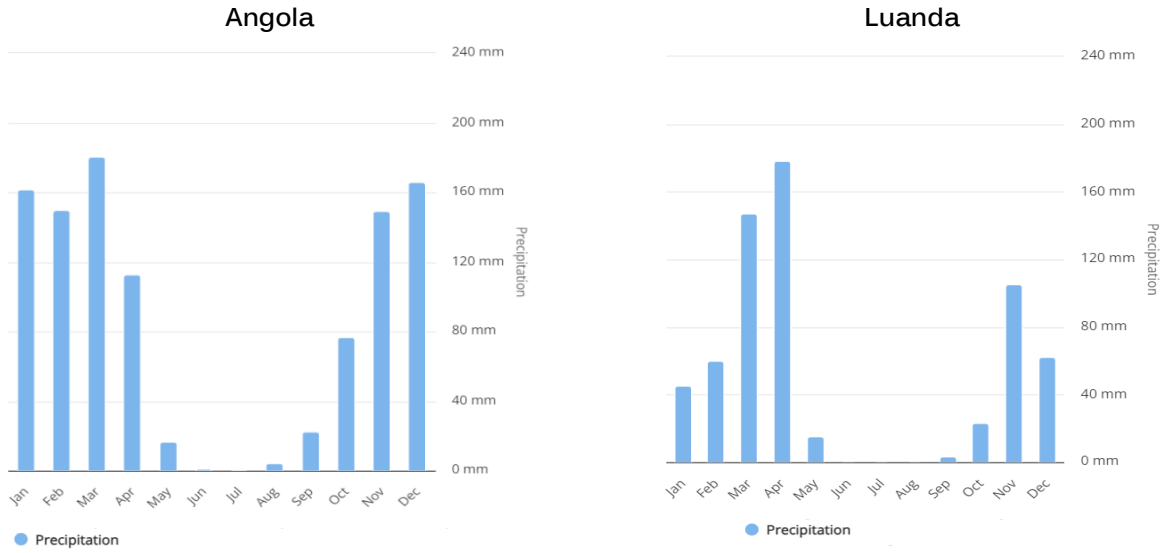


Figure 25. Average monthly rainfall (mm) for Angola and Luanda province 1991-2022. Source: CCKP (2024)

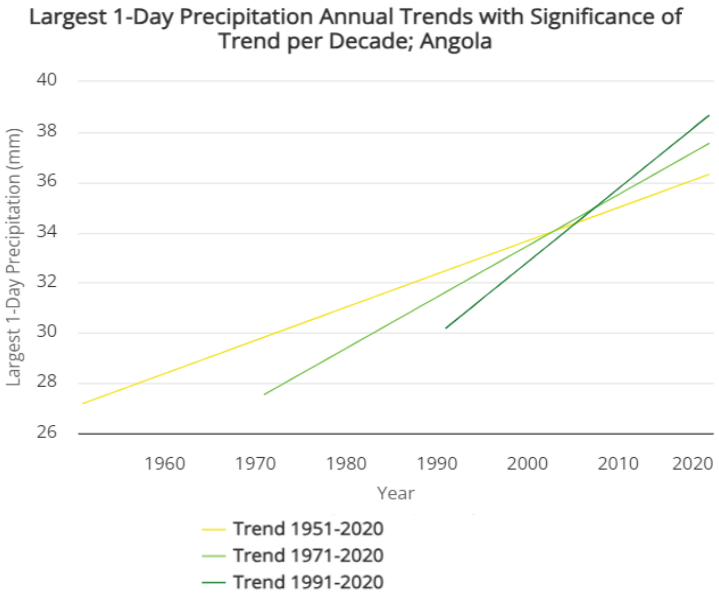


Figure 26. Largest 1-day precipitation annual trends with significance of trend per decade for Angola. Source: CCKP (2024)

The figure above shows the trend per decade for the largest 1-day precipitation annual. It reflects that extreme phenomena have a raising trend, and floods (as well as droughts) are foreseen to increase their frequency.

According to Disaster Risk Prolife of Angola (2019)[6], the analysis made of climate data from 1970 to 2015 shows an average temperature rise of nearly 1ºC, which is most remarkable from the 1980s onwards.

Although precipitation trends are not as clear as air temperature ones, over the last 40 years rainfall has marginally increased in Angola, with a large difference between very wet and very dry years (although is more pronounced in previous decades).

[6] *CIMA, UNDRR (2019): Angola Disaster Risk Profile. Nairobi: UNDRR and CIMA Research Foundation.*

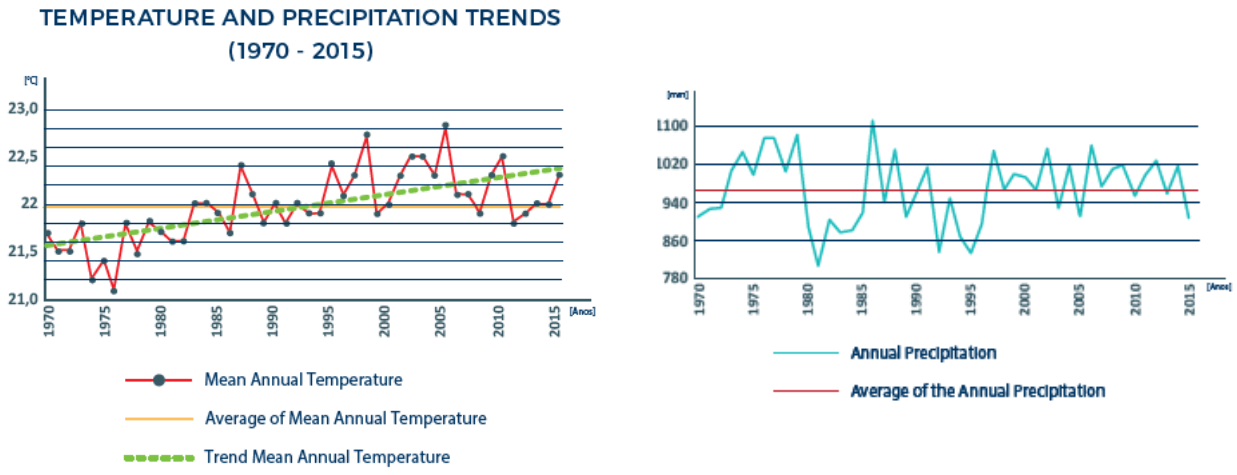
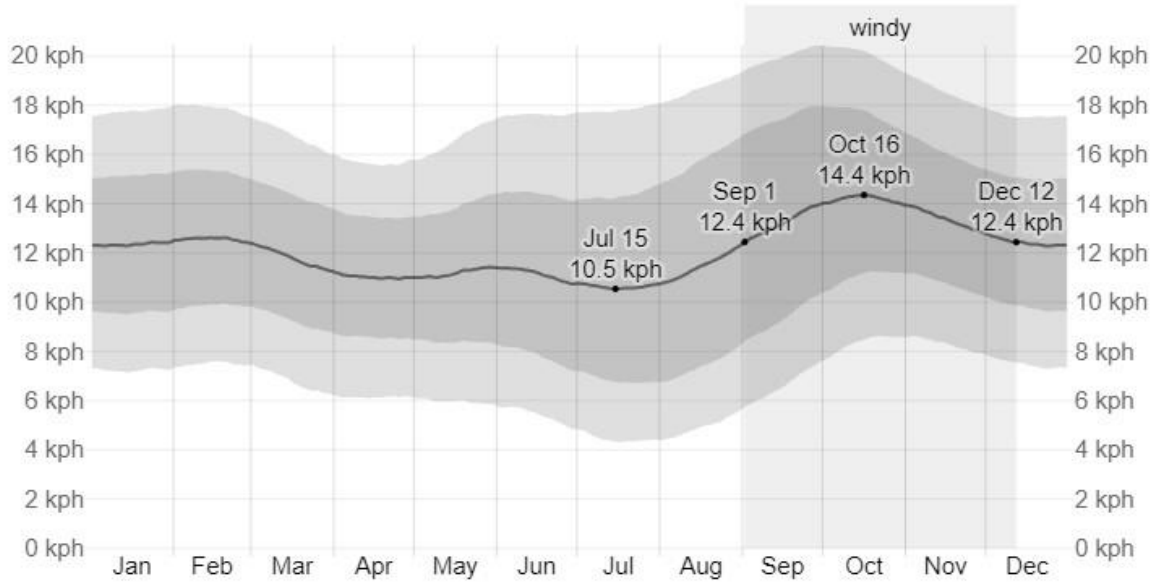


Figure 27. Temperature and precipitation trends (data 1970-2015). Source: CIMA 2019.

As neither INAMET or CCKP have wind data, a data search at weathers park has been accomplished since on its website[7] publishes wind data. The data referred to Luanda city are based on a statistical analysis of historical hourly weather reports and model reconstructions from January 1st, 1980, to December 31, 2016. Since no reliable weather station has been found in Luanda or 200 km around, weather related data have been taken from NASA's MERRA-2 satellite-era reanalysis, which combines a wide-area measurements in a meteorological model to reconstruct the history of weather on a 50 km grid.

The average of wind speed for Luanda city is shown in the following figure:



[7] https://weatherspark.com/

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wind Speed (kph)	12.4	12.6	11.8	11.0	11.2	11.1	10.6	11.5	13.2	14.2	13.4	12.4

Figure 28. Average hourly wind speed values (10 m above the ground) for Luanda. Source: Weatherspark (2024)

Wind speed is highly dependent on local topography and vary seasonally. The windier part of the year starts in August-September and lasts to December, with maximum values in October -14.4 km/h-. Minimum values are measured in July -10.5 km/h-.

The predominant average hourly wind direction in Luanda varies throughout the year, as shown in the following figure. The wind is most often from the south from half February to the end of July, and most often from the West from end of July to half February.

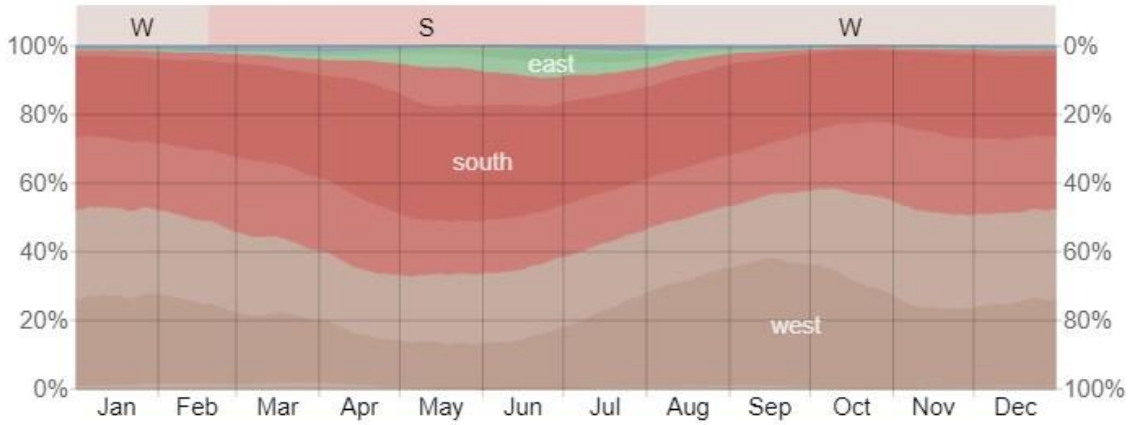


Figure 29. Wind direction (% hours in which the mean wind direction is from each cardinal wind direction, excluding hours in which the mean wind speed is less than 1.6 kph. The lightly tinted areas at the boundaries are the % of hours spent in the intermediate directions (NE, SE, NW and SW) at Luanda. Source: Weatherspark (2024)

The Environmental Conditions Assessment Document[8] refers that the predominant wind direction in Luanda Port is from the south-west for both points analyzed. These points are shown in the figure below, within their coordinates:

[8] *Dar Al Handasah Consultant. Unicargas Terminal - Port of Luanda, Angola – Front End Engineering Desing & Surveys. Environmental Conditions Assessment. Document number: 2800-107-V3-0000-02001. October 2023 (updated in January 2024)*

Point 1: 307481.27 m E. 9034551.71 m S Point 2: 307512.15 m E; 9027914.39 m S

Figure 30. Location and coordinates of Points # 1 and 2. Source: Environmental Conditions Assessment. October 2023

Data for these two points have been extracted from the Copernicus Climate Change Service, 2023 -ERA 5- being Point 1 located offshore while point 2 is inside the port bay. Timeseries of the wave/wind conditions for the period (1979-2021) was extracted from ERA 5.

Extreme wind in both sites have been evaluated, determining the extreme wind speed for different return periods along the 43-year data series. Predominant winds are coming from West and South as well as from the range of directions comprised in between. Extreme winds for return periods between 1 and 200 years vary from 6.71-7.52 m/s at point #1 and 6.61-7.65 m/s at point #2.

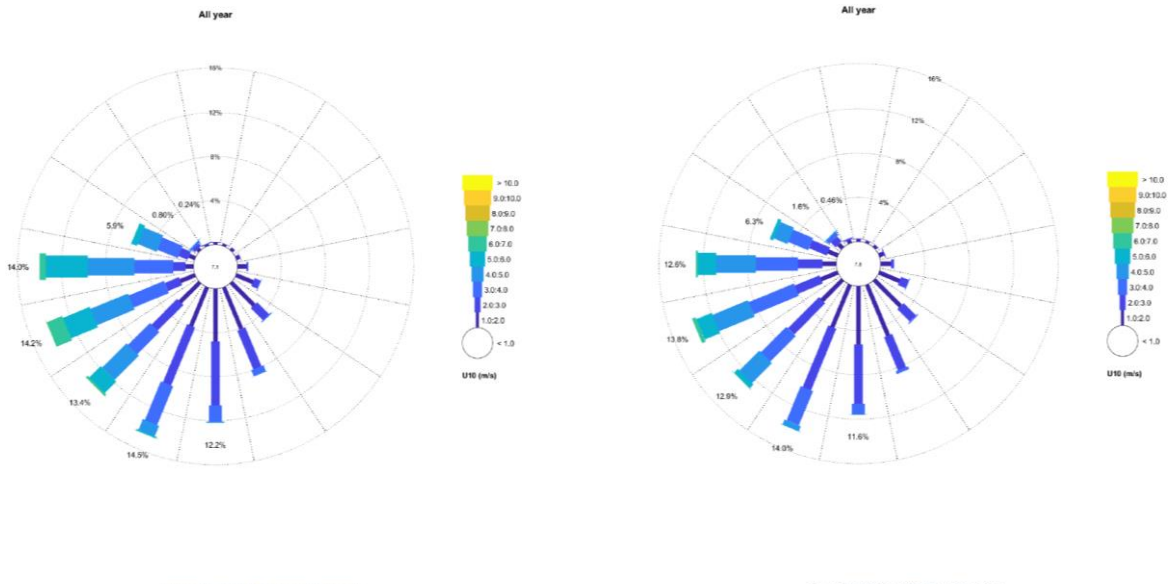


Figure 10: All Year Wind Rose for point 1 Figure 11: All Year Wind Rose for point 2

Figure 31. All year wind rose for points 1 and 2 respectively. Source: Environmental Conditions Assessment. October 2023.

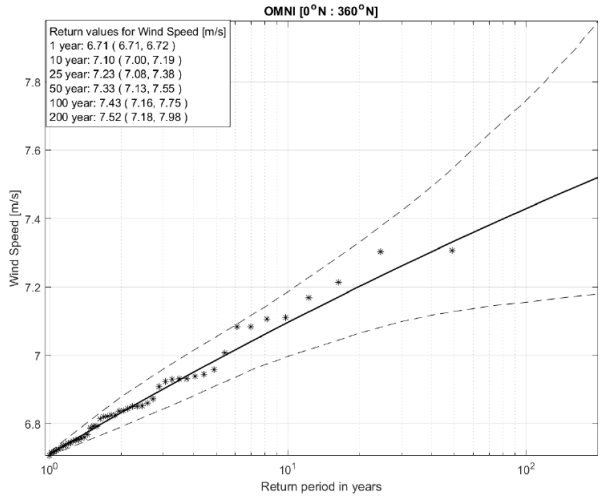


Figure 14: OMNI Extreme Wind Speed for point 1

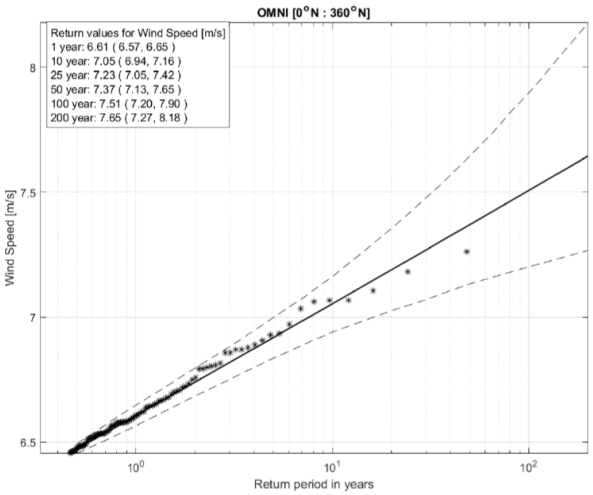


Figure 15: OMNI Extreme Wind Speed for point 2

Figure 32. OMNI Extreme Wind Speed for points 1 and 2 respectively. Source: Environmental Conditions Assessment. October 2023

Since the project takes place in Luanda's Port, waves have also been characterized. Predominant wave directions in Luanda Port are southwest and south-southwest throughout the year as the following wave rose show (only for point 1 since point 2 is inside the bay and thus protected from waves). It is also included the Wave Joint Occurrence table which presents Height (in m) versus wave direction, being the predominant direction between 214-236º -SW- for wave height values between 0.6-1.4m.

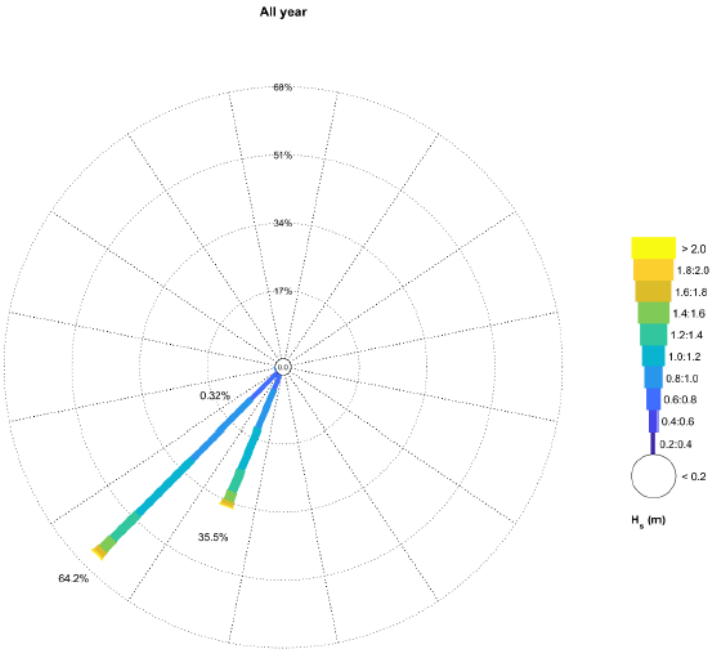


Figure 5: All Year Wave Rose for point 1

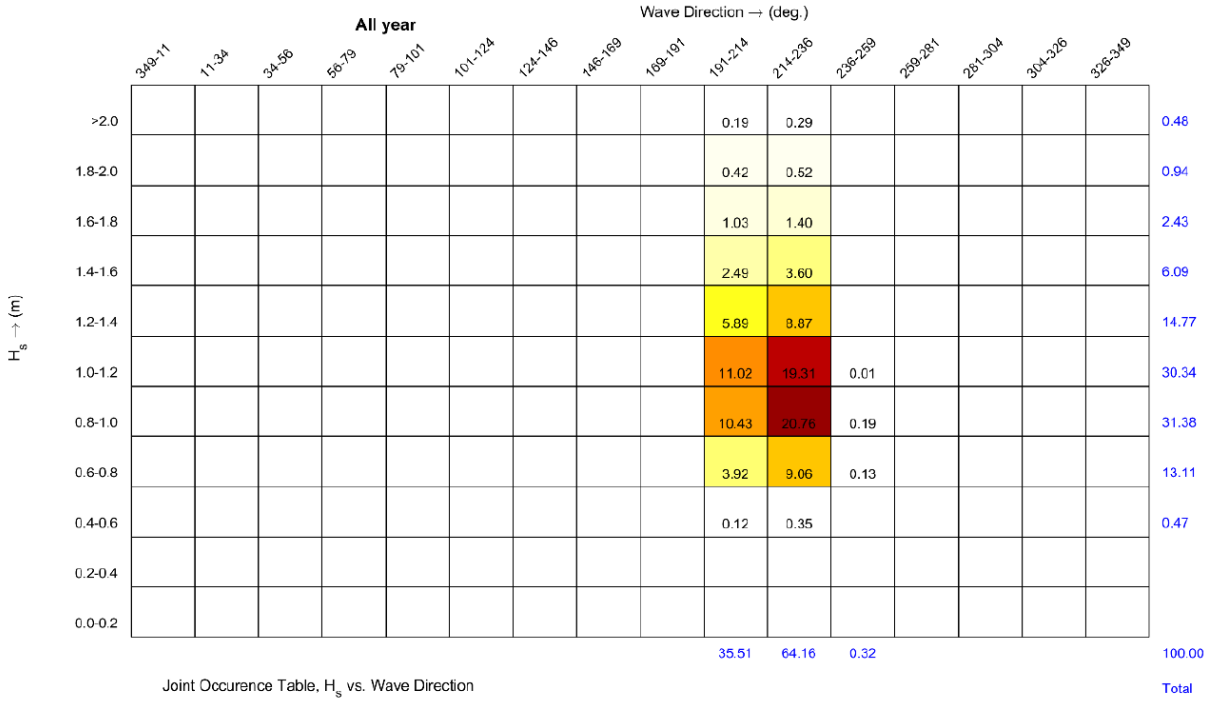
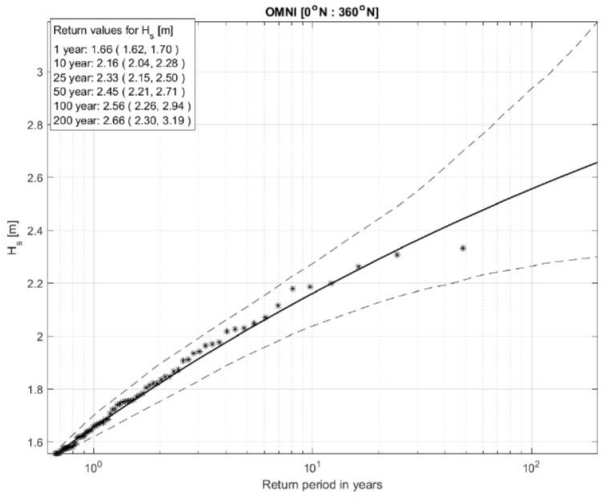


Figure 6: Wave Joint Occurrence Table Hs vs Wave Direction at ERA5 for point 1

Figure 33. All year waves rose and wave joint occurrence for point 1. Source: Environmental Conditions Assessment. October 2023

Extreme values analysis (for the 43-year time series) carried out for different return periods show values for waves height between 1.66 m and 2.66 m (return period from 1 to 200 years respectively) for all directions waves. If the analysis is focused on most predominant directions (SW and SSW) values are between 1.56-2.68 m and NaN-2.51 m respectively for return periods from 1 to 200 years.



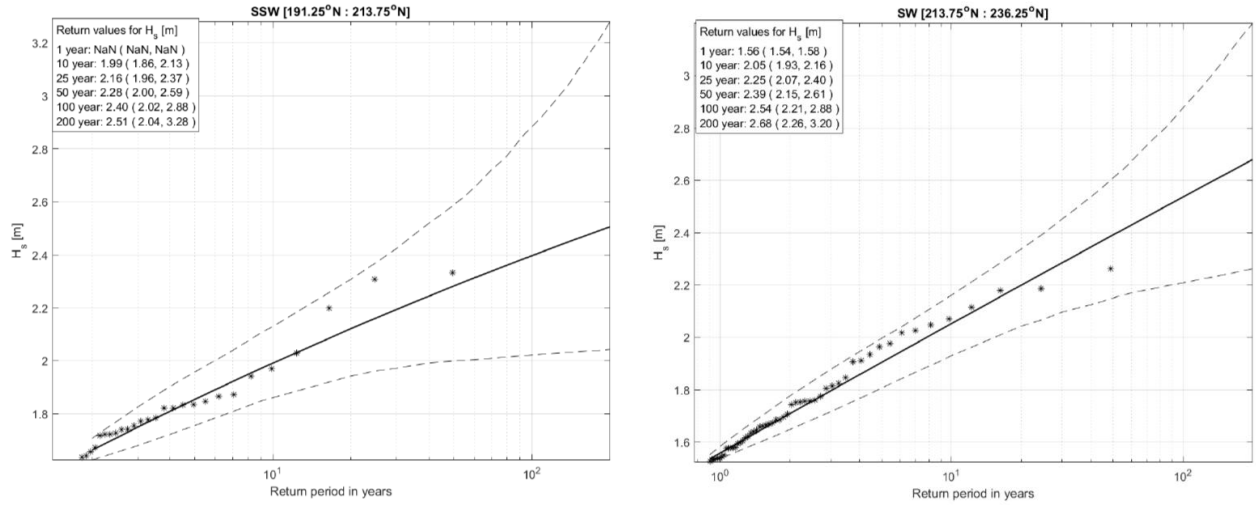


Figure 34. OMNI Extreme wave heights, SSW extreme wave heights and SW extreme wave heights for point 1. Source: Environmental Conditions Assessment. October 2023.

According to the Marine and Coastal Study made by DAR (2024)[9]-mentioned updated report-, and in order to estimate the diffracted wave heights inside Luanda's Bay, a wave model was created, as well as a wave agitation model. Conclusion states that since Luanda's Port is in a sheltered bay protected from waves and currents, wave heights inside the bay are very small compared to the offshore ones. The maximum height didn't exceed 0.3m for the 100-year return period. The current speed in the bay is also low, with an average value of 0.025 m/s. Thus, forces acting on the moored vessel from waves and current will be minimal.

10.2.2. Air Quality & Noise

10.2.2.1.Air Quality

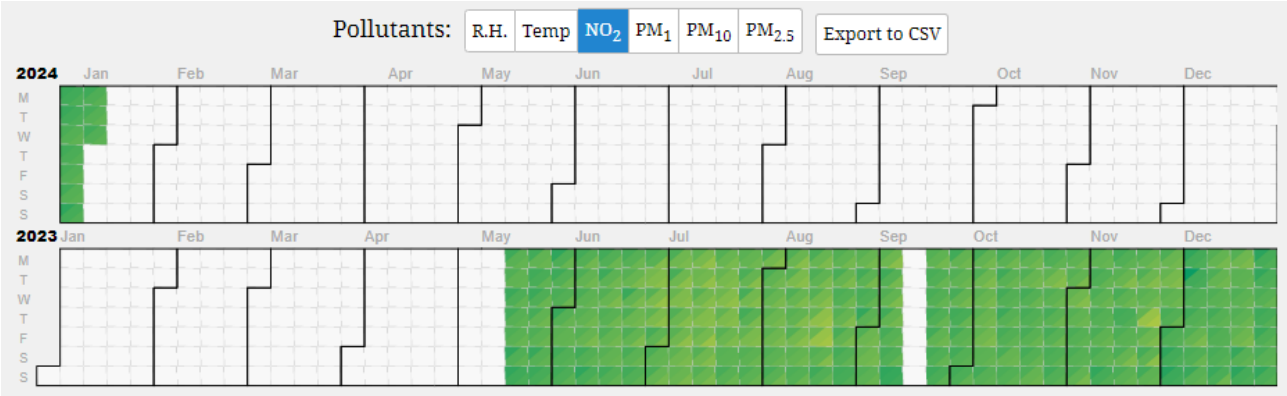
Regarding air quality, it must be highlighted that no national/regional administration source has been identified, although Air Quality Index (AQI)[10] refers data from one located at "Agostinho Neto University (UAN) Sciences Faculty, 4 de Fevereiro Avenue, Mutamba, São Paulo, Luanda, 3061 Angola". Coordinates are not mentioned but Google Earth locates the Sciences Faculty in the following point: 8º 48´ 28.07´´S and 13º 14´ 19.28´´ E. The distance to the Unicargas Terminal area varies between 1.1 and 1.5 km.

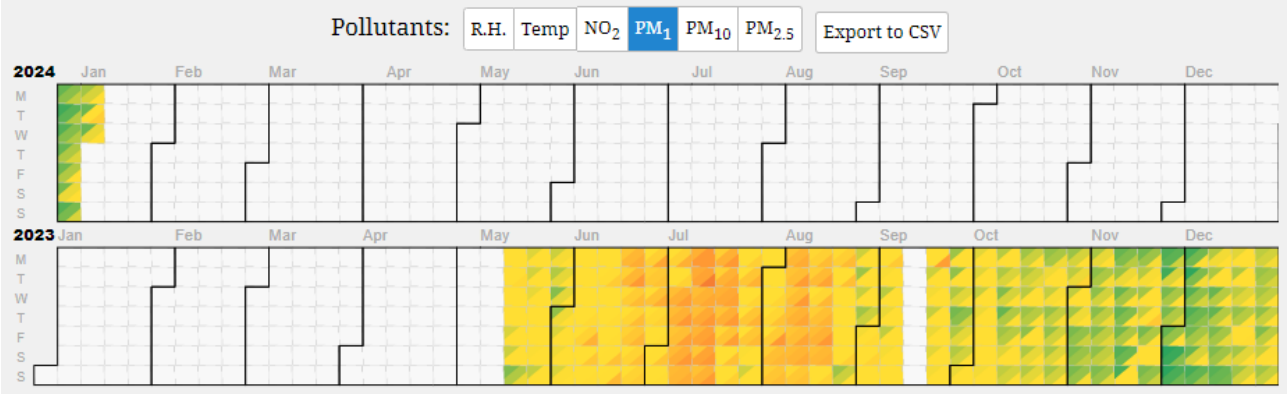
Data are available from May 15th to current days, although from September 11th to 17th there are no registers. The station measures NO_2, PM_1, PM_{10} and $PM_{2.5}$, and data are shown below. No other pollutant data is registered or available.

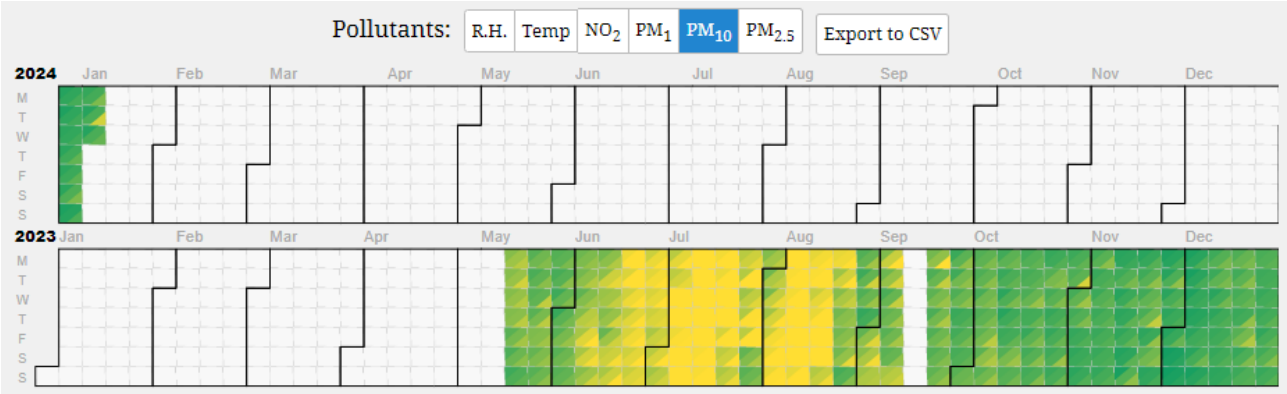
[9] *Dar Al Handasah Consultant, 2024. Marine & Coastal Environmental Conditions Assessment Report. Project title: Unicargas Terminal – Port of Luanda, Angola – Front End Engineering. Doc. number: 2800-107-V3-0000-02001*
[10] *World's Air Pollution/Air Quality Index. http://waqi.info/*

AQI	Air Pollution Level	Health Implications	Cautionary Statement (for PM2.5)
0 - 50	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	None
51 -100	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
101-150	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion
201-300	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
300+	Hazardous	Health alert: everyone may experience more serious health effects	Everyone should avoid all outdoor exertion

Figure 35. Air Quality index Luanda station location and air quality levels. Source: Air Quality Index project (2024)







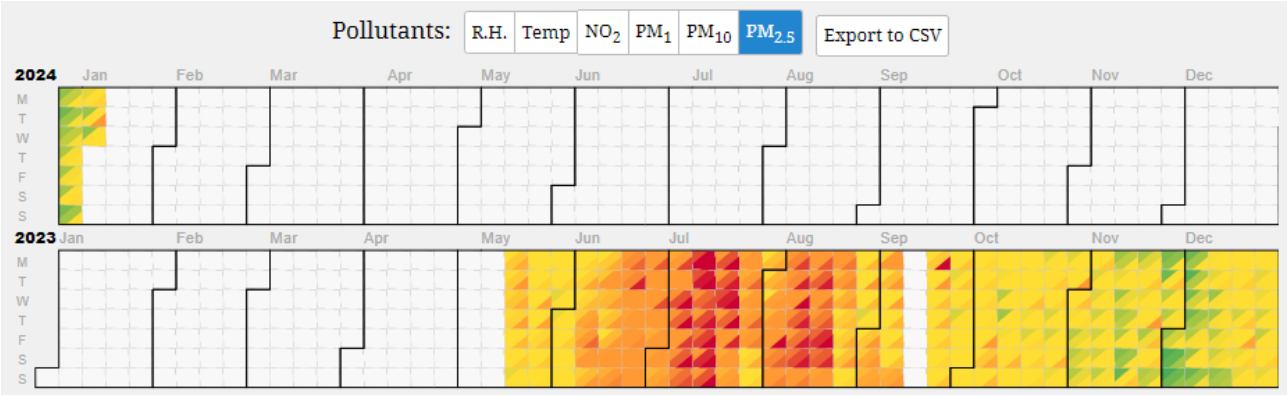


Figure 36. Air Quality index in Luanda city. Source: Air Quality Index project (2024)

As the graphics show, NO_2 haven´t posed a pollutant problem in Luanda for the last months since its measurements have been within the "good" threshold (under 50 although 98% were under 25).

Regarding particulate matter values, a distinction among them, in terms of their diameter, must be done: PM_{10} values reflect mainly good conditions, 88%, and no values above 75 (limit of first moderate range' half) while $PM_{2.5}$ values show more than half of the daily recorded values are included in "moderate" category, followed by "unhealthy for sensitive groups" that collects 26.5% (the remaining days are "good" and one "unhealthy"). PM_1 measurements present 61% within "moderate" category while the rest is "good" (except for one day included in "unhealthy for sensitive groups").

The PM pollution problem is common in African continent being the household air pollution from cooking and heating with solid fuels (burning of wood, charcoal, dung, crop waste o coal to meet basic energy needs), that create harmful smoke and particles, is one of it causes (in addition to the increase of industrialization, growing ownership of motor vehicles, etc.). In addition, Angola's most important industries are oil production and mining, being emissions from industrial sector related to oil and gas exploration and production[11]. Furthermore, PMs concentration[12] has a seasonal variation: during the dry season (from June to September), to induce resprouting for livestock fodder, to facilitate hunting and harvesting of fuel (as wood and charcoal), people induce fires. The Northern part of the country (border with the Democratic Republic of Congo) is affected by this high biomass burning, which have an extra natural cause in lighting. Also, this phenomenon takes place during the months with lack of rain, and thus, the PM concentrations values are higher.

Luanda, apart from being the capital city and thus having the largest number of industries, thermoelectric plants, motor vehicles and population density, is located close to the north border and due to the induced fires, which increase records of organic carbon affect it. Sulphate aerosol loadings were also higher at coastal cities, being again Luanda the one that presented higher concentration. Again, industries and motor vehicles are responsible, but also, at coastal cities, sea salt aerosols increase values. The same occurs with dust aerosols, which are most concentrated in coastal cities since The Namib desert is located in the coastal zone.

[11] *Air Quality Policies in Angola. UN Environment Program (2015). https://www.unep.org/resources/policy-and-strategy/air-quality-policies-angola*
[12] *Pascoal M. D. Campos, José C.M. Pires, Anabela A. Leitão. "Assessment of aerosols over five cities of Angola based on MERRA-2 reanalysis data". Atmospheric Pollution Research 13 (2022).*

In addition, Luanda region has mineral resources being exploited limestone, gravel, red soil, sand, clay and siliceous sand. The largest production is in Cacuaco while the production of siliceous sand is in Viana, contributing to generating dust pollution to ambient air.

According to L. Ferreira-Baptista and E. de Miguel (2002)[13], levels of trace elements in the street dust of Luanda are generally lower than in other cities used for comparison, except for Pb levels, which are similar or even higher. This might be due to lead gasoline, which is still in used (note that the study was developed in 2002 and currently this may have changed). However, the results point out that high levels of Se, Al, Ga, V, Th, Co and La seems to be linked to the natural materials present in the city (soil particles of the "red sands" formation) while the association of Pb, Cd, Sb and Cu (and lower loadings of Mo, Fe, Ni, Ba, Cr, Bi, Zn and Co) suggest urban influences related to traffic, uncontrolled incineration of wastes and paint flakes deteriorating old facades.

The Port location will also add to the pollution related to ships and their activity, which might also be significant and reliable. Sulphur oxides (SO_x), nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO) and polycyclic aromatic hydrocarbons (PAHs) are emitted to the atmosphere as a direct result of maritime activity. Although it is estimated that 70% of global emissions are within 400 km of the coast[14], contribution to the degradation of air quality in coastal areas and harbor cities is a reality. Pollution in harbors comes from different activities such as maneuvering ships to the activity at the dock and at berthing ship, as well as while the vessels are at berth since is common not to switch off the main engines.

Regulations aiming to control and prevent air pollution from shipping transport were introduced in the Marine Pollution Convention -MARPOL- by the International Maritime Organization -IMO-. Its Annex VI. - Prevention on air pollution from ships entered into force in 2005 so countries which have ratified the protocol shall introduce regulations to limit air pollution emissions from ships, including ozone-depleting substances, NO_x, SO_x, Volatile Organic Compounds -VOCs- and shipboard incineration.

In conclusion, although no direct air quality measures have been taken in Luanda's Port, values are expected to be significant due to the addition of shipping activity to values of pollutants already remarkable.

10.2.2.2.Air Quality baseline report

Below is a summary of the most relevant aspects of the survey conducted, which provides the necessary information to complete the baseline.

a. Introduction

In terms of legislation, Presidential Decree 138/20 of 19 May, which approves the National Environmental Quality Program (PNQA), provides a framework for environmental legislation, encouraging the government's commitment to sustainable environmental management and to improve the quality-of-life for Angolans.

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[13] *L. Ferreira-Baptista, E. de Miguel: "Geochemistry and risk assessment of street dust in Luanda, Angola: a tropical urban environment". Atmospheric Environment Vol 39 (2005).*

[14] *Sandra Sorte, Vera Rodrigues, Carlos Borrego, Alexandra Monteiro. "Impact of harbor activities on local air quality: A review". Environmental Pollution Vol. 257 (2020). Available at: https://www.sciencedirect.com/science/article/pii/S0269749119326922)*

Regarding air quality, this Decree prioritizes this environmental factor and defines the objectives for achieving the quality of this component.

Currently, air quality follows the requirements of international legislation: the United Nations Framework Convention on Climate Change, ratified in 2000, the Vienna Convention for the Protection of the Ozone Layer ratified in 1998, the Montreal Protocol ratified in 2000, the Kyoto Protocol signed in 1997 under the United Nations Framework Convention on Climate Change and World Health Organization Air quality guidelines updated in 2021. There is no Angolan legislation defining ambient air quality limits.

Air pollution is a complex mixture of solid particles, liquid droplets and gases from a wide variety of sources, such as industry, traffic, energy production, waste and agricultural activities, among others. Air pollution can be the cause of respiratory, cardiovascular and psychological diseases.

The concentrations of pollutants in ambient air depend essentially on the following factors: quantities emitted, meteorological conditions and local topography that condition their dispersion, transport, wet or dry deposition and chemical transformations. Air quality is the result of direct emissions of pollutants into the atmosphere and a series of chemical reactions to which the pollutants are subjected. Atmospheric phenomena play an important role in the processes of dispersion and transport of pollutants in the atmosphere. Pollution levels can vary considerably from one day to the next, even when the quantities of pollutants emitted are identical.

According to the "General Environmental, Health, and Safety General Guidelines" published by IFC in April 2007 construction and decommissioning activities may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from diesel engines of earth moving equipment, as well as from open burning of solid waste on-site.

In this regard, the IFC guidelines establish the following:

The air quality monitoring program should consider the following elements, among others:

- Monitoring parameters: The monitoring parameters selected should reflect the pollutants of concern associated with project processes. For combustion processes, indicator parameters typically include the quality of inputs, such as the sulfur content of fuel.
- Baseline calculations: Before a project is developed, baseline air quality monitoring at and in the vicinity of the site should be undertaken to assess background levels of key pollutants, to differentiate between existing ambient conditions and project-related impacts.
- Monitoring locations: Ambient air quality monitoring may consist of off-site or fence line monitoring either by the project sponsor, the competent government agency, or by collaboration between both. The location of ambient air quality monitoring stations should be established based on the results of scientific methods and mathematical models to estimate potential impact to the receiving airshed from an emissions source taking into consideration such aspects as the location of potentially affected communities and prevailing wind directions.
- Sampling and analysis methods: Monitoring programs should apply national or international methods for sample collection and analysis, such as those published by the International Organization for Standardization, the European Committee for Standardization, or the U.S. Environmental Protection Agency. Sampling should be conducted by, or under, the supervision of

trained individuals. Analysis should be conducted by entities permitted or certified for this purpose. Sampling and analysis Quality Assurance / Quality Control (QA/QC) plans should be applied and documented to ensure that data quality is adequate for the intended data use (e.g., method detection limits are below levels of concern). Monitoring reports should include QA/QC documentation.

Throughout the activities carried out in the fieldwork, the criteria established by IFC Guidelines and Standards were followed.

b. Methods used for the air quality survey

Equipment and sampling points

The measurement and monitoring of air pollutants aims to study and evaluate ambient air quality. The pollutants to be considered in this assessment will be those associated with the operation of the project under study and which affect human health, namely: Particulate Matter ($PM_{1.0}$ and $PM_{2.5}$), Nitrogen Monoxide (NO), Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Carbon Monoxide (CO), Hydrogen Sulphide (H_2S), Ozone (O_3) and Total Suspended Particulate Matter (TSP).

A checklist of the necessary materials was drawn up before heading out into the field to collect the samples. The materials used for collecting and sampling are shown in Table 12.

Materials and equipment	Description
GPS device	Records geographical coordinates
HAZ SCNANNER EPAS equipment	Measures air quality

Table 12. Materials and equipment used for air quality survey.

For the measurement of Air Quality, the HAZ SCANNER monitoring equipment model EPAS was used, which measured the pollutants Nitrogen Oxide (NOx), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Ozone (O_3), Total Suspended Particulate (TSP), particulate matter in diameters $PM_{2.5}$ and PM_{10}, and Hydrogen Sulfide (H_2S). This equipment demonstrates good precision and sensitivity of the measurement system, as well as considerable confidence in obtaining results with deviations of less than 10%, Table 13, except in cases where a possible point source of atmospheric disturbance may be associated.

Parameter	Equipment	Scale	Resolution	Accuracy
T, °C	Station EPAS	-10 ≈ 60	0.1	± 2.0 ºC
PM_{total}, µg/m^3	Station EPAS	0 ≈ 999	1.0	± 0.1%
Gases, ppm e ppb	Station EPAS	0 – 1000	10.0	± 0.1%

Table 13. Precision measurement methods for gases and particulate matter.

Air quality sites were characterized at three points, represented on the map in Figure 37, over a 48-hour period using the HAZ SCANNER monitoring station, utilizing measurements taken in March 2024. The measurements were taken at three locations where pollutant-emitting activities are mainly carried out and close to the nearest sensitive receptors (Figure 38, Figure 39 and Figure 40).

Figure 37. Location of air quality sampling points

Figure 38. P01 – General services cup.

Figure 39. P02 – Technical area.

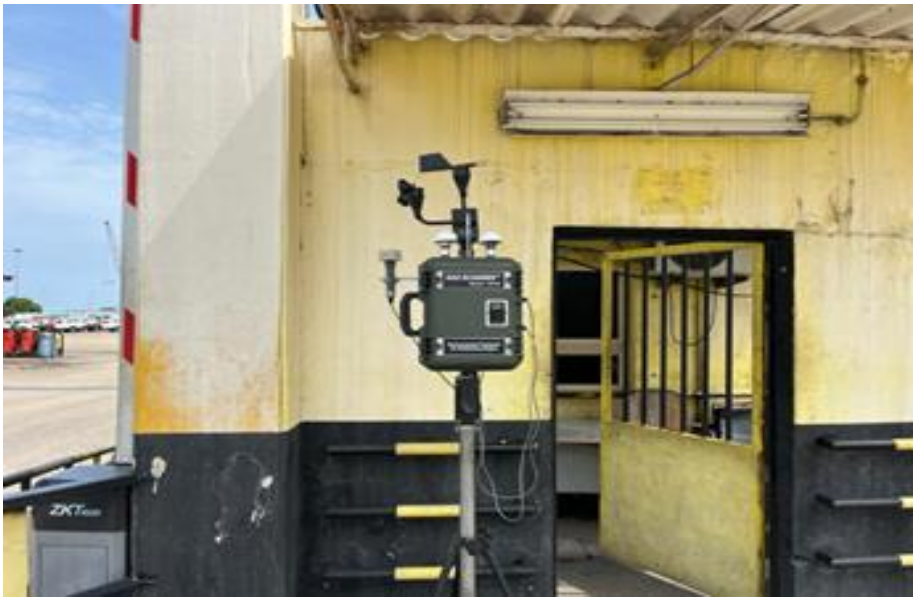


Figure 40. P03 – Gatehouse.

Data collection and procedure

The procedure was developed according to the following steps:

- Identifying the area and determining the position of each measurement point;
- Preparing to install the HAZ SCANNER monitoring station;
- Measurement at each point lasted 48 hours, after the first 15 min of processing;
- A USB stick was used to collect the data, as well as notes on the data recording pad to reduce the risk of data loss.
- Recording the geographical coordinates of each measurement point using GPS equipment.
- Photographic record of each activity area.

Air quality sensors measure the concentration of air pollutants in the air. The measured pollutants will be evaluated according to the ASQ/ANSI/ISO 9001:2015 analysis method and reference values for gases and particulate matter taken from the Air Quality Guidelines (AQG) (Table 14 and Table 15) of the World Health Organization (WHO 2021, Table 3.24, p.135)

Parameter	Method of Analysis	Reference
Inhalable Particles, $PM_{2.5}$	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135
Inhalable Particles, PM_{10}	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135
Ozone (O_3)	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135
Carbon Monoxide, CO	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135
Sulfur Dioxide, SO_2	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135
Nitrogen Monoxide, NO	ASQ/ANSI/ISO 9001:2015	Not Applicable
Nitrogen Dioxide, NO_2	ASQ/ANSI/ISO 9001:2015	WHO 2021, Table 3.24 p.135

Table 14. Parameters selected for air quality.

Parameter	Unit	Averaging time	Reference
Inhalable Particles, $PM_{2.5}$	$\mu g/m^3$	24-hour	75
Inhalable Particles, PM_{10}	$\mu g/m^3$	24-hour	150
Ozone O_3	$\mu g/m^3$	8-hour	160
Carbon Monoxide, CO	mg/m^3	24-hour	7
Carbon Monoxide, CO_2	$\mu g/m^3$	N/A	N/A
Sulfur Dioxide, SO_2	$\mu g/m^3$	24-hour	125
Nitrogen Monoxide, NO	$\mu g/m^3$	N/A	N/A
Nitrogen Dioxide, NO_2	$\mu g/m^3$	24-hour	120

Table 15. Short-term AQG levels and interim targets.

c. Air quality survey results

P01 – General Services Cup

Air Quality – Point 1										
Date	Time	NO	NO_2	CO	SO_2	O_3	TSP	PM_{10}	$PM_{2.5}$	H_2S
		$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
01/03/2024	12:22:00	296	54	0.46	48	158	27	18	6	≤ 0.3
01/03/2024	13:22:00	301	54	0.40	49	140	29	18	6	≤ 0.3
01/03/2024	14:22:00	161	54	0.40	65	140	28	18	8	≤ 0.3
01/03/2024	15:22:00	150	28	0.00	65	140	47	38	8	≤ 0.3
01/03/2024	16:22:00	150	28	0.00	65	89	47	38	8	≤ 0.3
01/03/2024	17:22:00	147	28	0.00	5	89	48	38	8	≤ 0.3
01/03/2024	18:22:00	11	28	0.08	1	65	37	30	1	≤ 0.3
01/03/2024	19:22:00	11	22	0.17	1	64	34	31	1	≤ 0.3

Air Quality – Point 1										
01/03/2024	20:22:00	8	25	0.10	1	63	31	22	1	≤ 0.3
01/03/2024	21:22:00	11	25	0.10	3	61	24	22	1	≤ 0.3
01/03/2024	22:22:00	6	24	0.10	3	61	25	21	1	≤ 0.3
01/03/2024	23:22:00	6	22	0.15	1	62	33	21	1	≤ 0.3
02/03/2024	00:22:00	6	22	0.15	0	61	26	21	1	≤ 0.3
02/03/2024	01:22:00	6	22	0.00	0	62	26	21	1	≤ 0.3
02/03/2024	02:22:00	1	22	0.00	0	62	24	21	1	≤ 0.3
02/03/2024	03:22:00	1	22	0.00	0	62	23	21	1	≤ 0.3
02/03/2024	04:22:00	1	22	0.00	0	62	28	21	1	≤ 0.3
02/03/2024	05:22:00	1	25	0.00	35	62	28	21	1	≤ 0.3
02/03/2024	06:22:00	1	25	0.00	35	146	175	169	1	≤ 0.3
02/03/2024	07:22:00	1	25	0.00	70	146	329	169	156	≤ 0.3
02/03/2024	08:22:00	1	28	0.00	70	146	328	169	156	≤ 0.3
02/03/2024	09:22:00	1	28	0.00	70	146	333	169	156	≤ 0.3
02/03/2024	10:22:00	11	29	0.00	70	146	328	169	156	≤ 0.3
02/03/2024	11:22:00	11	29	0.00	70	146	332	169	156	≤ 0.3
02/03/2024	12:22:00	8	29	0.00	70	146	48	38	1	≤ 0.3
02/03/2024	13:22:00	8	28	0.00	70	146	48	38	1	≤ 0.3
02/03/2024	14:22:00	8	25	0.00	65	146	45	38	1	≤ 0.3
02/03/2024	15:22:00	8	25	0.00	65	86	41	38	1	≤ 0.3
02/03/2024	16:22:00	8	24	0.00	47	86	42	38	1	≤ 0.3
02/03/2024	17:22:00	8	24	0.00	47	86	44	32	1	≤ 0.3
02/03/2024	18:22:00	8	24	0.00	47	86	34	32	1	≤ 0.3
02/03/2024	19:22:00	8	24	0.00	6	62	25	22	1	≤ 0.3
02/03/2024	20:22:00	8	23	0.00	6	62	26	22	1	≤ 0.3
02/03/2024	21:22:00	1	23	0.00	2	62	24	22	1	≤ 0.3
02/03/2024	22:22:00	1	22	0.00	2	62	22	20	1	≤ 0.3
02/03/2024	23:22:00	1	23	0.00	2	61	25	20	1	≤ 0.3
03/03/2024	00:22:00	1	23	0.00	2	61	25	20	1	≤ 0.3
03/03/2024	01:22:00	1	23	0.00	2	61	24	20	1	≤ 0.3
03/03/2024	02:22:00	1	23	0.00	2	61	24	20	1	≤ 0.3
03/03/2024	03:22:00	1	23	0.00	2	61	21	20	1	≤ 0.3
03/03/2024	04:22:00	1	23	0.00	2	61	27	20	1	≤ 0.3
03/03/2024	05:22:00	1	23	0.00	1	61	24	20	1	≤ 0.3
03/03/2024	06:22:00	1	23	0.00	1	68	24	20	1	≤ 0.3
03/03/2024	07:22:00	1	23	0.00	1	69	39	35	1	≤ 0.3

Air Quality – Point 1										
03/03/2024	08:22:00	1	23	0.00	1	69	39	36	1	≤ 0.3
03/03/2024	09:22:00	1	21	0.00	1	69	39	36	1	≤ 0.3
03/03/2024	10:22:00	1	21	0.00	1	69	40	36	1	≤ 0.3
03/03/2024	11:22:00	1	21	0.00	1	69	38	36	1	≤ 0.3
Average		28.90	26.15	0.04	24.44	88.52	66.21	44.46	17.94	≤ 0.3

Table 16. Air quality measurement results at P01.

P02 – Technical area

Air Quality – Point 2										
Date	Time	NO	NO_2	CO	SO_2	O_3	TSP	PM_{10}	$PM_{2.5}$	H_2S
		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
03/03/2024	12:35:00	1	71	0.00	45	214	383	177	195	≤ 0.3
03/03/2024	13:35:00	1	71	0.00	45	214	391	177	195	≤ 0.3
03/03/2024	14:35:00	1	71	0.00	45	214	390	177	195	≤ 0.3
03/03/2024	15:35:00	1	71	0.00	45	214	383	176	195	≤ 0.3
03/03/2024	16:35:00	1	71	0.00	45	213	391	176	196	≤ 0.3
03/03/2024	17:35:00	1	71	0.00	54	213	388	176	196	≤ 0.3
03/03/2024	18:35:00	1	69	0.00	54	213	391	177	196	≤ 0.3
03/03/2024	19:35:00	1	69	0.00	54	215	389	177	198	≤ 0.3
03/03/2024	20:35:00	1	74	0.00	54	215	397	176	198	≤ 0.3
03/03/2024	21:35:00	1	74	0.00	42	215	388	176	195	≤ 0.3
03/03/2024	22:35:00	1	74	0.00	42	215	362	150	195	≤ 0.3
03/03/2024	23:35:00	1	60	0.00	42	204	362	150	195	≤ 0.3
04/03/2024	00:35:00	1	60	0.00	42	204	337	150	175	≤ 0.3
04/03/2024	01:35:00	1	60	0.00	42	204	340	150	175	≤ 0.3
04/03/2024	02:35:00	1	60	0.00	42	204	343	150	175	≤ 0.3
04/03/2024	03:35:00	1	60	0.00	42	204	340	150	175	≤ 0.3
04/03/2024	04:35:00	1	60	0.00	42	204	335	150	175	≤ 0.3
04/03/2024	05:35:00	1	60	0.00	42	204	342	150	175	≤ 0.3
04/03/2024	06:35:00	1	60	0.00	42	204	355	150	196	≤ 0.3
04/03/2024	07:35:00	1	60	0.00	48	211	367	155	196	≤ 0.3
04/03/2024	08:35:00	1	60	0.00	48	211	369	160	198	≤ 0.3
04/03/2024	09:35:00	1	75	0.00	48	211	382	160	198	≤ 0.3
04/03/2024	10:35:00	1	75	0.00	45	211	379	155	198	≤ 0.3
04/03/2024	11:35:00	1	75	0.00	45	211	373	155	195	≤ 0.3
04/03/2024	12:35:00	1	75	0.00	45	211	372	155	195	≤ 0.3

Air Quality – Point 2										
04/03/2024	13:35:00	1	69	0.00	45	211	365	155	195	≤ 0.3
04/03/2024	14:35:00	1	69	0.00	45	211	370	160	195	≤ 0.3
04/03/2024	15:35:00	1	69	0.00	45	211	374	160	195	≤ 0.3
04/03/2024	16:35:00	1	69	0.00	45	211	373	160	195	≤ 0.3
04/03/2024	17:35:00	1	69	0.00	45	210	368	160	195	≤ 0.3
04/03/2024	18:35:00	1	68	0.00	50	210	387	178	195	≤ 0.3
04/03/2024	19:35:00	1	68	0.00	55	210	364	155	195	≤ 0.3
04/03/2024	20:35:00	1	68	0.00	55	210	366	155	195	≤ 0.3
04/03/2024	21:35:00	1	68	0.00	40	210	371	155	195	≤ 0.3
04/03/2024	22:35:00	1	60	0.00	38	210	366	155	195	≤ 0.3
04/03/2024	23:35:00	1	60	0.00	38	210	372	155	195	≤ 0.3
05/03/2024	00:35:00	1	60	0.00	38	210	367	155	195	≤ 0.3
05/03/2024	01:35:00	1	60	0.00	38	210	366	155	195	≤ 0.3
05/03/2024	02:35:00	1	60	0.00	38	210	368	155	195	≤ 0.3
05/03/2024	03:35:00	1	60	0.00	38	210	368	155	195	≤ 0.3
05/03/2024	04:35:00	1	60	0.00	38	210	361	155	195	≤ 0.3
05/03/2024	05:35:00	1	60	0.00	38	210	355	150	195	≤ 0.3
05/03/2024	06:35:00	1	60	0.00	38	210	356	150	195	≤ 0.3
05/03/2024	07:35:00	1	69	0.00	38	210	360	150	195	≤ 0.3
05/03/2024	08:35:00	1	69	0.00	38	210	364	150	195	≤ 0.3
05/03/2024	09:35:00	1	75	0.00	38	210	368	150	195	≤ 0.3
05/03/2024	10:35:00	1	75	0.00	38	210	362	150	195	≤ 0.3
05/03/2024	11:35:00	1	75	0.00	38	210	362	150	195	≤ 0.3
Average		1.00	66.79	0.00	43.69	210.15	368.38	158.92	192.92	≤ 0.3

Table 17. Air quality measurement results at P02.

P03 – Gatehouse

Air Quality – Point 3										
Date	Time	NO_x	NO_2	CO	SO_2	O_3	TSP	PM_{10}	$PM_{2.5}$	H2S
		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
05/03/2024	12:45:00	1	61	0.00	47	204	330	201	120	≤ 0.3
05/03/2024	13:35:00	1	61	0.00	47	204	339	201	125	≤ 0.3
05/03/2024	14:35:00	1	61	0.00	47	204	337	201	125	≤ 0.3
05/03/2024	15:35:00	1	61	0.00	47	204	343	203	125	≤ 0.3
05/03/2024	16:35:00	1	61	0.00	47	204	336	203	125	≤ 0.3
05/03/2024	17:35:00	1	61	0.00	47	201	340	203	125	≤ 0.3

Air Quality – Point 3										
05/03/2024	18:35:00	1	61	0.00	47	201	341	203	125	≤ 0.3
05/03/2024	19:35:00	1	61	0.00	47	201	337	203	123	≤ 0.3
05/03/2024	20:35:00	1	58	0.00	45	201	342	202	123	≤ 0.3
05/03/2024	21:35:00	1	58	0.00	45	201	337	202	123	≤ 0.3
05/03/2024	22:35:00	1	58	0.00	41	201	334	202	120	≤ 0.3
05/03/2024	23:35:00	1	58	0.00	41	201	341	202	120	≤ 0.3
06/03/2024	00:35:00	1	58	0.00	41	202	317	191	120	≤ 0.3
06/03/2024	01:35:00	1	58	0.00	41	202	310	191	115	≤ 0.3
06/03/2024	02:35:00	1	58	0.00	41	202	314	191	115	≤ 0.3
06/03/2024	03:35:00	1	58	0.00	41	202	314	191	115	≤ 0.3
06/03/2024	04:35:00	1	58	0.00	41	202	311	191	115	≤ 0.3
06/03/2024	05:35:00	1	58	0.00	41	202	309	191	115	≤ 0.3
06/03/2024	06:35:00	1	63	0.00	46	203	317	191	115	≤ 0.3
06/03/2024	07:35:00	1	63	0.00	46	203	314	192	115	≤ 0.3
06/03/2024	08:35:00	1	63	0.00	46	204	313	192	115	≤ 0.3
06/03/2024	09:35:00	1	64	0.00	42	204	327	192	123	≤ 0.3
06/03/2024	10:35:00	1	64	0.00	42	204	342	203	123	≤ 0.3
06/03/2024	11:35:00	1	64	0.00	42	202	345	204	122	≤ 0.3
06/03/2024	12:35:00	1	64	0.00	42	202	329	204	112	≤ 0.3
06/03/2024	13:35:00	1	66	0.00	42	202	334	204	119	≤ 0.3
06/03/2024	14:35:00	1	66	0.00	42	202	332	204	119	≤ 0.3
06/03/2024	15:35:00	1	66	0.00	42	202	331	204	122	≤ 0.3
06/03/2024	16:35:00	1	66	0.00	42	201	334	204	122	≤ 0.3
06/03/2024	17:35:00	1	66	0.00	43	201	340	202	122	≤ 0.3
06/03/2024	18:35:00	1	66	0.00	43	201	346	205	122	≤ 0.3
06/03/2024	19:35:00	1	55	0.00	43	201	344	205	123	≤ 0.3
06/03/2024	20:35:00	1	55	0.00	43	201	346	205	123	≤ 0.3
06/03/2024	21:35:00	1	55	0.00	43	201	331	201	117	≤ 0.3
06/03/2024	22:35:00	1	55	0.00	43	201	322	190	117	≤ 0.3
06/03/2024	23:35:00	1	50	0.00	43	201	319	190	118	≤ 0.3
07/03/2024	00:35:00	1	50	0.00	43	201	321	190	118	≤ 0.3
07/03/2024	01:35:00	1	50	0.00	43	201	316	190	118	≤ 0.3
07/03/2024	02:35:00	1	50	0.00	43	201	312	190	118	≤ 0.3
07/03/2024	03:35:00	1	50	0.00	43	201	325	190	118	≤ 0.3
07/03/2024	04:35:00	1	50	0.00	43	201	311	190	118	≤ 0.3
07/03/2024	05:35:00	1	50	0.00	43	201	327	190	121	≤ 0.3

Air Quality – Point 3										
07/03/2024	06:35:00	1	62	0.00	43	201	319	190	121	≤ 0.3
07/03/2024	07:35:00	1	62	0.00	43	201	319	190	121	≤ 0.3
07/03/2024	08:35:00	1	62	0.00	43	201	322	190	121	≤ 0.3
07/03/2024	09:35:00	1	62	0.00	43	201	326	190	121	≤ 0.3
07/03/2024	10:35:00	1	62	0.00	43	201	320	190	121	≤ 0.3
07/03/2024	11:35:00	1	62	0.00	43	201	318	190	121	≤ 0.3
Average		1.00	59.40	0.00	43.44	201.81	327.79	196.75	120.00	≤ 0.3

Table 18. Air quality measurement results at P03.

d. Detailed interpretations of the environmental baseline findings against regulatory environmental standards and IFC PS

P01 – General Services Cup

At the rear of the offices, the particulate matter PM2.5 shows a concentration of 17.94 µg/m³, which complies with the WHO reference standard of approximately 75 µg/m³. For particulate matter PM10, the result shows a concentration of 44.46 µg/m³, which is within the WHO reference standard of around 150 µg/m³. The ozone concentration is 88.52 µg/m³, falling within the limit values suggested by the WHO. Nitrogen monoxide (NOX) measures around 28.90 µg/m³. Nitrogen dioxide (NO2) is approximately 26.15 µg/m³, below the WHO standard of around 120 µg/m³. Sulphur dioxide (SO2) is around 24.44 µg/m³, also below the WHO standard of around 125 µg/m³. Carbon monoxide, with a value of around 0.04 mg/m³, is below the WHO standard of around 7 mg/m³. Total Suspended Particles (TSP) do not have standard values defined by the WHO, but they should be monitored for aviation purposes based on historical results. From the results history, it is observed that TSP presents a value of 66.21 µg/m³.

Parameters	Average	Reference	Comparative observation
PM2.5, µg/m³	17.94	75	Below the maximum recommended limit
PM10, µg/m³	44.46	150	Below the maximum recommended limit
O_3, µg/m³	88.52	160	Below the maximum recommended limit
NOX, µg/m³	28.90	NA	Comparative value not applicable
NO_2, µg/m³	26.15	120	Below the maximum recommended limit
SO_2, µg/m³	24.44	125	Below the maximum recommended limit
CO, µg/m³	0.04	7	Below the maximum recommended limit
TSP, µg/m³	66.21	NA	Comparative value not applicate
H_2S, µg/m³	≤ 0.3	NA	Comparative value not applicate

Table 19. Compliance with air quality WHO guidelines at Point 01.

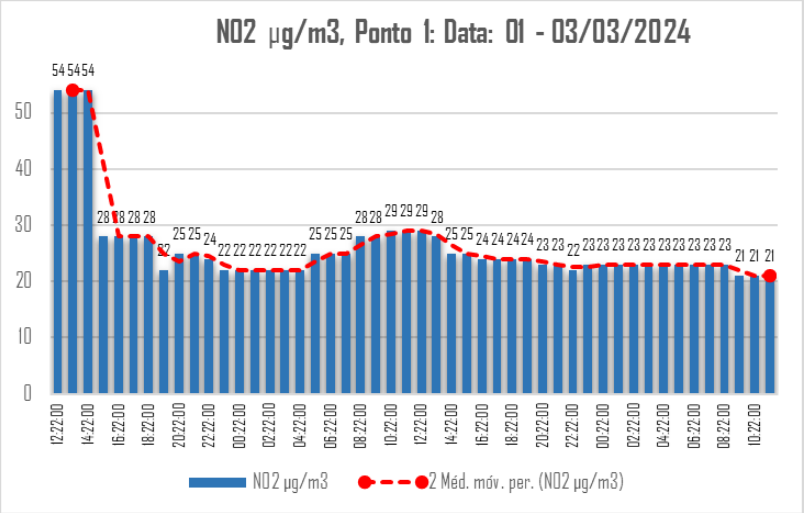


Figure 41. NO_2 Concentration.

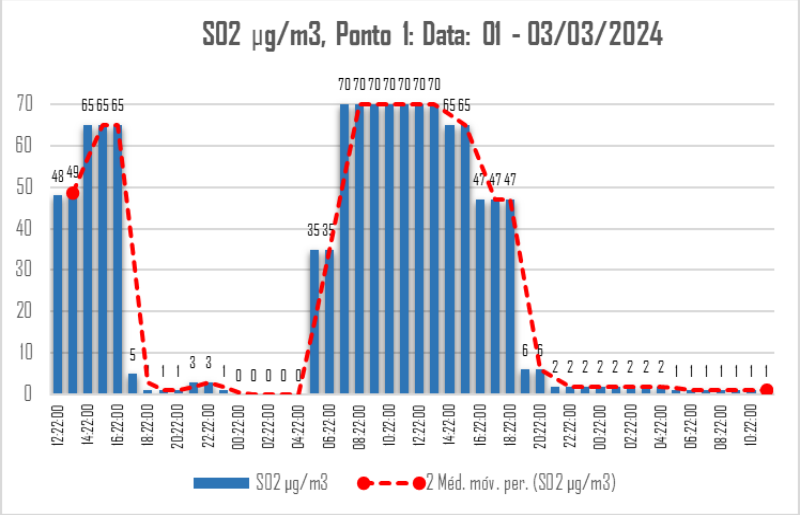


Figure 42. SO_2 Concentration.

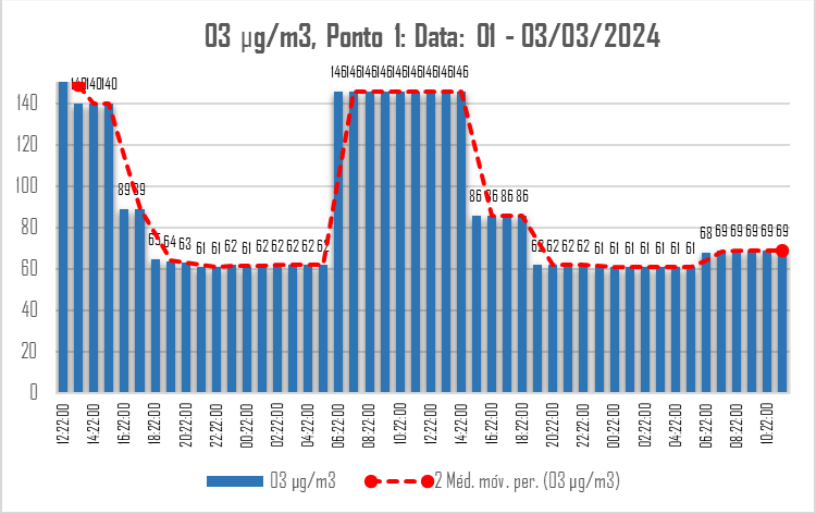


Figure 43. O_3 Concentration.

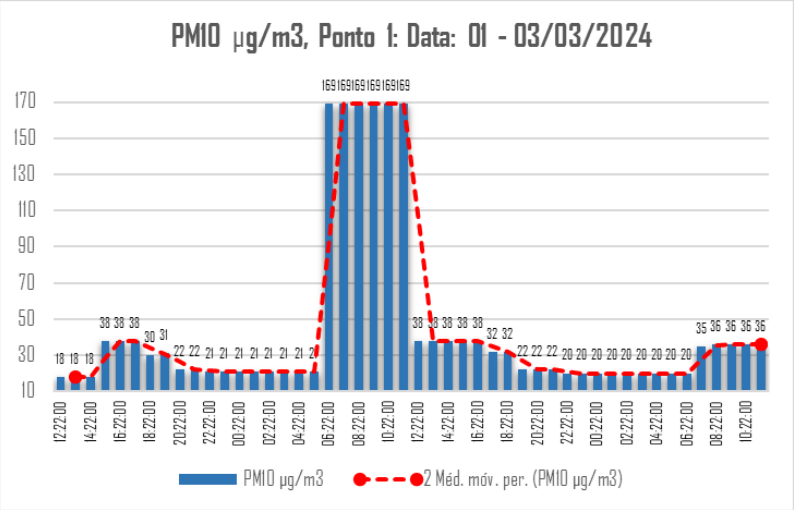


Figure 44. PM_{10} Concentration.

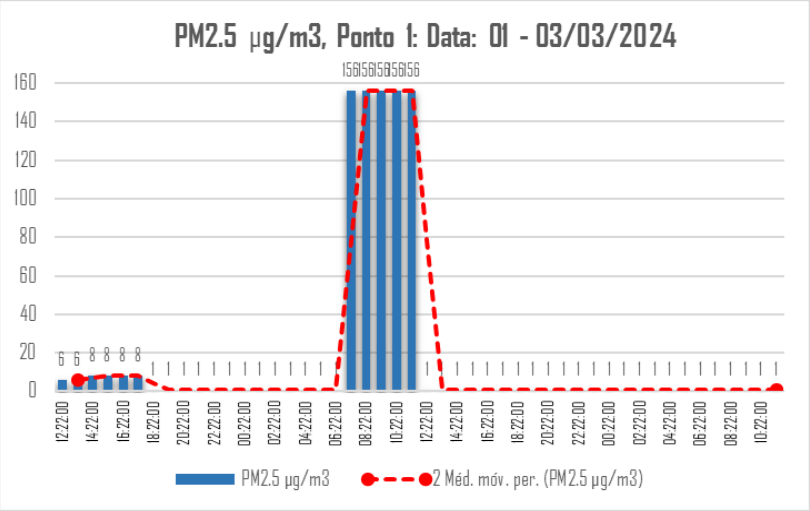


Figure 45. $PM_{2.5}$ Concentration.

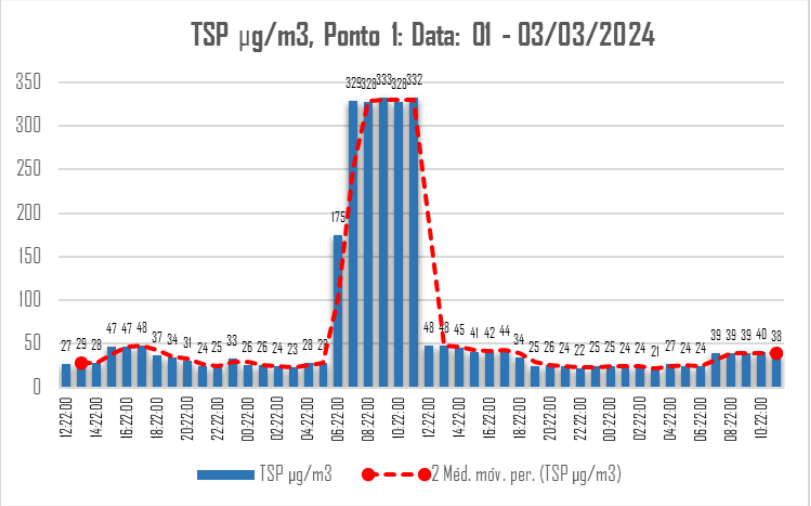


Figure 46. TSP Concentration.

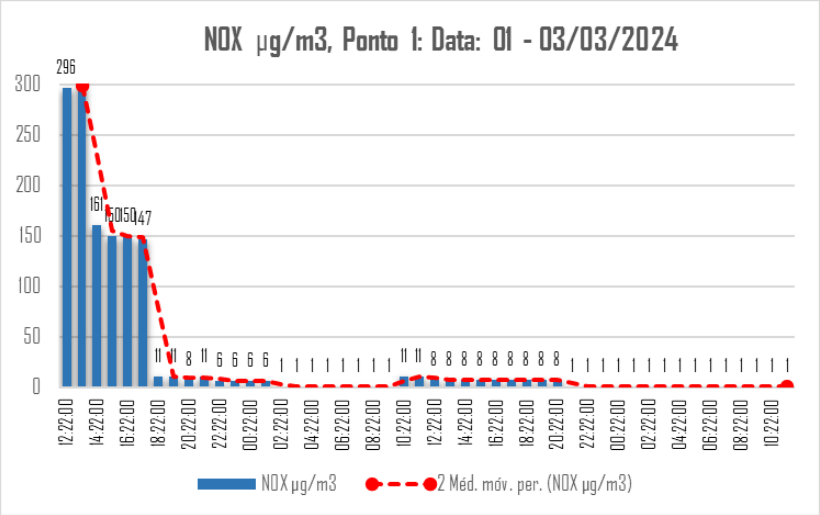


Figure 47. NO_x Concentration.

P02 – Technical area

At the Technical Area, the $PM_{2.5}$ particulate matter had a concentration of 192.92 µg/m^3, which does not comply with the WHO reference standard of around 75 µg/m^3. For particulate matter PM_{10}, the result shows a concentration of 158.92 µg/m^3, which is not in line with the WHO reference standard of around 150 µg/m^3. The ozone registers a concentration of 210.15 µg/m^3, not complying with the WHO-defined standard (160 µg/m^3). Nitrogen monoxide, NO, was around 1.0 µg/m^3. Nitrogen dioxide, NO_2, is around 66.79 µg/m^3, below the WHO standard of around 120 µg/m^3. Sulphur dioxide, SO_2, is around 43.69 µg/m^3, below the WHO standard of around 125 µg/m^3. Carbon monoxide, CO, has a value of 0.0 mg/m^3, below the WHO standard of around 7 mg/m^3. The TSP does not have a standard value defined by the WHO, but it should be monitored to assess the history of results, which is why it has a value of 368.38 µg/m.

Parameters	Average	Reference	Comparative observation
$PM_{2.5}$, µg/m^3	192.92	75	Above the maximum recommended limit
PM_{10}, µg/m^3	158.92	150	Above the maximum recommended limit
O_3 µg/m^3	210.15	160	Above the maximum recommended limit
NO, µg/m^3	1.00	NA	Comparative value not applicable
NO_2, µg/m^3	66.79	120	Below the maximum recommended limit
SO_2, µg/m^3	43.69	125	Below the maximum recommended limit
CO, µg/m^3	0.00	7	Below the maximum recommended limit
TSP, µg/m^3	368.38	NA	Comparative value not applicable
H_2S, µg/m^3	≤ 0.3	NA	Comparative value not applicable

Table 20. Compliance with air quality WHO guidelines at Point 02.

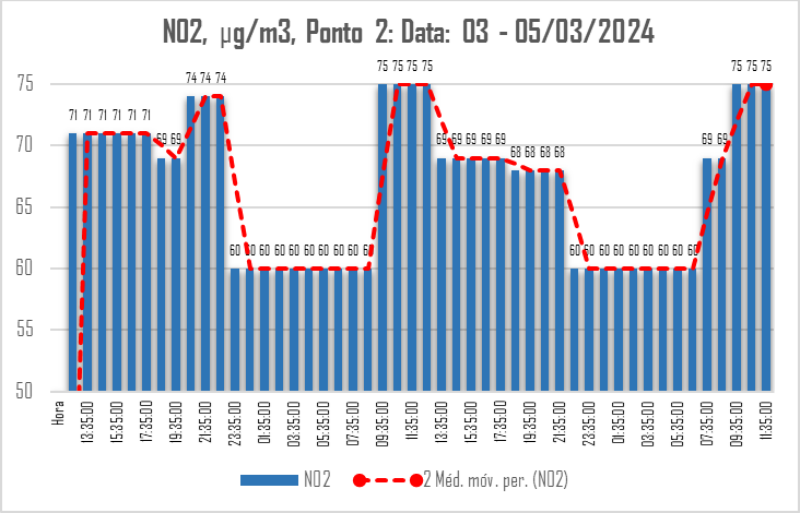


Figure 48. NO_2 Concentration.

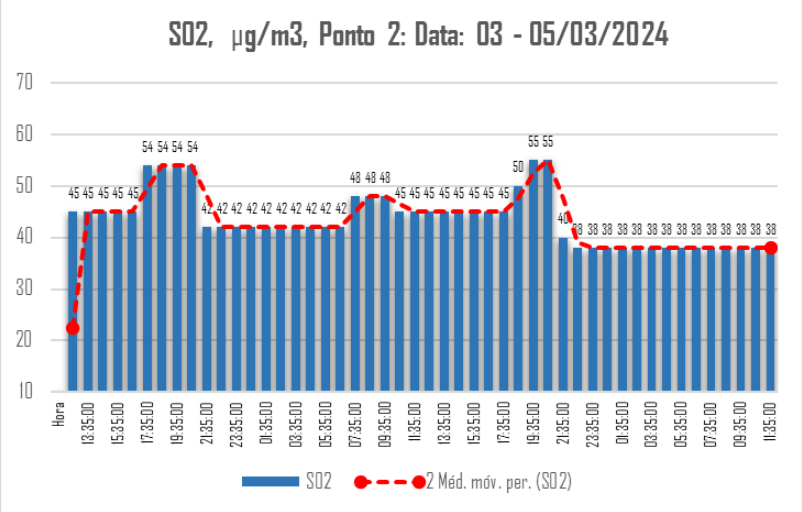


Figure 49. SO_2 Concentration.

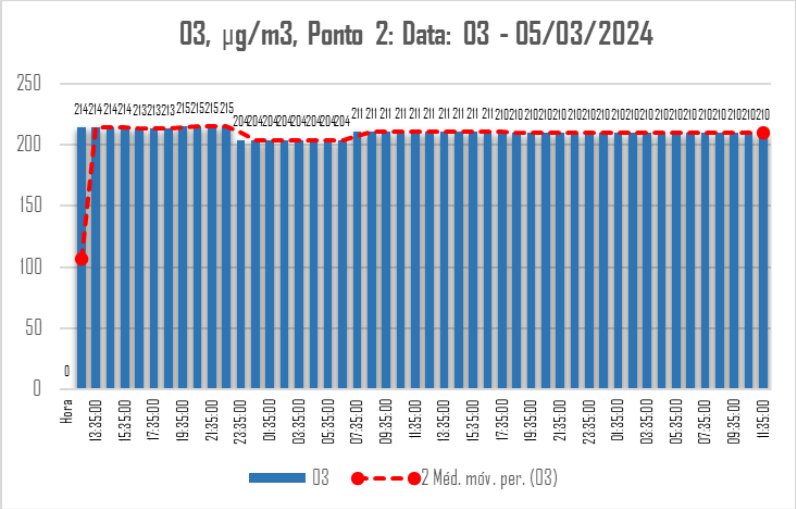


Figure 50. O_3 Concentration.

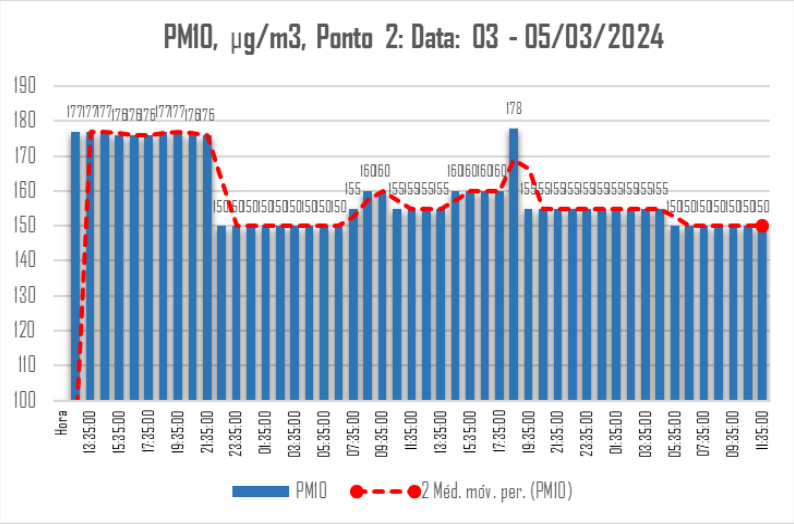


Figure 51. PM_{10} Concentration.

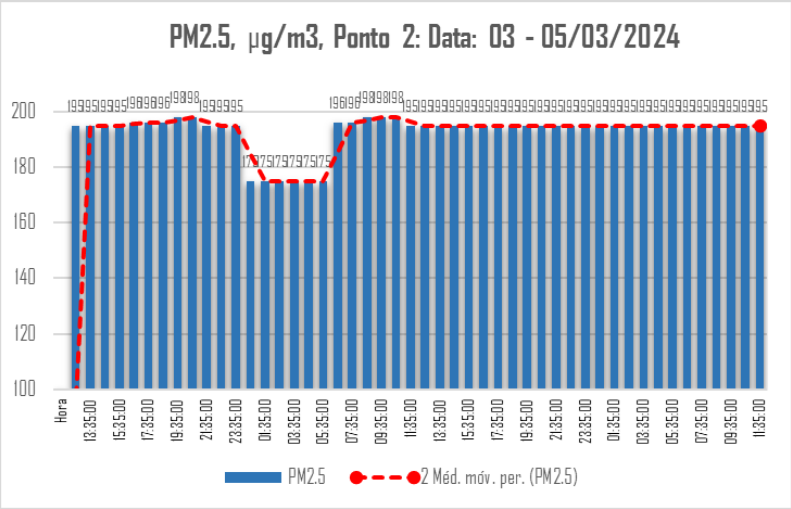


Figure 52. $PM_{2.5}$ Concentration.

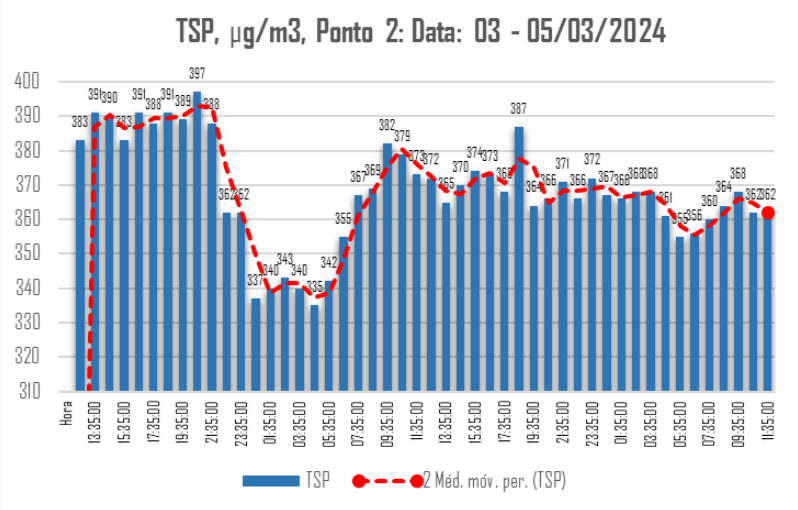


Figure 53. TSP Concentration.

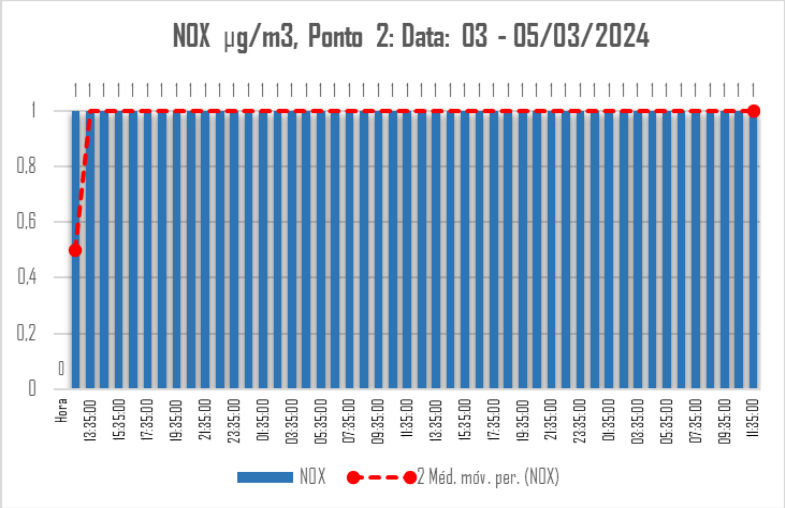


Figure 54. NO_x Concentration.

P03 – Gatehouse

At the Gatehouse, the PM2.5 particulate matter had a concentration of 120.0 µg/m³, which does not comply with the WHO reference standard of around 75 µg/m³. For particulate matter PM10, the result shows a concentration of 196.75 µg/m³, which is not in line with the WHO reference standard of around 150 µg/m³. Nitrogen monoxide, NO, was around 1.0 µg/m³. Nitrogen dioxide, NO_2, is around 59.40 µg/m³, below the WHO standard of around 200 µg/m³. Sulphur dioxide, SO_2, is around 43.44 µg/m³, below the WHO standard of around 500 µg/m³. Value for Carbon monoxide, CO - 0.0 mg/m^3-, is below the WHO Standard (7.0 µg/m^3). Ozone value -202 µg/m^3- is above the reference value -160 µg/m^3-. Last, TSP (µg/m^3) is Not Applicable since standard values are detailed for PM10 and PM2.5.

Parameters	Average	Reference	Comparative observation
$PM_{2.5}$, µg/m^3	120.00	75	Above the maximum recommended limit
PM_{10}, µg/m^3	196.75	150	Above the maximum recommended limit
O_3, µg/m^3	201.81	160	Above the maximum recommended limit
NO, µg/m^3	1.00	NA	Comparative value not applicable
NO_2, µg/m^3	59.40	120	Below the maximum recommended limit
SO_2, µg/m^3	43.44	125	Below the maximum recommended limit
CO, µg/m^3	0.00	7	Below the maximum recommended limit
TSP, µg/m^3	327.79	NA	Comparative value not applicable
H_2S, µg/m^3	≤ 0.3	NA	Below the maximum recommended limit

Table 21. Compliance with air quality WHO guidelines at Point 03

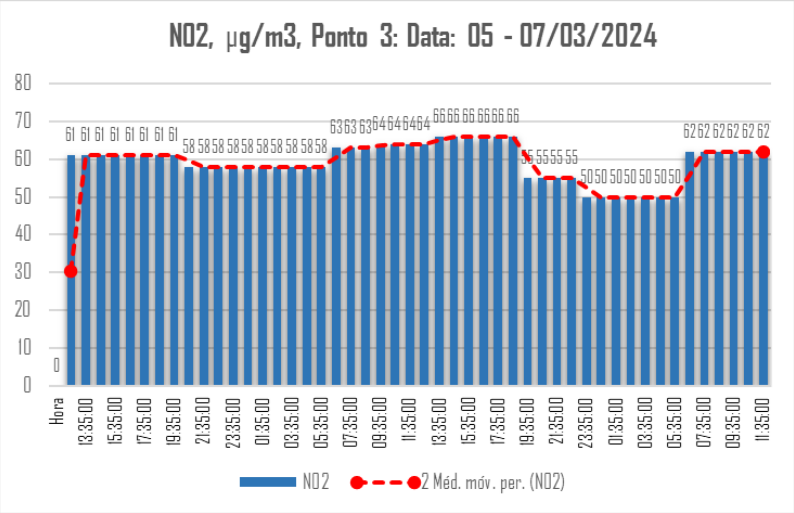


Figure 55. NO_2 Concentration.

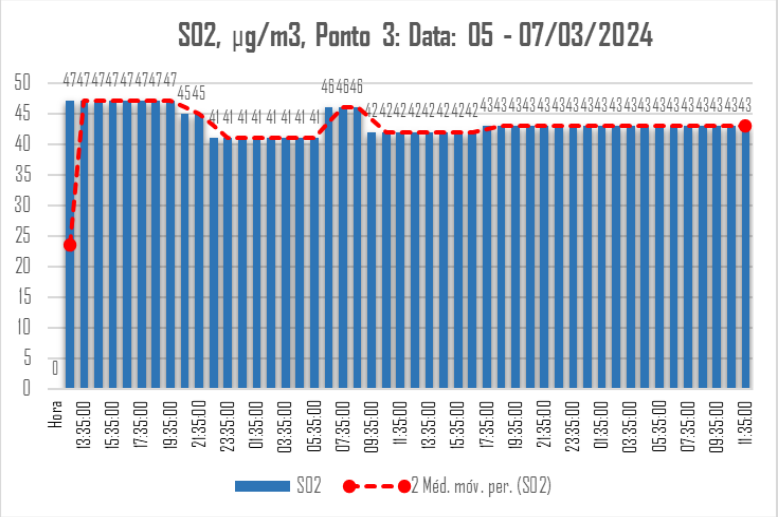


Figure 56. SO_2 Concentration.

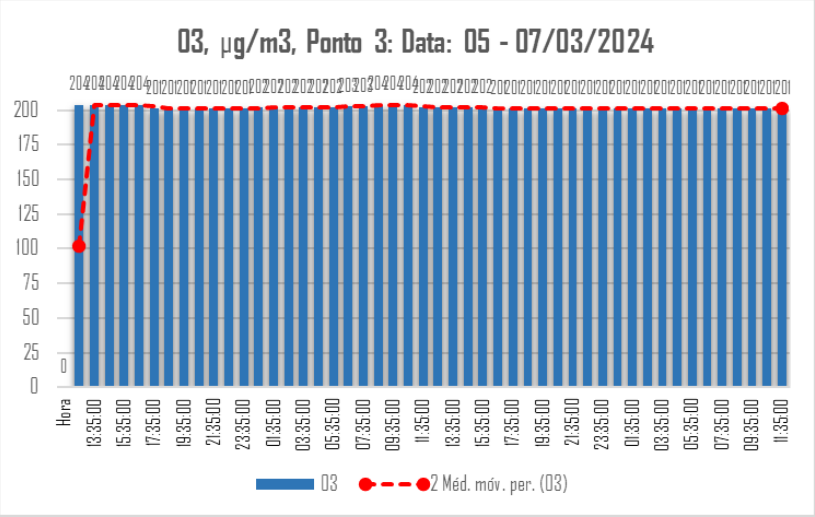


Figure 57. O_3 Concentration.

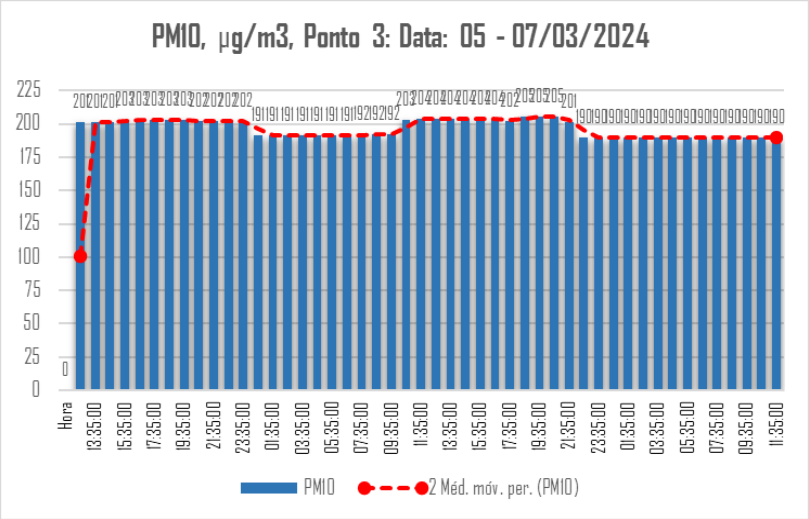


Figure 58. PM_{10} Concentration.

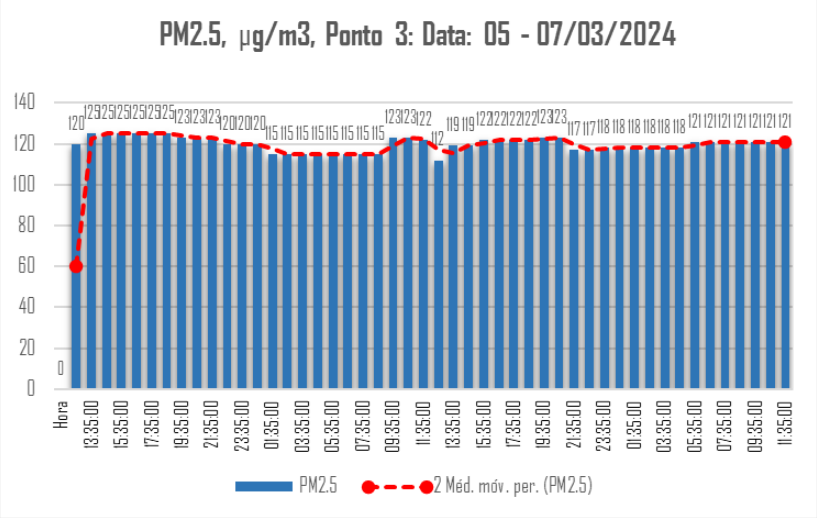


Figure 59. $PM_{2.5}$ Concentration.

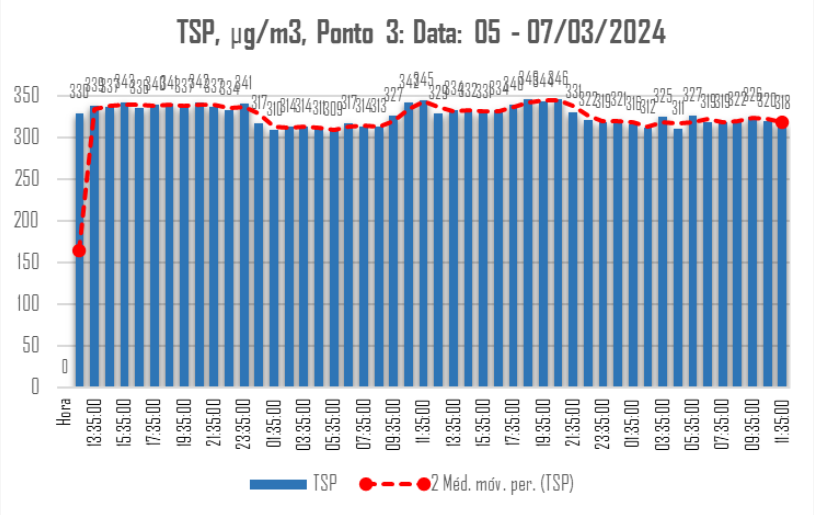


Figure 60. TSP Concentration.

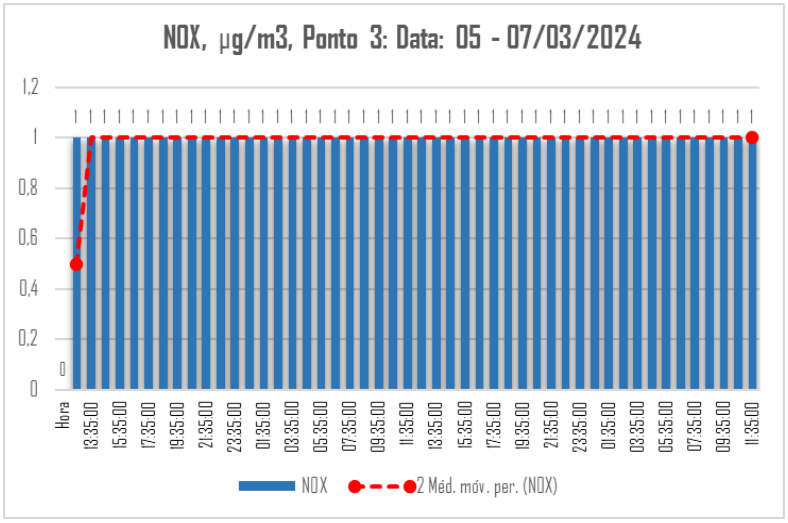


Figure 61. NO_x Concentration.

e. Summary

Parameters	NO	NO_2	CO	SO_2	O_3	TSP	PM_{10}	$PM_{2.5}$	H_2S
	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
P01	28.9	26.1	0.0	24.4	88.5	66.2	44.5	17.9	≤ 0.3
P02	1.0	66.8	0.0	43.7	210.1	368.4	158.9	192.9	≤ 0.3
P03	1.0	59.4	0.0	43.4	201.8	327.8	196.8	120.0	≤ 0.3
local average	10.3	50.8	0.0	37.2	166.8	254.1	133.4	110.3	≤ 0.3

Table 22. Comparative analysis of air quality across monitored areas: Average results from monitoring points

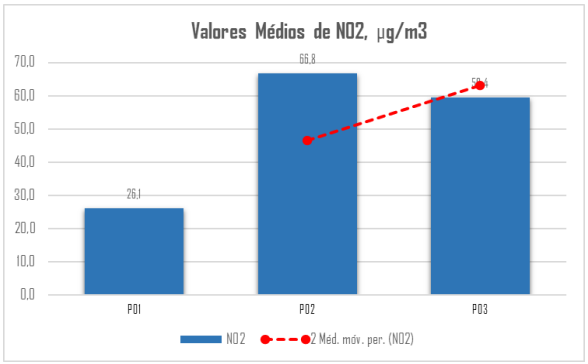


Figure 62. Average values NO_2.

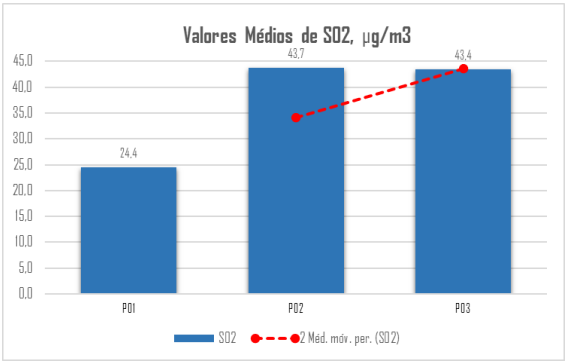


Figure 63. Average values SO_2.

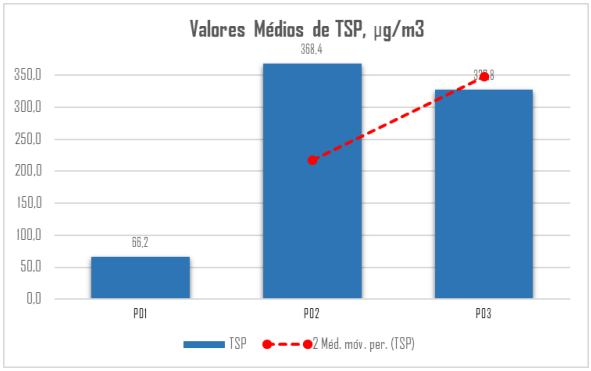


Figure 64. Average values TSP.

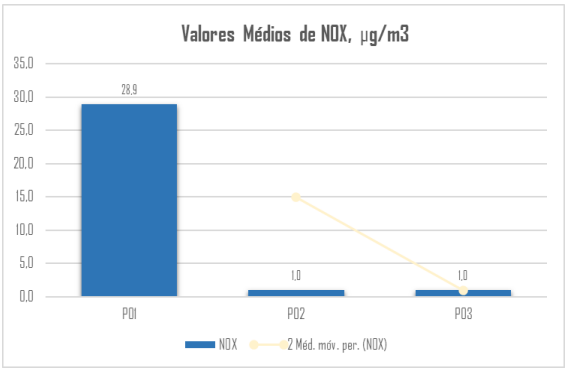


Figure 65. Average values NO_x.

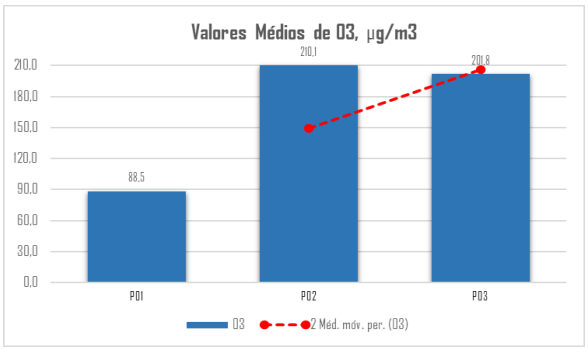


Figure 66. Average values O_3.

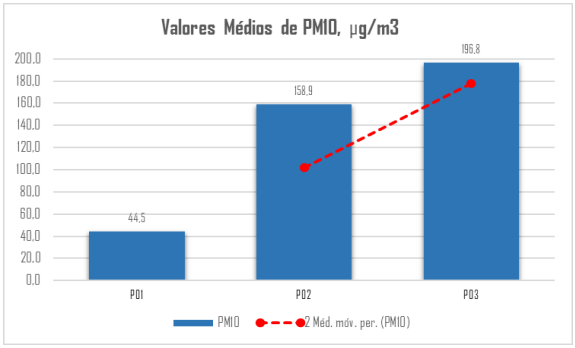


Figure 67. Average values PM10.

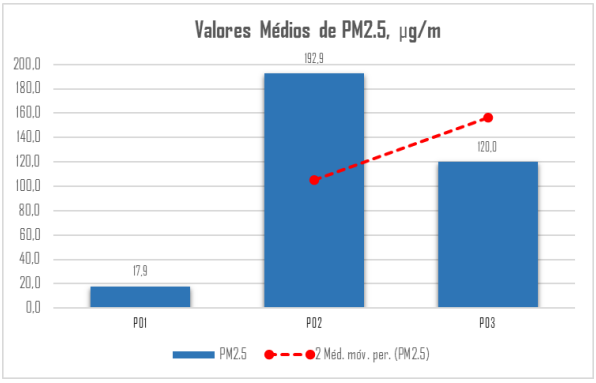


Figure 68. Average values PM2.5.

Table 22 and Figure 62 to Figure 65 displays the comparative results of air quality measurements. The nitrogen monoxide (NO) values presented in the results indicate that Point 1, located at the rear of the offices area, has the highest concentration at 28.9 µg/m³. The areas with the lowest NO concentration are Point 2 and Point 3, with a value of 1.0 mg/m³.

For nitrogen dioxide (NO_2), the highest concentration is at Point 2, the technical area, with a value of 66.8 µg/m³. The areas with the lowest concentration of NO_2 correspond to Point 1, the back of the office area, with a value of 26.1 mg/m³. In the same comparative context, with an average value of 50.8 µg/m³, the facility's environment complies with the WHO value of 120 µg/m³.

The results for carbon monoxide (CO) indicate that at all measurement points, there was no CO detected (0.0 µg/m³).

The highest concentration of SO_2 is found at Point 2, the technical area, with a value of 43.7 µg/m³. Conversely, at Point 1, the SO_2 concentration registers 24.4 µg/m³, representing the lowest concentration in the surveyed area. Within the same comparative context and considering recommended values, it is evident that, with an average reading of 37.2 µg/m³, the facility's environment adheres to the WHO guideline of 125 µg/m³.

The highest concentration of ozone (O_3) is at Point 2, with 210 µg/m³, followed by Point 3 with 201 µg/m³. Point 1 has the lowest concentration at 88 µg/m³. These results show that ozone concentrations at the terminal exceed the limit recommended by the WHO (160 µg/m³).

The highest concentration of PM2.5 is found at Point 2, the technical area, with a value around 192.9 µg/m³, while the area with the lowest concentration of the same particulate matter corresponds to Point 1, the rear of the office area, with a value around 17.9 µg/m³. Point 2 and Point 3 exceed the limit recommended by the

WHO (75 µg/m³). The PM2.5 particulate matter, with an average value around 110.3 µg/m³, exceeds the recommended maximum limit of around 75 µg/m³.

Evaluating the concentration of PM10, it is noted that the highest concentration is at Point 3, the entrance gate, with a value around 192.9 µg/m³, and the area with the lowest concentration of the same particulate matter corresponds again to Point 1, the rear of the office area, with a value around 44.5 µg/m³. Point 2 and Point 3 exceed the limit recommended by the WHO (150 µg/m³). The PM10 particulate matter has a local average value of 133.4 µg/m³, below the maximum limit, which corresponds to 150 µg/m³.

In conclusion, this study has provided valuable insights into the current state of air quality in Terminal Unicargas. Through comprehensive monitoring and analysis, key pollutants and their sources, have been identified, and their concentrations have been assessed against regulatory standards (WHO), and temporal and spatial variations have been examined. The findings reveal that O_3, (at Point 2 and Point 3), PM_{10} (at Point 2 and Point 3), $PM_{2.5}$ (at Point 2 and Point 3) exceed the limit recommended by the WHO, emphasizing the need for proactive measures to mitigate air pollution and safeguard public health and the environment.

It is expected that the receptors located on the boarders of the terminal may be exposed to air quality levels very similar to those recorded at P03, where the air quality reference framework is clearly disturbed not only by the activities carried out at the terminal but also by the emissions generated by heavy traffic and the presence of heavy vehicles on the Road of Cacuaco.

10.2.2.3.Noise

No noise measurement data have been found for Angola, not local/regional scale or national one. Thus, this section has no existing values to be used as a baseline condition of the project area.

However, "*Ruído urbano na área central de Luanda*" by Wilma Fernandes e Júlio César Torres[15] describes Luanda noise situation after undertaking several noise measurements as well as vehicles register. Although is not a proper noise study, it is useful as a qualitative information to approach the point.

Luanda's noise levels have increased during the last years mainly due to the number of vehicles and traffic jams, although other factors also have an impact. Luanda grew considerably owed to war migration and its infrastructures, including public transport, are not designed according to the current number of inhabitants. In addition, the center of Luanda concentrates on different uses from commercial to industrial which are not available on the outskirts, as well as local culture habits.

Noise measurements were undertaken in the downtown area, where universities, ministries, football stadiums, museums, dwellings and services are located. North edge is Av. 4 de Fevereiro, which drives to Luanda Port and is the location that recorded highest noise levels (as well as number of vehicles, including heavy ones), above 72 dB.

Although Unicargas Terminal is at a minimum distance of 1 km East, elevated ambient noise values are expected. Luanda's Port is fenced and obviously traffic inside the port area is not like the city one but less.

[15] *RAS-Revista Angolana de Sociologia nº 14, December 2014.* https://journals.openedition.org/ras/1126?lang=en

Anyway, regular port activity such as machinery movement, handling goods, ships devices or necessary heavy goods vehicles, will result in high noise levels in the area.

10.2.2.4. Noise baseline report

Below is a summary of the most relevant aspects of the survey conducted, which provides necessary information to complete the baseline.

a. Introduction

In the absence of any Angolan standards or regulations regarding environmental noise, focus is made on the International Finance Corporation (IFC), World Bank Group: Environmental, Health and Safety (EHS) Guidelines. The IFC EHS Guidelines address impacts of noise beyond the property boundary of the facility under study. Noise impacts are assessed against the World Health Organization's (WHO) guideline levels as presented below. Noise levels should not exceed these levels or result in a maximum increase in background levels of 3 dB(A) at the nearest receptor location off-site.

World Health Organization Guidelines for Community Noise together with the Organization for Economic Cooperation and Development (OECD) are the main international bodies that have collected data and developed assessments on the effects of exposure to environmental noise. This has provided the following summary of thresholds for noise nuisance in terms of the outdoor day-time equivalent continuous A-weighted sound pressure level (LAeq) in residential districts:

- At 55 - 60 dB(A) noise creates annoyance.
- At 60 - 65 dB(A) annoyance increases considerably.
- Above 65 dB(A) constrained behavior patterns, symptomatic of serious damage caused by noise.

As set out in the table, the World Health Organization recommends a maximum outdoor daytime LAeq of 55 dB(A) in residential areas and schools in order to prevent significant interference with normal activities. It further recommends a maximum night-time LAeq of 45 dB(A) outside dwellings. No distinction is made as to whether the noise originates from road traffic, from industry, or any other noise source. The WHO guidelines for industrial noise are set at 70 dB(A) over a period of 24 hours. Anything above this level would cause hearing impairment, however, a peak noise level of 110 dB(A) is allowable on a fast response measurement.

Guidelines on environmental noise levels from the World Health Organization (WHO, 1999) were considered, as they are deemed suitable and capable of addressing the main issues observed and characterizing the acoustic reference framework. According to the IFC guidelines (2007), maximum noise levels should not exceed the levels presented in Table 23.

	Maximum Levels L_{Aeq} (1 hour) (dB)	
Receptor	**Day** **07:00 - 22:00**	**Night** **22:00 - 07:00**
Residencial; institutional; educational	55	45
Industrial; commercial	70	70

Table 23. Guidelines on environmental noise levels recommended by the WHO Source: EHS IFC Guidelines.

b. Methods used for the noise survey

Equipment and sampling points

The measurement system consists of a digital integrating sound level meter with a high-sensitivity broadband microphone and spectral and statistical analysis filters. The measurements were carried out using a General model DSM0403SD sound level meter with Type 1 class, as specified in the Terms of Reference (TDR) and in accordance with the BS 61672-1:2003 standard for the specifications of Electroacoustic Sound Level Meters.

The materials and equipment used to collect the data can be consulted at Table 24.

Materials and equipment	Description
GPS Device	Registration of geographic coordinates
General DSM0403SD	Environmental Noise Meter

Table 24. Materials and equipment for noise measurement.

The noise measurement sites were characterized at three points over a 48-hour period, from March 1st to March 5th. Measurements were taken at three locations where noise-emitting activities are primarily carried out and close to the nearest sensitive receptors. The locations of the noise measurement sites can be found in Figure 69, and the photographic record of the measurements can be found in Figure 70, Figure 71 and Figure 72.

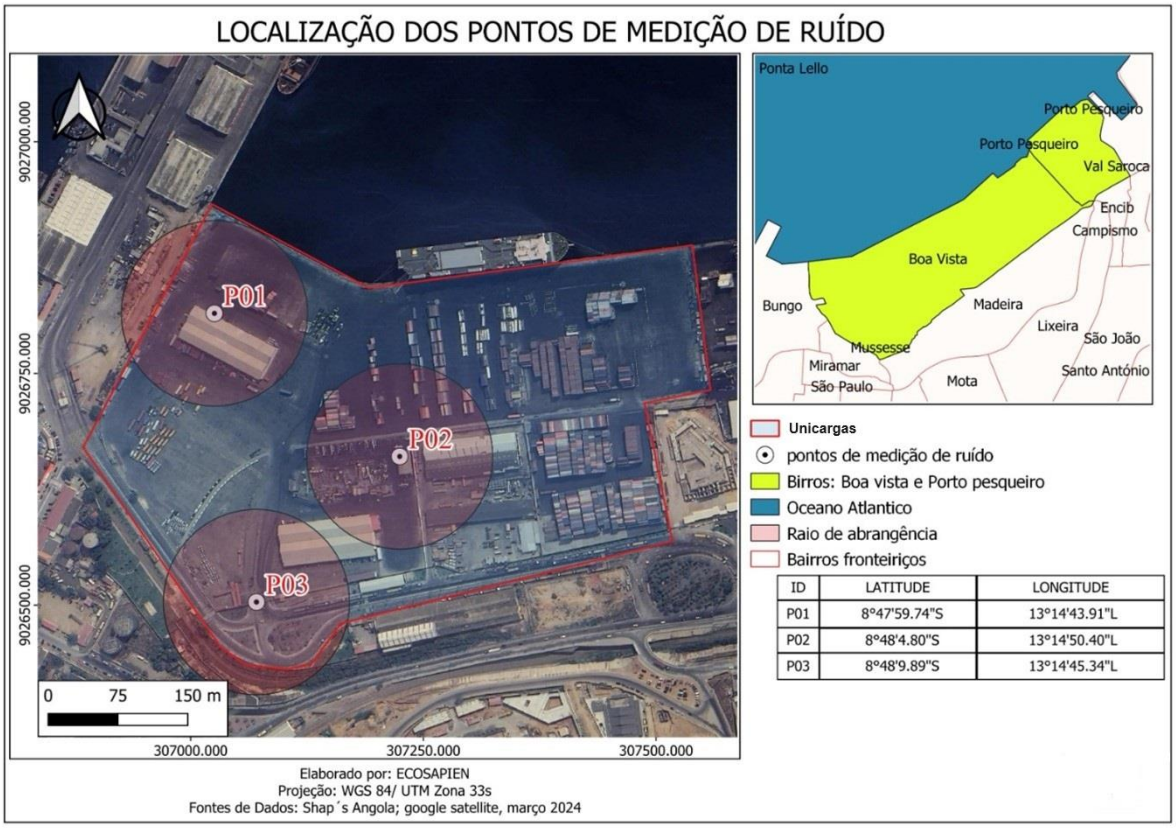


Figure 69. Location of noise measurement sampling points.

Figure 70. P01 – General services cup.

Figure 71. P02 – Technical area.

Figure 72. P03 – Gatehouse.

Data collection and procedure

As mentioned before, as there is no specific Angolan legislation, current international best practice should be applied, namely ISO Standard 1996-1:2016 (on environmental noise assessment procedures), BS Standard 61672-1:2003 on acoustic sound level meter specifications, and the noise management guidelines from IFC.

The noise pollution analyses were carried out according to the references in Table 25.

Parameters	Analysis method	Reference	Parameters
LAeq	Sonometric	ISO 1996-1:2016	LAeq
Lmax	Sonometric	ISO 1996-1:2016	Lmax
Lmin	Sonometric	ISO 1996-1:2016	Lmin
L10	Calculated	ISO 1996-1:2016	L10
L90	Calculated	ISO 1996-1:2016	L90

Table 25. Parameters for the analysis of noise pollution.

The procedure was developed according to the following steps:

- Noise measurement at three locations (Figure 69)
- Identify equipment positioning points
- Position and measure the sound level, maximum and minimum for 5 min, at each measurement location
- Record the data in the notebook
- Record the geographical coordinates of each measurement point, using the GPS equipment

Compensation scale A and fast reading responses (Fast) are used for noise measurements. Twenty (20) LAeq noise measurements were collected automatically for 20 min at each of the 3 monitoring points. After setting up and taking the 20 min reading, the data was saved and collected using an SD card, with the file in excel

format. Based on the ISO 1996-1:2016 standard, the formula below was applied to analyze the equivalent day and night noise level for long measurement periods.

$$L_{nd} = 10xlog_{10}[1/24 \times (t_{day} \times 10^{0,1xLday,15} + t_{night} \times 10^{0,1x(Lnight,9+10dB)})] \text{ dB}$$

Where Lnd is the equivalent night-day sound level, t_{day} and t_{night} are expressed in hours, where (t_{day} + t_{night}) = 24h. The daytime period from 7am to 10pm should be adopted.

Based on the measured values, other parameters are calculated, namely the daytime noise level, with the following parameters:

- Lmax - Maximum time-weighted sound level: This represents the highest time-weighted sound level observed during a defined time interval.
- Lmin - Minimum time-weighted sound level: This is the lowest time-weighted sound level recorded during the specified period.
- L10 - This is the sound level exceeded only 10 per cent of the time, denoting louder and less frequently occurring noise events in the environment.
- L90: This sound level exceeds 90% of the measurement time.

c. Noise survey results

P01 – General Services Cup

Table 26 shows that L10, Lmax and Laeq parameters exceed the maximum limit set by the WHO for residential zones. If the noise limit for industrial zones is considered, then only the Lmax and L10 parameters are above this level.

General Services Cup – P01			
Date	Nº	Time	LAeq
		h	dB
01/03/2024	1	12:27:43	69.90
01/03/2024	2	13:27:43	69.30
01/03/2024	3	14:27:43	68.20
01/03/2024	4	15:27:43	68.20
01/03/2024	5	16:27:43	71.20
01/03/2024	6	17:27:43	86.10
01/03/2024	7	18:27:43	86.30
01/03/2024	8	19:27:43	86.30
01/03/2024	9	20:27:43	82.80
01/03/2024	10	21:27:43	81.10
01/03/2024	11	22:27:43	80.40
01/03/2024	12	23:27:43	79.80
02/03/2024	13	00:27:43	79.60
02/03/2024	14	01:27:43	65.00
02/03/2024	15	02:27:43	64.70
02/03/2024	16	03:27:43	64.60

General Services Cup – P01			
Date	Nº	Time	LAeq
		h	dB
02/03/2024	17	04:27:43	64.50
02/03/2024	18	05:27:43	64.00
02/03/2024	19	06:27:43	79.20
02/03/2024	20	07:27:43	79.00
02/03/2024	21	08:27:43	77.50
02/03/2024	22	09:27:43	77.30
02/03/2024	23	10:27:43	76.00
02/03/2024	24	11:27:43	75.80
02/03/2024	25	12:27:43	72.60
02/03/2024	26	13:27:43	63.70
02/03/2024	27	14:27:43	63.40
02/03/2024	28	15:27:43	63.00
02/03/2024	29	16:27:43	62.10
02/03/2024	30	17:27:43	61.00
02/03/2024	31	18:27:43	59.40
02/03/2024	32	19:27:43	59.30
02/03/2024	33	20:27:43	59.00
02/03/2024	34	21:27:43	58.90
02/03/2024	35	22:27:43	58.80
02/03/2024	36	23:27:43	58.80
03/03/2024	37	00:27:43	58.60
03/03/2024	38	01:27:43	58.40
03/03/2024	39	02:27:43	58.40
03/03/2024	40	03:27:43	58.40
03/03/2024	41	04:27:43	58.40
03/03/2024	42	05:27:43	47.80
03/03/2024	43	06:27:43	47.20
03/03/2024	44	07:27:43	46.70
03/03/2024	45	08:27:43	46.40
03/03/2024	46	09:27:43	46.30
03/03/2024	47	10:27:43	46.10
03/03/2024	48	11:27:43	45.30

Table 26. Noise level measurements results (P01).

P02 – Technical area

Table 27 shows that L10 and Lmax parameters exceed the maximum limit set by the WHO for residential zones. However, LAeq is within the limit recommended by the WHO.

Technical area – P02			
Date	Nº	Time	LAeq
		h	dB
01/03/2024	1	12:41:13	61.30
01/03/2024	2	13:41:13	59.70
01/03/2024	3	14:41:13	59.00
01/03/2024	4	15:41:13	58.50
01/03/2024	5	16:41:13	58.20
01/03/2024	6	17:41:13	56.60
01/03/2024	7	18:41:13	56.60
01/03/2024	8	19:41:13	55.30
01/03/2024	9	20:41:13	53.40
01/03/2024	10	21:41:13	52.50
01/03/2024	11	22:41:13	52.30
01/03/2024	12	23:41:13	52.10
02/03/2024	13	00:41:13	52.10
02/03/2024	14	01:41:13	52.10
02/03/2024	15	02:41:13	51.40
02/03/2024	16	03:41:13	51.40
02/03/2024	17	04:41:13	51.00
02/03/2024	18	05:41:13	50.30
02/03/2024	19	06:41:13	50.30
02/03/2024	20	07:41:13	50.20
02/03/2024	21	08:41:13	49.50
02/03/2024	22	09:41:13	49.20
02/03/2024	23	10:41:13	49.20
02/03/2024	24	11:41:13	49.20
02/03/2024	25	12:41:13	49.10
02/03/2024	26	13:41:13	49.00
02/03/2024	27	14:41:13	48.70
02/03/2024	28	15:41:13	48.70
02/03/2024	29	16:41:13	48.70
02/03/2024	30	17:41:13	48.60
02/03/2024	31	18:41:13	48.40
02/03/2024	32	19:41:13	48.20
02/03/2024	33	20:41:13	48.20
02/03/2024	34	21:41:13	48.10
02/03/2024	35	22:41:13	48.10
02/03/2024	36	23:41:13	47.90
03/03/2024	37	00:41:13	47.80
03/03/2024	38	01:41:13	46.70

Technical area – P02			
Date	Nº	Time	LAeq
		h	dB
03/03/2024	39	02:41:13	45.50
03/03/2024	40	03:41:13	45.50
03/03/2024	41	04:41:13	45.00
03/03/2024	42	05:41:13	44.90
03/03/2024	43	06:41:13	44.80
03/03/2024	44	07:41:13	44.70
03/03/2024	45	08:41:13	43.90
03/03/2024	46	09:41:13	43.90
03/03/2024	47	10:41:13	43.60
03/03/2024	48	11:41:13	43.40

Table 27. Noise level measurements results (P02).

P03 – Gatehouse

Table 28 shows that L10, Lmax and LAeq exceed the maximum limit recommended by the WHO for industrial zones.

Gatehouse – P03			
Date	Nº	Time	LAeq
		h	dB
03/03/2024	1	12:35:32	69.60
03/03/2024	2	13:35:32	69.60
03/03/2024	3	14:35:32	69.10
03/03/2024	4	15:35:32	70.20
03/03/2024	5	16:35:32	70.70
03/03/2024	6	17:35:32	70.70
03/03/2024	7	18:35:32	71.30
03/03/2024	8	19:35:32	71.80
03/03/2024	9	20:35:32	72.40
03/03/2024	10	21:35:32	74.00
03/03/2024	11	22:35:32	74.30
03/03/2024	12	23:35:32	68.50
04/03/2024	13	00:35:32	59.70
04/03/2024	14	01:35:32	59.30
04/03/2024	15	02:35:32	57.90
04/03/2024	16	03:35:32	57.40
04/03/2024	17	04:35:32	56.60
04/03/2024	18	05:35:32	61.90
04/03/2024	19	06:35:32	68.40
04/03/2024	20	07:35:32	68.40

Gatehouse – P03			
Date	Nº	Time	LAeq
		h	dB
04/03/2024	21	08:35:32	70.80
04/03/2024	22	09:35:32	70.90
04/03/2024	23	10:35:32	67.60
04/03/2024	24	11:35:32	67.10
04/03/2024	25	12:35:32	66.20
04/03/2024	26	13:35:32	66.20
04/03/2024	27	14:35:32	65.50
04/03/2024	28	15:35:32	65.00
04/03/2024	29	16:35:32	75.00
04/03/2024	30	17:35:32	75.00
04/03/2024	31	18:35:32	79.60
04/03/2024	32	19:35:32	81.30
04/03/2024	33	20:35:32	78.60
04/03/2024	34	21:35:32	77.10
04/03/2024	35	22:35:32	76.60
04/03/2024	36	23:35:32	56.20
05/03/2024	37	00:35:32	55.60
05/03/2024	38	01:35:32	55.50
05/03/2024	39	02:35:32	55.10
05/03/2024	40	03:35:32	54.80
05/03/2024	41	04:35:32	53.70
05/03/2024	42	05:35:32	53.50
05/03/2024	43	06:35:32	53.30
05/03/2024	44	07:35:32	52.60
05/03/2024	45	08:35:32	52.50
05/03/2024	46	09:35:32	75.60
05/03/2024	47	10:35:32	75.30
05/03/2024	48	11:35:32	75.30

Table 28. Noise level measurements results (P03).

d. Detailed interpretations of the environmental baseline findings against regulatory environmental standards and IFC PS.

P01 – General Services Cup

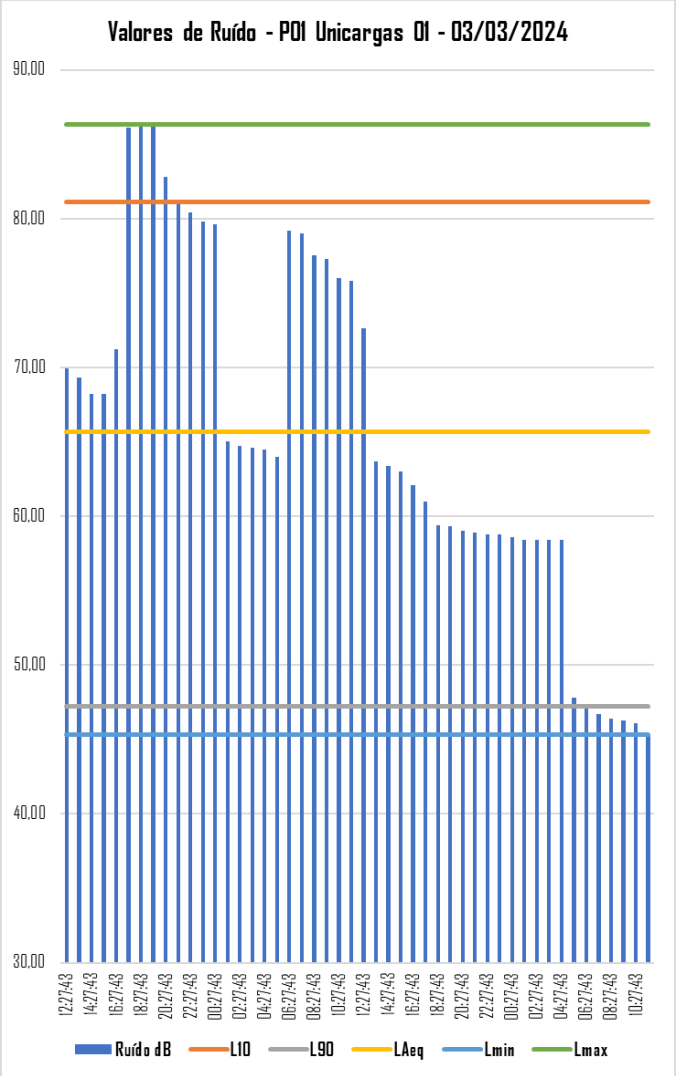


Figure 73. Environmental noise measurement at point P01.

P01										
Period	L90	WHO	L10	WHO	LAeq	WHO	Lmáx	WHO	Lmín	WHO
Day	47.20	55	81.10	55	65.66	55	86.30	55	45.30	55
Evaluation										

Table 29. Environmental noise assessment (P01).

Based on data included below, it can be observed that there is a greater number of noise sources between 1 and 2 hours of measurement, characterized as vehicular or mobile sources, maintaining the noise values above 60 dB. Conversely, between 5 and 6 p.m. on day 01, there was a significant increase in the noise level, influenced solely by lorries and the boat that docked at the terminal.

	General Service Cup – P01				
Nº	Time	Cumulative Frequency	LAeq	Influence Factors: May be associated with a worsening of the environmental noise condition of the site	
	h		dB	Influencing factors	Quantity
1	12:27:43	2	69.9	Machine circulation	1
2	13:27:43	3	69.3	Movement of 3 vehicles and workers talking	3
3	16:27:43	6	71.2	Circulation of 4 heavy vehicles	4
4	17:27:43	7	86.1	Boat arrives with goods	12
5	18:27:43	8	86.3	Start of unloading of boat and movement of lorries	14
6	06:27:43	12	79.2	Boat unloading and lorry movements	4
7	07:27:43	13	79	Boat unloading and lorry movements	5
8	08:27:43	14	77.5	Boat unloading and lorry movements	5
9	17:27:43	23	61	Boat leaves Terminal	4

Table 30. Comparison of influencing factors for point P01.

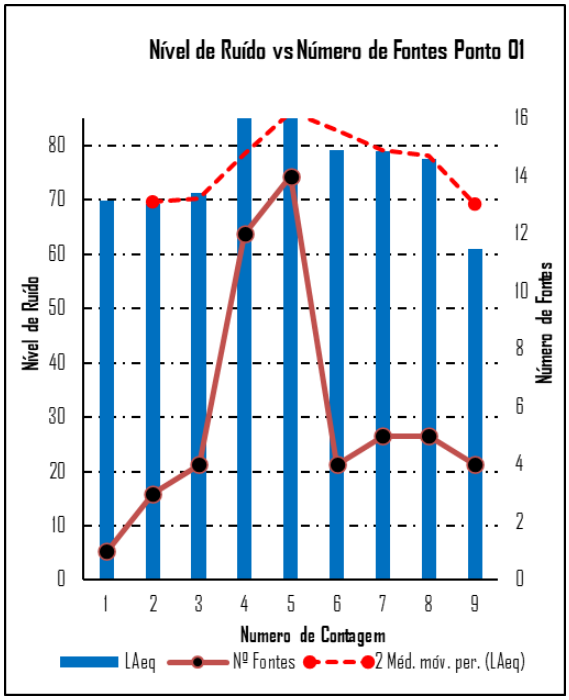


Figure 74. Noise level vs number of sources of influence at point P01.

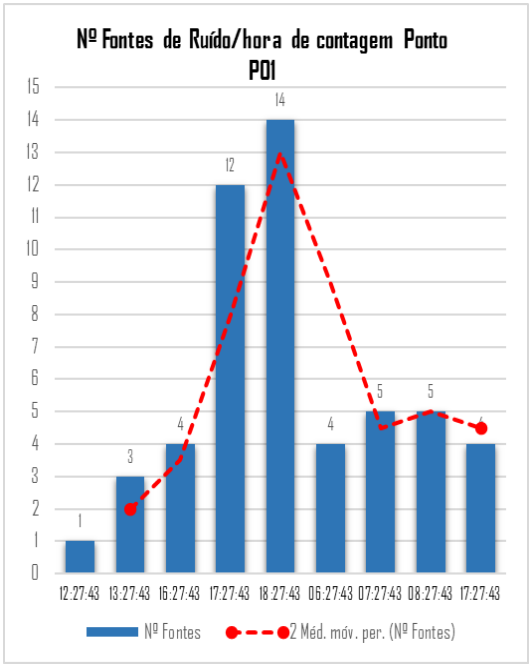


Figure 75. Noise level /hour of measurement at Point P01

P02 – Technical area

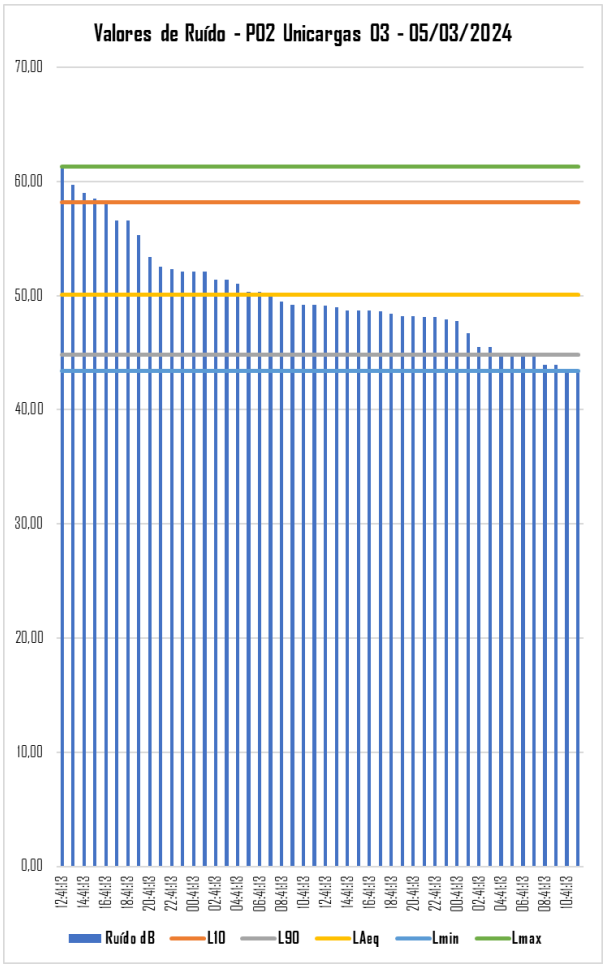


Figure 76. Environmental noise measurement at point P02.

P02										
Period	L90	WHO	L10	WHO	LAeq	OMS	Lmax	WHO	Lmin	WHO
Day	44.80	55	58.20	55	50.06	55	61.30	55	43.40	55
Evaluation										

Table 31. Environmental noise assessment (P02).

According to data included below, there is a greater number of noise sources around 12 noon on 01/03/2024, due to the presence of workers in the measurement area, keeping noise values above 60 dB.

	Technical area – P02				
Nº	Time	Cumulative Frequency	LAeq	Influence Factors: May be associated with a worsening of the environmental noise condition of the site	
	h		dB	Influencing factors	Influencing factors
1	12:41:13	2	61.3	Worker chatter and radio noise	2
2	13:41:13	3	59.7	Workers talking	2
3	17:41:13	7	56.6	Workers talking	1

Table 32. Comparison of influencing factors for point P02.

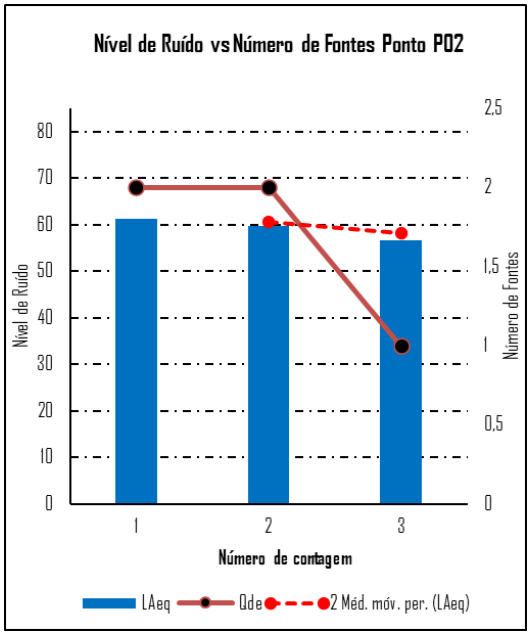


Figure 77. Noise level vs number of sources of influence at point P02.

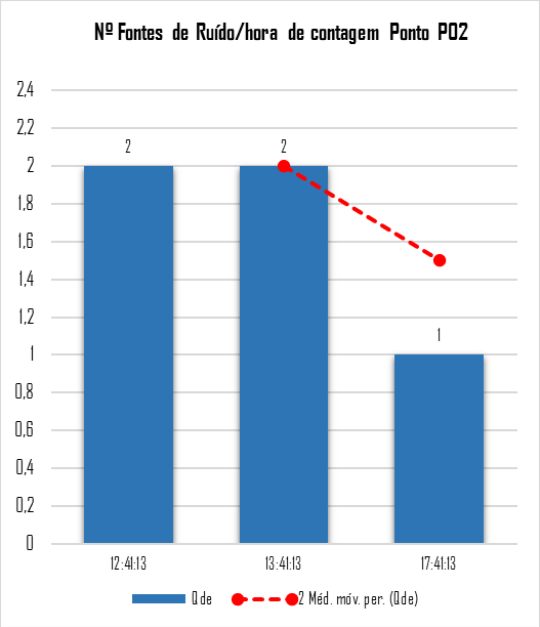


Figure 78. Noise level /hour of measurement at Point P02

P03 – Gatehouse

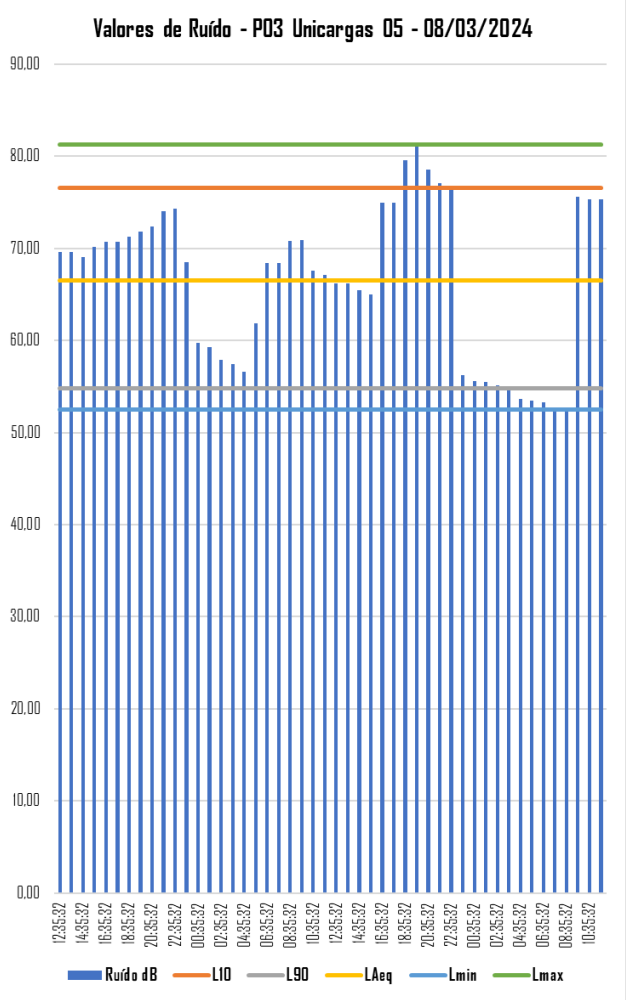


Figure 79. Environmental noise measurement at point P03.

P03										
Period	L90	WHO	L10	WHO	LAeq	WHO	Lmax	WHO	Lmin	WHO
Day	54.80	55	76.60	55	66.53	55	81.30	55	52.50	55
Evaluation										

Table 33. Environmental noise assessment (P03).

Looking at the following data for P03, there is a greater number of noise sources around 7pm on 04/03/2024, due to the movement of lorries and light vehicles, raising noise values by around 81.30 dB.

	Gatehouse – P03				
Nº	Time	Cumulative Frequency	LAeq	Influence Factors: May be associated with a worsening of the environmental noise condition of the site	
	h		dB	Influencing factors	Influencing factors
1	12:35:32	2	69.6	Workers talking	4
2	18:35:32	8	71.3	Light vehicles leaving	6
3	19:35:32	9	71.8	Light vehicles leaving and heavy vehicles travelling	5
4	07:35:32	21	68.4	Entry and exit of vehicles	3
5	08:35:32	29	70.8	Vehicles entering and exiting, workers talking	7
6	17:35:32	37	75	Truck traffic and workers' conversation	5
7	18:35:32	38	79.6	Movement of heavy and light vehicles	8
8	19:35:32	39	81.3	Movement of heavy and light vehicles	11

Table 34. Comparison of influencing factors for point P03.

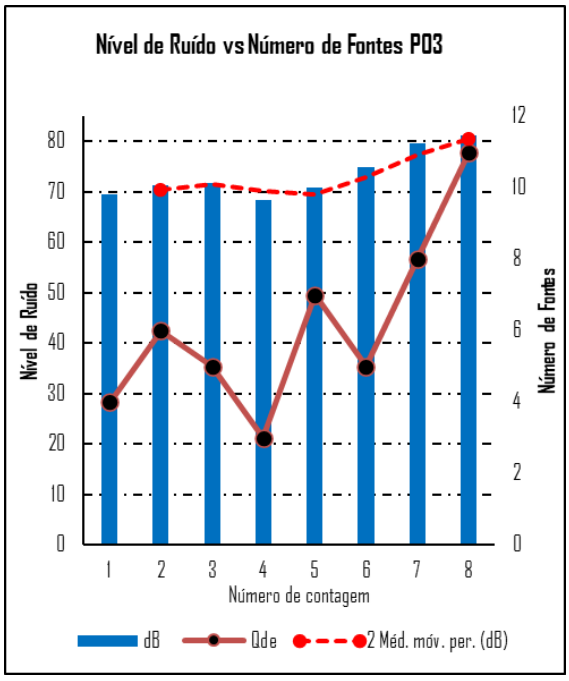


Figure 80. Noise level vs number of sources of influence at point P03.

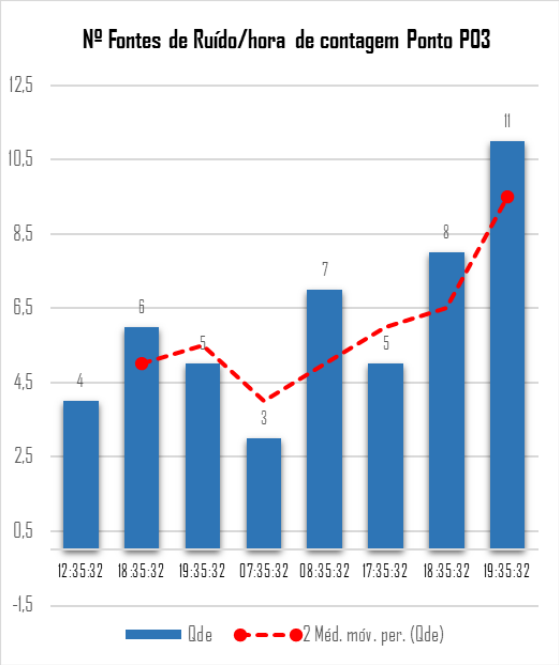


Figure 81. Noise level /hour of measurement at Point P03

e. Summary

According to the "General Environmental, Health, and Safety General Guidelines" published by IFC in April 2007 during construction and decommissioning activities, noise and vibration may be caused by the operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes and the transportation of equipment, materials and people.

In this regard, the IFC guidelines establish the following:

Noise monitoring may be carried out for the purposes of establishing the existing ambient noise levels around the proposed or existing facility, or for verifying operational phase noise levels.

Noise monitoring programs should be designed and conducted by trained specialists. Typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays). The type of acoustic indices recorded depends on the type of noise being monitored, as established by a noise expert. Monitors should be located approximately 1.5 m above the ground and no closer than 3 m to any reflecting surface (e.g., wall). In general, the noise level limit is represented by the background or ambient noise levels that would be present in the absence of the facility or noise source(s) under investigation.

Assessing noise pollution within the port area is essential for establishing baseline conditions and understanding the environmental impact of port operations, particularly in relation to future construction works.

According to the previous sections, the analysis identified various sources of noise, with vehicle traffic, including heavy vehicles, being among the primary contributors within the monitored areas. While this is a

common aspect of port operations, it underscores the importance of implementing measures to mitigate excessive noise, particularly during construction activities.

During the evaluation, it was observed that noise levels at certain points exceeded recommended limits for residential zones, signaling potential impacts on the surrounding environment. This indicates the need for careful monitoring and management of noise emissions, especially considering the sensitive nature of nearby residential areas.

The highest LAeq value was found at point 3, at 66.53 dB. The highest L10 value was found at point 1, with a value of 81.10 Db. The highest L90 value was found at point 3 with a value of around 76.60 dB. The highest value for the Lmax parameter was identified at point 1 with a value of around 86.30 dB. The highest value for the Lmin parameter was identified at point 3 with a value of around 52.50 dB.

Points	LAeq	L10	L90	Lmax	Lmin
P01	65.66	81.10	47.20	86.30	45.30
P02	50.06	58.20	44.80	61.30	43.40
P03	66.53	76.60	54.80	81.30	52.50

Table 35. Summary of noise measurements results.

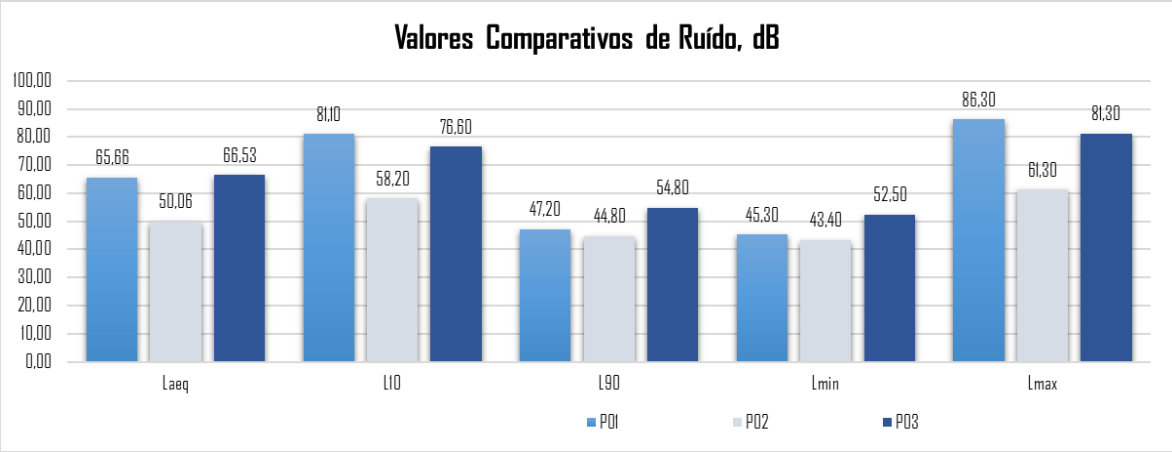


Figure 82. Noise measurements results graph

Overall, the results indicate that noise levels at all points within the port area are generally higher than the WHO-recommended limits for industrial/commercial areas, especially regarding the L10 and Lmax parameters. This suggests that the industrial activities within the port are contributing to elevated noise levels. However, it's worth noting that some measurements (such as L90 and Lmin) are below the recommended limits for residential/institutional/educational areas, indicating potential variations in noise exposure within the port vicinity.

Furthermore, it's important to recognize that noise pollution may extend beyond the immediate vicinity of the terminal, potentially affecting neighboring residential areas and transportation routes. This highlights the need for proactive measures to minimize disruptions and ensure the well-being of local communities.

Additionally, it's crucial to consider the role of industrial activities within the port complex, such as operations at the Container Terminal and General Cargo Terminal, in contributing to overall noise levels. By addressing

noise emissions from both terminal-specific activities and broader industrial sources, comprehensive strategies can be developed to manage noise effectively.

In conclusion, addressing noise pollution in port areas requires a balanced approach that considers the needs of both port operations and surrounding communities. By establishing baseline conditions and implementing targeted mitigation measures, the impact of noise pollution can be minimized, and it can ensure sustainable development for all stakeholders involved in port activities.

10.2.2.5.Aerial acoustic modelling

Acusttel Acústica y Telecomunicaciones has accomplished the Noise Study of the Development of Unicargas Terminal in Luanda's Port, Angola, tasked by TYPSA, which is included in Annex 1 of Volume III. The study has been carried out considering three phases of the project in order to assess the acoustic impact properly: preoperational, construction and operational phase. Values to comply with, since there is no specific Angolan legislation, are stated at IFC guidelines (2007) and shown in the following table:

	Maximum Levels L_{Aeq}(1hour) (dBA)	
Receiver	Day (07:00 – 22:00 H)	Night (22:00 – 07:00 H)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Table 36. Maximum noise levels. Source: IFC guidelines (2007)

The study has determined the following area of influence considering the following typology of sensitive receivers according to land uses in the Port and adjacent areas.

Figure 83. Land uses at Unicargas Terminal and adjacent areas. Source: Noise study (Acusttel 2024)

The acoustical software used, specifications, and assumptions made are detailed in the Noise Study included in Annex 1 of Volume III. The main sources of noise considered are road traffic on the EN-100 adjacent to Luanda's Port, traffic on the access roads to the Port, and Port activities themselves (vehicle circulation, use of machinery and equipment, vessel traffic, etc.). The railway line and other urban activities such as commercial establishments, recreational activities, etc., have not been considered due to the lack of reliable data.

The results for the preoperational phase show that noise levels are lower than the reference standards. For day and night period, maximum values calculated rises to 46.2 and 41.7 dBA respectively.

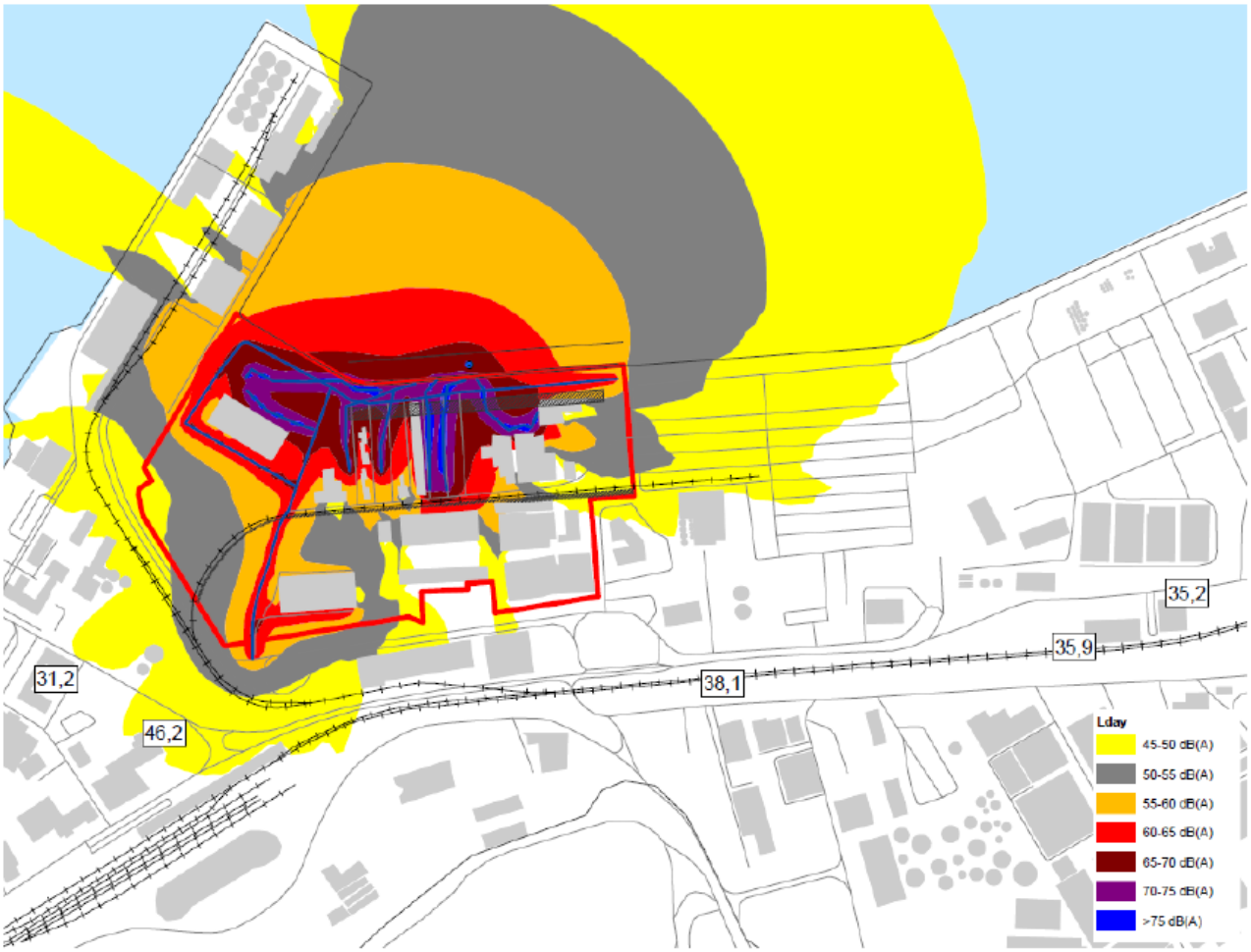


Figure 84. Pre-operational noise levels for day period (07:00-22:00 h). Source: Noise study (Acusttel 2024)

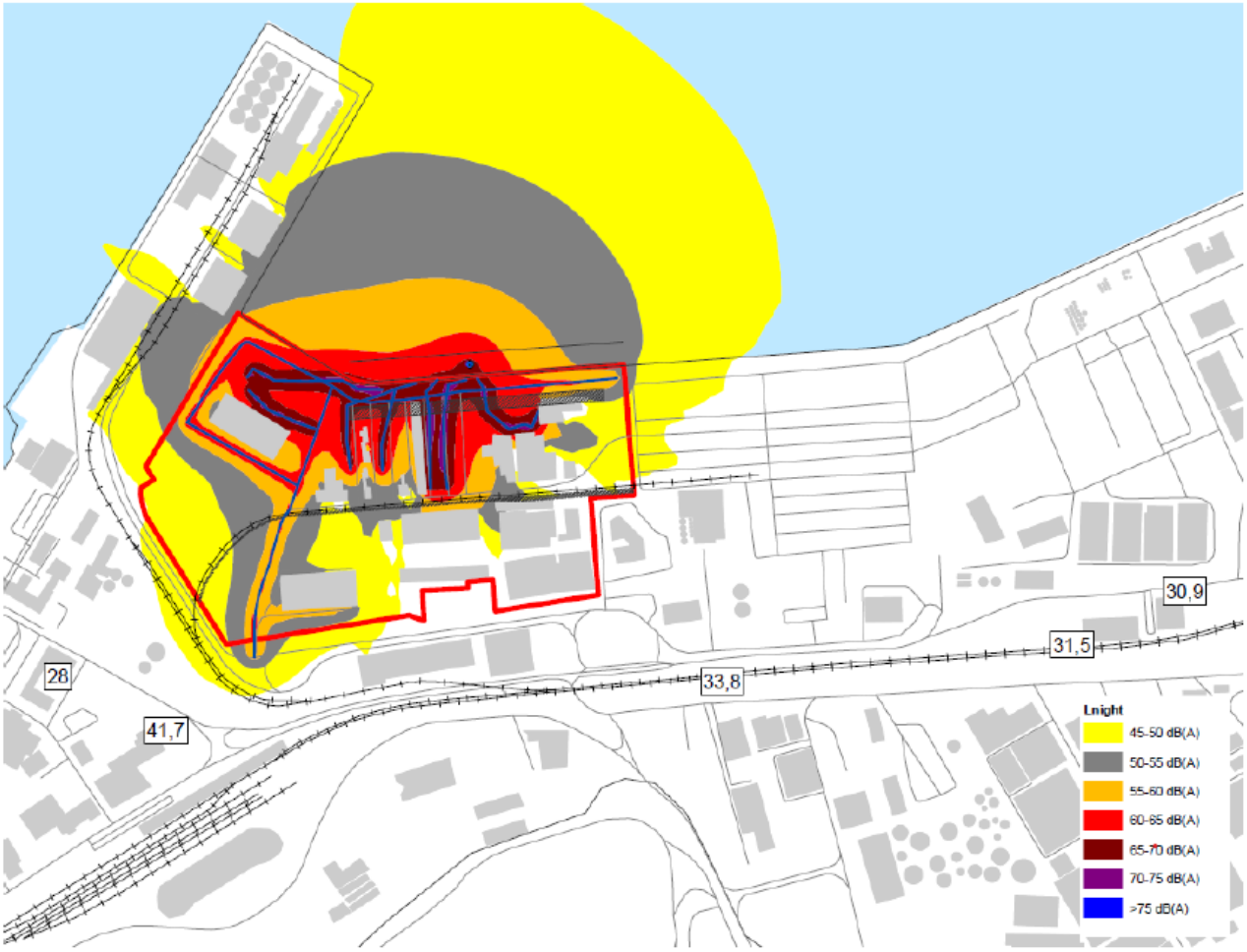


Figure 85. Pre-operational noise levels for night period (22:00-07:00 h). Source: Noise study (Acusttel 2024)

Current Unicargas Terminal's activities are not causing any noise problem nowadays in the vicinity areas neither during day period nor night one.

In addition, the study has also analyzed the acoustic impact of existing traffic in road EN-100, since it seems to be the main noise source in the area. The parameters/assumptions considered, as number of vehicles, velocity, types of vehicles, etc.) for the calculation are specified in the study itself.

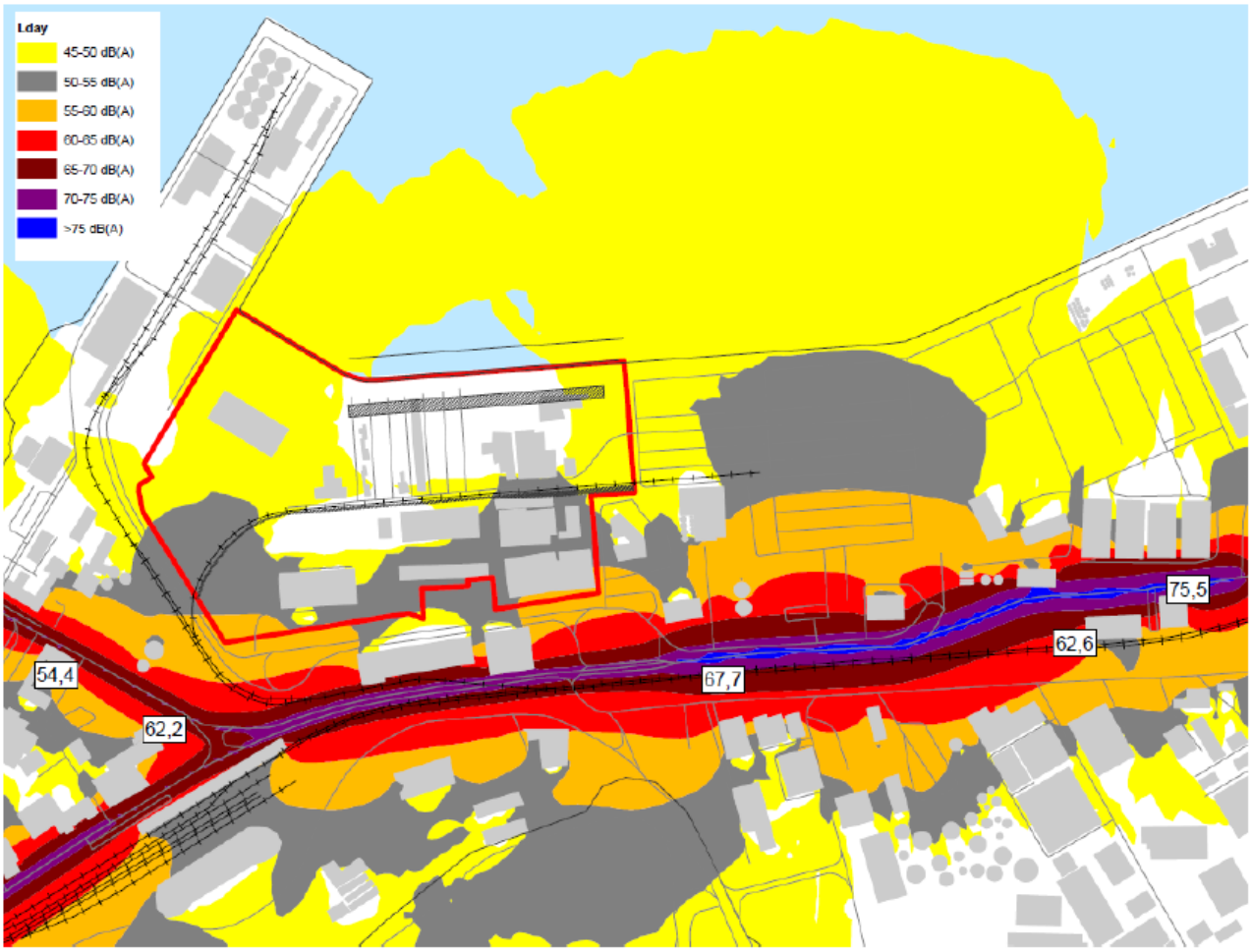


Figure 86. EN-100 road noise levels for day period (07:00-22:00). Source: Noise study (Acusttel, 2024)

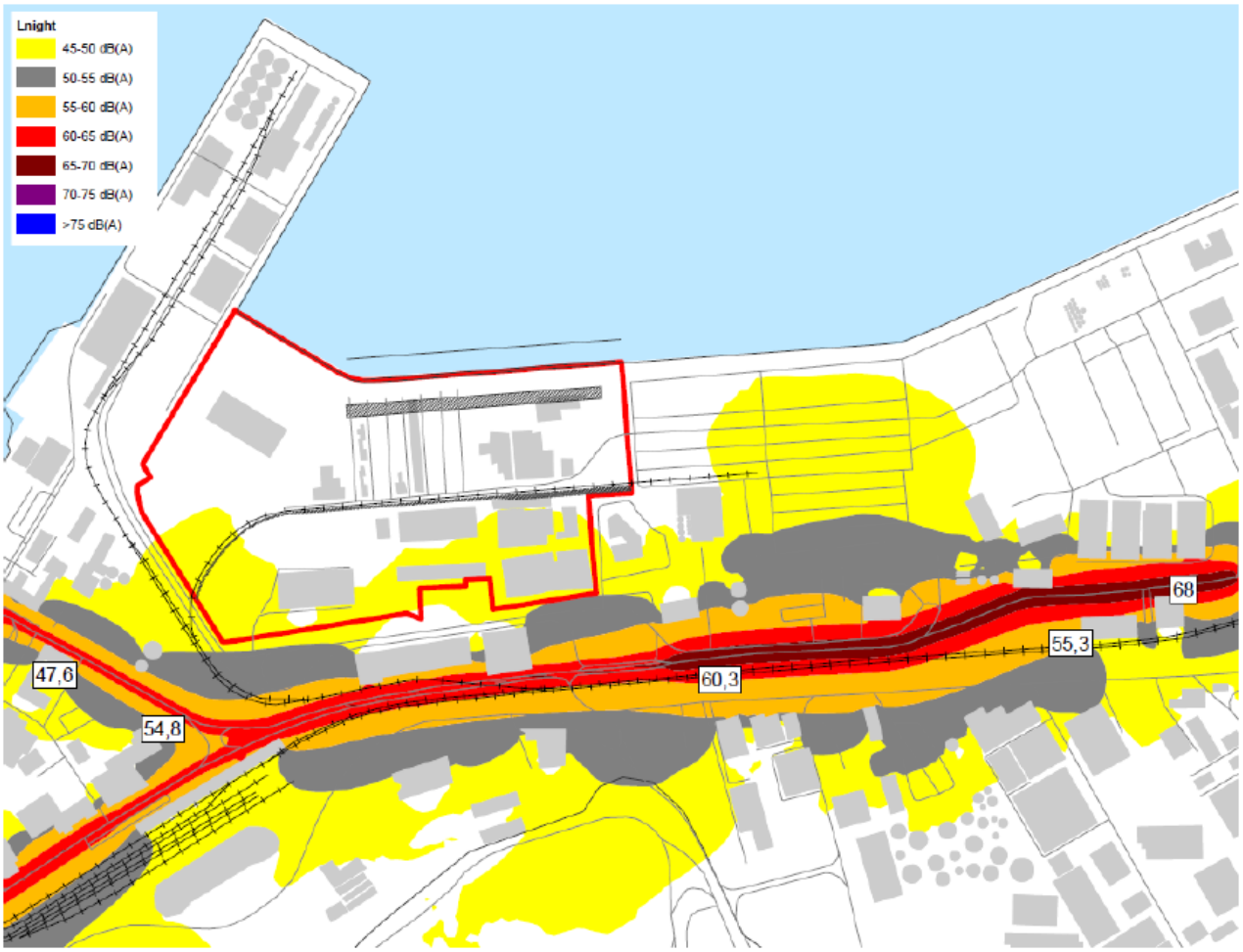


Figure 87. EN-100 road noise levels for night period (22:00-07:00). Source: Noise study (Acusttel, 2024)

As shown in the figures below, road noise levels generated at the main receivers are higher than those induced by the Terminal's activity. The worst values at a residential area adjacent to the Port caused by the road raise to 62.2 and 54.8 dBA during day and night period.

10.2.3. Topography, Geology and Geomorphology

The Food and Agriculture Organization of the United Nations website includes the Hand-in-Hand (HiH) Geospatial Platform[16] which provides open-access geographic information, food security indicators and agricultural statistics sourced from FAO and external organizations such as NGOs, academia, private sector and space agencies.

The topography section includes elevation data with an approximate resolution of 90m at the equator. The Shuttle Radar Topographic Mission (SRTM) 90m Digital Elevation Data processed by CGIAR (v. 4 2018) fills data voids.

[16] https://data.apps.fao.org/?source=https%3A%2F%2Fio.apps.f...

Angola general topography[17] consists in a coastal stripe, below 200 m altitude, who's wide varies between 10 and 150 km, which occupies approximately 5% of the country. This band turns into a stepped and mountainous escarpment above 1,000 m, which lies in an approximately surface of 23%. Last, an interior plateau where altitudes range between 1,000 and 1,500 m and occupies the greater surface of the country (65%), The remaining 7% is located above 1,500 m, where Mount Moco (2,620 m) is located.

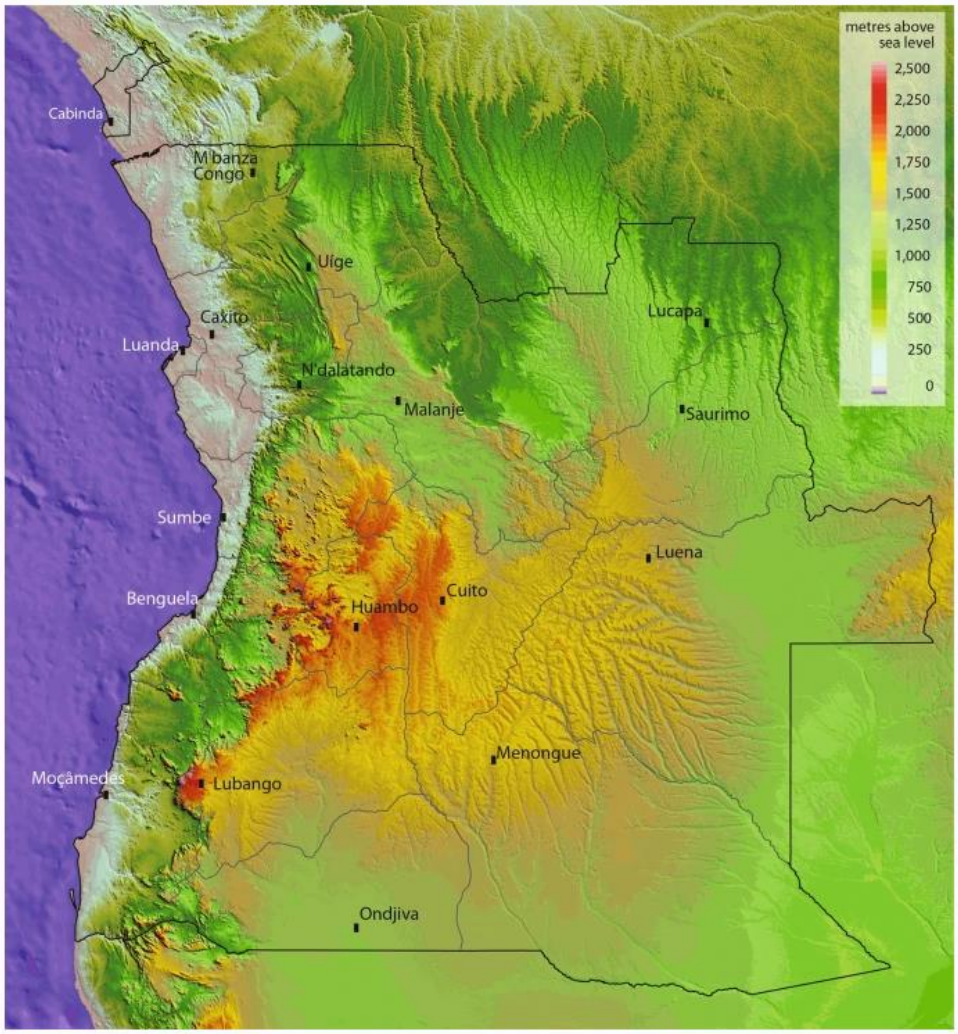


Figure 88. National topographic characterization. Source: HiH Geospatial Platform 2024

As the figure above shows, Luanda, and thus the project, is included in the coastal strip, north of the country. The topography of the topside terminal plot varies between +3.8 (southeast of the plot) and +1.85 (north part of the plot) m.a.s.l.

[17] *Huntley, B.J. (2019). Angola in Outline: Physiography, Climate and Patterns of Biodiversity. In: Huntley, B., Russo, V., Lages, F., Ferrand, N. (eds) Biodiversity of Angola. Springer, Cham. Available at: https://doi.org/10.1007/978-3-030-03083-4_2*

A bathymetry study has been developed[18], consisting of a bathymetric high-resolution survey in a 166.000m^2 area. Depth values obtained vary from -7 m at the southwest zone to -13.4 m at the northwest corner.

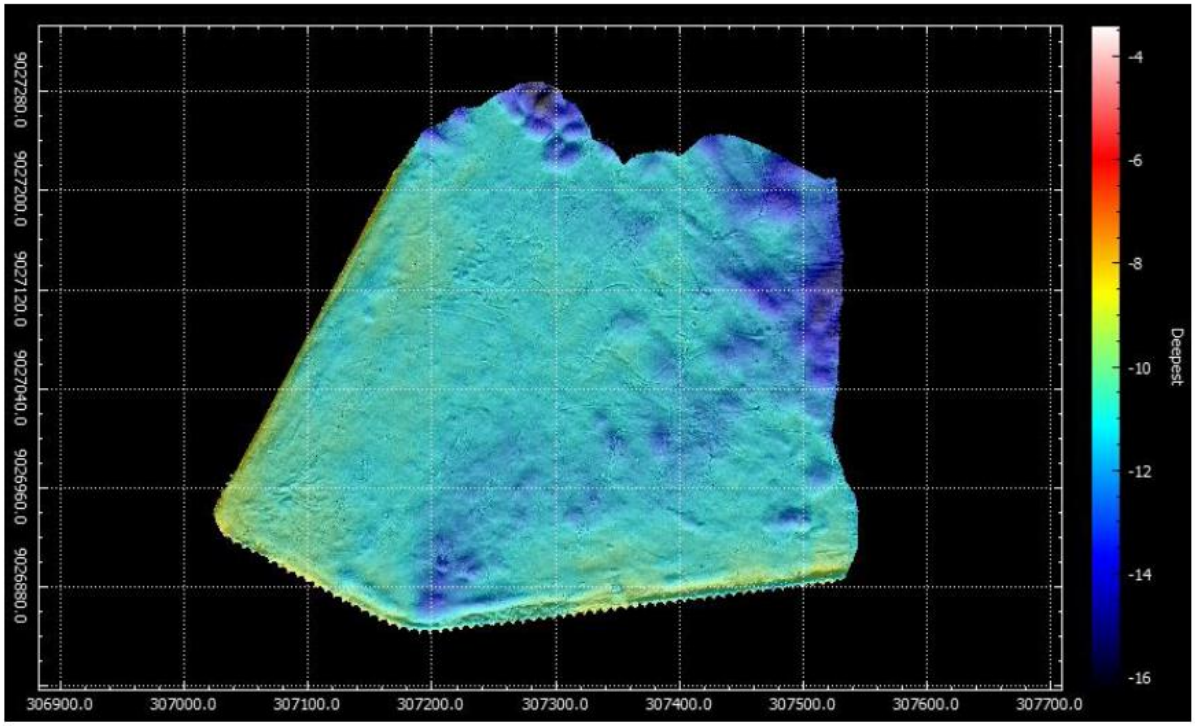


Fig. 6 – Modelo Digital Batimétrico

Figure 89. Bathymetry at the Unicargas project area. Source: Bathymetry survey

Main conclusions highlighter in the report specify that it will be necessary to clean the areas where depth is below 10.8 m to guarantee the safe berthing of ships; there is an area where depth reaches 12 m close to the quay, which is dangerous for the existing foundations; there is an elevated degradation level of the berthing areas (subsidence, voids, etc.). In this way, works to reinforce the existing structure and foundations are urgent not to jeopardize the structure.

To approach to the geology characterization of the project area, the Geological Map of Angola 1/1.000.000 Hoja 1, (Instituto Nacional de Geologia - Ministério da Indústria, República Popular de Angola - 1988) has been consulted. Although the map's publication date is not recent (35 years), geology does not change at that temporal scale.

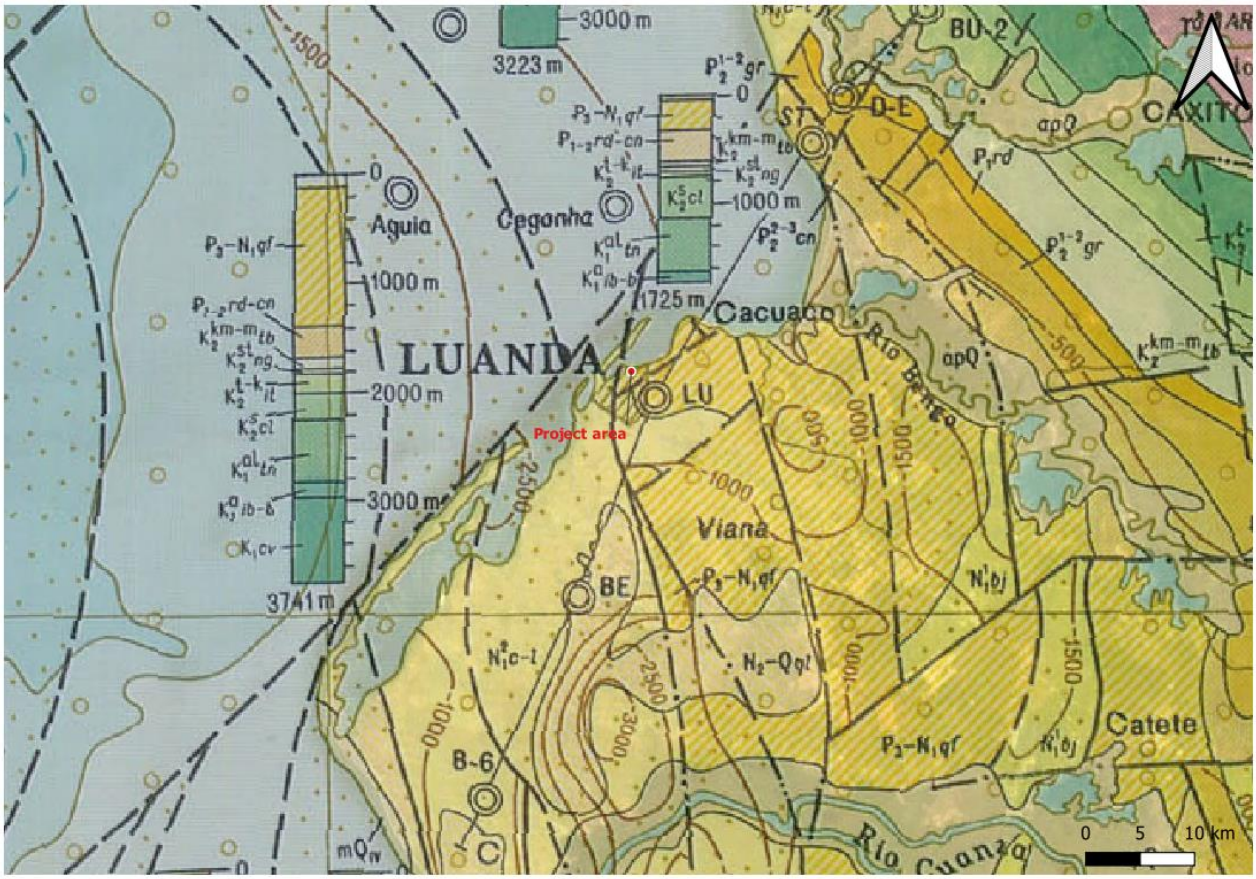
Angola[19] is underlain by rocks from the Paleoproterozoic, Mesoproterozoic and Neoproterozoic, which in the west of the country include Bembe System basal tillites. The northern central is underlain by volcanic and sedimentary rocks of the Karoo Supergroup as well as the Precambrian basement is directly overlain by a

[18] *GeoSurveys – Bathymetry survey. Development of Unicargas Port in Luanda. Doc number 20210730_Unicargas_MBES_SBP_rep (20210730)*
[19] *Thomas Schlüter. "Geological Atlas of Africa with notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country"2006.*

thick sequence of Mesozoic to Cenozoic marine sedimentary rocks in the coastal basin. The eastern part is covered by Kalahari Group sands.

The Cretaceous to Pleistocene marine sediments cover the western margins, where Luanda is placed, and during lower Cretaceous, from north to south Congo, the Kwanza and the Namib marine coastal basins started developing. The Cretaceous formations are found as continental fluvial sediments in the interior and marine sediments along the coastal margin. The marine sedimentary basins (five in the whole country: Cabinda, Congo, Kwanza -where Luanda is included-, Benguela and Namibe) are found in along the coast. The northern ones comprise flat plateaus of red, yellow and grey Pleistocene sands (musseques) which cover earlier Cretaceous to Miocene sediments of clays, limestones, marls, sandstones and conglomerates.

The Port, where the new terminal is located, is covered by Quifangondo formation: clays, limestone, dolomite, sand, marl and conglomerate, from Cenozoic. Nearby marine drills show that under these tertiary materials there is another Cenozoic formation (Paleogeno), Rio Dande, Gratidão, Cunga: marls, limestones, sandstones with coprolites, and conglomerates. Below, Cretaceous materials appear, first two from upper Cretaceous and last two from lower. From up to down, the formations are Itombe -marls, limestones and stoneware-, Cabo Ledo -stoneware, sandy limestones, argillites-, Tuenza -dolomites, anidriles and sais- and last Intra-Binga, Binga -dolomites, calcarites, anidrites, sais and stoneware.



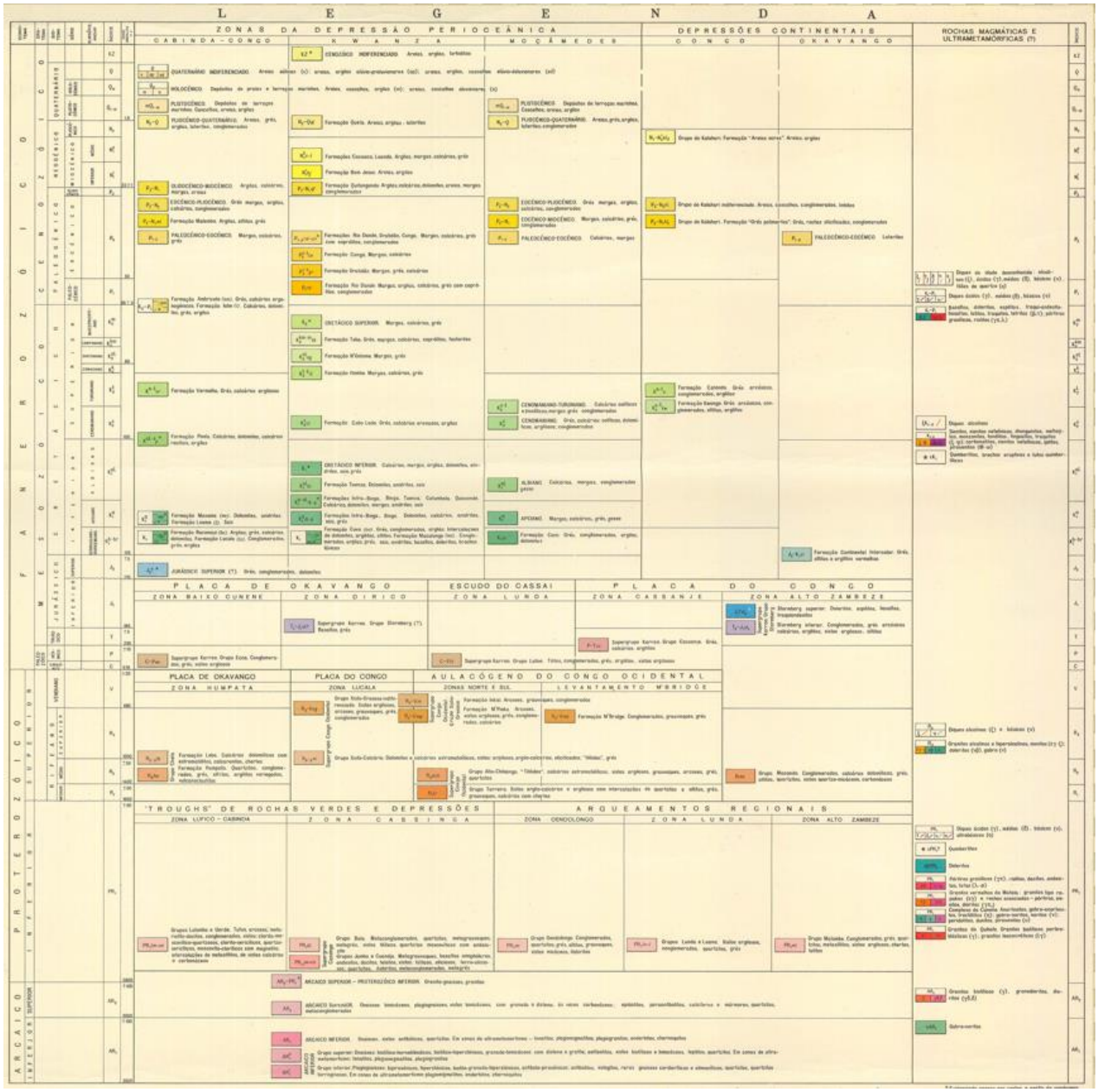


Figure 90. Geological map from the project area. Source: Geological Map of Angola 1/1.000.000. Instituto Nacional del Geologia (1988)

To develop the necessary design works, a geotechnical investigation has been conducted in October 2023 on several onshore and offshore locations (total of 7 boreholes, 3 onshore and 4 offshore, as well as 5 trial pits). The results revealed the stratigraphy of the project area, mainly sandy layers were found below the upper pavement layers, extending down to 15 m depth in BH-01 and up to 33 m in the other ones. These upper sandy layers are followed by clayey sand layers which extend between 5 and 20 m. Then stiff clay layers appear at depths ranging between 33 and 36 m to the end of boring (50 m).

This means shallow foundations are recommended for the structures at the topside area as well as for utilities structures. The foundation should be embedded not less than 1.5 m under the ground surface.

Angola's contemporary landscape and natural regions[20] can be divided into 11 zones (based on Diniz "mesological units" which are represented in Figure 91). The project is located in the Coastal zone, a continuous platform at 10-200 m above sea level. Angolan coastline, opposite to Africa's east coast at similar latitudes, has no coral reefs or coastal dune forests. The platform is occasionally broken by river valleys such as the Cunene and the Kwanza, which present long sandbars stretch north, and also mudflats and mangroves occur at most river mouths.

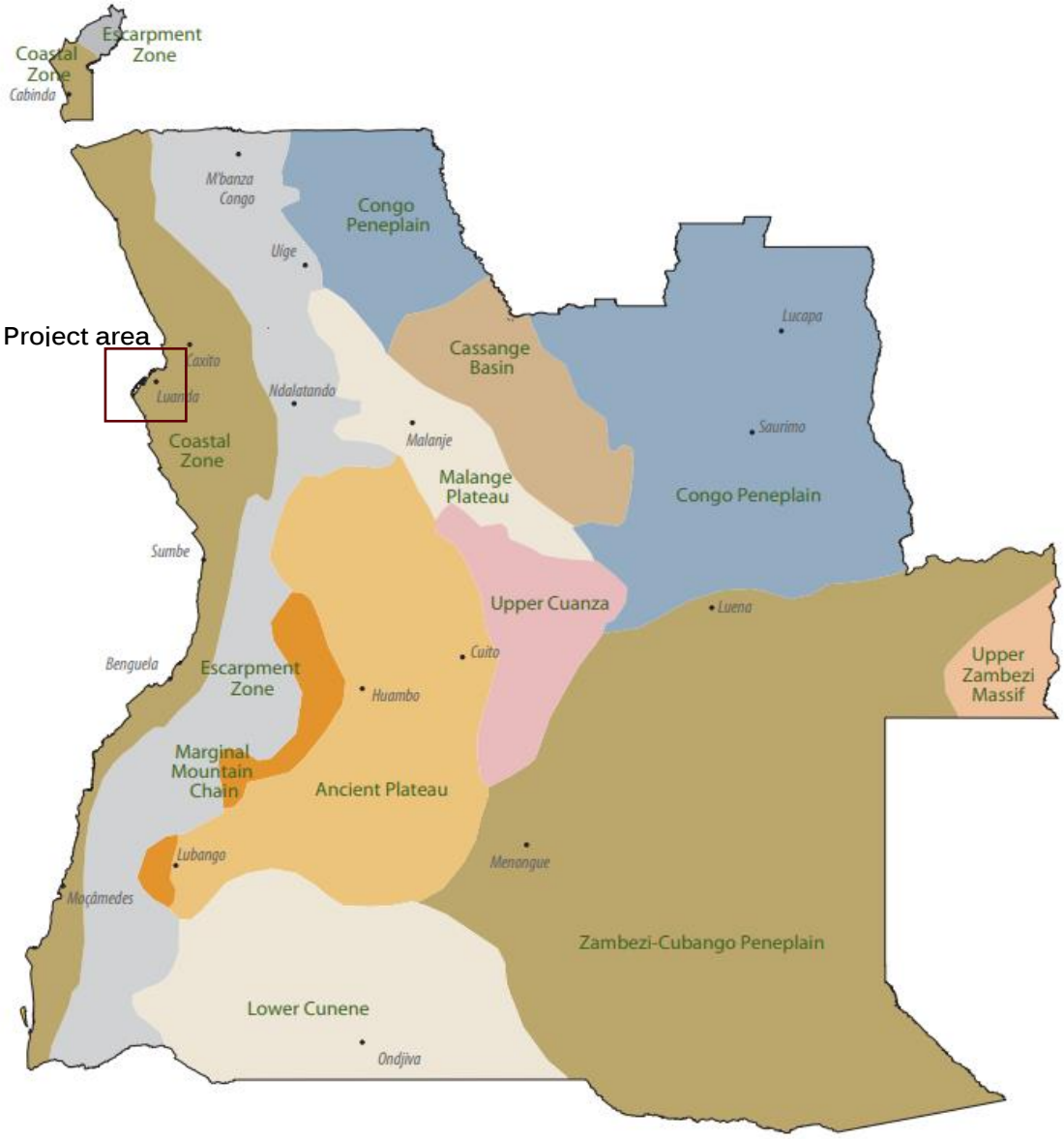


Figure 91. Angola's Diniz "mesological" units, project area indicated. Source: Physiography, Climate and Patterns of Biodiversity

[20] *Huntley, B.J. (2019). Angola in Outline: Physiography, Climate and Patterns of Biodiversity. In: Huntley, B., Russo, V., Lages, F., Ferrand, N. (eds) Biodiversity of Angola. Springer, Cham. https://doi.org/10.1007/978-3-030-03083-4_2*

In terms of erosion hazard, the following map[21] reflects the categories (4 classes: Low, Medium, High and Very High) as well as the subfactors (slope, soil erodibility, rainfall erosivity and cover) which are the main contributors to the erosion risk.

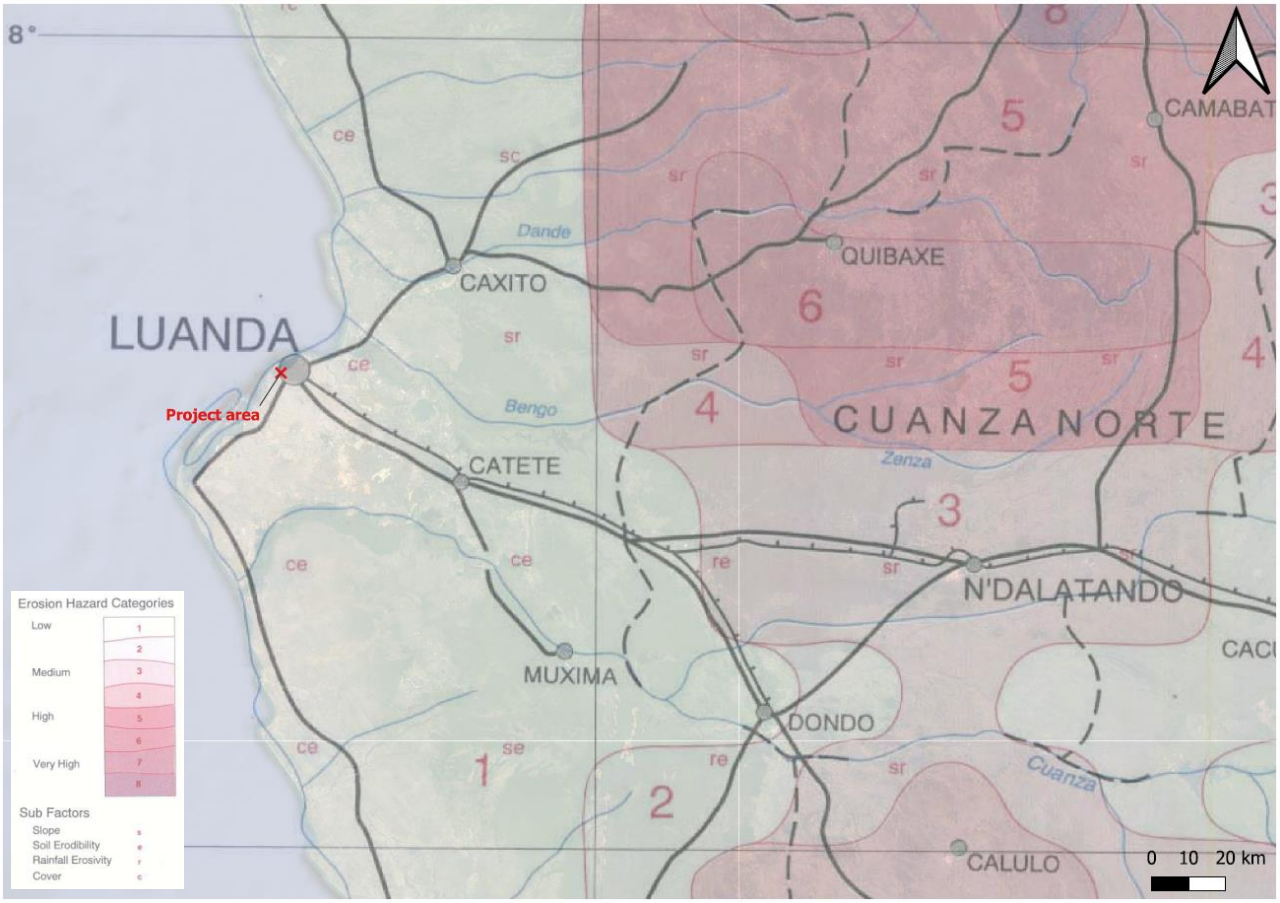


Figure 92. Angola's erosion hazard map, project area indicated. Source: Angola's Erosion Hazard Map 1/2,000,000

As the figure shows, Luanda is in a category 1 area, where low erosion hazard is expected. Scarce hazard is due to the soil cover and soil erodibility and since the project is located in an already urban area, these natural processes occurrence probability minimized.

10.2.4. Soils

The Soil Map of the World -Africa- consists of soil units that are shown as the dominant one on the soil association. Associated soils are estimated to occupy at least 20% of the map unit and inclusions are important soil units occupying less than 20% of the map unit.

A great part of the country (over three-quarters) is covered with two main soul groups: arenosols and ferrallisols. The sandy arenosols are predominant (more than 53% of the country) and the main ones are in the Kalahari Basin. The ferrallisols, are derived from the underlying rocks (gneisses, granites, metamorphosed

[21] *Angola's Erosion Hazard Map 1/2,000,000. ISRIC; Publisher: SADCC, Soil and Water Conservation and Land Utilization Coordination Unit. No referred date.*

sediment od the Precambrian Basement Complex and schist, limestones and quartzites of the West Congo System), and covers 23% of Angola's surface approx.

Other soils that cover Angola are lithosols (shallow regosols) located at rocky hills and gravel plains, as well as luvisols, calcisols and cambisols, more suitable for crops. Alluvial fluvisols, with organic content and high-water retaining capacity are also suitable for crops (if they are not water-logged). Gleysols, which have typically an excess of water, can be also occasionally extensive.

The soils map shown below, Figure 93, shows the project location is in the limit between a ferric luvisol and a eutric cambisol area. First type of soil is characterized by having a marked textural differentiation in the profile, being clay depleted from surface horizon and accumulated in a subsurface "argic" one. In the zone it has inclusions of eurtric (base saturation of at least 50% in all parts between 50 and 100 cm from surface) gleysols, eutric regosols and pellic (dark-colored soils) vertisols. Gleysols are formed under waterlogged conditions produced by rising groundwater; regosols which are very weakly developed mineral soils in unconsolidated materials; as well as vertisols, heavy clay soils with a high proportion of swelling clays.

Cambisols encompass soils with a transformation of original material, with incipient soil formation that can be appreciated as a color, structure or carbonated content change. In the zone they are associated with pellic vertisols (already described above) and have inclusions of lithosols and ferric luvisols (also seen before). Lithosols are very shallow soils over hard rock or highly calcareous material, although also deeper ones which are stony.

Both to the north and to the south there are stripes of eutric (base saturation of at least 50% in all parts between 50 and 100 cm from surface) fluvisols. These soils are developed in alluvial deposits, not only confined to river sediments but also in lacustrine and marine deposits, commonly over flooded areas. Soil matches with the river mouths of Bengo (north) and Kwanda (south).

Figure 93. Soils map in the project area. Source: Soil Map of the World -Africa- 1:5,000,000 approx. (FAO/UNESCO 1973)

However, and as mentioned already, the project area is located in an urban zone, inside Luanda's port, where are already paved and partially have lost their original characteristics and properties. The geotechnical report highlights that since weak soils are found at the top layers in certain locations of the project site, soil replacement with suitable materials for the loose layers encountered below the foundation level shall be adopted.

In addition, it must be mentioned that in cases where foundations lie below the groundwater table level, dewatering measures are to be applied until the foundation's construction is completed.

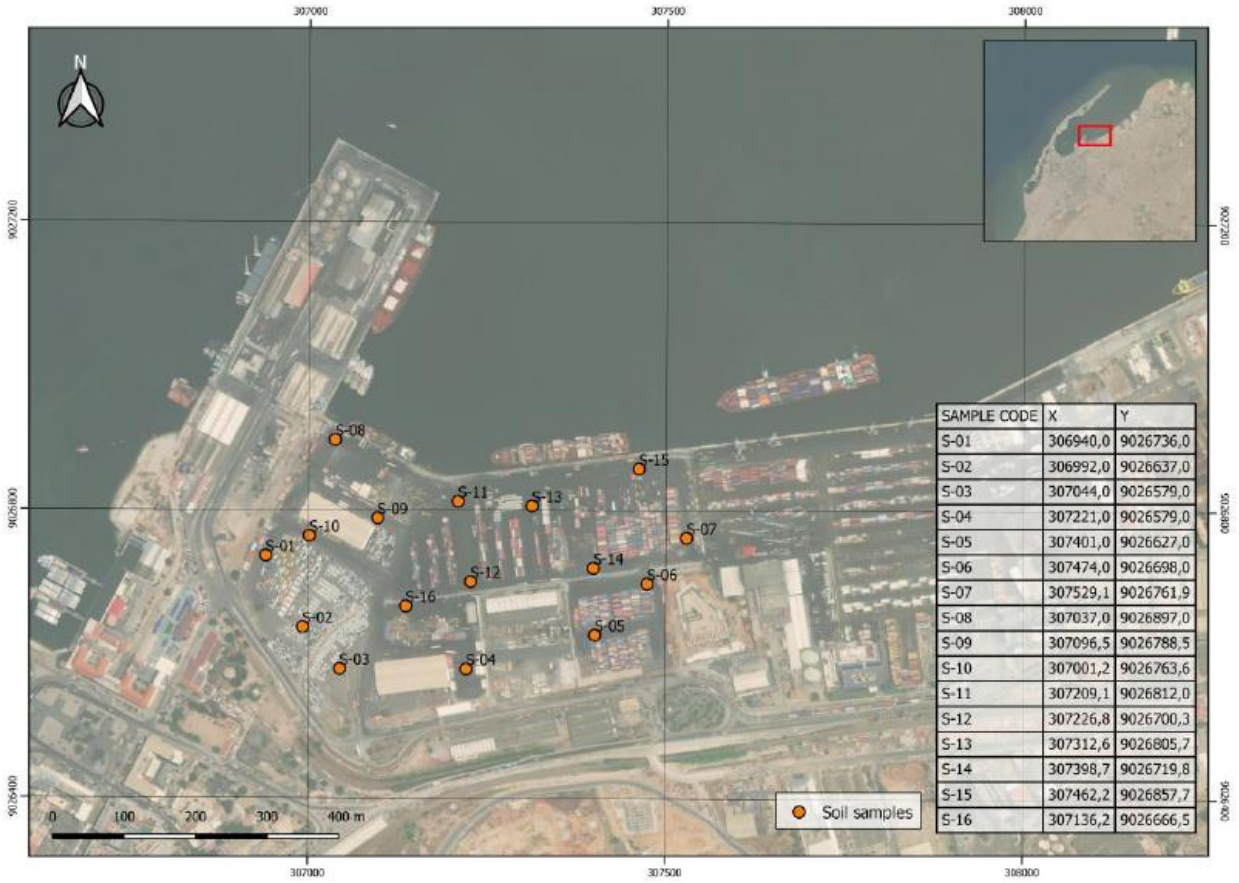
Deep foundations will be required to sustain the loads at the marine side where the design of the quay wall elements.

10.2.4.1. Soil Quality and Contamination Desktop and Visual Assessment

Elittoral Estudios de Ingenería Costera y Oceanográfica S.L.N.E. has carried out the Study of Soil Quality and Contamination for the project Development of Unicargas Port in Luanda - Angola. The required field work was developed in the Port of Luanda in January 30thand 31st, 2024.

Its objective was to describe the existing soils in the project area, identifying their characteristics, quality, origin, etc. as well as spotting any contamination sights in the terminal area.

The selected sixteen (16) soil sampling points were distributed as follows:



SAMPLE CODE	X	Y
S-01	306940,0	9026736,0
S-02	306992,0	9026637,0
S-03	307044,0	9026579,0
S-04	307221,0	9026579,0
S-05	307401,0	9026627,0
S-06	307474,0	9026698,0
S-07	307529,1	9026761,9
S-08	307037,0	9026897,0
S-09	307096,5	9026788,5
S-10	307001,2	9026763,6
S-11	307209,1	9026812,0
S-12	307226,8	9026700,3
S-13	307312,6	9026805,7
S-14	307398,7	9026719,8
S-15	307462,2	9026857,7
S-16	307136,2	9026666,5

Figure 94. Soil sampling points distribution throughout the project area. Source: Soil Quality and Contamination Desktop and Visual Assessment (elittoral, 2024)

The following table summarizes the results of the characterization of contamination sightings at the soil sampling points:

S#	Zone / pavement current conditions	Contamination sightings	Nearby pollution spots
S01	Ro-Ro Area Poor conditions	Strong hydrocarbons odor Hydrocarbons stains	Heavy trucks Containers with polluting substances
S02	Ro-Ro Area Poor conditions	No odor No hydrocarbon observed	Heavy and light vehicles parked
S03	Access road Area Poor conditions	No odor No hydrocarbons observed	No nearby except some light vehicles
S04	Buildings circulation area Poor conditions	Strong hydrocarbons odor Oil stains throughout generators area (covered and with sepiolite)	Electric generators Tanks for oil & hydrocarbons collection (almost full some of the oil ones)
S05	Empty container area Poor conditions	No odor No hydrocarbons observed	No nearby points Vehicles circulate through area
S06	Empty container area Poor conditions	No odor No hydrocarbons observed	No nearby points Vehicles circulate through area
S07	RTG stack area	Moderate odor chemical p. Recent spill of chemical substances	Spills (in case container breakage) Cleaning contaminated container platforms
S08	STS area	No odor	No nearby points

S#	Zone / pavement current conditions	Contamination sightings	Nearby pollution spots
	Poor conditions	No hydrocarbons observed	Apparent accumulation of goods
S09	General cargo area Very poor conditions (steel reinforcement seen)	Moderate hydrocarbons odor Hydrocarbons spills (near machinery parked)	Trucks and cranes parked
S10	Ro-Ro area Poor conditions	No odor No signs pollution	Hazardous substances storage
S11	STS area Poor conditions	No odor No signs pollution	No nearby points Vehicles circulate through area
S12	RTG stack area Poor conditions	No odor No hydrocarbons observed	No nearby points Vehicles circulate through area
S13	RTG stack area Poor conditions	No odor No hydrocarbons observed	Tanks with metal waste accumulation
S14	RTG stack area Poor conditions	No odor No hydrocarbons observed (although possible spills of gasoline or diesel)	Electric generators
S15	STS area Poor conditions	Moderate organic matter odor Organic matter and undetermined waste observed outside a container	Spills (in case container breakage)
S16	STS area Poor conditions	Moderate hydrocarbon odor Several stains from oil or hydrocarbons observed	Heavy vehicles Accumulation points of contaminant substances (oils, solvents, hydrocarbons)

Table 37. Characterization of contamination sightings at soil sampling points. Source: Soil Quality and Contamination Desktop and Visual Assessment (elittoral, 2024)

Based on the information gathered, Unicargas Terminal contains several spots which are a potential source of contamination: heavy machinery activity, vehicles parked, products / substances storage, etc. At several soil sampling points hydrocarbons spills have been observed, as also chemical substances and organic matter due to the breakage of a container. The following figure shows the location.

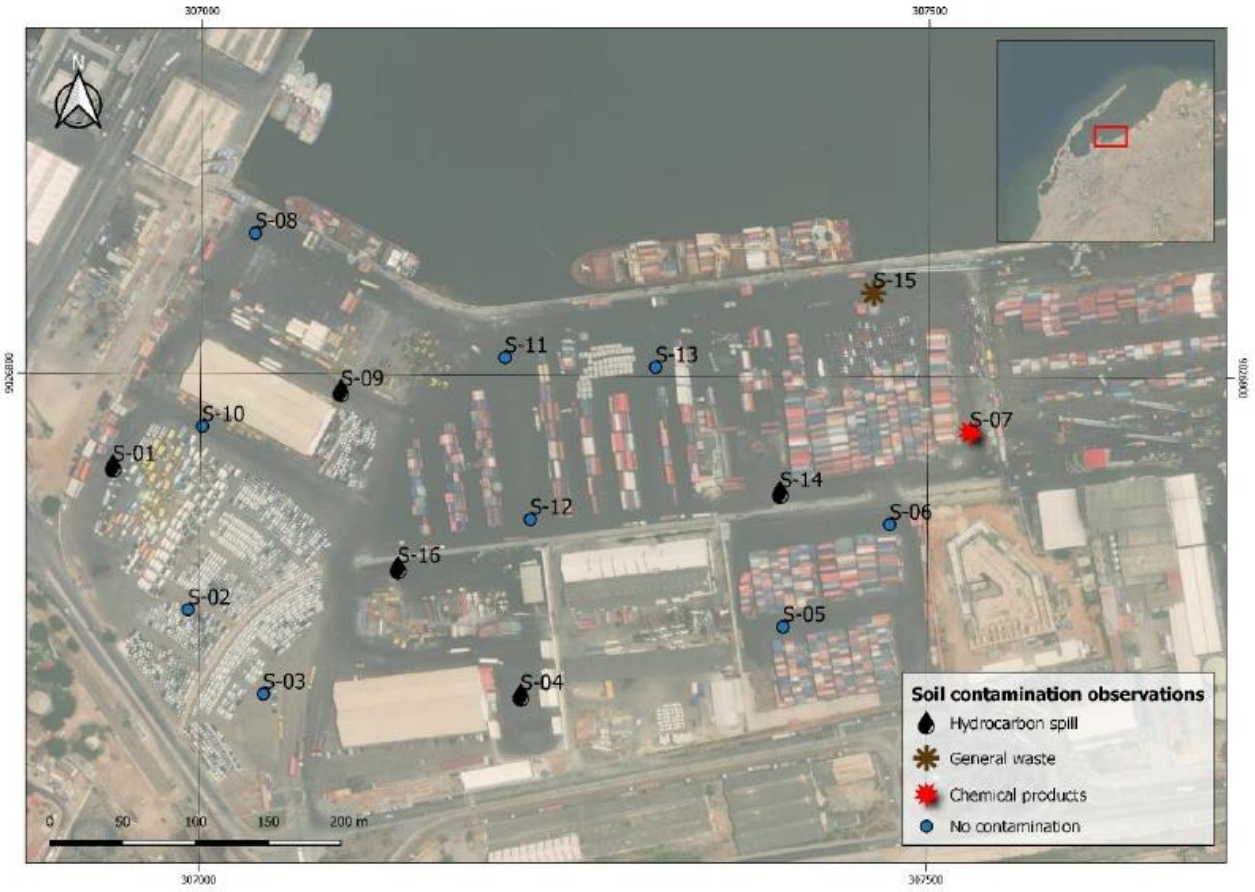


Figure 95. Soil contamination (by type) sighting at the soil sampling points throughout the project area. Source; Soil Quality and Contamination Desktop and Visual Assessment (elittoral, 2024)

To conclude, it might be highlighted that there are significant signs suggesting potential soil contamination by hydrocarbons in the area. In addition, the deteriorated pavement, which might have loss impermeability characteristics, can enable contaminants to reach the lower soil layers (sands) and thus, spread to a wider area.

10.2.5. Hydrology

Luanda is included in the Bengo river basin, being part of the larger hydrological basin Angola Coast (which goes from N'zeto in the north to the Cunene river mouth in the south). Bengo river[22] occupies a 11.089 km^2 area, has an annual average flow rate of 44 m^3/s and its river mouth is located 20 km north of Luanda city.

[22] *Juliana M. Paca, Francisca M. Santos, José C.M. Pires, Anabela A. Leitão. Rui A.R. Boaventura. "Quality assessment of water intended for human consumption from Kwanza, Dande and Bengo rivers (Angola)". Environmental Pollution 254 (2019).*

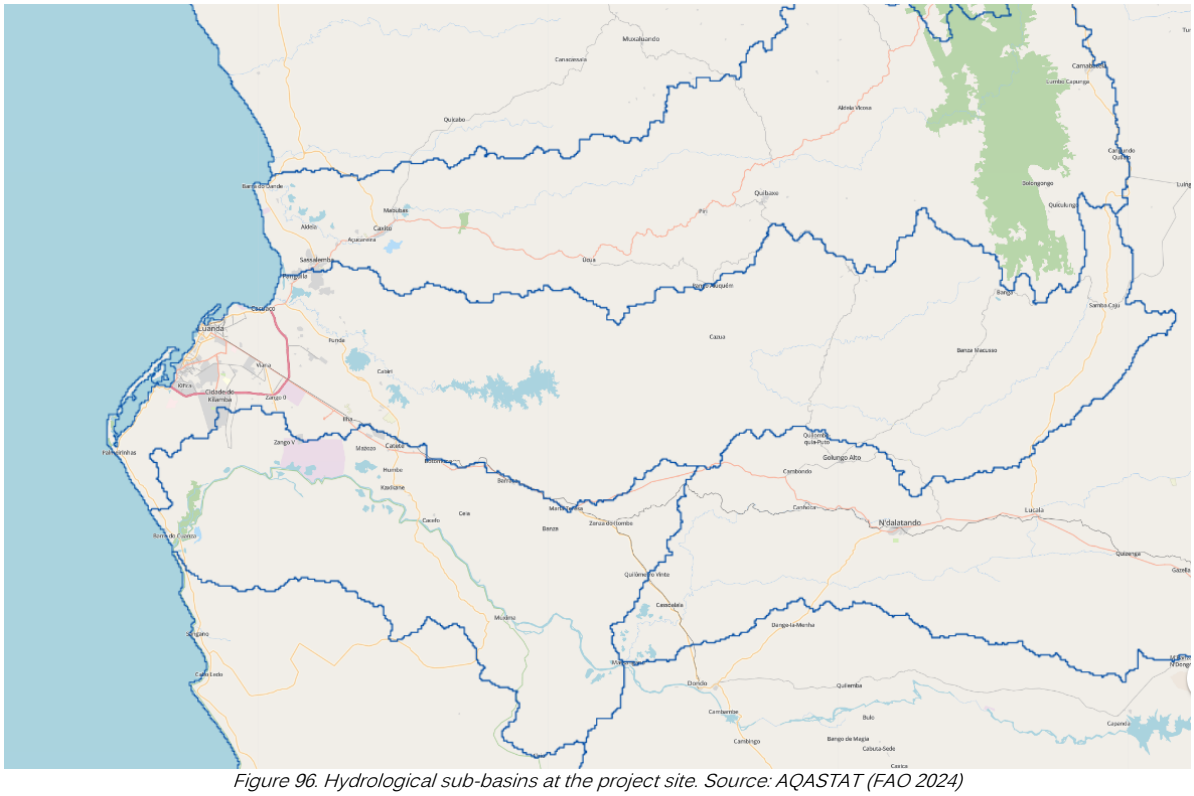


Figure 96. Hydrological sub-basins at the project site. Source: AQASTAT (FAO 2024)

According to the above referred investigation about water quality, samples at two locations in Bengo river, near its mouth, were taken (two during dry season and other two during rainy one) and analyzed. During dry season, water quality was better (and just needed a treatment for the production of drinking water-according to the Angolan criteria) while during rainy season heavy rainfall drags organic pollutants and fecal waste into the rivers, increasing the concentration of the majority of the parameters (mainly fecal coliforms). The other two rivers characterized, Dande and Kwanza, are also affected by the same water quality deterioration, mainly due to waste deposited on land and sewage. These pollutants will directly go into the ocean, including Luanda's Bay where the project is located, and thus impact on water quality.

During the Geotechnical campaign, as referred to in its Interpretative Report, groundwater was encountered in the onshore boreholes, at a variable depth ranging between 1.4 to 1.6 m below the existing ground surface (+2.00 - +1.80 m LAT). The project location will be determinant for the groundwater behavior, being tides or wave height, among others, determining variables.

10.2.6. Marine environment

Since the project is at Luanda's Port, ocean water and sediments are a key issue that must be characterized. Luanda's bay is a semi-enclosed body of saline water located on the Luanda province, and encompasses a commercial harbor, a refinery, a fuel station, cargo terminals and a naval base[23]. To all these activities that

[23] *Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio and Vânia Baptista: Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola). Journal of Spatial and Organizational Dynamics, Vol. IX, Issue 3, (2021). Available at:* https://www.researchgate.net/publication/355820081_Characterization_of_Small-Scale_Fishing_Activity_in_Luanda_Bay_Angola

contribute to water pollution, other anthropogenic pressures such as solid waste, domestic wastewater and industrial effluents might be added. Additionally, oil production has intense environmental impacts[24] due to mainly oil spills and air emissions. Luanda's Bay is affected by spills at rig drillings on the seabed, cleansing and loading of oil tanks using the offshore system and waste from refineries and other related industries on land.

The current situation in Luanda Bay regarding wastewater disposal is quite concerning. There are ongoing issues with untreated wastewater being discharged into the bay, primarily due to the lack of proper infrastructure for wastewater treatment. This situation poses significant environmental and public health risks. The bay's water quality has deteriorated, affecting marine life and the overall ecosystem.

The figure below shows a schematic of the location of one of the discharge points at the Port of Luanda, which is situated in the area occupied by the Unicargas Terminal.

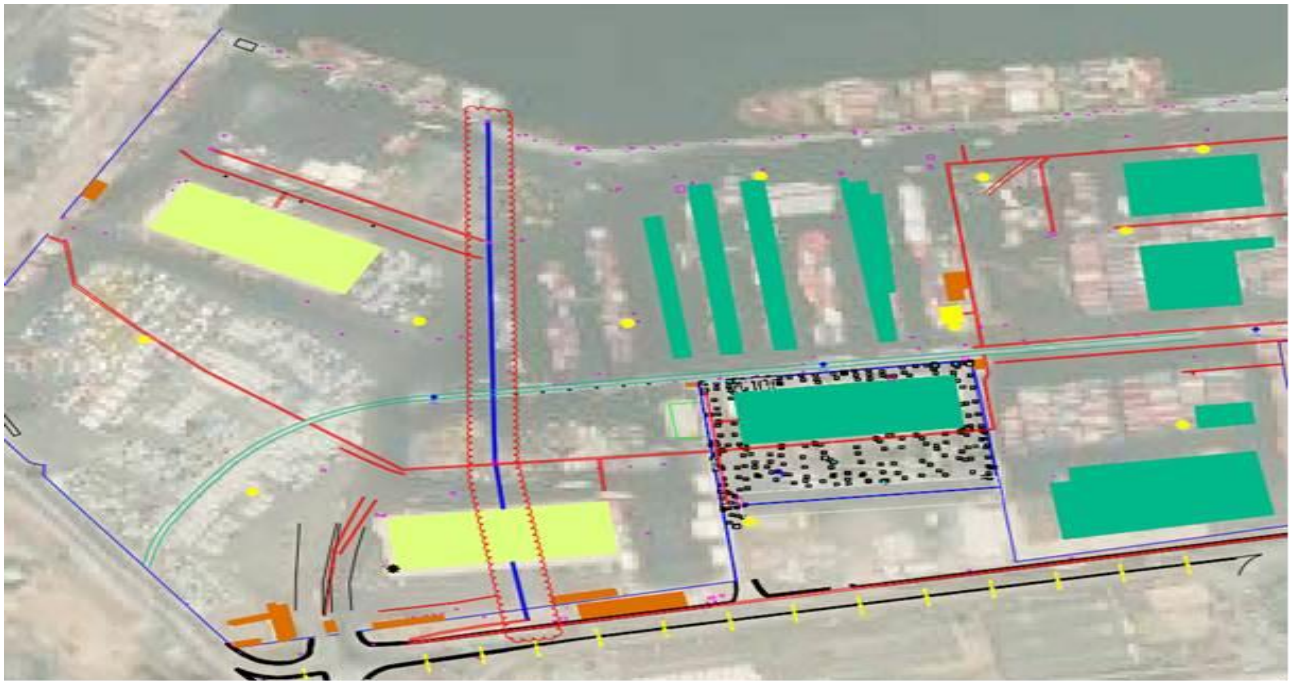


Figure 97. Pipe for discharge in Unicargas Terminal area

The table included below provides some details of the indicated discharge pipe.

[24] *José-León García Rodríguez, Francisco J. García Rodríguez and Carlos Castilla Gutiérrez. Oil, Poverty and Environment in Angola. Boletín de la Asociación de Geógrafos Españoles nº 64 - 2014. Available at: https://bage.age-geografia.es/ojs/index.php/bage/article/view/1708/1625*

Connections	Type of predominant discharge	Frequency	Origin of wastewater in the Unicargas Terminal pipeline	Discharge volume	Control type	Responsible for pipeline maintenance
▪ City's Macro drainage Network ▪ Drainage ditches and gutters adjacent to Unicargas Terminal ▪ Sanitary pipeline from the sewage boxes of the Unicargas Terminal installation (WC at gate) ▪ Unicargas Terminal internal stormwater drainage network	▪ Wastewater containing coarse solid residues ▪ Gray sanitary water ▪ Fecal waste ▪ Hydrocarbon traces may be found	▪ Daily, except for traces of hydrocarbons	▪ City's macro drainage network connected to the Port ▪ Drainage ditches and gutters adjacent to Unicargas Terminal ▪ Unicargas Terminal sanitary systems ▪ Unicargas Terminal internal stormwater drainage network	▪ N/A (solid waste)*	▪ Maintenance according to the plan of the technical area of the Port of Luanda ▪ Cleaning in case of obstruction ▪ Use of grating at other point connecting to the pipeline	▪ Technical Area of the Port of Luanda

(*) Referred to debris washed out with the flow

Table 38. Data of wastewater discharge. Source: Luanda Port Authority

Efforts to improve the situation have been hampered by financial and infrastructural challenges. The Public Water Company of Luanda (EPAL) has acknowledged these problems, and there are initiatives in progress aimed at enhancing wastewater treatment capacities, but these are slow to materialize. In Luanda, the Ministry of Energy and Water (MINEA) is leading urban sanitation efforts, but the city still grapples with unplanned urbanization and a lack of coherent sanitation policies. Current infrastructure often fails to meet the needs of the rapidly growing population, and many of the wastewater systems are outdated or nonexistent.

A project for the construction of a Wastewater Treatment Plant (WWTP) at Luanda Port was presented during the 1st edition of the Blue Economy Expo (Luanda, October 23-26, 2023). This initiative aims to ensure the sustainability of marine ecosystem protection as part of the Port of Luanda's environmental best practices. The port authority emphasized the project's significant importance for the country's economy and development, highlighting its multiple impacts on the marine ecosystem, oceans, and coastal areas.

Among its various benefits, the WWTP is expected to contribute to environmental protection, reduce seawater pollution, prevent public health risks, improve water quality, and safeguard marine resources. Furthermore,

the Wastewater Treatment Plant will enhance waste management efficiency, thereby reducing operational costs, including landfill fees and transportation expenses for waste disposal at distant locations.

There is no available data on ocean water quality or marine sediments, so survey campaigns have been conducted to complete the baseline characterization. However, based on the literature reviewed, the parameters are not expected to reflect favorable quality conditions. According to studies consulted[25], Luanda Bay's water is remarkably polluted, mainly by three sources: wastewater, urban solid wastes and other activity wastes.

10.2.6.1. Water Quality baseline report

Below is a summary of the most relevant aspects of the survey conducted, which provides the necessary information to complete the baseline.

a. Introduction

The objective of the study is to carry out all the necessary field work to establish a water quality baseline, allowing to determine the base levels of certain parameters stated by the IFC guidelines.

As stated in the survey plan the criteria of IFC have been considered, both regarding the parameters to be monitored and concerning the personnel and laboratories involved in each activity.

According to the document "*Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals*" published by IFC in February 2017, the construction and operation of new port and terminal facilities, or the expansion of existing facilities, involve activities such as land reclamation, clearing and paving (or compacting) for loading/unloading zones, bulk dry/liquid and containerized cargo storage areas, fuel depots, buildings, and roads. It also includes the alteration of coastlines for the construction of breakwaters, shipyards, dockyards, wharves, piers, and vessel berths, as well as the transformation of the seabed to establish vessel basins (including areas for vessel turning) and navigation channels through dredging.

These activities, along with related infrastructure and typical port operational activities, may lead to alterations in terrestrial, freshwater, brackish, and marine habitats, with potential impacts on flora and fauna and related biodiversity. To control potential impacts, the mentioned document establishes the following:

"*Construction and operations of ports, harbors and terminals can have a significant impact on water quality. Construction activities (such as clearing of vegetation, capital dredging, reclamation, paving, and construction of buildings), and operational activities (such as maintenance dredging, ship maintenance, and ship effluent disposal) can result in increased turbidity via suspension of sediment in the water column. In addition, the introduction of pollutants can have adverse impacts on aquatic flora and fauna (including benthic communities), and human health, for example excessive nutrient loading leading to eutrophication, oxygen depletion, and toxic algal blooms*. (...)

[25] *José Novais and José Antonio Díaz Duque. Contamination of Luanda coastal areas: solutions for its mitigation. Ingeniería Hidráulica y Ambiental, Vol. XL, nº 3. Sep-Dec 2019. Available at:* https://www.researchgate.net/publication/343573925_Contamination_of_Luanda_coastal_areas_solutions_for_its_mitigation

(...) *Monitoring of water and sediment quality during construction and operational activities of ports and terminals (in particular dredging and disposal activities) should generally include the monitoring parameters listed in Table 1 as part of a feedback (also known as 'adaptive') monitoring program. The selection of parameters should be based on local site considerations and the objectives of the monitoring program, including local water quality issues and water uses of interest.*

TABLE 1: WATER AND SEDIMENT QUALITY MONITORING PARAMETERS[a]
Dissolved oxygen
Temperature
pH
Turbidity
Secchi disk transparency
Conductivity/Salinity
Condition of biological communities
Total suspended solids (TSS)
Chlorophyll
Total phosphorus
Filterable reactive phosphate
Total nitrogen
Oxides of nitrogen
Ammonia
Toxics: Metals and metalloids; non-metallic organics; organic alcohols; chlorinated alkanes and alkenes; anilines; aromatic hydrocarbons (including phenols and xylenols); organic sulfur compounds; phthalates; organochlorine and organophosphorus pesticides; herbicides and fungicides
Sediment (metals and metalloids; organometallics; organics)[b]
Other site-specific parameters, as relevant[c]
[a] Parameters adapted from CCME (2006) *The Canadian-Wide Framework for Water Quality Monitoring* (Table 3, Page 16, http://www.ccme.ca/files/Resources/water/water_quality/wqm_framework_1.0_e_web.pdf; *The Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CCME 1991-2015), http://st-ts.ccme.ca/en/index.html?chems=all&chapters=1; *The Canadian Sediment Quality Guidelines for the Protection of Aquatic Life* (CCME 1997-2015), available at: http://st-ts.ccme.ca/en/index.html?chems=all&chapters=3); and *The* Australian and New Zealand *Guidelines for Fresh and Marine Water Quality* (Chapter 3 Aquatic Ecosystems, http://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf. [b] Further guidance is available from *The OSPAR Guidelines for the Management of Dredged Material at Sea (Agreement 2014 – 06)*, in particular, the sections on 'Action Lists' and 'Levels for Dredged Materials', www.ospar.org/documents?d=34060, and the London Convention / Protocol's *Guidelines on the Assessment of Dredged Material (IMO 2014)*, http://www.imo.org/en/OurWork/Environment/LCLP/Publications/waq/Pages/default.aspx. [c] Additional good practice information related to water and sediment quality monitoring is available from The *Canadian Council of Ministers Environmental Quality Guidelines* (CCME 2003), http://ceqg-rcqe.ccme.ca/en/index.html; and *Guidance on the Site-Specific Application of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives* (CCME 2003), http://ceqg-rcqe.ccme.ca/download/en/221.

Table 39. Water and sediment quality monitoring parameters. Source: Environmental, Health and Safety Guidelines – Ports, Harbors, and Terminal (IFC, 2017).

In this regard, the methodology established for the surveys considers IFC standards, selecting from the previous table those analysis parameters for each aspect to be analyzed that are applicable to the project's characteristics and its location. Additionally, international standards, recommendations, and guidelines have been taken into account, as mentioned in the *Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals*.

Within this project, the TYPSA-elittoral team has selected the parameters to be evaluated in marine water samples based on Table 39, and the expertise of the technicians in monitoring harbor marine environments.

Regarding the EHS Guidelines Ports, Harbors and Terminals statement "*Monitoring should be conducted by trained individuals following monitoring and record-keeping procedures and using properly calibrated and maintained equipment*". The technical staff that will collect the samples belongs to the elittoral team,

accredited by international standard ISO 17020 for the inspection activities defined. All the credentials necessary for the development of this project are included in Annex 8 of Volume III.

Besides, regarding the IFC EHS General Guidelines: "*Monitoring programs should apply internationally approved methods for sample collection, preservation and analysis. Sampling should be conducted by or under the supervision of trained individuals. Analysis should be conducted by entities permitted or certified for this purpose. Sampling and Analysis Quality Assurance/Quality Control (QA/QC) plans should be prepared and implemented. QA/QC documentation should be included in monitoring reports*".

Thus, all the parameters will be analyzed under International Standard Organization (ISO) standards. To ensure that, the samples will be sent to EUROFINS IPROMA, accredited by international standard ISO 17025 for the testing activities defined in their technical Annex.

Microbiological parameters were analyzed by a local laboratory to prevent from degradation during the delivery of the samples (SGS Authentic Point Angola Laboratory).

The SGS Authentic Point Laboratory belongs to the SGS group and has all the necessary certificates to determine the requested micro and biological parameters. As established in the protocols, the samples sent to this laboratory were delivered a few hours after collection.

Everything established in this section is applicable to the case of marine sediments (section 10.2.6.2).

b. Sampling stations

TYPSA-elittoral collected water quality samples on the 31st of January at ten (10) stations around the area, and at each location at different water depths (20 samples), i.e. (near the water surface and the seabed).

Previously available data, such as bathymetry, seabed characteristics, and geophysical information, have been taken into account to select the sampling stations. As a result, the TYPSA-elittoral team established a homogeneous grid covering the entire proposed area, with particular emphasis on points where anomalies are more likely to occur.

The coordinates (UTM 33 L) of the sampling stations points are shown in the following table:

Station	UTM 33L	
	X (m)	Y (m)
AR/1	307281.0	9027138.0
AR/2	307147.0	9026891.0
AR/3	307500.0	9026899.0
AR/4	307333.0	9026986.0
AR/5	307902.0	9027286.0
AR/6	307411.0	9027423.0
AR/7	307533.0	9027158.0
AR/8	307701.0	9027443.0
AR/9	307558.0	9027667.0
AR/10	308010.0	9027635.0

Table 40. Coordinates for sampling stations for Marine Water Quality

Figure 98. Marine water sampling stations

c. Ambient marine water quality survey results

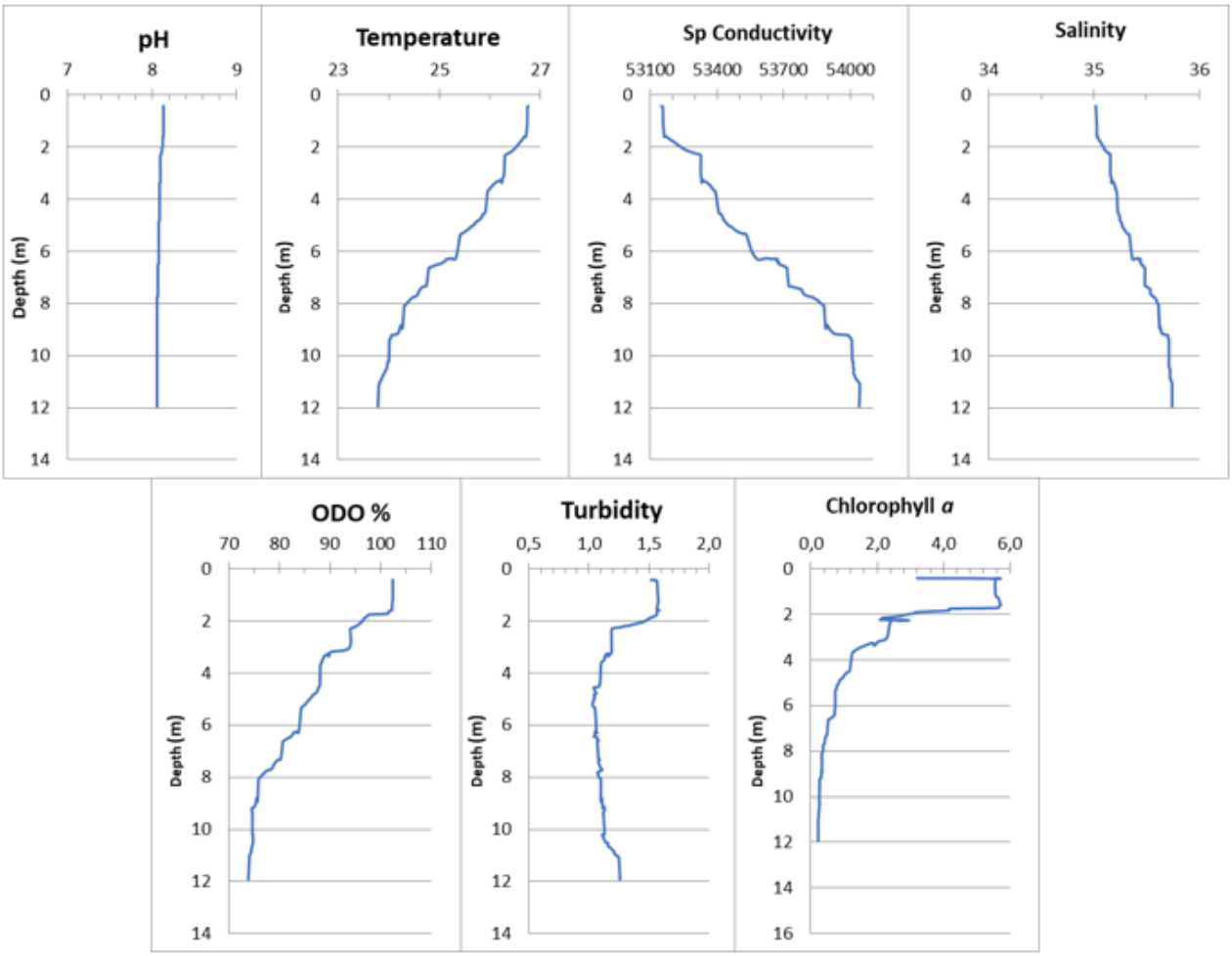
On-site analyses

For parameters measured in situ with the multiparameter probe, the uncertainty values are provided in the table below.

Parameter	Uncertainty
Temperature (ºC)	± 1.55 %
Salinity (PSU) and Conductivity (at 25ºC) (µS/cm)	± 7.94 %
Dissolved oxygen (mg/L and %)	10.01%
pH (pH units)	± 0.15 pH units

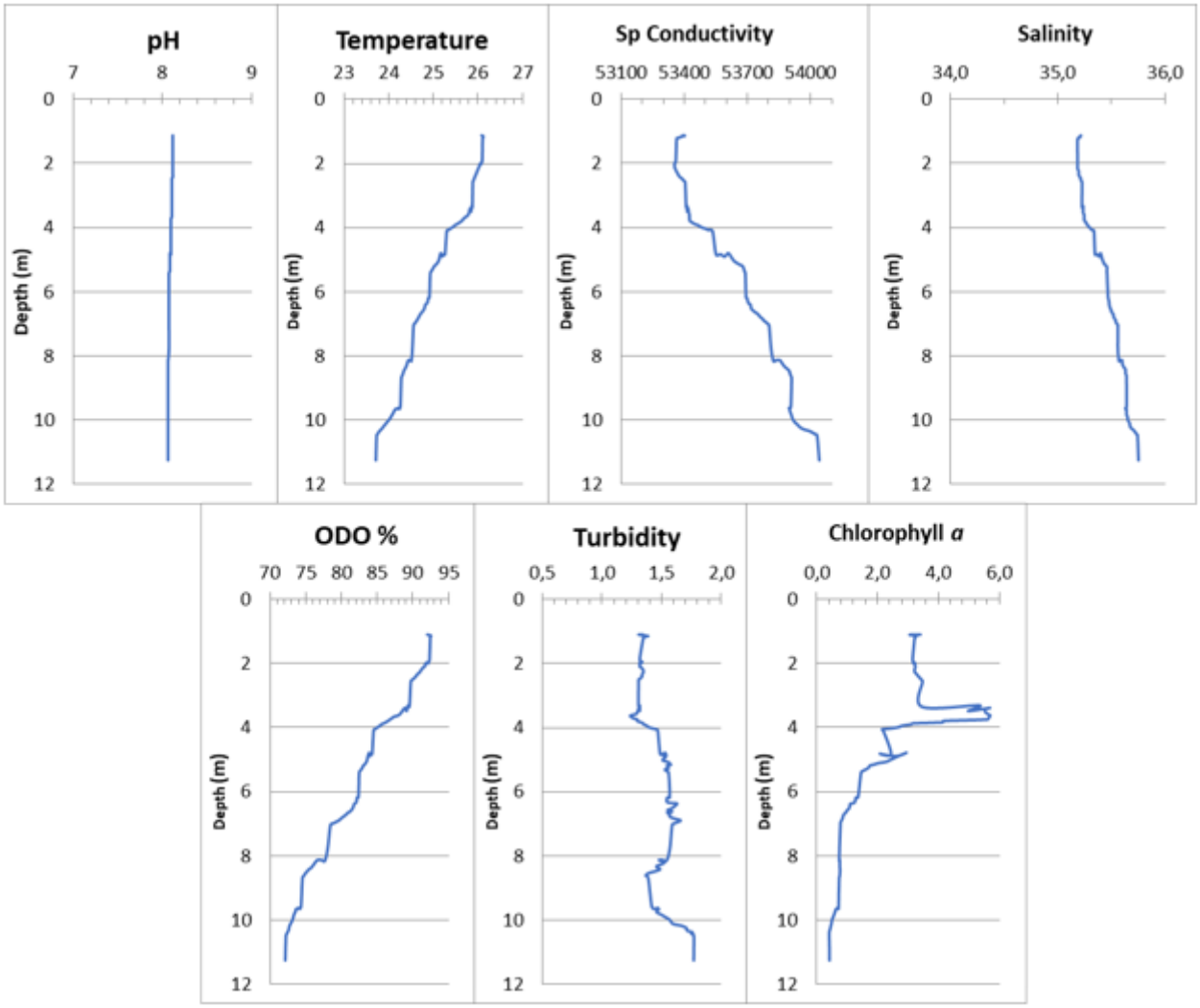
Table 41. Calculated uncertainty for on-site parameters.

The following figures depict the graphical representation of the various profiles (10), along with the summary table illustrating the average values at every 3 meters of depth.



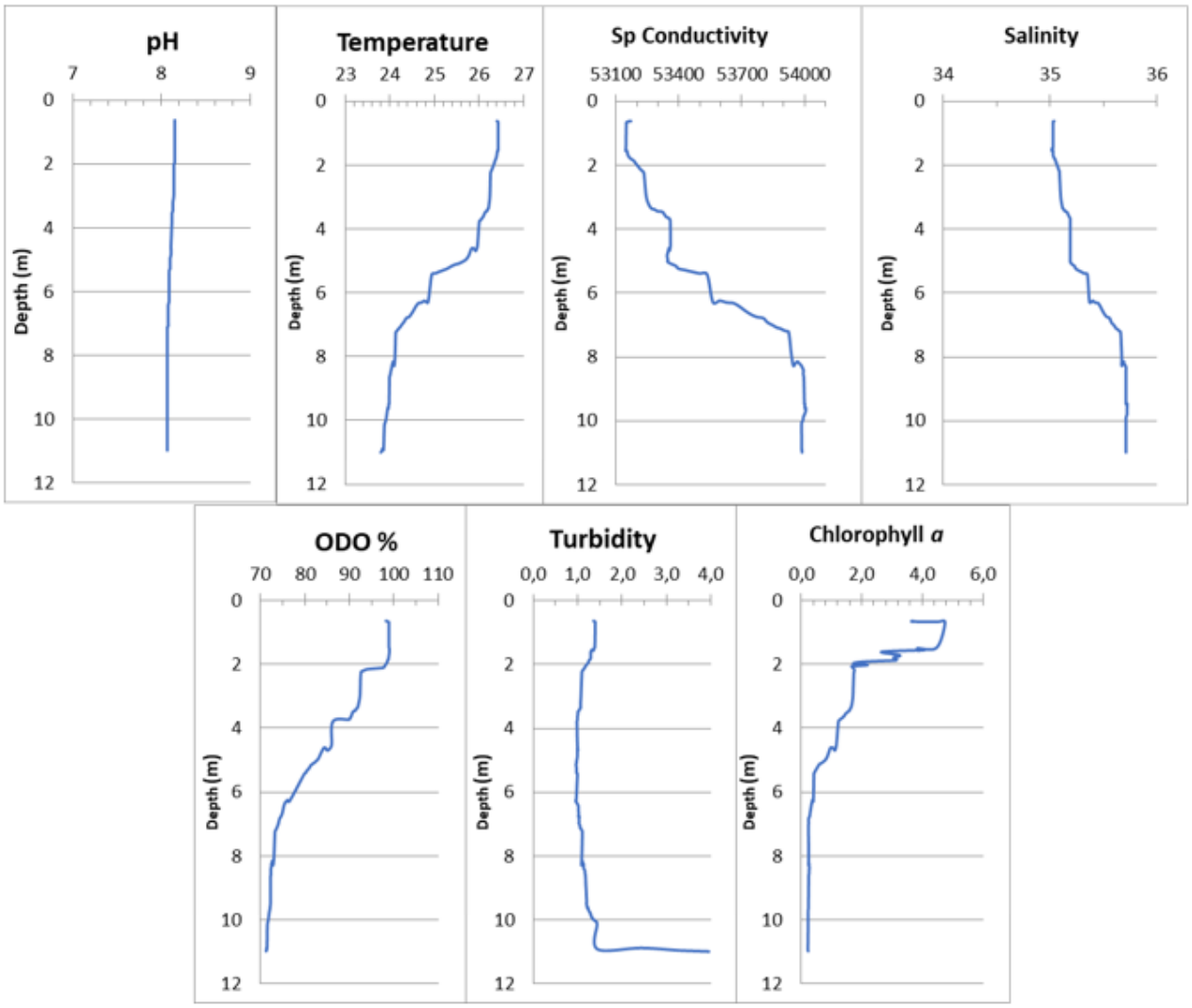
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
0	8.14	26.76	53153.73	35.02	102.40	6.73	1.54	4.03
3	8.10	26.14	53352.19	35.19	89.17	5.92	1.14	1.70
6	8.08	25.11	53663.25	35.44	82.62	5.57	1.06	0.70
9	8.06	24.07	53981.23	35.70	74.75	5.12	1.12	0.28
12	8.06	23.79	54040.60	35.75	73.90	5.09	1.26	0.23

Figure 99. AR-1 onsite profiles



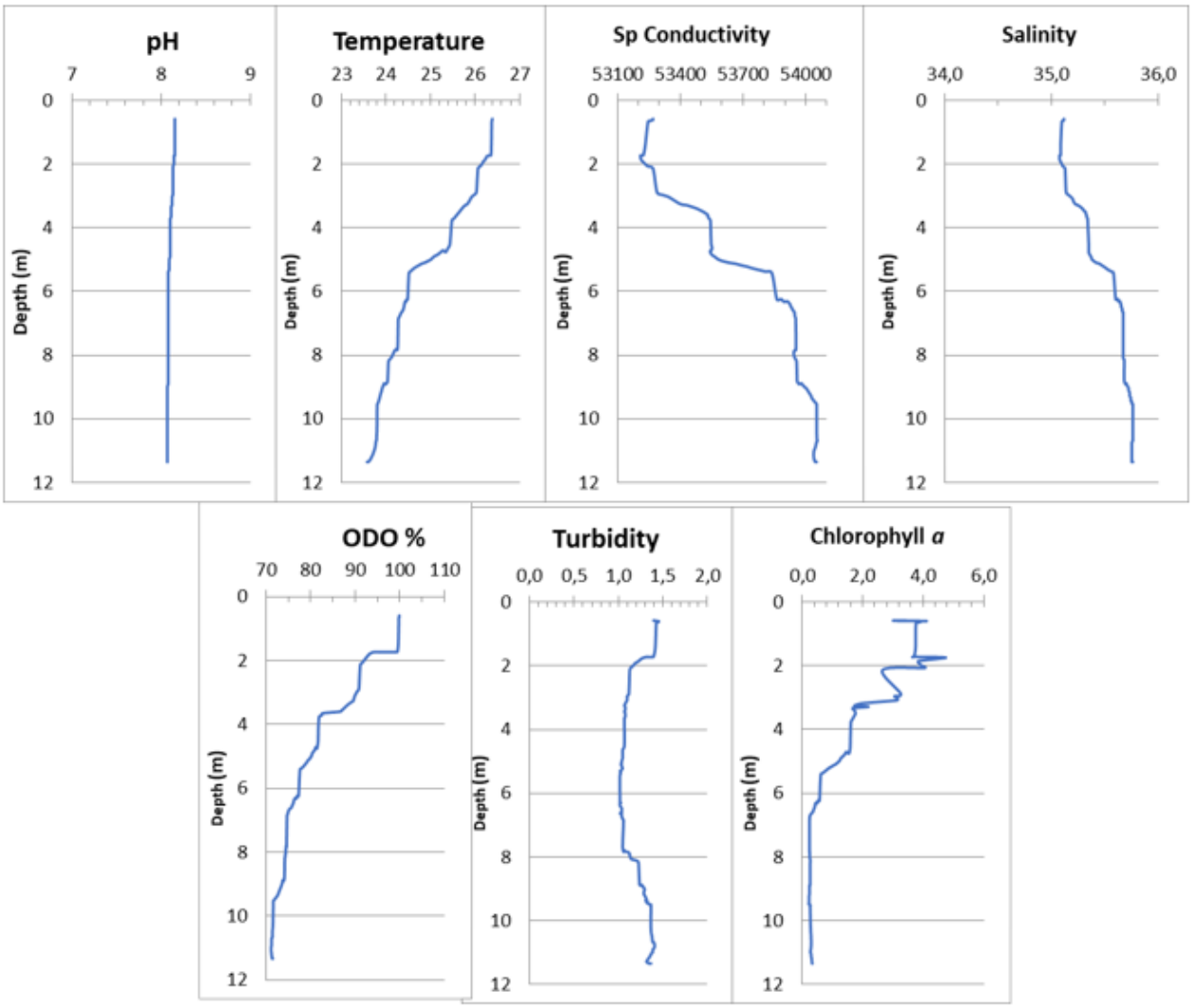
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.12	26.10	53392.94	35.22	92.22	6.12	1.34	3.20
3	8.11	25.84	53414.19	35.24	89.09	5.94	1.31	4.87
6	8.08	24.82	53714.32	35.49	81.76	5.54	1.59	1.11
9	8.07	24.23	53901.80	35.63	74.20	5.07	1.44	0.70

Figure 100. AR-2 onsite profiles



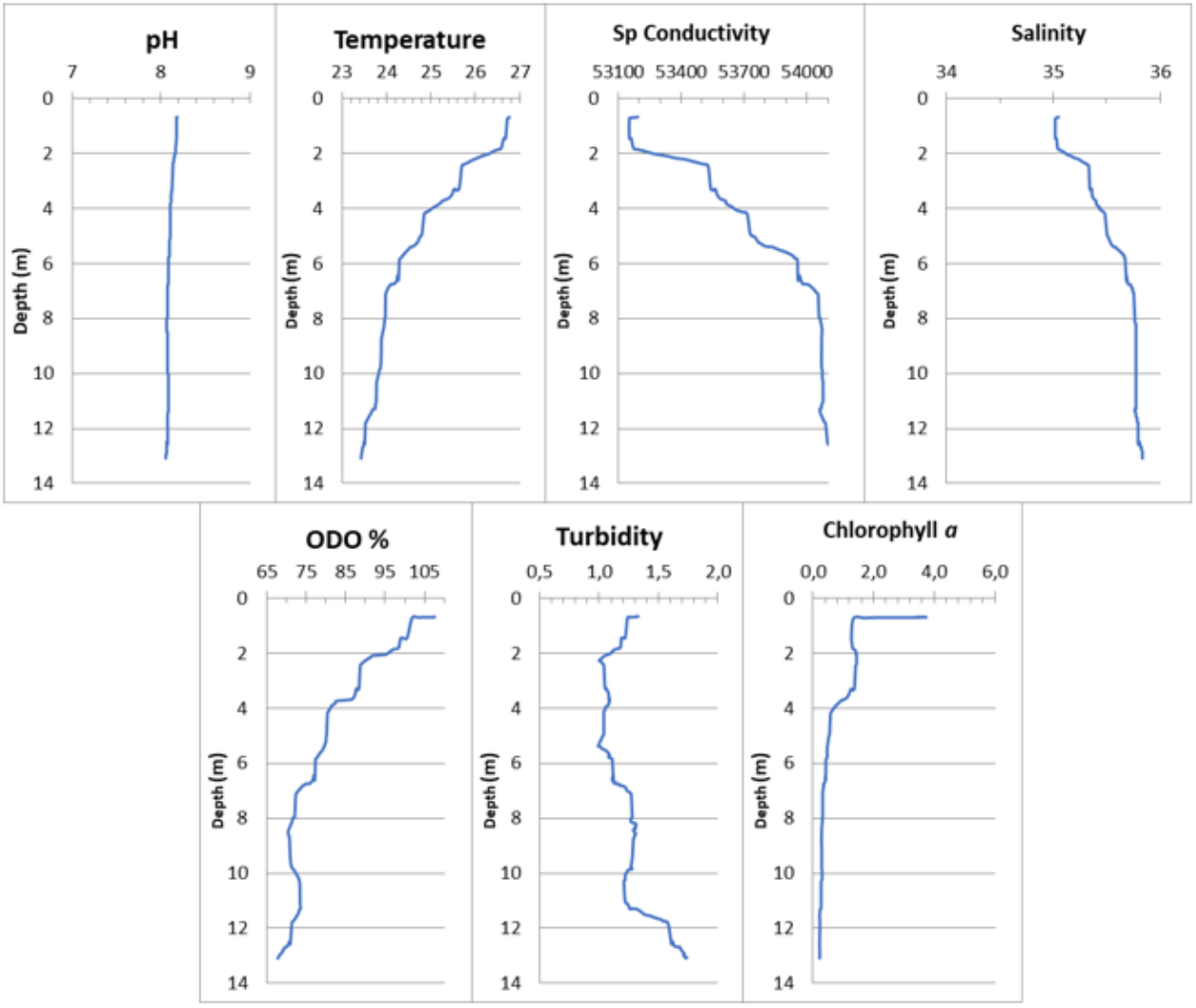
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.15	26.42	53155.19	35.03	98.65	6.52	1.38	4.02
3	8.13	26.17	53295.60	35.14	91.31	6.06	1.04	1.59
6	8.08	24.59	53687.72	35.47	75.34	5.12	1.00	0.33
10	8.07	23.89	53992.54	35.71	71.71	4.93	1.69	0.23

Figure 101. AR-3 onsite profiles



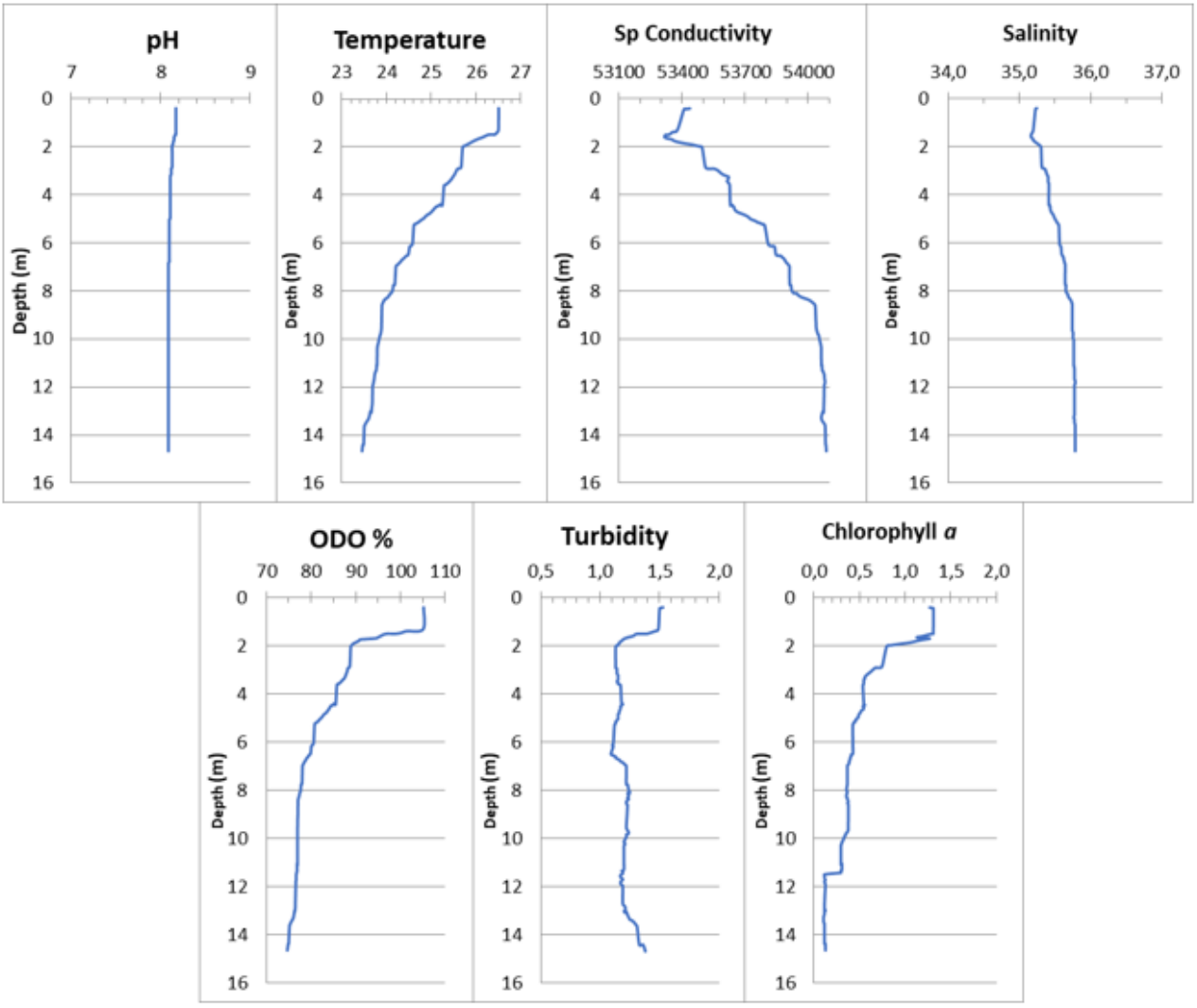
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.15	26.38	53265.51	35.12	99.98	6.61	1.43	3.67
3	8.12	25.79	53427.27	35.25	89.01	5.94	1.08	2.16
6	8.08	24.42	53921.16	35.65	76.26	5.20	1.03	0.41
11	8.07	23.69	54042.22	35.75	71.24	4.91	1.36	0.30

Figure 102. AR-4 onsite profiles



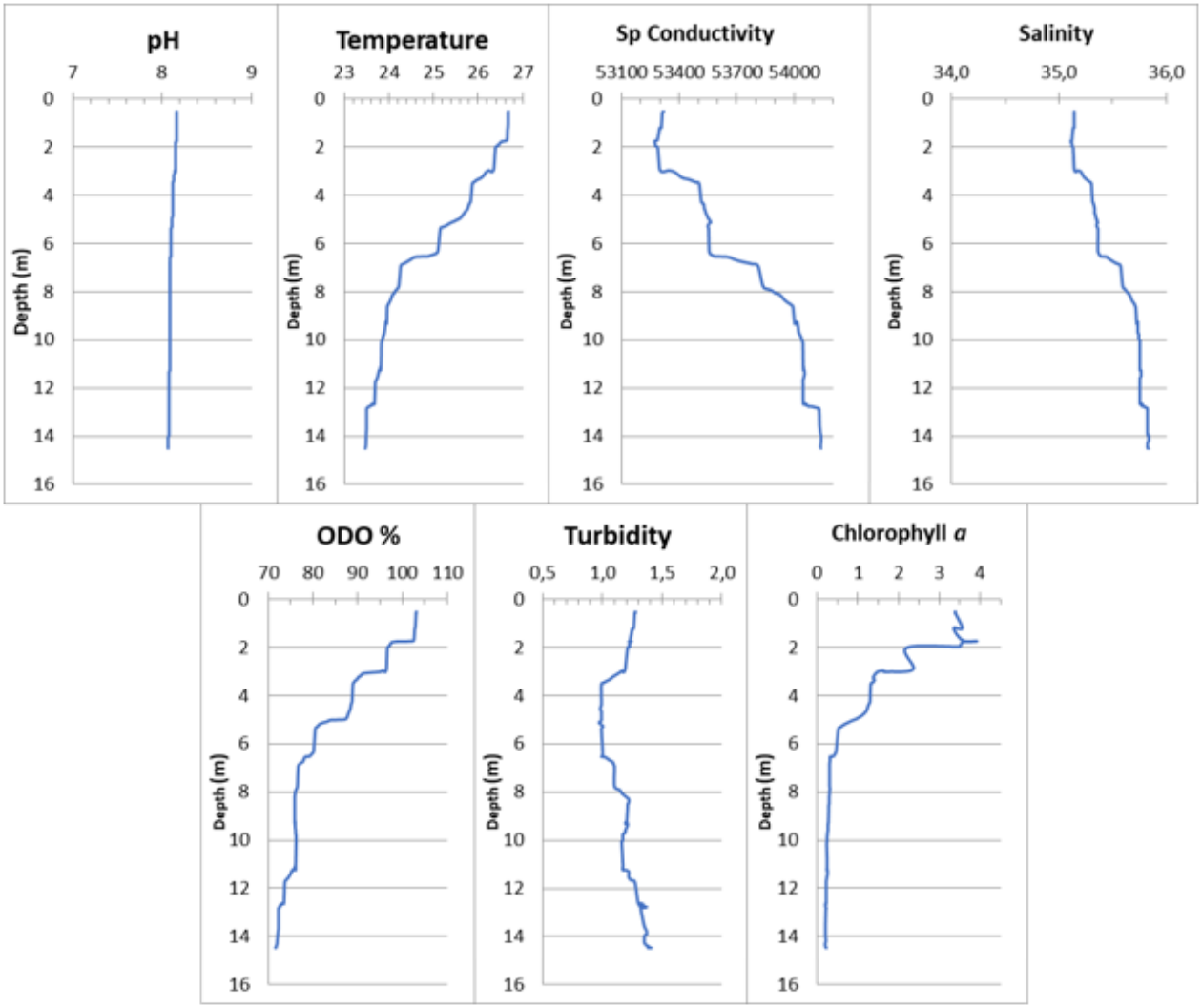
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.18	26.72	53169.16	35.03	104.33	6.86	1.27	2.29
3	8.13	25.50	53565.83	35.36	87.55	5.87	1.07	1.21
6	8.09	24.33	53939.51	35.66	77.75	5.31	1.10	0.44
12	8.08	23.52	54100.43	35.80	71.03	4.91	1.60	0.21

Figure 103. AR-5 onsite profiles



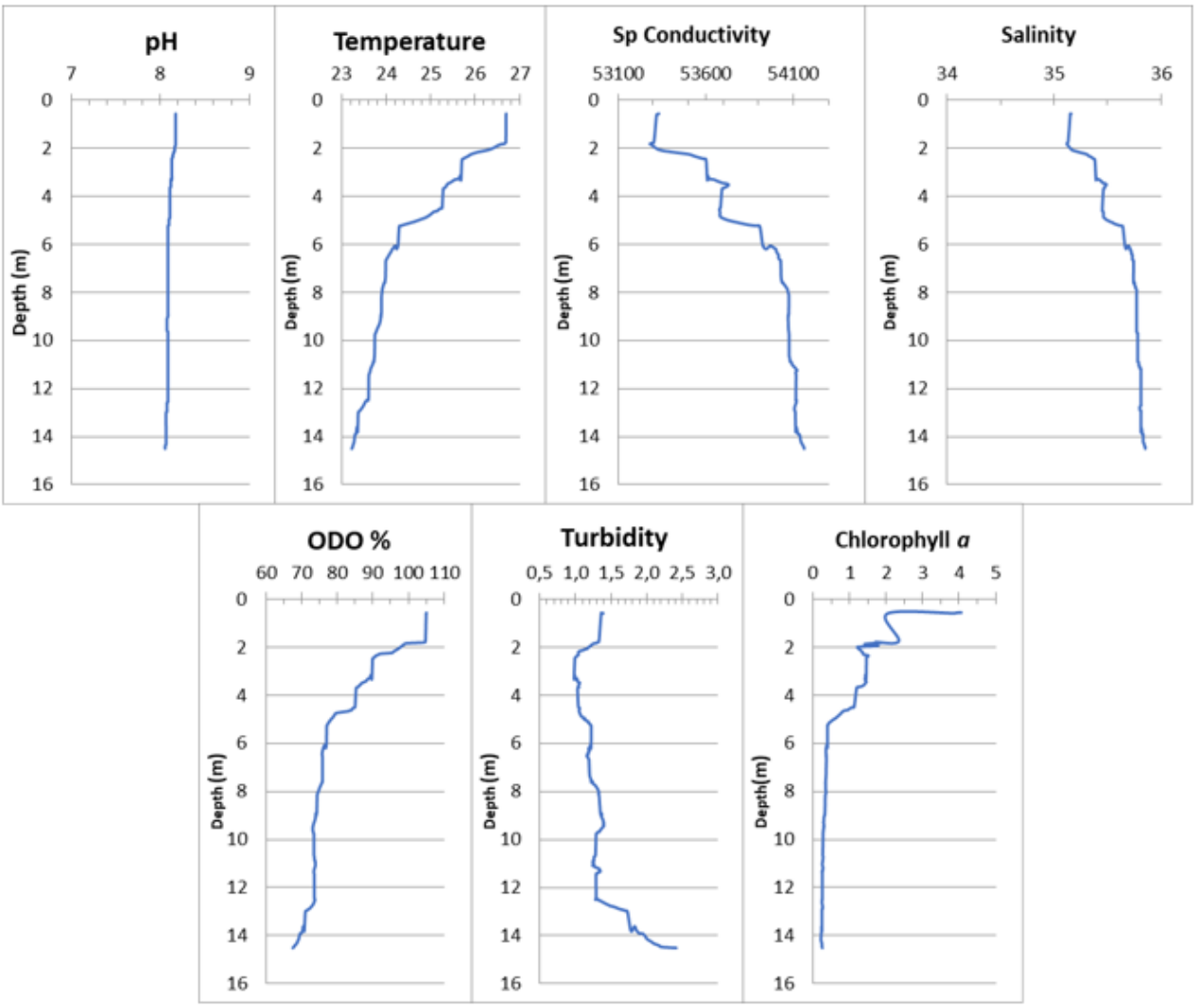
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.17	26.44	53345.86	35.17	100.24	6.62	1.41	1.31
3	8.12	25.50	53595.11	35.38	87.57	5.87	1.14	0.60
7	8.10	24.29	53896.83	35.63	78.47	5.36	1.18	0.39
14	8.09	23.49	54079.73	35.78	75.03	5.19	1.33	0.12

Figure 104. AR-6 onsite profiles



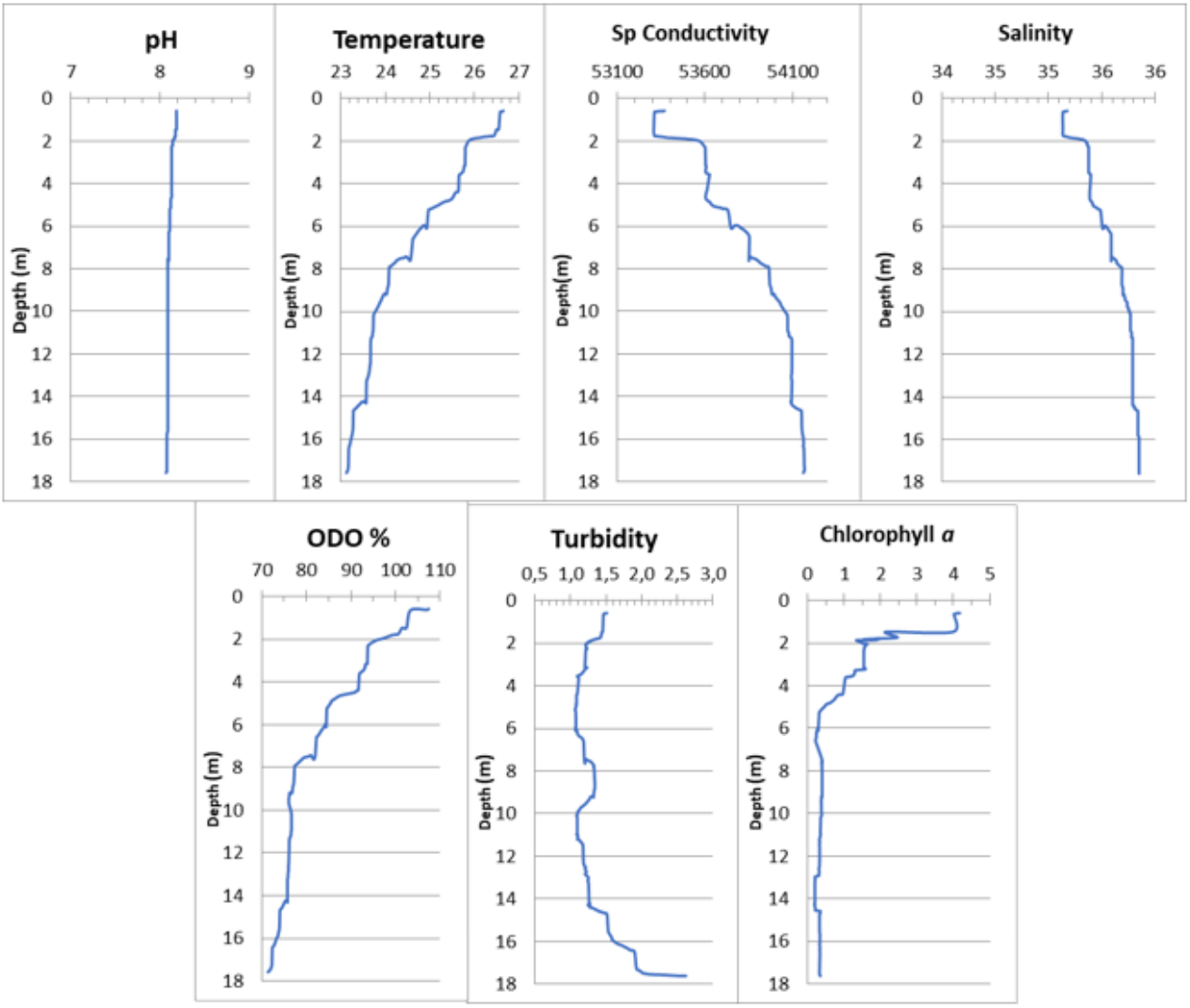
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.16	26.68	53310.84	35.14	103.07	6.78	1.27	3.41
3	8.13	26.09	53409.69	35.23	91.81	6.09	1.09	1.46
7	8.09	24.42	53739.89	35.51	77.54	5.28	1.07	0.32
14	8.07	23.50	54138.17	35.82	72.09	4.99	1.37	0.21

Figure 105. AR-7 onsite profiles



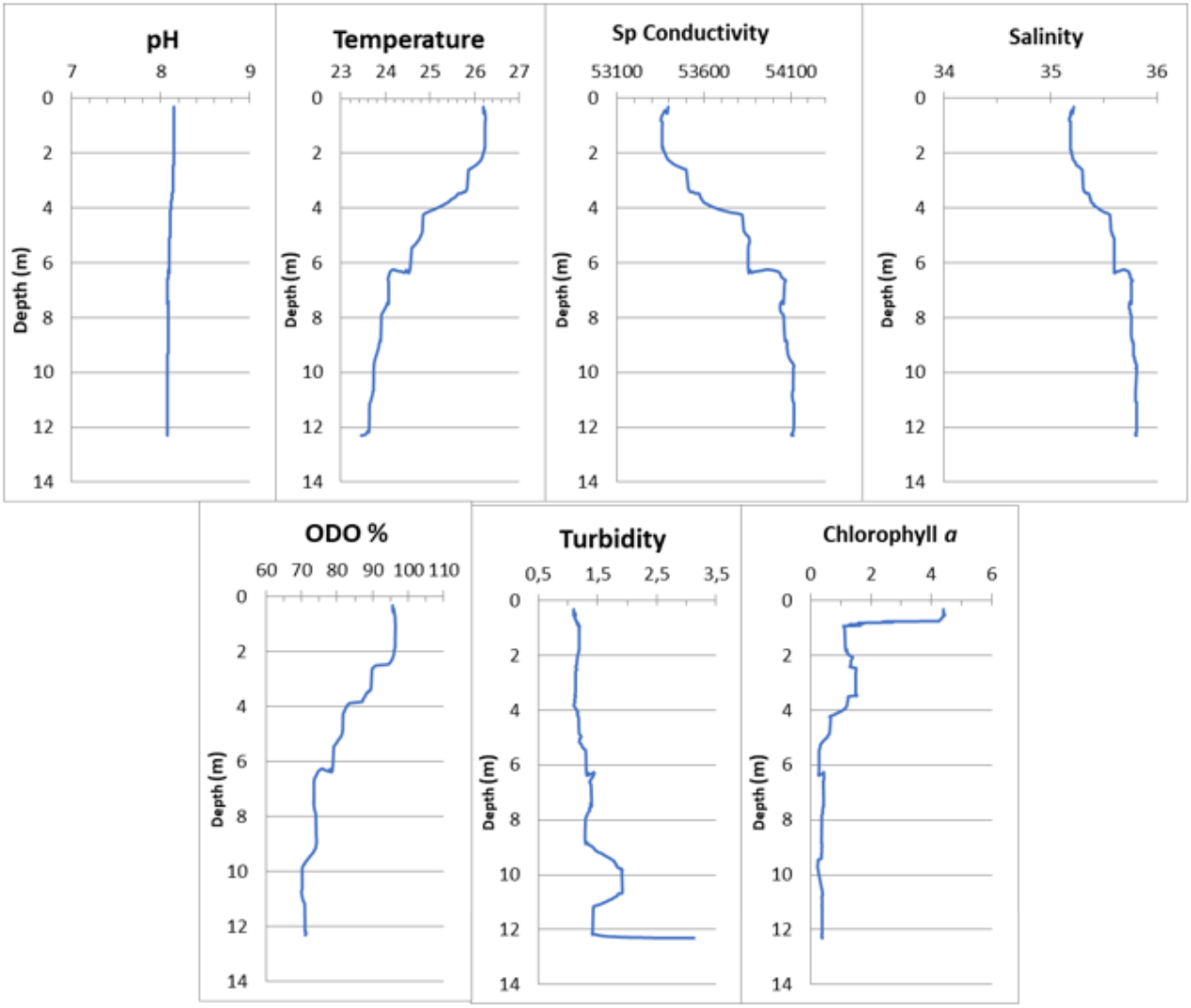
Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.17	26.70	53328.26	35.15	104.95	6.90	1.37	3.79
4	8.11	25.30	53702.58	35.46	85.52	5.75	1.04	1.22
7	8.09	24.00	54030.69	35.74	75.89	5.21	1.20	0.34
14	8.07	23.30	54143.50	35.83	69.16	4.80	2.02	0.22

Figure 106. AR-8 onsite profiles



Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.18	26.60	53337.58	35.16	105.59	6.95	1.48	3.88
5	8.12	25.20	53658.59	35.44	85.40	5.75	1.07	0.46
10	8.09	23.78	54056.24	35.76	76.36	5.26	1.10	0.38
15	8.09	23.31	54134.60	35.83	74.33	5.16	1.44	0.33

Figure 107. AR-9 onsite profiles



Depth (m)	pH	Temperature	Sp Conductivity	Salinity	ODO %	ODO mg/L	Turbidity	Chlorophyll *a*
1	8.15	26.23	53360.42	35.19	96.11	6.37	1.15	2.86
3	8.14	25.76	53529.56	35.33	89.15	5.95	1.13	1.46
6	8.09	24.19	53981.89	35.70	75.65	5.17	1.41	0.42
12	8.08	23.56	54112.03	35.80	71.24	4.92	1.89	0.39

Figure 108. AR-10 onsite profiles

Biological and micro-biological parameters

Apart from the parameters shown for AR-1 to AR-10, the following tables, Table 42 and Table 43, present data collected regarding Light penetration and Microbiological and BOD-5 parameters.

PARAMETER	STATION									
	AR-1	AR-2	AR-3	AR-4	AR-5	AR-6	AR-7	AR-8	AR-9	AR-10
Transparency (m)	3	2	2	1.5	2	1.5	2	1.5	2	2

Table 42. Light penetration results in stations AR-1 to AR-10

Sampling site		Parameters		
		E.Coli **(UFC/100 mL)**	***Enterococci*** **(UFC/100 mL)**	**BOD-5 (mg/L O_2)**
AR-1	**AR-1/S/**	**120**	**44**	**126.7**
	AR-1/F/	**30**	**13**	**76.3**
AR-2	**AR-2/S/**	**10**	**20**	**116.5**
	AR-2/F/	**40**	**2**	**120.8**
AR-3	**AR-3/S/**	**50**	**62**	**143.6**
	AR-3/F/	**1800**	**420**	**64**
AR-4	**AR-4/S/**	**10**	**125**	**70.9**
	AR-4/F/	**130**	**37**	**123.3**
AR-5	**AR-5/S/**	**105**	**11**	**129.5**
	AR-5/F/	**50**	**128**	**114.3**
AR-6	**AR-6/S/**	**42**	**52**	**135.3**
	AR-6/F/	**91**	**50**	**126.9**
AR-7	**AR-7/S/**	**90**	**97**	**127.8**
	AR-7/F/	**40**	**6**	**139.8**
AR-8	**AR-8/S/**	**7**	**71**	**75.3**
	AR-8/F/	**<1**	**28**	**117.1**
AR-9	**AR-9/S/**	**20**	**2**	**110.9**
	AR-9/F/	**70**	**10**	**55.4**
AR-10	**AR-10/S/**	**1**	**4**	**110.2**
	AR-10/F/	**<1**	**<1**	**127.5**

Table 43. E. coli, Enterococci and BOD-5 data in stations AR-1 to AR-10

Rest of parameters (Eurofins – IPROMA)

PARAMETER	1/S	1/F	2/S	2/F	3/S	3/F	4/S	4/F	5/S	5/F	6/S	6/F	7/S	7/F	8/S	8/F	9/S	9/F	10/S	10/F	Q.L	Uncertain.
Oils & Fats mg/L	0.23	1.5	5	2.4	1.2	0.5	5	3.2	11	6	9	0.9	1.4	<0.20	1.0	<0.20	0.5	<0.20	0.5	<0.20	0.20 mg/L	22%
Aluminium (total) µg/L	<100	<100	<100	128	<100	161	<100	<100	<100	<100	<100	168	<100	<100	<100	<100	<100	<100	<100	<100	100 µg/L	20%
Dissolved Aluminum µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100 µg/L	19%
Cadmio (total) µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.06 µg/L	48%
Dissolved cadmium µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.06 µg/L	48%
Copper (total) µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0 µg/L	13%
Dissolved copper µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0 µg/L	12%
Chromium (total) µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0 µg/L	15%
Dissolved Chromium µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0 µg/L	14%
Total phosphorus mg/L	0.07	<0.05	<0.05	<0.05	0.08	0.07	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	0.09	0.06	0.12	0.08	0.07	<0.05	0.06	<0.05	0.050 mg/L	20%
Hydroc. Petroleum Totals mg/L	<0.04	<0.04	<0.04	<0.04	<40	<40	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<40	<40	<40	<40	<40	<40	<40	<40	0.04 mg/L	25%
Hydrocarbons mg/L	<0.20	1.1	3.6	1.7	<0.20	<0.20	5	2.3	8	5	8	0.6	<0.20	<0.20	0.29	<0.20	<0.20	<0.20	<0.20	<0.20	0.20 mg/L	22%
Iron (total) µg/L	<10	<10	<10	24	<10	49	<10	<10	14	11	17	<10	<10	15	<10	<10	<10	<10	<10	<10	10 µg/L	20%

PARAMETER	1/S	1/F	2/S	2/F	3/S	3/F	4/S	4/F	5/S	5/F	6/S	6/F	7/S	7/F	8/S	8/F	9/S	9/F	10/S	10/F	Q.L	Uncertain.
Dissolved Iron µg/L	<10	<10	<10	<10	<0.01	<0.01	<10	<10	<10	<10	<10	<10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	10 µg/L	19%
Magnesium (total) mg/L	1102	1121	1154	1215	1150	1255	1102	1145	1153	1067	1108	1098	1246	1188	1250	1229	1238	1264	1176	1225	100 mg/L	10%
Dissolve Magnesium mg/L	1118	960	1017	1191	1125	1242	1034	1058	1026	1039	1034	1037	1221	1177	1227	1229	1219	1231	1146	1167	100 mg/L	11%
Manganese (total) µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10 µg/L	18%
Dissolve Manganese µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10 µg/L	17%
Mercuri (total) µg/L	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.015 µg/L	40%
Dissolve Mercury µg/L	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.015 µg/L	40%
Niquel (total) µg/L	<2.6	<2.6	<2.6	<2.6	<2.6	4	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	2.6 µg/L	30%
Dissolve Niquel µg/L	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	2.6 µg/L	30%
Total Nitrogen mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0 mg/L	28 mg/L
PCB 101 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	24%
PCB 118 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	22%
PCB 138 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	21%
PCB 153 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	19%
PCB 180 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	27%

PARAMETER	1/S	1/F	2/S	2/F	3/S	3/F	4/S	4/F	5/S	5/F	6/S	6/F	7/S	7/F	8/S	8/F	9/S	9/F	10/S	10/F	Q.L	Uncertain.
PCB 28 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	26%
PCB 52 µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010 µg/L	25%
Lead (total) µg/L	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	0.39 µg/L	49%
Dissolved lead µg/L	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	0.39 µg/L	49%
Suspended Solids mg/L	<3.0	<3.0	<3.0	<3.0	3.4	3.8	<3.0	3.2	<3.0	<3.0	<3.0	<3.0	5.3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.0 mg/L	18%
Total Dissolved Solids mg/L	40360	39760	40360	39580	37720	37820	39980	38900	38900	39020	38840	39200	37800	39760	36940	38060	37720	40260	38320	38540	20000 mg/L	14%
Zinc (total) µg/L	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	9 µg/L	26%
Dissolved zinc µg/L	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	9 µg/L	26%

Table 44. Results obtained in the analyses of water samples. Source: Eurofins-Iproma

d. Detailed interpretations of the environmental baseline findings against regulatory environmental standards and IFC PS

General considerations

As already mentioned, the document "*Environmental, Health, and Safety Guidelines Ports, Harbors, and Terminals*" published by IFC in February 2017 states the parameters to determine quality of marine waters (see Table 45).

TABLE 1: WATER AND SEDIMENT QUALITY MONITORING PARAMETERS[a]
Dissolved oxygen
Temperature
pH
Turbidity
Secchi disk transparency
Conductivity/Salinity
Condition of biological communities
Total suspended solids (TSS)
Chlorophyll
Total phosphorus
Filterable reactive phosphate
Total nitrogen
Oxides of nitrogen
Ammonia
Toxics: Metals and metalloids; non-metallic organics; organic alcohols; chlorinated alkanes and alkenes; anilines; aromatic hydrocarbons (including phenols and xylenols); organic sulfur compounds; phthalates; organochlorine and organophosphorus pesticides; herbicides and fungicides
Sediment (metals and metalloids; organometallics; organics)[b]
Other site-specific parameters, as relevant[c]
[a] Parameters adapted from CCME (2006) *The Canadian-Wide Framework for Water Quality Monitoring* (Table 3, Page 16, http://www.ccme.ca/files/Resources/water/water_quality/wqm_framework_1.0_e_web.pdf; *The Canadian Water Quality Guidelines for the Protection of Aquatic Life* (CCME 1991-2015), http://st-ts.ccme.ca/en/index.html?chems=all&chapters=1; *The Canadian Sediment Quality Guidelines for the Protection of Aquatic Life* (CCME 1997-2015), available at: http://st-ts.ccme.ca/en/index.html?chems=all&chapters=3); and *The* Australian and New Zealand *Guidelines for Fresh and Marine Water Quality* (Chapter 3 Aquatic Ecosystems, http://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf. [b] Further guidance is available from *The OSPAR Guidelines for the Management of Dredged Material at Sea (Agreement 2014 – 06)*, in particular, the sections on 'Action Lists' and 'Levels for Dredged Materials', www.ospar.org/documents?d=34060, and the London Convention / Protocol's *Guidelines on the Assessment of Dredged Material (IMO 2014)*, http://www.imo.org/en/OurWork/Environment/LCLP/Publications/waq/Pages/default.aspx. [c] Additional good practice information related to water and sediment quality monitoring is available from The *Canadian Council of Ministers Environmental Quality Guidelines* (CCME 2003), http://ceqg-rcqe.ccme.ca/en/index.html; and *Guidance on the Site-Specific Application of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives* (CCME 2003), http://ceqg-rcqe.ccme.ca/download/en/221.

Table 45. Water and sediment quality monitoring parameters. Source: Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals. (IFC, 2017)

The parameters selected for the project align with those established by IFC standards and guidelines, which apply to the construction and operation of new port and terminal facilities, as well as the expansion of existing facilities. These activities encompass various tasks such as land reclamation, clearing, and paving for loading/unloading zones, bulk dry/liquid and containerized cargo storage areas, fuel depots, buildings, and roads. Additionally, they involve modifications to coastlines for the construction of breakwaters, shipyards, dockyards, wharves, piers, and vessel berths, as well as alterations to the seabed to create vessel basins (including areas for vessel turning) and navigation channels through dredging.

These activities, along with related infrastructure and typical port operational activities, can result in changes to terrestrial, freshwater, brackish, and marine habitats, potentially impacting flora, fauna, and biodiversity.

The IFC-referenced document, "Environmental, Health, and Safety Guidelines – Ports, Harbors, and Terminals," outlines parameters that may be analyzed but does not establish threshold values. Due to factors such as the diverse sources of discharges in the area, the purpose of the water to be analyzed, the location of the port, and its environmental characteristics, establishing a single quality standard is not feasible.

As indicated in the Water and Sediment Quality Monitoring Parameters (Table 45), other International Institutions and Authorities have published Guidelines and Frameworks with recommended standards. Among these, the Canadian Council of Ministers of the Environment[26] and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality[27] have been consulted. The following table presents the available Australian and New Zealand guidelines:

Parameter	Correspondence with the EHS table 1 of references	International recommendations and guidelines considered in IFC standards[1]
Temperature *(in situ)*	Temperature	-
Salinity *(in situ)*	Conductivity/Salinity	-
BOD_5	Condition of biological communities	-
Conductivity *(in situ)*	Conductivity/Salinity	-
pH *(in situ)*	pH	8-8.4
dH (alkalinity) *(in situ)*	Other site-specific parameters	-
Turbidity *(in situ)* and light penetration *(in situ)*	Turbidity Secchi disk transparency	0.5-10 NTU
Dissolved oxygen *(in situ)*	Dissolved Oxygen	90%-110%
Chlorophyll a *(in situ)*	Chlorophyll	1.5 µg/L
Nutrients – Nitrogen total	Total Nitrogen	0.12 mg/L
Nutrients -Phosphorus total	Total Phosphorus	0.02 mg/L
Total Petroleum Hydrocarbons (TPH)	Toxics: Nonmetallic organics	-
Total Dissolved Solids	Other site-specific parameters	-
Total Suspended Solids	Total Suspended Solids	-
Metals and heavy metals (Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr & Zn)	Toxics: Metals and metalloids	Refer to Table 47
Total Polychlorinated Biphenyls (PCBs)	Organochlorine	-
Mineral oils (Oils, Fats and Total Hydrocarbons)	Toxics: No metallic organics	-
Microbiological parameters: (*E.coli*, Enterococci)	Condition of biological communities	- -

[1]Australian and New Zealand Guidelines for Fresh and Marine Water Quality (chapter 3 aquatic ecosystems) trigger values for physical and chemical stressors

Table 46. Standards available from Australian and New Zealand Guidelines

[26] *The Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME 1991-2015). Available at:* https://ccme.ca/en/summary-table

[27] *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Available at:* https://www.waterquality.gov.au/guidelines/anz-fresh-marine

Metal / Level of species protection	99%	95%	90%	80%
Al (µg/L)	*	*	*	*
Cd (µg/L)	0.7	5.5	14	36
Cr (µg/L)	0.14	4.4	20	85
Cu (µg/L)	0.3	1.3	3	8
Fe (µg/L)	*	*	*	*
Hg (µg/L)	0.1	0.4	0.7	1.4
Ni (µg/L)	7	70	200	560
Mg (µg/L)	*	*	*	*
Mn (µg/L)	80	80	80	80
Pb (µg/L)	2.2	4.4	6.6	12
Zn (µg/L)	3.3	8	12	21
(*) Not defined for marine water				

Table 47. Toxicant default values available from New Zealand Guidelines.

In addition, a review of national legislation has been conducted, compiling all available information on environmental legislation in Angola that establishes limits or criteria for environmental studies or water quality assessments. Currently, there are various laws and guidelines, including:

- Basic Environmental Law No. 5/98: This law, consisting of 37 articles divided into seven chapters and one annex, establishes basic principles to be implemented by the Government of Angola concerning natural heritage protection, ecosystem preservation, and environmental conservation to ensure the quality of human life.
- Decree No. 51/04 on Environmental Impact Assessment: Comprising 25 articles and one annex, this decree approves legislation regarding Environmental Impact Assessment (EIA), aiming to regulate environmental and administrative procedures related to the implementation of public and private projects.
- Decree No. 59/07 on Environmental Licensing.
- Presidential Decree No. 261-11 of October 6: This decree acknowledges Law No. 6/02 of June 21, known as the Water Law.

These documents outline actions to be taken, future projects, or reference values for monitoring surface water bodies for human consumption and other purposes. However, in all the literature reviewed, no guidelines or legislation have been found to regulate or establish compliance or evaluation criteria for characterizing port water bodies.

In this regard, to complement the information collected on concentration levels, references aligned with European frameworks were consulted. Specifically, the 2000/60/EC Directive of the European Parliament and of the Council of October 23, 2000, known as the Water Framework Directive, released on December 22, 2000. This directive establishes a framework for the protection of inland surface water, transitional waters, coastal waters, and groundwater.

Spain, being one of the European countries with an extensive coastal length and numerous ports of general interest, is considered a reference in coastal quality guidelines. "Puertos del Estado" (a member of the International Maritime Organization - IMO -) is the relevant Authority in Spain for adapting the directive to the needs of Spanish territory. The necessity to establish standardized operational protocols in maritime

engineering led to the development of the ROM (Recomendaciones de Obras Marítimas - Maritime Works Recommendations) Program. The Technical Commission, responsible for its development in 1987, laid the groundwork for a series of technical standards that establish execution procedures, methods, and criteria in maritime and port works executed in state-owned ports.

Among these, Series 5, "Maritime and Port Works in the Coastal Environment," covers recommendations aimed at the development of Environmental Impact Studies (ROM 5.0), Coastal Maritime and Port Works (ROM 5.2), Dredging and Filling (ROM 5.3), and the development of this document: ROM 5.1, Coastal Water Quality in Port Areas. Within this framework, ROM 5.1-13 "Quality of Coastal Waters in Port Areas" was first published in 2005 to address the issues related to port water within the spirit and principles established by the EU Water Framework Directive (2000/60/EC).

Secondly, "Royal Decree 817/2015, of September 11, 2015, which establishes the criteria for monitoring and evaluating the state of surface waters and environmental quality standards, BOE-A-2015-9806," issued by the Ministry of Agriculture, Food and the Environment, has also been considered.

To protect the waters of the territory, the royal decree sets out environmental quality standards (EQS) for priority substances and other pollutants to achieve good chemical status of surface waters. Additionally, it establishes the reference conditions and the limits of the status classes for indicators of biological, physicochemical, and hydro morphological quality for surface water bodies.

Specifically, Annex II, "Reference Conditions, Maximum Ecological Potential and State Class Limits," section F, "Transitional and coastal waters greatly modified by the presence of ports," establishes a series of limit values that allow the ecological potential of waters to be categorized according to the type of port that alters them.

It should be noted that the classification of ports in this royal decree was carried out after evaluating the socio-economic, geographical, environmental, and operational characteristics of the Spanish ports. Each factor was assigned an index that was subsequently used to establish the classification.

Considering that these indexes cannot be applied in the same way in Spain as in Angola, a classification has been assigned to the Angolan harbor (based on the literature review) that best represents it. It has been decided to classify the area as an Atlantic coastal area with low renewal.

The aim of these documents, which encompass legislative, methodological, and technological aspects, is to serve as a foundational document in the planning and development of management systems for port water quality. This document establishes criteria for assigning sampling stations, the analyses to be conducted, and the international standards to be followed (UNE-EN ISO 13395:1997, UNE-EN ISO 11732:2005, UNE-EN ISO 15681-2:2005, and others), as well as the Environmental Quality Standards (EQS) established for each parameter and the classification of water bodies.

The following table presents ROM 5.1 environmental quality standards for assessing parameters, together with available information in RD 817/15:

Parameter	Correspondence with the EHS table 1 of references	Average concentration (in 1 year campaign)	Maximum Allowed Concentration in heavily modified waters	RD 817/15 Ecological potencial limits
Temperature *(in situ)*	Temperature	-	-	
Salinity *(in situ)*	Conductivity/Salinity	-	-	
BOD_5	Condition of biological communities	-	-	
Conductivity *(in situ)*	Conductivity/Salinity	-	-	
pH *(in situ)*	pH	-	-	
dH (alkalinity) *(in situ)*	Other site-specific parameters	-	-	
Turbidity *(in situ)* and light penetration *(in situ)*	Turbidity Secchi disk transparency	-	-	Up to 4 NTU for maximum ecological potential, 12 NTU for good and >12 NTU deficient
Dissolved oxygen *(in situ)*	Dissolved Oxygen	-	-	Up to 70% for maximum ecological potential, 30% for good and <30% deficient
Chlorophyll a *(in situ)*	Chlorophyll	-	-	
Nutrients – Nitrogen total	Total Nitrogen	-	-	
Nutrients - Phosphorus total	Total Phosphorus	-	-	
Total Petroleum Hydrocarbons (TPH)	Toxics: Nonmetallic organics	-	-	
Total Dissolved Solids	Other site-specific parameters	-	-	
Total Suspended Solids	Total Suspended Solids	-	-	
Metals and heavy metals (Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr y Zn)	Toxics: Metals and metalloids	Fe: - Pb: 7.2 µg/L Cu: - Cd: 0.2 µg/L Ni: 20 µg/L Al: - Mg: - Mn: - Hg: 0.05 µg/L Cr: - Zn: -	Fe: - Pb: - Cu: - Cd: 1.5 µg/L Ni: - Al: - Mg: - Mn: - Hg: 0.07 µg/L Cr: - Zn: -	
Total Polychlorinated Biphenyls (PCBs)	Organochlorine	-	-	
Mineral oils (Oils, Fats and Total Hydrocarbons)	Toxics: No metallic organics	-	-	
Microbiological parameters: (*E.coli*, Enterococci)	Condition of biological communities	-	-	
		-	-	

Table 48. ROM 5.1 environmental quality standards to be applied while assessing the parameters

On-site parameters

The water column profiles generally indicate that pH, temperature, dissolved oxygen, and chlorophyll values are inversely proportional to depth, while conductivity and salinity are directly proportional. Turbidity varies, with higher values observed both at the surface and near the bottom. It should be noted that on the day of the sampling and the night before, the city of Luanda suffered heavy rainfall, so that these parameters could have been affected.

- Temperature: Temperature exhibits significantly higher values at the surface compared to those measured at the bottom, ranging from around 27ºC to 23ºC, with an abrupt decrease of -3ºC within the first 5 meters of the water column. This pattern is consistent across all sampling points. pH values also demonstrate stable profiles throughout the area, remaining close to 8.2, which is typical for marine water bodies. The values recorded for this parameter fall within the range considered in IFC standards, as none of the sampling station's pH values are lower than 8 or exceed 8.4.
- Conductivity and salinity: Conductivity values, higher at deeper layers, could be attributed to meteorological conditions at the time of sampling, particularly heavy rains that may have influenced by adding fresh water. The conductivity recorded at the sampling stations shows surface values of around 53,200 µS/cm. These values increase as we descend through the water column, reaching the highest values in the last meters, with values of around 54,000 µS/cm.

  Salinity is a parameter dependent on both conductivity and temperature. Similar values of conductivity may result in different salinity values depending on temperature. This is why more homogeneous profiles have been recorded for salinity. However, even with less variation in depth, surface salinity is slightly lower, with values closer to 35 PSU, than that detected in deeper layers where salinity is closer to 36 PSU.
- Dissolved oxygen: The same behavior regarding oxygen concentration was detected at the ten sampling stations. Surface oxygen concentration values varied between 95% and 105% and decreased through the water column, reaching values around 68% to 70%. If we consider the ranges mentioned above for international recommendations and guidelines included in IFC standards, the recorded values remain within the provided range for dissolved oxygen (90% and 110%) in surface waters. On the other hand, the deeper waters of the study area fall below the established minimum value.

  Regarding the limits established by Spanish Royal Decree 817/15, it should be noted that surface waters would correspond to a maximum ecological status since they are above 70% oxygen saturation. However, the deep waters of sampling stations 5 and 8, which have saturation values of less than 70%, would still have good ecological potential.
- Turbidity and transparency: The turbidity recorded across the sampling stations falls within a concentration range of 1-3 NTU. Considering the ranges outlined in the international recommendations and guidelines incorporated in IFC standards (0.5-10 NTU), these values remain within the acceptable range. If we consider the class limits established by Spanish Royal Decree 817/15, we can infer that the entire body of water possesses excellent ecological potential since no station exhibits turbidity values exceeding 4 NTU, which is the designated limit value for this classification.

  Regarding light penetration transparency, measured by Secchi disk, very consistent values are observed across all areas, with penetration profiles varying from one and a half meters.

- *Chlorophyll a*: *Chlorophyll a* levels are directly correlated with light penetration, with maximum values observed in the first 3 meters of the water column. Except for the AR-6 sampling station, where the entire water column exhibits chlorophyll concentrations below 1.5 µg/L, the remaining stations do not meet the international recommendations and guidelines outlined in IFC standards. In the surface layers of water, chlorophyll concentrations exceed the 1.5 µg/L limit specified in these guidelines. In most sampling stations, values approaching 4 µg/L are recorded in the top meter of the water column, after which this value decreases, stabilizing within the range of 0 to 1 µg/L.

Microbiological parameters

Regarding the microbiological and biological demand analyses conducted in the sampling area, the following observations can be made:

- The highest presence of *E. coli and Enterococci* detected is situated in the area closest to the dock. Values of up to 1800 CFU/100ml of *E. coli* have been detected in this area.
- Conversely, the stations furthest from the dock, namely stations 8, 9, and 10, exhibit concentrations of these parameters four orders of magnitude smaller, sometimes even reaching non-existence, as observed in station 10 where <1 CFU/100ml has been detected in the samples.
- However, the values of biological oxygen demand throughout the study area are quite uniform, with readings around 110 mg/L in the surface layers and slightly lower values in the deeper samples.

The recorded BOD5 values reflect the biological oxygen demand of all organisms inhabiting the water column. As indicated by the chlorophyll profiles, the first meters of the water column are significantly enriched with phytoplankton, and it can be assumed that zooplankton communities are also present. These communities may contribute to the BOD5 values, which are not markedly different from those observed by the coastal team in other similar areas. Conversely, the *E. coli* levels at certain stations are slightly elevated compared to expectations, as these microbiological indicators are typically not high in marine waters, especially at depth. Concentrations of 1800 CFU in the deep waters of station 3 (adjacent to the dock), along with values around 100 CFU in samples from stations 1 and 2 (also located near the docks), could suggest the presence of wastewater discharge in the area. However, this assumption cannot be confirmed without additional information to validate it or historical data from the region for comparison. A more targeted investigation is warranted to confirm the presence of such discharge, and if confirmed, an analysis of the discharged water should be conducted to establish a cause-and-effect relationship with the recorded results.

In the absence of reference environmental quality standards outlined in IFC standards for these parameters, these values will serve as a baseline for future comparisons.

Rest of parameters (Parameters analyzed by Eurofins – IPROMA)

Physicochemical parameters were analyzed in Eurofins IPROMA laboratory. It should be noted that, as mentioned earlier in this report, on the day of the sampling and the night before, the city of Luanda suffered heavy rainfall. As there is no information from previous surveys' results, it is not possible to assess whether this fact could have had any kind of effect on the values obtained.

In addition, there are several parameters results whose determination has resulted in values lower than the detection limit values of the analytical method. This would be the case for: dissolved Al, Cd, Cu, Cr, TH,

dissolved Fe, Mn, Hg, dissolved Ni, Total Nitrogen, PCB's, Pb and Zn). As the concentration is lower than the limit of detection, an assessment of these substances cannot be carried out.

As some of these parameters have threshold values set by the international recommendations and guidelines considered in IFC standards, further comments are warranted.

The DGV values published on the website "https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/search" for metals establish limit values that must be met to ensure a certain percentage of species-level protection. This percentage varies from 99% down to 80%, with 99% protection being the most stringent, ensuring the protection of most species. However, the recommended percentage for each metal varies depending on its toxicity. In the absence of prior information, the evaluation of the results obtained in this campaign will be conducted by assessing the level of protection that each individual metal meets based on its recorded value. Finally, a general assessment of the area will be made based on the different percentages achieved.

Below is a brief assessment of these detection limits against the established thresholds:

- Cadmium: The analytical method's detection limit is 0.06 µg/L, which is lower than the threshold necessary to meet the 99% protection level established at 0.7 µg/L, indicating that this level is not exceeded at any station.
- Mercury: The analytical method's detection limit is 0.015 µg/L, which is lower than the threshold necessary to meet the 99% protection level established at 0.1 µg/L, indicating that this level is not exceeded at any station.
- Nickel: The analytical method's detection limit is 2.6 µg/L, which is lower than the threshold necessary to meet the 99% protection level established at 7 µg/L, indicating that this level is not exceeded at any station.
- Lead: The analytical method's detection limit is 0.39 µg/L, which is lower than the threshold necessary to meet the 99% protection level established at 2.2 µg/L, indicating that this level is not exceeded at any station.
- Chromium: The analytical method's detection limit is 5 µg/L, which is higher than the threshold necessary to meet the 99% protection level established at 0.14 µg/L and the threshold necessary to meet the 95% protection level established at 4.4 µg/L. However, it is below the required threshold to meet the 90% protection level established at 20 µg/L.
- Zinc: The analytical method's detection limit is 9 µg/L, which is higher than the threshold necessary to meet the 99% protection level established at 3.3 µg/L and the threshold necessary to meet the 95% protection level established at 8 µg/L. However, it is below the required threshold to meet the 90% protection level established at 12 µg/L.
- Copper: The analytical method's detection limit is 5 µg/L, which is higher than the threshold necessary to meet the 99% protection level established at 3.3 µg/L, the threshold necessary to meet the 95% protection level established at 1.3 µg/L, and the threshold necessary to meet the 90% protection level established at 3 µg/L. However, it is below the required threshold to meet the 80% protection level established at 8 µg/L.
- Manganese: Manganese has no threshold to meet a percentage of protection level; it only has a value against which to compare. The analytical method's detection limit is 10 µg/L, which does not exceed the established value of 80 µg/L.

- Total Nitrogen: Total nitrogen has no threshold to meet a percentage of protection level; it only has a value against which to compare. The analytical method's detection limit is 2 mg/L, which exceeds the established value of 0.12 mg/L, preventing further evaluation of the parameter's impact based on international standards.

Regarding Oils and Fats, it should be noted that traces of these substances have been found in almost all the stations sampled, except for the ones taken in the deep waters of stations 7, 8 and 9. The highest concentrations were detected in the surface sample of station 5, reaching values of up to 11mg/L. In the absence of international recommendations and guidelines considered in IFC standards these values should be used as a baseline for future comparisons.

The concentration of aluminum in most of the stations was below the detection limit of the analytical method, which is 100 µg/L. It should only be noted that in stations 2, 3 and 6, concentrations were slightly higher than in the deep-water samples, never exceeding 170 µg/L. These values may be associated with the presence of anthropogenic waste that has been detected in the area (see Figure 109).

Figure 109. Garbage detected near stations 5 and 6.

The international recommendations and guidelines considered in IFC standards do not establish any reference value for this parameter, nor do the Spanish documents under consideration in this document, so a conformity assessment cannot be made. The detected values can be used as baseline values to evaluate alterations in future analyses.

However, as a heavy metal, aluminum can be a concern in the marine environment. Aluminum is a dangerous element as it tends to bioaccumulate in marine organisms, which can eventually be consumed by humans. Currently, as included in the ecological assessment, the presence of fish is very unusual or almost non-existent in the study area.

Total iron analysis has shown the presence of undissolved forms of iron in up to half of the sampling stations. Station 3 concentration was the highest, with 49 µg/L recorded. As explained above, the international recommendations and guidelines considered do not set any reference value for this parameter, so a conformity assessment cannot be made. The detected values can be used as base values to evaluate alterations in future analyses.

Unlike what has been detected in other metals, the presence of magnesium has been recorded in all stations, with concentrations of dissolved magnesium very similar to those of total magnesium. Besides, there are no significant differences among sampling stations. This metal has a low level of toxicity, and the values recorded are consistent with typical concentration levels in marine waters. Given that it is a port area, where pollutant parameter values tend to be higher than those found in areas unaffected by port activities, higher values than typical marine waters could have been expected. However, this has not been the case, which suggests that this parameter does not pose a risk to water quality in the vicinity. In any case, due to its low toxicity, this parameter is not among those listed as standard parameters to be measured in IFC regulations. Nevertheless, these registered values can serve as baseline data to evaluate changes in future analyses.

The concentration of total dissolved solids detected range from 36,900-40,000 mg/L throughout the sampling area. Without prior information of this parameter in the area and without any limit established by international recommendations and guidelines considered in IFC standards, no conformity assessment can be made. The detected values can be used as base values to evaluate alterations in future analyses.

e. Main conclusions

Regarding the Australian guidelines recommended by EHS, pH and turbidity values remain within the range at all stations. However, *chlorophyll* a in the surface samples exceeds the range at all stations except station 6, although it remains within range in deeper waters.

Concerning ROM 5.1-13, all parameters subject to environmental quality standards remain below the quantification limit at all stations. These values, regardless of whether they have international recommendations and guidelines considered in IFC standards limits, can serve as baseline levels against which to evaluate possible future variations.

It is important to highlight that the main purpose of these analyses is to establish the existing baseline in the water quality of the port, serving as a reference to monitor that the construction works, and subsequent operation of the terminal do not increase the existing pollutants in the environment. The comparison with IFC standards also serves to monitor in a special way those parameters that are currently outside the range of the corresponding guidelines.

Concerning the heavy metals analyzed, the default guideline values (DGVs) set limits to establish the percentage of protected species based on toxicity. Although some of the metals analyzed do not exceed the detection limit of the analytical method, this is lower in some cases than the limits established by the DGVs to achieve 99% protection. However, in the case of copper, it has been detected that the limit of quantification (which has not been exceeded at any station) would only be enough to ensure a level of protection of 80% of the species. Considering the results obtained globally in these analyses and the fact that these DGVs are based on criteria and studies evaluated for Australian and non-Angolan waters, the level of species protection achieved with these results would be between 80% and 90% for the study area.

Finally, dissolved oxygen falls out of range in the deeper samples of all stations, not meeting the minimum value established by the range of this standard.

Regarding the ecological status classification established by Royal Decree 817/15, if we consider the limits of the control parameters established for ports located in Atlantic waters of low renewal (which is the group in which the port of Luanda has been included based on the information gathered from the bibliographic

study of the area), we will have to conclude that the ecological potential of the waters of the port of Luanda is good. Not all the recorded limits, such as deep-sea oxygen saturation, meet the criteria to classify it as excellent. However, it should be noted that the classification of good ecological potential is in the high range of classifications established by this normative document.

To manage potential impacts, the IFC Guideline document establishes the following:

Monitoring of water and sediment quality during construction and operational activities of ports and terminals (in particular dredging and disposal activities) should generally include the monitoring parameters listed in Table 1 as part of a feedback (also known as 'adaptive') monitoring program. The selection of parameters should be based on local site considerations and the objectives of the monitoring program, including local water quality issues and water uses of interest.

f. Identification of communities or groups that can be affected by the project

The quality of the water could fundamentally affect the marine ecosystems in the area. As stated in the ecological campaign report, which is detailed in the corresponding section, the species in the environment coexist with the current state of the waters and port sediments, to which they have adapted since the existence of the infrastructures and port activities.

Seawater quality is essential for the proper development of a marine ecosystem, so it is necessary to analyze all the parameters that can influence organisms and examine those that can negatively affect them in detail. As anticipated, the waters of the Port of Luanda exhibit significant alterations in specific parameters associated with the area's high level of anthropogenic activity. Going into more detail, the main parameters identified that can alter the different organisms are highlighted:

- A rather evident negative gradient was detected in the percentage of dissolved oxygen available in the water column. Oxygen is essential for the development of life, and a low concentration limits the proliferation of those organisms that demand more oxygen, which are those of greater size and mobility. This is a good explanation of why few fish have been observed in the area, and most of the organisms sighted on the bottom correspond to sessile invertebrates with low mobility and little dependence on oxygen.
- It is noteworthy that concentrations of hydrocarbons, oils, and fats are detected in the area. This is expected due to the high vessel traffic associated with marine port activities, but it is still a parameter that can negatively affect organism development.
- The presence of metals such as iron and aluminum can have a very negative effect on the observed ecosystems, which are mainly formed by colonies of marine invertebrates.

It should also be noted that the obtained results will be considered as average values for the area, as no additional monitoring has been conducted. However, given the high level of anthropogenic activity and the elevated risk of localized spills or contamination, these parameters may occasionally vary.

The organisms that currently inhabit the study area are acclimatized to the concentrations of these parameters in the environment. However, an increase in the concentration of these parameters (or similar ones) could negatively affect the organisms that form this ecosystem, causing them to disappear or be replaced by opportunistic species with a greater capacity to adapt to the new conditions.

10.2.6.2. Sediment Quality baseline report

a. Introduction

As previously explained, the general introduction regarding the sampling and analysis parameters of marine sediments is common to both water and sediments according to IFC guidelines. Therefore, everything established in section 10.2.6.1. Water Quality baseline report applies to this section, making it unnecessary to repeat all the information included therein.

b. Sampling methodology

To characterize the quality of sediments, a Van Veen-type dredge was used at depths less than 50 meters. This ordinary bucket (grab) for sampling soft bottoms is formed by two opposing valves, centrally articulated, that rest on the bottom in the open position. Subsequently, with the traction of the supporting cable, the valves that enclose the material close, and the instrument immediately returns to the surface.

Equipment
Van Veen dredge

Table 49. Oceanographic equipment required in the Marine Sediment Quality Survey

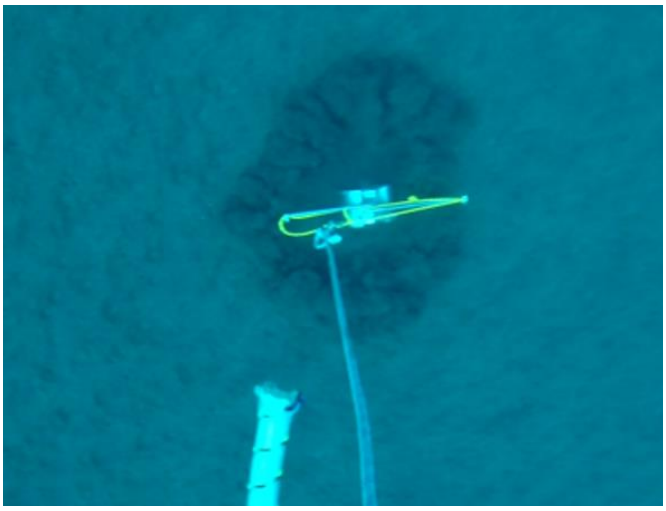


Figure 110. Van Veen dredge collecting a sample

Sediment samples were tested for the following parameters:

Parameters	Correspondence with EHS table 1 and references	Methodology
Color, odor, and redox potential *(in situ)*	Other site-specific parameters	YSI EXO II pH/ORP sensor[1]
Sulfur derivatives (i.e. sulfites)	Other site-specific parameters	UNE-EN 16170 [2]
Total Organic Carbon (TOC)	Condition of biological communities (Other site-specific parameters for sediments)	UNE-EN 15936 [2]
Hydrocarbons (Total Petroleum Hydrocarbons (TPH)	Organics	UNE-EN 14039 [2]
Total Polycyclic Aromatic Hydrocarbons (PAHs)	Aromatic Hydrocarbons (Other site-specific parameter for sediments)	8270E [2]
Volatile Organic Compounds (VOCs)	Organics	ISO 20595:2018 [2]

Parameters	Correspondence with EHS table 1 and references	Methodology
Total Polychlorinated Biphenyls (PCBs)	Organochlorine (other site-specific parameter for sediments)	8270E [2]
Mineral oils (Oils, Fats and Total Hydrocarbons)	Organics	UNE-EN 14039 [2]
Nutrients – Total Nitrogen	Total Nitrogen (Other site-specific parameters for sediments)	Official Analyses Methods Vol III (MAPA) [2]
Nutrients – Total Phosphorus	Total Phosphorus (Other site-specific parameters for sediments)	UNE-EN 16170 [2]
Nutrients – Organic Matter	Condition of biological communities (Other site-specific parameters for sediments)	UNE-EN ISO 15169 [2]
Grain Size Distribution	Other site-specific parameters	ISO 13320 [2]
Metals and heavy metals: Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr y Zn	Metals and metalloids	UNE-EN ISO 17294 UNE-EN ISO 12846 [2]
[1] elittoral. [2] IPROMA Laboratory methodology (see Annex 8. Credentials)		

Table 50. Parameters considered for the characterization of the marine sediment samples

All the containers that have been used have one or another characteristic due to the analyses that were carried out subsequently. These containers were labeled to allow traceability of the results obtained. Likewise, the appropriate conservation measures are applied depending on the case and, in any case, following the indications of the **ISO 5667-3:2013 Standard** "Water quality. Sampling. Part 3: Guide for the conservation and handling of water samples". In this way, to determine some substances, pretreatment of the samples must be applied before they are sent to the laboratory. Generally, this treatment consists of adding chemical reagents that help preserve the analyte to be measured.

Parameter	Container type and volume	Conservation conditions
Grain Size Distribution	Plastic	Transport +4°C Conservation +4°C
Metals – inorganic compounds	Plastic	Transport +4°C Conservation -20 °C
Microbiology	Sterilized plastic	Transport +4°C Conservation +4°C
Organic compounds	Glass	Transport +4°C Conservation -20 °C

Table 51. Sampling containers and conservation conditions of the sediment samples until the delivery to the laboratory

Throughout the Sediment Survey, the TYPSA-elittoral team maintained constant communication and coordination with the Unicargas team, ensuring smooth progress of the fieldwork.

c. Ambient marine sediments quality survey results

Chemical parameters

The tables shown below gather the results of the parameters analyzed in each of the sediment samples collected during the survey.

Parameter	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
Redox Potential mV	46.6	29.5	31.8	70.0	41.3	92.9	74.5	82.4	34.9	-159.8

Table 52. Results of redox potential at each sampling point

PARAMETER	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	UNITS
Total Organic Matter	1.5	0.7	15	15	7	13	0.8	1.2	27	9.8	%
Total Organic Carbon	<0.5	<0.5	3	2.6	2.5	3	<0.5	<0.5	2.8	1.5	%
Total Nitrogen	<0.050	<0.050	0.3081	0.3398	0.2645	0.32	<0.050	<0.050	0.1225	0.1966	%
Sulphur	1217	456	9653	8253	30287	10944	695	855	14223	12272	mg/kg
Residual moisture	<0.40	<0.40	1.7	1.65	2.7	1.93	<0.40	<0.40	3.4	3	%
Total Phosphorus	0.018	0.007	0.1	0.1	0.2	0.09	0.018	0.02	0.08	0.07	%
Oils & Fats	111	111	143	78	167	53	<50	176	949	705	mg/kg
Hydrocarbons	80	83	77	75	104	<50	<50	122	636	487	mg/kg
PAHs											mg/kg dry weight
Fluoranthene	0.04	0.012	<10	15	12	<0.010	<0.010	<0.010	32	14	mg/kg dry weight
Benzo (a) Pyrene	0.028	0.012	54	52	48	0.05	<0.010	<0.010	38	18	mg/kg dry weight
Benzo(g,h,i) Perylene	0.016	<0.010	71	64	57	0.06	<0.010	<0.010	42	24	mg/kg dry weight
Inden (1,2,3,c,d) Pyrene	0.029	0.015	84	79	65	0.09	<0.010	<0.010	50	27	mg/kg dry weight
Naphthalene	<0.010	<0.010	21	26	19	0.02	<0.010	<0.010	<10	<10	mg/kg dry weight
Benzo(a) Anthracene	0.017	<0.010	25	26	23	0.025	<0.010	<0.010	20	11	mg/kg dry weight
Anthracene	<0.010	<0.010	24	23	19	0.018	<0.010	<0.010	16	12	mg/kg dry weight
Phenanthrene	0.026	<0.010	25	29	19	0.026	<0.010	<0.010	16	11	mg/kg dry weight

PARAMETER	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	UNITS
Chrysoon	0.016	<0.010	39	34	32	0.027	<0.010	<0.010	21	13	mg/kg dry weight
Pyrene	0.04	0.013	50	43	34	<0.010	<0.010	<0.010	34	19	mg/kg dry weight
∑PAHs	0.21	0.052	393	391	328	0.316	<0.010	<0.010	269	149	mg/kg dry weight
PCBs											mg/kg dry weight
PCB 101	<0.0010	<0.0010	1.7	1.6	2.3	0.0013	<0.0010	0.001	1.6	<1.0	mg/kg dry weight
PCB 118	<0.0010	<0.0010	1.3	1.3	1.7	0.0011	<0.0010	0.001	<1.0	<1.0	mg/kg dry weight
PCB 138	<0.0010	<0.0010	4	4	5	0.004	<0.0010	0.001	4	1.3	mg/kg dry weight
PCB 153	<0.0010	<0.0010	3	4	4	0.0029	<0.0010	0.001	3.3	1.1	mg/kg dry weight
PCB 180	<0.0010	<0.0010	3.3	2.9	4	0.0026	<0.0010	0.001	2.4	<1.0	mg/kg dry weight
PCB 28	<0.0010	<0.0010	<1.0	<1.0	<1.0	<0.0010	<0.0010	0.001	<1.0	<1.0	mg/kg dry weight
PCB 52	<0.0010	<0.0010	<1.0	<1.0	<1.0	<0.0010	<0.0010	0.001	<1.0	<1.0	mg/kg dry weight
∑PCB's	<0.0010	<0.0010	13.3	13.8	17	0.0119	<0.0010	0.007	11.3	2.4	mg/kg dry weight
Hydric. Petroleum Totals (C10 - C40)	113	97	140	66	300	310	42	110	616	443	mg/kg dry weight
Volatile Organic Comps											mg/kg
1,2,4-Triclorobence	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
1,2-Diclorobence	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	mg/kg
1,3-Diclorobence	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
1,4-Diclorobence	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Benzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	mg/kg
Chlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Chloroform	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Dichloromethane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Ethylbenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Styrene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Etil-Tertbutyl Eter (ETBE)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg

PARAMETER	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	UNITS
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	mg/kg
Metil-Tertbutyl Eter (MTBE)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Trichloroethylene	<0.05	<0.05	234	192	463	<0.05	<0.05	<0.05	159	144	mg/kg
Carbon Tetrachloride	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
Tetrachlorelene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	mg/kg
Toluene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
m,p-Xylenes	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	mg/kg
o-Xylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg
∑ Volatile Organic Comps	<0.05	<0.05	234	192	463	<0.05	<0.05	<0.05	159	144	mg/kg
Metals											mg/kg dry weight
Aluminum	8767	2118	42821	45032	124909	45553	4057	4625	29990	28602	mg/kg dry weight
Cadmium	0.18	0.09	1.4	1.4	4	1.8	0.14	0.2	1.6	1.4	mg/kg dry weight
Chromium	12	4	95	98	217	97	7	8	86	74	mg/kg dry weight
Copper	15	7	131	78	137	70	7	8	51	47	mg/kg dry weight
Iron	3944	1575	27226	28518	70959	36025	2436	2774	24015	21786	mg/kg dry weight
Lead	10	<3.0	53	47	113	46	4	5	41	32	mg/kg dry weight
Magnesium	1035	376	11137	11035	24650	10079	636	719	11094	11268	mg/kg dry weight
Manganese	27	9	127	116	288	116	21	19	109	102	mg/kg dry weight
Mercury	<0.05	<0.05	0.14	0.13	0.12	0.14	<0.05	<0.05	0.12	0.08	mg/kg dry weight
Nickel	3	<3.0	31	31	69	30	<3.0	<3.0	27	24	mg/kg dry weight
Zinc	26	12	234	192	463	188	14	17	159	144	mg/kg dry weight

Table 53. Results obtained in the analyses of sediment samples. Source: Eurofins-Iproma. (*) Note: The results of the analyses corresponding to this parameter have not been validated.

Physical parameters

Below are the results obtained from the granulometric analysis of the samples. A table is presented with the percentage of accumulated material in each of the classification levels, as well as a representation of the grain size distribution and the main statistics of each sample according to Wentworth (1922), Folk and Ward (1957). Table 54 and Table 55 show the different classification levels and their respective ranges.

Medium size (ϕ)		Classification (σ)		Asymmetry (Sk)	
Fines (silts and clays)	> 4	Highly Classified	< 0.35	Very positive	0.3 to 1.0
Very fine sands	3 to 4	Well Classified	0.35 to 0.5	Positive	0.1 to 0.3
Fine sands	2 to 3	Moderately	0.5 to 0.71	Symmetrical	-0.1 to 0.1
Medium sands	1 to 2	Moderately Classified	0.71 to 1.0	Negative	-0.3 to -0.1
Core sands	0 to 1	Poorly Classified	1.0 to 2.0	Very negative	-1.0 to -0.3
Very core sands	-1 to 0	Very poorly Classified	2.0 to 4.0		
Gravel	< -1				

Table 54. Unconsolidated sediment classification samples according to Wentworth (1922), Folk and Ward (1957).

Size (µm)	Fines (silts and clays)	Very fine sands	Fine sands	Medium sands	Core sands	Very core sands	Gravel
	< 63	63-125	125-250	250-500	500-1000	1000-2000	>2000

Table 55. Soil classification.

Aperture (µm)	% of retained material for each level
>2000	4
>1400	4
>1000	9
>710	10
>650	4
>500	6
>355	12.37
>250	13.63
>180	16
>125	9
>63	5
>0	7

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-1/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Poorly Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

	µm	ϕ
MODE 1:	215.0	2.237
MODE 2:	855.0	0.247
MODE 3:		
D_{10}:	95.03	-0.378
MEDIAN or D_{50}:	349.3	1.517
D_{90}:	1299.1	3.395
(D_{90} / D_{10}):	13.67	-8.993
(D_{90} - D_{10}):	1204.1	3.773
(D_{75} / D_{25}):	3.891	5.959
(D_{75} - D_{25}):	564.9	1.960

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.0%
SAND:	93.0%	MEDIUM SAND:	26.0%
MUD:	7.0%	FINE SAND:	25.0%
		V FINE SAND:	5.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	1.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.2%
V COARSE SAND:	17.0%	CLAY:	1.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN($\bar{x}$):	469.9	231.7	1.711	376.3	1.410	Medium Sand
SORTING (σ):	421.8	5.259	1.812	3.063	1.615	Poorly Sorted
SKEWNESS (Sk):	1.288	-1.794	1.487	-0.045	0.045	Symmetrical
KURTOSIS (K'):	4.001	6.065	5.450	1.256	1.256	Leptokurtic

GRAIN SIZE DISTRIBUTION

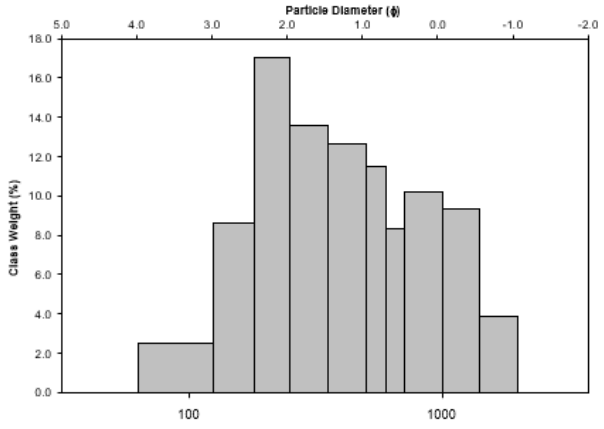


Figure 111. Grain size analysis results at sampling point S1

Aperture (µm)	% of retained material for each level
>2000	2
>1400	1
>1000	3
>710	5
>650	4
>500	7
>355	19
>250	24
>180	17
>125	9
>63	4
>0	5

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-2/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

	µm	ϕ
MODE 1:	302.5	1.747
MODE 2:		
MODE 3:		
D_{16}:	130.2	0.395
MEDIAN or D_{50}:	311.3	1.684
D_{84}:	760.3	2.942
(D_{84} / D_{16}):	5.841	7.442
(D_{84} - D_{16}):	630.2	2.546
(D_{75} / D_{25}):	2.299	2.114
(D_{75} - D_{25}):	267.6	1.201

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	16.0%
SAND:	95.0%	MEDIUM SAND:	43.0%
MUD:	5.0%	FINE SAND:	26.0%
		V FINE SAND:	4.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.8%
V COARSE SAND:	6.0%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{x}$):	369.9	240.7	1.855	311.4	1.683	Medium Sand
SORTING (σ):	277.8	3.543	1.457	2.118	1.083	Poorly Sorted
SKEWNESS (Sk):	1.975	-2.445	1.958	-0.055	0.055	Symmetrical
KURTOSIS (K'):	8.426	9.980	8.211	1.417	1.417	Leptokurtic

GRAIN SIZE DISTRIBUTION

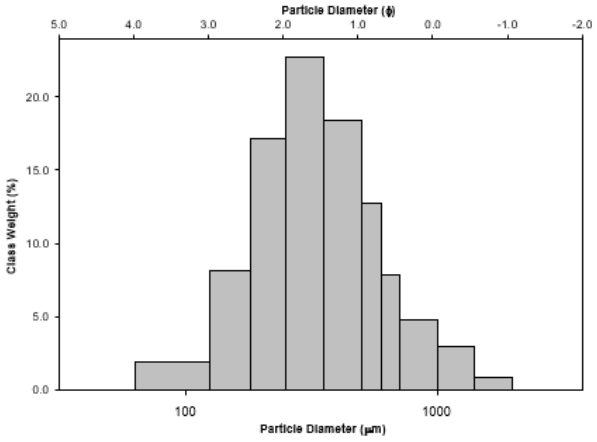


Figure 112. Grain size analysis results at sampling point S2

Aperture (µm)	% of retained material for each level
>2000	2
>1400	3
>1000	6
>710	9
>650	5
>500	9
>355	21
>250	20
>180	13
>125	7
>63	3
>0	2

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-3/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

	µm	ϕ
MODE 1:	427.5	1.247
MODE 2:		
MODE 3:		
D_{16}:	162.2	-0.081
MEDIAN or D_{50}:	385.2	1.376
D_{84}:	1057.7	2.624
(D_{84} / D_{16}):	6.521	-32.436
(D_{84} - D_{16}):	895.5	2.705
(D_{75} / D_{25}):	2.400	2.714
(D_{75} - D_{25}):	350.0	1.263

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	23.0%
SAND:	98.0%	MEDIUM SAND:	41.0%
MUD:	2.0%	FINE SAND:	20.0%
		V FINE SAND:	3.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.3%
FINE GRAVEL:	0.0%	FINE SILT:	0.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.3%
V COARSE SAND:	11.0%	CLAY:	0.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN($\bar{x}$):	474.6	322.6	1.433	398.8	1.326	Medium Sand
SORTING (σ):	356.3	3.250	1.231	2.058	1.041	Poorly Sorted
SKEWNESS (Sk):	1.596	-2.814	1.654	0.071	-0.071	Symmetrical
KURTOSIS (K'):	5.592	13.82	9.296	1.131	1.131	Leptokurtic

GRAIN SIZE DISTRIBUTION

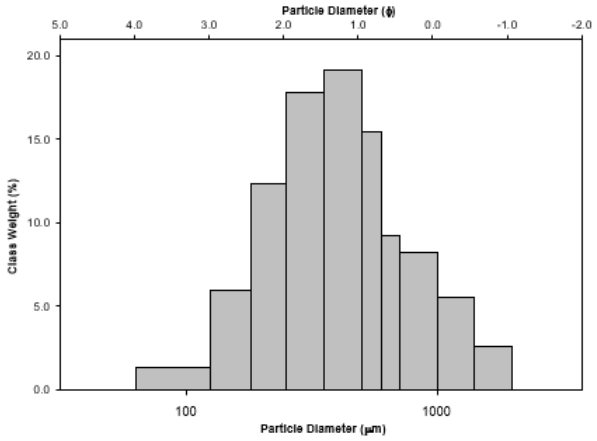


Figure 113. Grain size analysis results at sampling point S3

Aperture (µm)	% of retained material for each level
>2000	7
>1400	9
>1000	12
>710	14
>650	7
>500	8
>355	14
>250	13
>180	7
>125	5
>63	2
>0	2

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-4/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Coarse Sand

	µm	ϕ
MODE 1:	550.0	0.868
MODE 2:		
MODE 3:		
D_{16}:	188.6	-0.828
MEDIAN or D_{50}:	586.5	0.770
D_{84}:	1775.8	2.406
(D_{84} / D_{16}):	9.413	-2.904
(D_{84} - D_{16}):	1587.2	3.235
(D_{75} / D_{25}):	3.413	-13.594
(D_{75} - D_{25}):	769.1	1.771

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	29.0%
SAND:	98.0%	MEDIUM SAND:	27.0%
MUD:	2.0%	FINE SAND:	12.0%
		V FINE SAND:	2.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.3%
FINE GRAVEL:	0.0%	FINE SILT:	0.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.3%
V COARSE SAND:	28.0%	CLAY:	0.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{x}$)	630.9	317.8	0.956	589.9	0.761	Coarse Sand
SORTING (σ):	483.2	6.202	1.342	2.247	1.168	Poorly Sorted
SKEWNESS (Sk):	0.819	-2.240	1.849	-0.084	0.084	Symmetrical
KURTOSIS (K'):	2.794	7.408	9.029	0.835	0.835	Platykurtic

GRAIN SIZE DISTRIBUTION

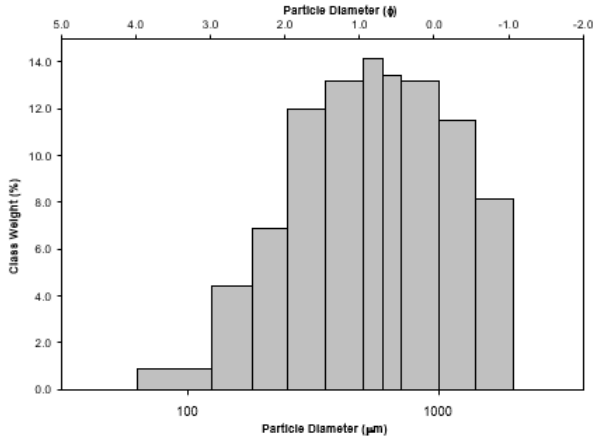


Figure 114. Grain size analysis results at sampling point S4

Aperture (µm)	% of retained material for each level
>2000	10
>1400	4
>1000	8
>710	10
>650	6
>500	8
>355	18
>250	16
>180	7
>125	4
>63	3
>0	6

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-5/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

	µm	ϕ
MODE 1:	427.5	1.247
MODE 2:		
MODE 3:		
D_{16}:	136.9	-1.000
MEDIAN or D_{50}:	463.4	1.110
D_{84}:	2000.0	2.868
(D_{84} / D_{16}):	14.61	-2.868
(D_{84} - D_{16}):	1863.1	3.868
(D_{75} / D_{25}):	3.235	12.43
(D_{75} - D_{25}):	623.4	1.694

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	24.0%
SAND:	94.0%	MEDIUM SAND:	34.0%
MUD:	6.0%	FINE SAND:	11.0%
		V FINE SAND:	3.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.0%
FINE GRAVEL:	0.0%	FINE SILT:	1.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.0%
V COARSE SAND:	22.0%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{X}$):	484.0	193.0	1.377	498.1	1.006	Medium Sand
SORTING (σ):	414.2	8.126	1.715	2.713	1.440	Poorly Sorted
SKEWNESS (Sk):	1.185	-1.638	1.966	-0.128	0.128	Fine Skewed
KURTOSIS (K'):	4.080	4.440	7.220	1.248	1.248	Leptokurtic

GRAIN SIZE DISTRIBUTION

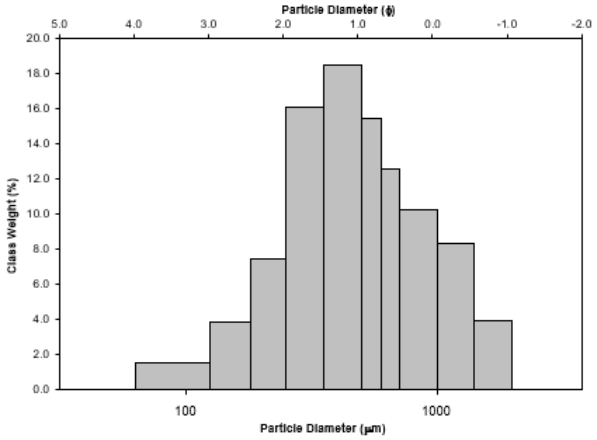


Figure 115. Grain size analysis results at sampling point S5

Aperture (µm)	% of retained material for each level
>2000	4
>1400	4
>1000	4
>710	3
>650	1
>500	2
>355	4
>250	6
>180	18
>125	17
>63	17
>0	20

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-6/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Fine Sand

	µm	ϕ
MODE 1:	215.0	2.237
MODE 2:	1200.0	-0.243
MODE 3:		
D_{16}:	15.69	-0.243
MEDIAN or D_{50}:	165.2	2.598
D_{84}:	1183.2	5.994
(D_{84} / D_{16}):	75.42	-24.697
(D_{84} - D_{16}):	1167.5	6.237
(D_{75} / D_{25}):	3.866	2.117
(D_{75} - D_{25}):	220.8	1.951

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	6.0%
SAND:	80.0%	MEDIUM SAND:	10.0%
MUD:	20.0%	FINE SAND:	35.0%
		V FINE SAND:	17.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.3%
FINE GRAVEL:	0.0%	FINE SILT:	3.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.3%
V COARSE SAND:	12.0%	CLAY:	3.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN($\bar{X}$):	281.5	94.36	3.007	153.0	2.708	Fine Sand
SORTING (σ):	391.2	6.013	2.298	4.613	2.206	Very Poorly Sorted
SKEWNESS (Sk):	2.444	-0.763	0.555	-0.100	0.100	Fine Skewed
KURTOSIS (K):	8.339	2.949	2.483	1.653	1.653	Very Leptokurtic

GRAIN SIZE DISTRIBUTION

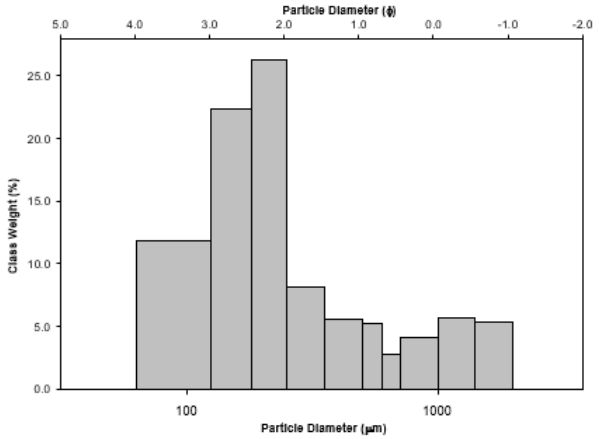


Figure 116. Grain size analysis results at sampling point S6

Aperture (µm)	% of retained material for each level
>2000	4
>1400	7
>1000	14
>710	19
>650	9
>500	12
>355	22
>250	5
>180	4
>125	2
>63	1
>0	1

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-7/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Moderately Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Moderately Sorted Coarse Sand

	µm	ϕ
MODE 1:	550.0	0.868
MODE 2:	855.0	0.247
MODE 3:		
D_{16}:	289.7	-0.625
MEDIAN or D_{50}:	640.6	0.643
D_{84}:	1542.3	1.788
(D_{84} / D_{16}):	5.324	-2.860
(D_{84} - D_{16}):	1252.6	2.413
(D_{75} / D_{25}):	2.370	-46.875
(D_{75} - D_{25}):	588.6	1.245

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	39.6%
SAND:	99.0%	MEDIUM SAND:	26.7%
MUD:	1.0%	FINE SAND:	5.9%
		V FINE SAND:	1.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.2%
FINE GRAVEL:	0.0%	FINE SILT:	0.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.2%
V COARSE SAND:	25.7%	CLAY:	0.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{x}$):	689.6	430.0	0.724	671.4	0.575	Coarse Sand
SORTING (σ):	427.5	4.753	1.048	1.929	0.948	Moderately Sorted
SKEWNESS (Sk):	0.707	-3.002	2.303	0.047	-0.047	Symmetrical
KURTOSIS (K'):	3.051	11.86	14.05	1.101	1.101	Mesokurtic

GRAIN SIZE DISTRIBUTION

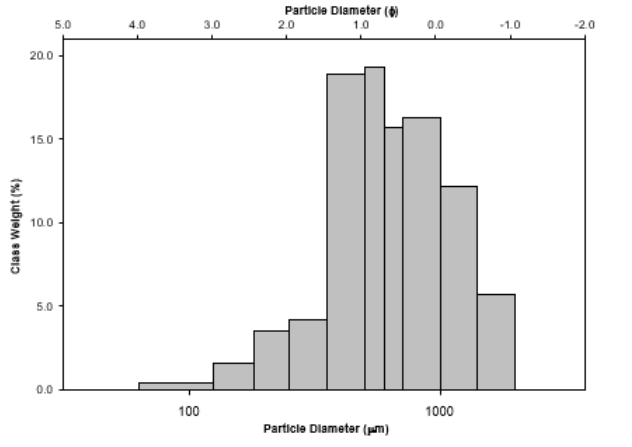


Figure 117. Grain size analysis results at sampling point S7

Aperture (µm)	% of retained material for each level
>2000	1
>1400	2
>1000	3
>710	4
>650	2
>500	3
>355	9
>250	16
>180	24
>125	13
>63	10
>0	13

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-8/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Fine Sand

	µm	ϕ
MODE 1:	215.0	2.237
MODE 2:		
MODE 3:		
D_{16}:	33.16	0.494
MEDIAN or D_{50}:	218.0	2.197
D_{84}:	710.0	4.914
(D_{84} / D_{16}):	21.41	9.946
(D_{84} - D_{16}):	676.8	4.420
(D_{75} / D_{25}):	2.627	1.913
(D_{75} - D_{25}):	215.1	1.393

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	9.0%
SAND:	87.0%	MEDIUM SAND:	25.0%
MUD:	13.0%	FINE SAND:	37.0%
		V FINE SAND:	10.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.2%
FINE GRAVEL:	0.0%	FINE SILT:	2.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.2%
V COARSE SAND:	6.0%	CLAY:	2.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN($\bar{x}$):	305.7	157.2	2.569	201.0	2.315	Fine Sand
SORTING (σ):	317.3	4.209	1.957	3.165	1.662	Poorly Sorted
SKEWNESS (Sk):	2.479	-1.302	1.158	-0.210	0.210	Fine Skewed
KURTOSIS (K'):	9.859	4.399	3.868	1.947	1.947	Very Leptokurtic

GRAIN SIZE DISTRIBUTION

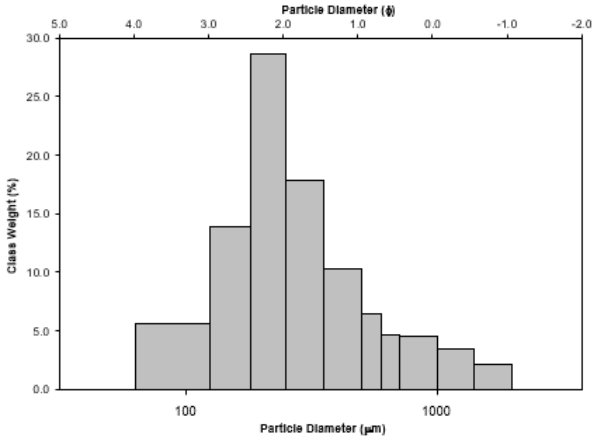


Figure 118. Grain size analysis results at sampling point S8

Aperture (µm)	% of retained material for each level
>2000	0
>1400	1
>1000	5
>710	19
>650	6
>500	8
>355	13
>250	9
>180	1
>125	2
>63	5
>0	31

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-9/ENE24** ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Coarse Sand

	µm	ϕ
MODE 1:	855.0	0.247
MODE 2:	550.0	0.868
MODE 3:		
D_{10}:	9.579	0.104
MEDIAN or D_{50}:	374.2	1.418
D_{90}:	930.4	6.706
(D_{90} / D_{10}):	97.14	64.47
(D_{90} - D_{10}):	920.9	6.602
(D_{75} / D_{25}):	19.30	9.643
(D_{75} - D_{25}):	673.2	4.271

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	33.0%
SAND:	69.1%	MEDIUM SAND:	22.0%
MUD:	30.9%	FINE SAND:	3.0%
		V FINE SAND:	5.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	5.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	5.2%
FINE GRAVEL:	0.0%	FINE SILT:	5.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	5.2%
V COARSE SAND:	6.0%	CLAY:	5.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{x}$):	425.4	136.5	2.873	172.4	2.536	Fine Sand
SORTING (σ):	377.5	7.367	2.881	5.841	2.546	Very Poorly Sorted
SKEWNESS (Sk):	0.717	-0.596	0.596	-0.592	0.592	Very Fine Skewed
KURTOSIS (K):	2.918	1.579	1.579	0.715	0.715	Platykurtic

GRAIN SIZE DISTRIBUTION

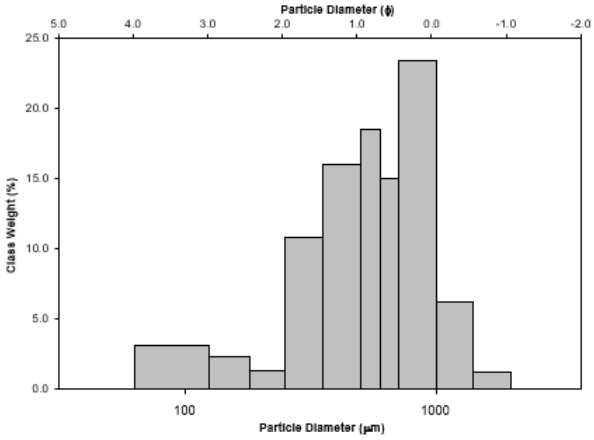


Figure 119. Grain size analysis results at sampling point S9

Aperture (µm)	% of retained material for each level
>2000	0
>1400	0
>1000	1
>710	2
>650	2
>500	6
>355	9
>250	14
>180	5
>125	7
>63	14
>0	40

SAMPLE STATISTICS

SAMPLE IDENTITY: **LUANDA/S-10/ENE24** ANALYST & DATE: ,
SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Muddy Sand
SEDIMENT NAME: Coarse Silty Medium Sand

	µm	ϕ
MODE 1:	302.5	1.747
MODE 2:	550.0	0.868
MODE 3:	94.00	3.494
D_{16}:	7.828	0.956
MEDIAN or D_{50}:	102.8	3.282
D_{84}:	515.4	6.997
(D_{84} / D_{16}):	65.84	7.318
(D_{84} - D_{16}):	507.6	6.041
(D_{75} / D_{25}):	14.10	3.280
(D_{75} - D_{25}):	291.0	3.818

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	10.0%
SAND:	60.1%	MEDIUM SAND:	23.0%
MUD:	39.9%	FINE SAND:	12.0%
		V FINE SAND:	14.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	6.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	6.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.7%
FINE GRAVEL:	0.0%	FINE SILT:	6.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	6.7%
V COARSE SAND:	1.0%	CLAY:	6.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	µm	µm	ϕ	µm	ϕ	
MEAN ($\bar{X}$):	203.4	61.89	4.014	79.62	3.651	Very Fine Sand
SORTING (σ):	221.9	5.903	2.561	4.941	2.305	Very Poorly Sorted
SKEWNESS (Sk):	1.714	-0.126	0.126	-0.231	0.231	Fine Skewed
KURTOSIS (K'):	6.511	1.326	1.326	0.726	0.726	Platykurtic

GRAIN SIZE DISTRIBUTION

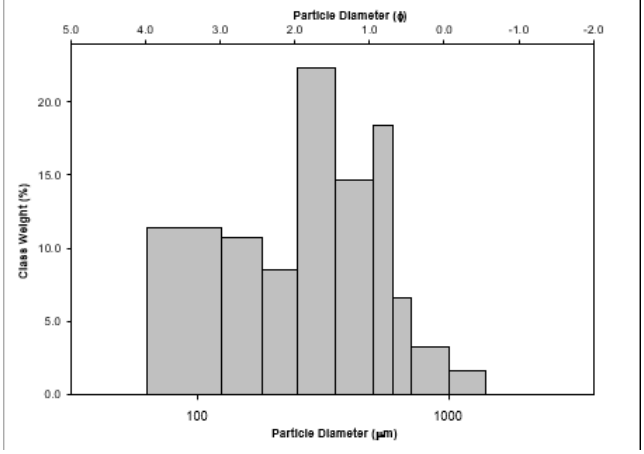


Figure 120. Grain size analysis results at sampling point S10

d. Detailed interpretations of the environmental baseline findings against regulatory environmental standards and IFC PS

General considerations

When evaluating the results obtained during the sediment quality campaign, it is customary to consider the relevant local environmental quality regulations, which typically classify different areas based on their use or geographical characteristics. These classifications commonly include:

- Port areas
- Confined bodies of water (with high or low renewal)
- Near-shore waters
- Bathing waters
- Deep waters

Once the applicable environmental quality standards for the study area have been identified, the results of the analyzed parameters are compared against each standard.

Currently, Angola does not have any local regulations specifying sediment quality criteria to assess the results obtained in this campaign. However, as previously mentioned in this document, an international document published by the World Bank Group outlines the parameters that must be closely monitored when assessing the potential impacts of activities within a port. This document, titled "*Environmental, Health, And Safety Guidelines for Ports, Harbors, and Terminals*," specifies the parameters to monitor and the potential environmental implications of their alteration.

The following table presents the parameters analyzed in this survey, associated with those suggested in Table 1 of the EHS document mentioned above. Additionally, limit values provided by reference sources established by IFC standards are included in this table.

As stated in the Toxicant Default Guideline Values for sediment quality published by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, as per the DGVs for toxicants in water, the sediment DGVs indicate the concentrations below which there is a low risk of unacceptable effects occurring, and should be used, with other lines of evidence, to protect aquatic ecosystems. In contrast, the 'upper' guideline values (GV-high), also listed in the following table, provide an indication of concentrations at which it might already be expected to observe toxicity-related adverse effects. As such, the GV-high value should only be used as an indicator of potential high-level toxicity problems, not as a guideline value to ensure protection of ecosystems.

Parameter	Correspondence with the EHS table 1 of references	International recommendations and guidelines considered in IFC standards[1]
Color, odor, and redox potential (in situ)	Other site-specific parameters	-
Sulfur derivatives (i.e. sulfites)	Other site-specific parameters	-
Total Organic Carbon (TOC)	Condition of biological communities (Other site-specific parameters for sediments)	Between 0.2% and 10.0 %,

Parameter	Correspondence with the EHS table 1 of references	International recommendations and guidelines considered in IFC standards[1]
Hydrocarbons (Total Petroleum Hydrocarbons (TPH)	Organics	TPHs: DGV:280; GV-high 550 (mg/kg dry weight)
Total Polycyclic Aromatic Hydrocarbons (PAHs)	Aromatic Hydrocarbons (Other site-specific parameter for sediments)	Total PAHs (µg/kg dry weight, 1% OC): DGV: 10,000 GV-high: 50,000 (The DGV and GV-high values for total PAHs (sum of PAHs) include the 18 parent PAHs)
Volatile Organic Compounds (VOCs)	Organics	-
Total Polychlorinated Biphenyls (PCBs)	Organochlorine (other site-specific parameter for sediments)	Total PCBs (µg/kg dry weight, 1% OC): DGV: 34 GV-high: 280
Mineral oils (Oils, Fats and Total Hydrocarbons)	Organics	-
Nutrients – Total Nitrogen	Total Nitrogen (Other site-specific parameters for sediments)	-
Nutrients – Total Phosphorus	Total Phosphorus (Other site-specific parameters for sediments)	-
Nutrients – Organic Matter	Condition of biological communities (Other site-specific parameters for sediments)	-
Grain Size Distribution	Other site-specific parameters	-
Metals and heavy metals: Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr y Zn	Metals and metalloids	Refer to Table 57
[1]Australian and New Zealand Guidelines for Fresh and Marine Water Quality (https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/sediment-quality-toxicants)		

Table 56. International recommendations for parameters indicated in IFC EHS Guidelines

Metal (mg/kg dry weight)	DGV	GV-high
Al	-	-
Cd	1.5	10
Cr	80	370
Cu	65	270
Fe	-	-
Hg	0.15	1.0
Ni	21	52
Mg	-	-
Mn	-	-
Pb	50	220
Zn	200	410

Table 57. Toxicant default values available from New Zealand Guidelines.

Due to the limited references concerning concentration levels within the guidelines suggested by the EHS Guidelines for Ports, Harbors, and Terminals, the TYPSA-elittoral team has broadened the scope of references to include those aligned with European frameworks.

Specifically, the 2000/60/EC directive of the European Parliament and of the Council of October 23, 2000, known as the Water Framework Directive, released on December 22, 2000, aims to establish a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater. This directive aims to (a) prevent further deterioration and protect and enhance the status of aquatic ecosystems, (b) promote sustainable water use based on long-term protection of available water resources, (c) enhance protection and improvement of the aquatic environment, (d) ensure the progressive reduction of pollution of groundwater and prevent its further pollution, and (e) contribute to mitigating the effects of floods and droughts.

International directives such as this one serve as guides to ensure that the legislation of each member state consistently follows the same trends and can be compared with each other. Within the guidelines concerning the control of marine waters in ports and harbors, developed in alignment with the 2000/60/EC Water Framework Directive, those developed by Spain, a country with 46 ports of general interest, are considered a reference for improving the quality of assessment of the parameters considered in this study.

In Spain, "Puertos del Estado," as a member of the International Maritime Organization (IMO), is responsible for translating this comprehensive directive and adapting it to the specific needs of the Spanish territory.

The need to establish standardized operational protocols in maritime engineering in Spain has led to the development of the ROM (Recomendaciones de Obras Marítimas – Maritime Works Recommendations) Program. The establishment of the Technical Commission, responsible for its development in 1987, laid the foundation for a series of technical standards that establish execution procedures, methods, and criteria in maritime and port works executed in state-owned ports.

Among these, Series 5, "*Maritime and Port Works in the Coastal Environment*," covers recommendations aimed at the development of Environmental Impact Studies (ROM 5.0), Coastal Maritime and Port Works (ROM 5.2), Dredging and Filling (ROM 5.3), and the development of this document: ROM 5.1, Coastal Water Quality in Port Areas. Within this framework, ROM 5.1-13 "*Quality of coastal waters in port areas*" was first published in 2005 to address the problems associated with port water within the spirit and principles established by the EU Water Framework Directive (2000/60/EC).

In addition, "Royal Decree 817/2015, dated September 11, 2015, which establishes the criteria for monitoring and evaluating the state of surface waters and environmental quality standards, BOE-A-2015-9806" of the Ministry of Agriculture, Food, and the Environment, has been taken into account.

In order to protect the waters of the territory, the royal decree establishes environmental quality standards (EQS) for priority substances and other pollutants to achieve a good chemical status of surface waters, mainly and sediments. Additionally, it establishes the reference conditions and the limits of the status classes for indicators of biological, physicochemical, and hydro morphological quality.

Specifically, Annex II "Reference Conditions, Maximum Ecological Potential and State Class Limits" section F, "Transitional and coastal waters greatly modified by the presence of ports," establishes a series of limit

values that allow the ecological potential of waters to be categorized according to the type of port that alters them.

It should be noted that the classification of ports in this royal decree was carried out after evaluating the socio-economic, geographical, environmental, and operational characteristics of the Spanish ports. Each factor was assigned an index that was subsequently used to establish the classification.

Based on the premise that these indexes cannot be used in the same way in Spain as in Angola, a classification has been assigned to the Angolan harbor (based on the literature review) that best represents it. It has been decided to classify the area as an Atlantic coastal area of low renewal.

The aim of these documents, which encompass legislative, methodological, and technological aspects, is to serve as a foundational document in the planning and development of management systems for port water quality. This document establishes the criteria for assigning sampling stations, the analyses to be conducted, and the international standards to be followed (UNE-EN ISO 13395:1997, UNE-EN ISO 11732:2005, UNE-EN ISO 15681-2:2005, and others), as well as the Environmental Quality Standards (EQS) established for each parameter and the classification of water bodies.

Parameter	Correspondence with the EHS table 1 of references	Average concentration (in 1 year campaign)	Maximum Allowed Concentration in heavily modified waters	RD 817/15 Ecological potential limits
Color, odor, and redox potential (in situ)	Other site-specific parameters	-	-	
Sulfur derivatives (i.e. sulfites)	Other site-specific parameters	-	-	
Total Organic Carbon (TOC)	Condition of biological communities (Other site-specific parameters for sediments)	0.6-5.8%	-	Up to 0.6% for maximum ecological potential, up to 4% for good and >5.8% for deficient
Hydrocarbons (Total Petroleum Hydrocarbons (TPH)	Organics	-	-	
Total Polycyclic Aromatic Hydrocarbons (PAHs)	Aromatic Hydrocarbons (Other site-specific parameter for sediments)	-	-	
Volatile Organic Compounds (VOCs)	Organics	-	-	
Total Polychlorinated Biphenyls (PCBs)	Organochlorine (other site-specific parameter for sediments)	-	-	
Mineral oils (Oils, Fats and Total Hydrocarbons)	Organics	-	-	
Nutrients – Total Nitrogen	Total Nitrogen (Other site-specific parameters for sediments)	600-3600 mg/Kg (0.06%-0.36%)	-	
Nutrients – Total Phosphorus	Total Phosphorus (Other site-specific parameters for sediments)	500-1200 mg/Kg (0.05%-0.12%)	-	Up to 0.03% for maximum ecological potential, up to 0.08% for good and >0.12% for deficient

Parameter	Correspondence with the EHS table 1 of references	Average concentration (in 1 year campaign)	Maximum Allowed Concentration in heavily modified waters	RD 817/15 Ecological potential limits
Nutrients – Organic Matter	Condition of biological communities (Other site-specific parameters for sediments)	-	-	
Grain Size Distribution	Other site-specific parameters	-	-	
Metals and heavy metals: Fe, Pb, Cu, Cd, Ni, Al, Mg, Mn, Hg, Cr y Zn	Metals and metalloids	-	-	

Table 58. Environmental quality standards

Taking into account the Environmental Quality Standards outlined in the Spanish ROM 5.1-13 and the International Recommendations and Guidelines specified in IFC standards, the TYPSA-elittoral team will evaluate the parameters measured in this study. These results can serve as a baseline against which to compare any potential alterations detected during the monitoring campaigns conducted throughout the execution of the Unicargas project, aiming to monitor the potential effects of these activities on the area.

Chemical parameters

Several parameters have resulted in values lower than the detection limit of the analytical method. This applies to the following parameters: VOCs (except for Trichloroethylene), PCB 28, PCB 52. Since the concentrations are below the detection limit, an assessment of these substances cannot be conducted. In any case, the fact that the concentrations of these parameters are below the detection limit of accredited methodologies implies that the levels in the environment are low, so they should not pose risks within the scope of the project.

In this regard, some of these parameters (PCBs) have thresholds of values set by the international recommendations and guidelines considered in IFC standards. The limits set to evaluate PCBs are based on total PCBs (∑ of the individual PCBs at each station). As established in the regulatory documents, half of the quantification limit will be used for those substances that do not exceed it. So, when calculating the total number of PCBs at each station, this criterion will be used.

- Redox Potential: Positive oxidation-reduction values ranging from 20 to 90 mV have been observed at sampling stations 1 to 9, indicating oxidizing substrates with the presence of oxygen. Conversely, a value of -160 mV has been recorded at sampling station 10, indicating a reducing seabed with no presence of oxygen.

  As there are no reference environmental quality standards specified in IFC standards for these parameters, these values will serve as a basis for future comparisons.
- PAHs: Australian guidelines state that *For sediments with 0.2 to 10.0% OC (dry weight), normalizing the measured HOC concentration to 1% OC is undertaken by dividing the measured HOC concentration by the measured percent OC*. Below is a table in which the normalized value of the PAHs has been calculated based on the field results and the station's % of OC to assess the results against the limits established in the guidelines.

Station	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
∑PAHs	0.212	0.052	393	391	328	0.316	<0.01	<0.01	269	149
OC	0.5	0.5	3	2.6	2.5	3	0.5	0.5	2.8	1.5
Normalized PAHs	0.42	0.10	131	150	131	0.11	<0.01	<0.01	96.1	99.3

Table 59. Normalized total PAHs (1% OC)

PAHs have a normalized DGV at 1% OC of 10,000 µg/kg dry weight. In the case of the sampling stations analyzed in this report, none of them exceeds this level since the highest values (150 µg/kg dry weight) are found in station 4 and the lowest in stations 7 and 8, where the limit of quantification of the analytical method established at 0.01 µg/kg dry weight was not even exceeded. Therefore, it could be concluded that the entire area complies with the limits established in the guidelines.

- VOCs: Of the 19 compounds analyzed belonging to this family, 18 presented results below the detection limit of the analytical method. Additionally, no limits set by the international recommendations and guidelines considered in IFC standards have been found to assess these results. In the case of trichloroethylene, concentrations above the detection limit have been detected in some of the sampling stations. Among these positive values, the highest, 463 mg/kg, was detected at station 5, and the lowest concentration, 144 mg/kg, at station 10. Since there are no reference values associated with the IFC guidelines, it is not possible to make a further assessment of these results. However, they can be assumed as reference baseline values against which to assess progression in future analyses.
- PCBs: Australian guidelines state that *For sediments with 0.2 to 10.0% OC (dry weight), normalizing the measured HOC concentration to 1% OC is undertaken by dividing the measured HOC concentration by the measured percent OC*. Below is a table in which the normalized value of the PCBs has been calculated based on the field results and the station's % of OC to assess the results against the limits established in the guidelines.

Station	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
∑PCBs	<0.001	<0.001	13.3	13.8	17	0.0119	<0.001	0.007	11.3	2.4
OC	0.5	0.5	3	2.6	2.5	3	0.5	0.5	2.8	1.5
Normalized PCBs	<0.001	<0.001	4.4333	5.3077	6.8000	0.0040	<0.001	0.0140	4.0357	1.6000

Table 60. Normalized total PCBs (1% OC)

PCBs have a normalized DGV at 1% OC of 34 µg/kg dry weight. In the case of the sampling stations analyzed in this report, none of them exceeds this level since the highest values (6.8 µg/kg dry weight) are found in station 5 and the lowest in stations 1, 2, and 7, where the limit of quantification of the analytical method established at 0.001 µg/kg dry weight was not even exceeded. Therefore, it could be concluded that the entire area complies with the limits established in the guidelines.

- Metals: **Cadmium** has a concentration range from 0.9 mg/kg (station 2) to 1.6 mg/kg (station 9). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 10 mg/kg. Therefore, it would be compliant with these rules.
  Chromium has a concentration range from 4 mg/kg (station 2) to 217 mg/kg (station 5). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 370 mg/kg. Therefore, it would be compliant with these rules.

Copper has a concentration range from 2 mg/kg (stations 2 and 7) to 137 mg/kg (station 5). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 270 mg/kg. Therefore, it would be compliant with these rules.
Lead has a concentration range from 4 mg/kg (station 7) to 113 mg/kg (station 5). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 220 mg/kg. Therefore, it would be compliant with these rules.
Nickel has a concentration range from <3 mg/kg (stations 2, 7 & 8) to 69 mg/kg (station 5). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 52 mg/kg. Therefore, it would be compliant with the requirements of these rules at all sampling stations except for station 5, where the permitted limits would be exceeded.
Mercury has a concentration range from 0.08 mg/kg (station 10) to 0.14 mg/kg (stations 3 and 6). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 1 mg/kg. Therefore, it would be compliant with these rules.
Zinc has a concentration range from 12 mg/kg (station 10) to 463 mg/kg (station 5). This parameter has a GV-high set by the international recommendations and guidelines considered in IFC standards, of 410 mg/kg. Therefore, it would be compliant with the requirements of these rules at all sampling stations except for station 5, where the permitted limits would be exceeded.

Additionally, metals such as:

- Aluminum: With values ranging from 2118 mg/kg (station 2) to 124000 mg/kg (station 5).
- Manganese: With values ranging from 9 mg/kg (station 2) to 288 mg/kg (station 5).
- Magnesium: With values ranging from 376 mg/kg (station 2) to 24650 mg/kg (station 5).
- Iron: With values ranging from 2118 mg/kg (station 2) to 124000 mg/kg (station 5).

have no limits established by the international recommendations and guidelines considered in IFC standards. The values recorded for these metals, as well as those recorded for metals that do have limits established by the international recommendations and guidelines considered in IFC standards, will be taken as reference values against which to assess future measurements.

- Oils, fats and hydrocarbons: Oils, fats, and hydrocarbons do not have limits established by the international recommendations and guidelines considered in IFC standards against which to assess, but a gradient in concentrations has been observed throughout the work area.
  In the deepest stations 8, 9, and 10, where the bottom material is finer, the highest presence of these substances has been detected, with maximum concentrations of 949 mg/kg of oils and fats and 705 mg/kg of hydrocarbons (station 9). In the stations where the bottom is composed of medium sands (1, 2, 3, and 5), the concentrations recorded have been slightly lower, with maximum values of 167 mg/kg for oils and fats and 104 mg/kg for hydrocarbons (station 5).
  Finally, in the stations whose floors are composed of coarser materials, 7 and 4, the concentrations detected have been the lowest, not exceeding the limit of quantification of the analytical method (50 mg/kg at station 7).
- Nutrients: Total Organic Carbon (TOC) has a concentration range of 1.5% (station 10) to 3% (stations 3 and 6). This parameter has a range established by the international recommendations and guidelines considered in IFC standards, which spans from 0.6% to 5.8%. Therefore, it would be compliant with the requirements of these rules.

Total Phosphorus has a concentration range of 0.007% (station 2) to 0.2% (station 5). According to the class limits established in the Spanish Royal Decree 817/15, any level above 0.12% classifies that area with a deficient ecological potential. Therefore, the values recorded in this sampling would include the area in this classification.
Total Nitrogen has a concentration range of 0.12% (station 9) to 0.34% (station 4). According to the class limits established in the Spanish Royal Decree 817/15, any level below 0.36% classifies that area with a moderated ecological potential. Therefore, the values recorded in this sampling would include the area in this classification.
Additionally, nutrients such as Total Organic Matter, with values ranging from 0.7% (station 2) to 27% (station 9), have no limits established by the international recommendations and guidelines considered in IFC standards. As observed in the videos recorded in the study area, there is a high presence of garbage, both on the surface and at the bottom of the dock. This may indicate that part of the runoff caused by rain ends up in the port area, accumulating a large amount of biological material of anthropogenic origin that could account for the levels of nutrients detected. The values recorded for these nutrients, as well as those recorded for nutrients that do have limits established by the international recommendations and guidelines considered in IFC standards, will be taken as reference values against which to assess future measurements.

Physical parameters

There are no international recommendations and guidelines considered in IFC standards against which to compare the granulometric distribution of the sediment samples analyzed in this report. Therefore, the discussion regarding the results obtained, which is carried out below, will be used as a baseline to study the future evolution of this parameter in the area.

Stations 6, 8, 9 and 10 can be classified according to the *Folk and Ward method* as fine and very sandy, as most of the material composing them falls within these categories.

Stations 1, 2, 3, and 5 can be classified according to the *Folk and Ward method* as medium sands since the material composing them falls within the grain size which determines that category.

Finally, stations 4 and 7 can be classified according to the *Folk and Ward method* as coarse sands, as the percentage of material belonging to this range of sizes is categorizing the samples from these stations.

From these results, a slight distribution gradient is detected, with medium materials located in the areas closest to the dock, finer materials in the deepest stations, and coarser materials in the central range of the sampling area.

e. Main conclusions

According to the Australian guidelines recommended by EHS, the values of Cr, Cu, Cd, Hg, and Pb remain within the specified range at all stations. However, at station 5, the values of Zn exceed the range established in the guidelines, while 9 out of the 10 stations remain within the specified range.

The total concentrations of the analyzed PCBs, VOCs, and PAHs, which are subject to international recommendations and guidelines considered in IFC standards, remain within the acceptable range at all stations. In this regard, the normalized total PCBs, TPHs, and PAHs comply with the limits established in the Australian guidelines across the entire area.

Regarding nutrients, concerning TOC, the values recorded in all stations would fall within the range established by Australian standards, never being less than 0.2% or exceeding 10% in any sampling station.

According to the Spanish Royal Decree 817/15, the concentration of total nitrogen and phosphorus has been evaluated. Based on the results, the work area has been assigned a moderate to deficient ecological potential since the recorded concentrations of these values exceeded the limits for more favorable ecological potentials.

Regarding ROM 5.1-13, TOC is the only parameter subject to an environmental quality standard, and it remains below the quantification limit in all the stations.

Finally, as mentioned in the section corresponding to the quality of marine waters, it is important to highlight that the main purpose of these analyses is to establish the existing baseline in the water quality of the port, serving as a reference to monitor that the construction works, and subsequent operation of the terminal do not increase the existing pollutants in the environment. The comparison with IFC standards also serves to monitor in a special way those parameters that are currently outside the range of the corresponding guidelines.

f. Identification of communities or groups that can be affected by the project

The quality of marine sediment is crucial for both sessile and mobile benthic species, as it serves as the environment where various ecosystems are formed. Additionally, sediment acts as a bio accumulator matrix for many water parameters or anthropogenic discharges from the surface. Analyzing parameters that currently yield values capable of altering local ecosystems is essential for understanding their biodiversity and analyzing potential future changes. As expected in a port, we have detected the following parameters of note:

- The redox potential indicates that it is an area with little oxygenation (as we have already observed in the analysis of water quality), which limits the proliferation of large and mobile benthic species to some extent. This is why the observed individuals belong to sessile species with little oxygen demand.
- Levels above the limit of quantification have also been detected in metals. The presence of metals in high concentrations limits the proliferation of benthic organisms that are more sensitive or require less contaminated conditions.
- Finally, as expected, compounds derived from port activity, such as fats, oil, PAHs, TPHs, and PCBs, have been detected. These could become limiting factors in creating different benthic ecosystems.

It should also be noted that these results will be considered representative of the area's average value, as no prior monitoring has been conducted. However, given the high level of anthropogenic activity and the elevated risk of occasional spills or contamination, these parameters may fluctuate intermittently.

10.3. Biodiversity baseline conditions

This study includes both a bibliographical review and a complete and diversified fieldwork carried out by elittoral to determine the baseline conditions of biodiversity in the project area. To address this assessment, different campaigns have been carried out to obtain global information to identify the seabirds, marine mammals, fish and marine invertebrates present in the project area.

10.3.1. Protected Areas

The project is located outside of protected areas or spaces designated with any classification of protection according to national or international criteria.

National Parks

The renowned Kissama National Park (Quiçama) offers a vast expanse of wilderness, providing refuge for a diverse range of wildlife, from majestic elephants and big cats to an abundance of bird species. It is located approximately 39 km from the project area. Figure below displays the protected areas in the vicinity, along with the project area (red polygon).

The map has been obtained from Imagery Layer by UNEP_WCMC_Data_Publisher, that was created on June 16, 2022 and updated on January 7, 2024.

Figure 121. Protected areas in the vicinity of the project reported from UNEP-WCMC Website.

Important Bird Areas (IBAs)

There are two Important Bird Areas (IBAs) in the vicinity of the project, **Quiçama** and **Mussulo**, where a significant number of birds can be observed and whose boundaries coincide with the KBAs of the same name described in the previous section.

Similarly to what has been mentioned above, the Quiçama IBA is located approximately 40 km from the project area, while Mussulo IBA, is located about 11 km away.

In the case of the Quiçama IBA, 186 species have been observed, of which 68 are seabirds (47% of all seabird species in Angola).

Figure 122. Mussulo and Quiçama IBA Area. Source: BirdLife Data Zone

The Mussulo IBA is of particular interest as a conservation area for seabirds, hosting a total of 61 species of seabirds (42% of the total seabird species in Angola). Among them, there are two key species (also found in Quiçama), due to their protected status. These species are *Morus capensis* and *Sterna balaenarum*.

The *Morus capensis* (known as the Cape Gannet) is a seabird that is listed as Endangered on the IUCN Red List. Gannets begin nesting in August, incubating single eggs during September and October. Chicks are raised until March, after which they leave the nesting grounds in large numbers. Little is known about the extent of movement of these birds during the non-breeding months of May, June, and July, but they have been reported in the low latitudes of the west coast during these months.

Sterna balaenarum is a rare, near-endemic breeder along the southwestern coast of Africa. Found predominantly in Namibia, population surveys in the northern Namib Desert have recently estimated that 12000 adults exist. In Angola, it has a lesser presence than in Namibia. The breeding season for this species is primarily in December, extending possibly until February.

10.3.2. Habitats

It is important to analyze the area in which the project will be developed, and the type of habitats present in it. The figure below shows the terrestrial habitat types, as defined in the International Union of Conservation of Nature (IUCN) habitat classification scheme, which is widely used in ecological analyses, including for assessing species´ Area of Habitat.

Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. For the purposes of implementation of IFC Performance Standard 6, habitats are divided into modified, natural, and critical. Critical habitats are a subset of modified or natural habitats.

The map has been obtained from Imagery Layer by UNEP_WCMC_Data_Publisher, that was created on July 16, 2021, and updated on January 24, 2023.

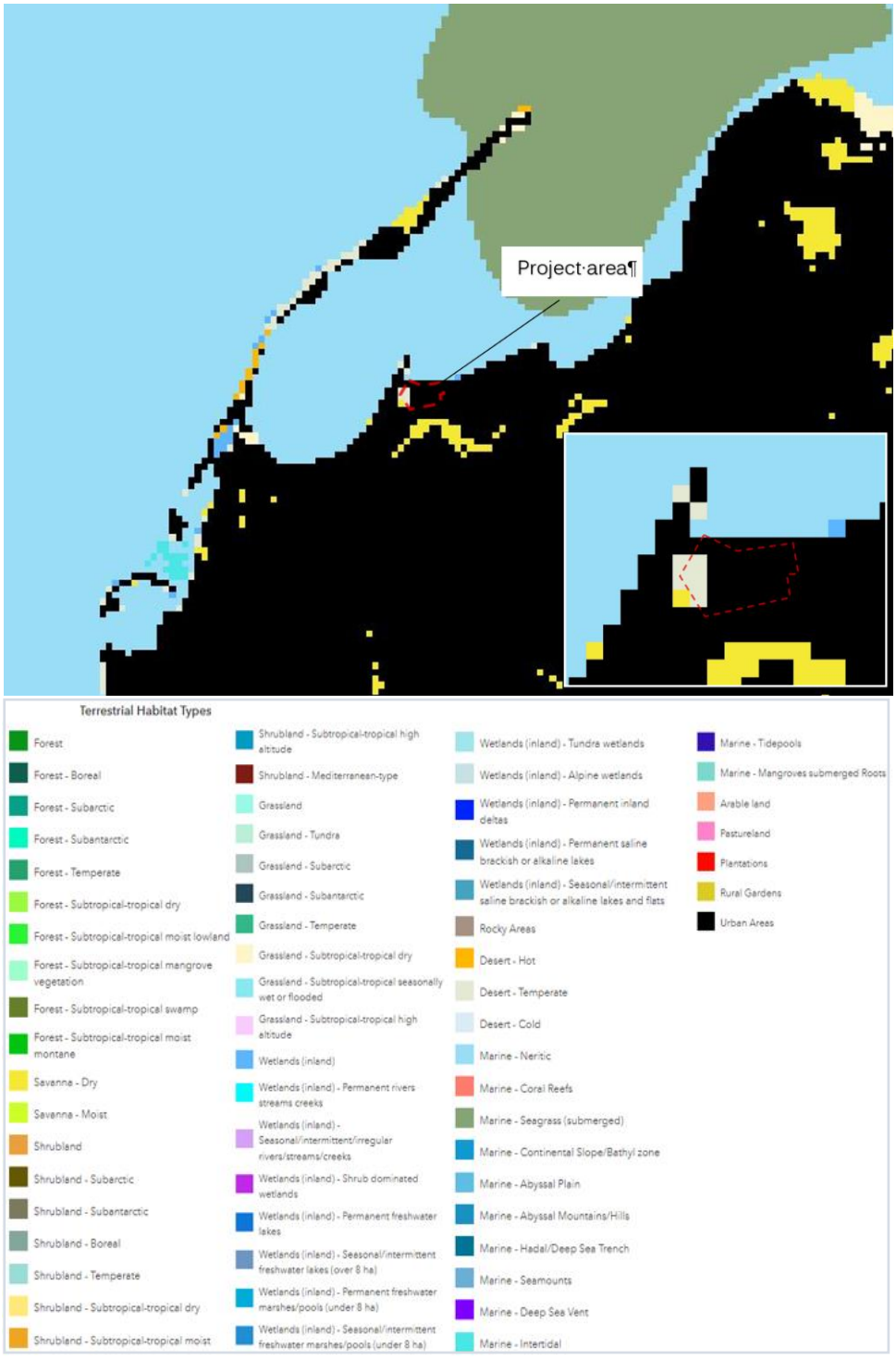


Figure 123. Terrestrial Habitat types. UNEP WCMC-Website

As can be observed on the previous map, the majority of the land where the project will be implemented is classified as *Urban Area* under the IUCN classification.

According to IUCN Habitats Classification Scheme version 3.1 (December 2012), urban areas are usually metropolitan and commercial areas dominated by asphalt, concrete and roofs. Including lawns and parks.

According to IUCN-CMP Unified Classification of Direct Threats, version 3.3 (December 2022), an urban area is defined as human cities, towns, and settlements including non-housing development typically integrated

with housing. This category obviously dovetails somewhat arbitrarily with 1.2 Commercial and Industrial Areas. As a general rule, however, if people live in the development, it should fall into this category.

In addition, to a much lesser extent, as shown in the Figure 123 the *Temperate Desert* and *Dry Savanna* habitats are also found in the project area.

Critical Habitats

The International Finance Corporation's (IFC's) Performance Standard 6 (PS6) is one of the most influential biodiversity standards of the current time, particularly within large-scale infrastructure and the extractive sector. Within PS6, biodiversity significance is articulated through the concept of "Critical Habitat," a definition developed by the IFC and detailed through criteria aligned with those that support internationally accepted biodiversity designations. Critical Habitat criteria identify habitats of significant importance to threatened, endemic, congregatory and migratory species, threatened or unique ecosystems, and key evolutionary processes. PS6 requires projects to achieve net gains in the biodiversity values for which Critical Habitat is identified.

The map shown in the following figure has been obtained from Imagery Layer by UNEP_WCMC_Data_Publisher, that was created on December 11, 2023, and updated on December 15, 2023.This screening layer shows the global spatial distribution of likely or potential Critical Habitat, as defined by the International Finance Corporation's Performance Standard 6 (IFC PS6) criteria. The raster layer attributes each grid cell as likely or potential Critical Habitat, or unclassified based on a classification scheme reflecting biodiversity data layer alignment with IFC-PS6 Critical Habitat criteria/scenarios and inherent degree of certainty (in terms of presence on the ground).

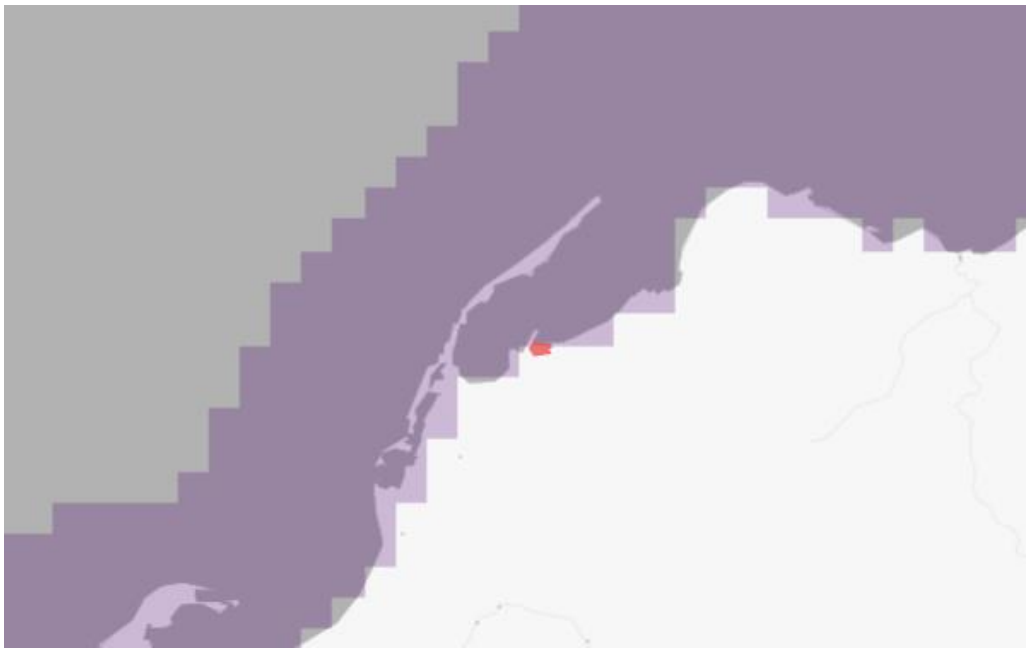


Figure 124. Critical Habitat in the vicinity of the project. UNEP WCMC-Website

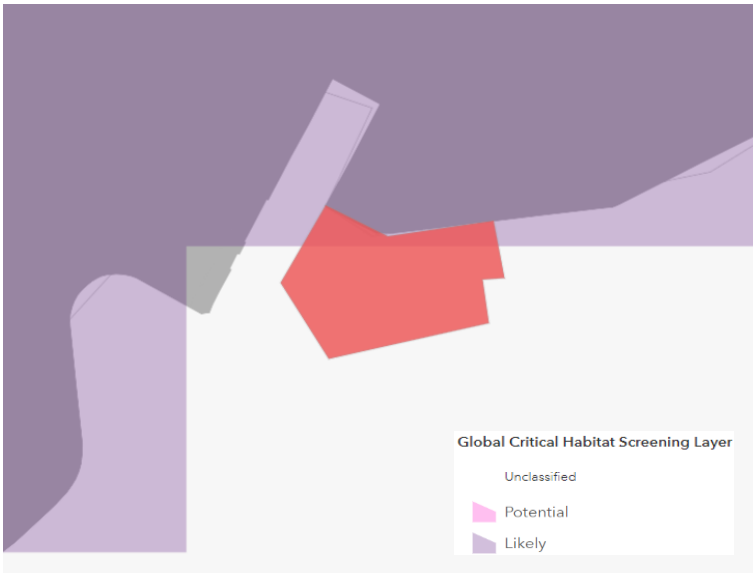


Figure 125. Critical Habitat in the vicinity of the project (Detail of the project site). UNEP WCMC-Website

In the project area, the zone closest to the coast is classified as a Likely Critical Habitat. Regarding International Finance Corporation (IFC) standards, a "Likely Critical Habitat" designation typically refers to an area that is identified as having a high probability of being a critical habitat for certain species or ecosystems. This designation suggests that the area may meet the criteria for critical habitat designation, but there may be some uncertainty or insufficient evidence to confirm its status definitively.

In the context of International Finance Corporation (IFC) standards, the differences between a "Likely Critical Habitat" and a "Potential Critical Habitat" lie in the level of certainty and evidence regarding their ecological significance. A "Likely Critical Habitat" designation suggests that there is a reasonable probability or likelihood that the area in question is a critical habitat for certain species or ecosystems, while a "Potential Critical Habitat" designation indicates a strong possibility but may have less certainty or evidence supporting its ecological significance.

In any case, it should be noted that the area where the project is being developed is an already established port zone, where numerous terminals of the Port of Luanda are in operation, and the projected works in no case contemplate extending the area of occupation of the current terminal.

Natural and Modified Habitats

Another output that can be used and could be integrated into the investment decision-making of global and regional banks, or the decision-making of international corporations is the dataset regarding Natural and Modified Habitat. This dataset uses a combination of data layers to develop a new global layer that identifies natural and modified habitat. It is aligned with the definitions of natural and modified habitat from the highly influential Performance Standard 6 (PS6) of the International Finance Corporation (IFC). A global layer of habitat state, which is aligned with the definitions of Natural and Modified Habitats according to IFC PS6, can be used by businesses in the early stages of project development, by highlighting areas of potential or likely Natural and Modified Habitat. It can be used at a landscape scale, due to the resolution and precision of the underlying data. It provides an overview of the state of habitat in the surrounding area.

The information provided by the delineation of potentially or likely natural or modified areas constitutes support for assessing information related to other parameters and aspects to be analyzed, such as the case of vegetation and fauna data that have not been updated for years.

As can be seen in the figure below, the project is located in areas classified as Potential Modified, particularly in the vicinity of the coast, and Likely Modified. It is important to note that this screening layer may overestimate the amount of remaining Natural Habitat for two reasons. The first is that a precautionary approach is taken when designating pixels of a Natural or Modified value. Where there was disagreement between a Natural and Modified dataset for a given pixel, the precautionary approach was to designate it as a Natural pixel (depending on whether the datasets were classified as likely or potential). The second is that not all aspects of human modification could be included because of data limitations.

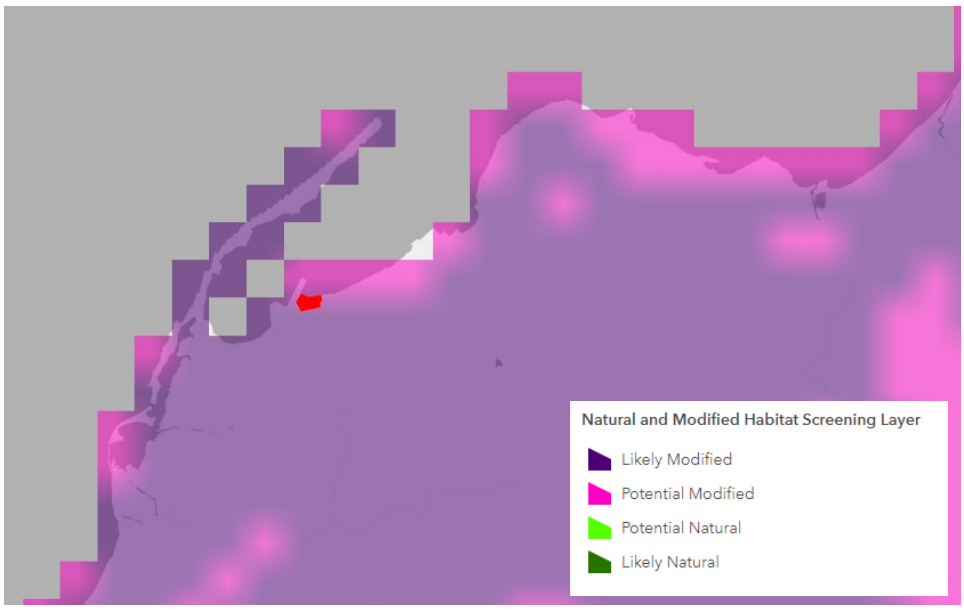


Figure 126. Natural and Modified Habitats. UNEP WCMC-Website

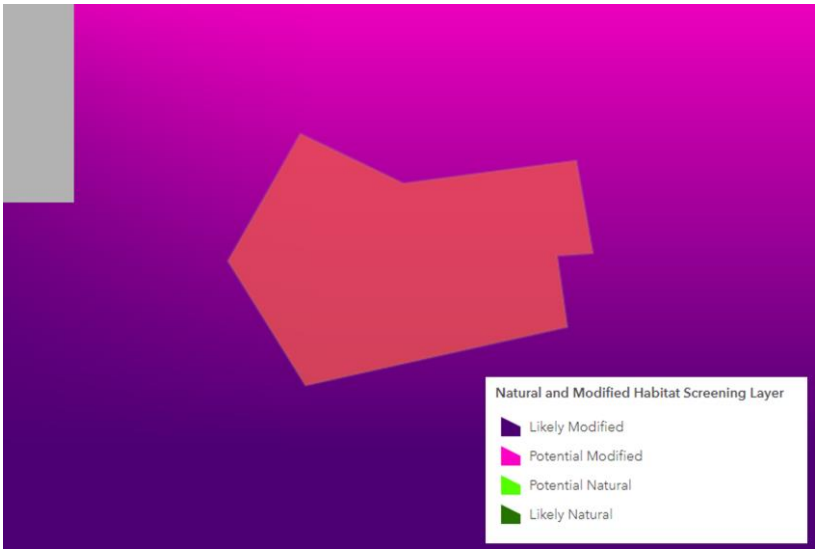


Figure 127. Natural and Modified Habitats (Detail of the project site). UNEP WCMC-Website

As discussed in previous sections, although as shown in the figures a part of the project is located in a Potential Modified area, the Unicargas Terminal project is currently located in a fully urbanized area within the Port of Luanda, so it is considered that the affected habitats do not present any degree of naturalness.

Key Biodiversity Areas (KBA)

A KBA is a site contributing significantly to the global persistence of biodiversity, as demonstrated by the presence of one or more globally significant components of biodiversity. KBAs include Alliance for Zero Extinction sites, Endemic Bird Areas, Important Bird and Biodiversity Areas, and other site types meeting thresholds for the presence of globally significant biodiversity." These areas are identified based on scientific criteria and are important for conservation efforts worldwide.

As can be seen in the following figure, in the vicinity of the study area, there are two areas classified as Key Biodiversity Areas (KBA) according to the International Union for Conservation of Nature (IUCN) and BirdLife International: **Mussulo** and **Quiçama**, located approximately 11 and 40 km away, respectively.

Figure 128. KBA in the vicinity of the project. Key Biodiversity Areas Website

Mussulo qualifies as a KBA of international significance, because it meets one or more previously established criteria and thresholds for identifying sites of biodiversity importance. This KBA covers an area of 22.218 km. Mussulo is a long sandspit, lying parallel to the coast, with the northern tip about 10 km south-west of Luanda. The area includes several small islands, one of which lies between Mussulo and the mainland. The vegetation is dominated by mangroves (*Rhizophora mangle*, *Laguncularia racemose* and *Avicenna germinans*), with low-growing saltmarshes (*Sesuvium portulacastrum*, *S. mesembritemoides* and *Salicornia sp.*) and intertidal flats (Loutchanski 199). This area is classified under the IUCN as different levels of classification: wetlands (inland) (coverage: 21-30%), desert (coverage:71-80%). As mentioned before, it is located approximately 11 km from the project area.

Quiçama qualifies as a Key Biodiversity Area of International significance because it meets one or more previously established criteria and thresholds for identifying sites of biodiversity importance. Quiçama National Park extends along 110 km of the Angolan coast, with the estuary of the Cuanza River forming the north-western boundary of the park. It holds a diversity of bird habitats, including the most southerly patch of extensive mangrove forest in the country (in the Cuanza estuary), the extensive Cuanza flood-plain, dense communities of raffia palm Raphia on permanently waterlogged islands in the river, lowland riverine forests, rank flooded grassy patches, reedbeds, swamps and extensive sandbars along the Cuanza river, extensive grasslands on the plateau, dry baobab-acacia (Adansonia-Acacia) woodland in the east of the park, and patches of broadleaved woodland. Dense thickets of Chrysobalanus, Drepanocarpus, Dalbergia, Leguncularia and Hibiscus occur along the river upstream from the mouth (Huntley and Matos 1994). The flood-plain of the lower Cuanza River has extensive communities of papyrus Cyperus, with Typha, Echinochloa and Phragmites on the margins. This area is classified under the IUCN as different levels of classification: forest (coverage: 11-22%), shrubland (coverage: 21-30%) and grassland (coverage: 51-60%). AS noted above, Quiçama KBA is located approximately 41 km from the project area.

Ecologically or Biologically Significant Marine Areas (EBSAs)

The Mussulo-Kwanza-Cabo Ledo Complex (Figure 129) is a significant seaward part of the existing Ramiros–Palmeirinhas Coastal Area EBSA (Ecologically or Biologically Significant Marine Area[28]), south of Luanda, Angola.

EBSAs can help prioritize surveillance and research. They can also support the planning and implementing different management tools, including marine protected areas, environmental impact assessment, and fisheries management measures. However, describing an EBSA is purely a scientific exercise and only a first step. It does not necessarily mean management measures will be adopted, nor does it dictate what measures should be used. It is important to highlight that this area is located outside the project area, but within the 2 km buffer made for the analysis of flora and fauna (see section 10.3.3 Flora and Fauna).

[28] *In terms of the Convention on Biological Diversity, United Nations*

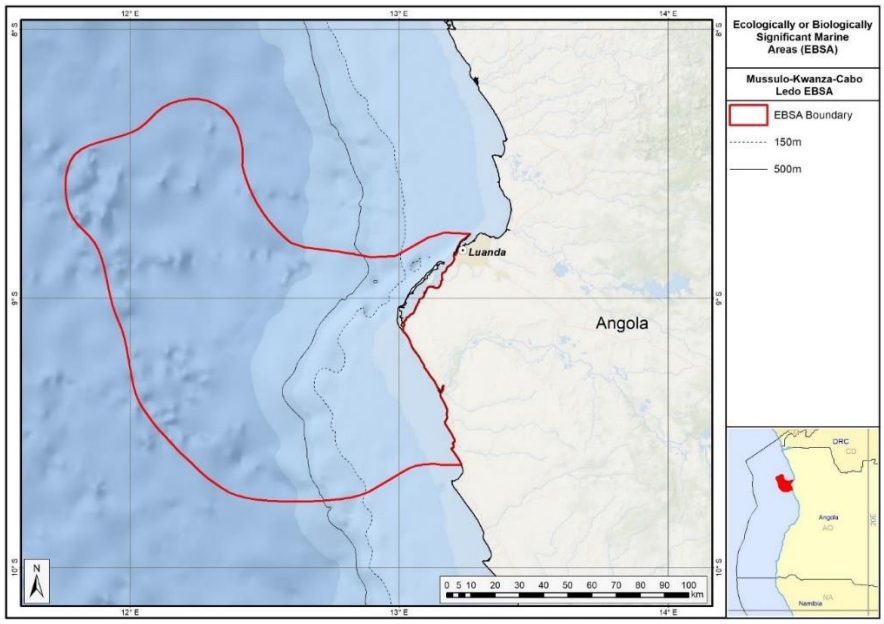


Figure 129. Proposed revised boundaries of the Mussulo-Kwanza-Cabo Ledo Complex. Survey: Ecologically or Biologically Significant Marine Areas in the Benguela Current Large Marine Ecosystem: Angola, Technical Report (2020).

This area includes two estuaries, small coastal islands, mangroves, and sandy beaches. The coastal vegetation is dominated by low-growing saltmarsh species and other flora that inhabit intertidal flats, and the wetland areas are a proposed Ramsar site. Mussulo IBA is also within its limits, an important breeding site for threatened marine turtles, and a nursery area for crabs, with diverse other species.

The site also includes representative portions of 13 threatened ecosystems, including two Critically Endangered and nine Endangered types.

Furthermore, adjacent coastal area is also an essential nursery for horse mackerel, with the eggs and larvae exported offshore to -1300 m. Evidence from other systems indicates that canyons can be crucial in retaining fish spawning products. Thus, the boundary of the EBSA was expanded to include theshelf-incising canyons that likely play a vital role in this nursery function.

Besides, the largest adjacent seamounts are also included because they are recognized habitats important for leatherback foraging too. The canyons and seamounts thus also contribute to the site's rich diversity and add to its vulnerability because these features are known to support fragile habitat-forming species.

However, the vital role of ecological processes associated with the rivers (nutrient and sediment delivery), that drives many site attributes, was also not sufficiently recognized previously. Thus, the EBSA boundary was also expanded southward to include the full extent of these processes based on a newhabitat map.

All features added to the EBSA were identified as priority areas in a systematic conservation plan for the region. The key attributes of this site are

- it is of “special importance for life-history stages of species” and for “threatened, endangered or declining species or habitats”
- it is also notable for its diversity, productivity, and vulnerability.

With the accession of Angola to the Ramsar Convention on Wetlands, it was proposed to create and protect certain wetlands which have fundamental ecological functions for the regulation of water regimes and also serve as a habitat for flora and fauna, especially for waterbirds. The 1,616 hectares area of Saco dos Flamingos (within the EBSA) has been proposed as a Ramsar site. The Kitabanga – Conservação de Tartarugas Marinhas project has existed since 2003. Currently, it monitors about 12km of the beach of the Palmeirinhas. The nest densities between 2011 and 2015 were recorded. The project included biodiversity studies (birds, fish, invertebrates, and vegetation) and hydrological processes. The results form part of the motivation for extending the EBSA southwards.

The coastal vegetation in the area is dominated by mangroves (*Rhizophora mangle*, *Laguncularia racemosa*, and *Avicenna germinans*), with low-growing saltmarsh species of intertidal flats (*Sesuvium portulacastrum*, *S. mesembritemoides* and *Salicornia sp.*).

The site is essential for aquatic birds, with 61 congregatory waterbird species recorded, some of which occur in numbers that are at least nationally significant (BirdLife International, 2005). These include significant numbers of resident waterbirds and waders from the Palearctic while migrating south in the austral spring and returning in the late summer, for which the lagoon and intertidal flats are important foraging areas. The threatened *Cape gannet, Morus capensis*, *Damara tern*, and *Sterna balaenarum* are important non-breeding visitors to the inshore area (BirdLife International, 2013). According to the IUCN Red List, these two species are classified as "Endangered" and "Vulnerable"[29].

Furthermore, the intertidal flats are an essential nursery ground for crabs. The biological diversity in the area of the Kwanza Bar reveals the presence of specimens of crustaceans such as shrimp (*Penaeus sp.*) and crab (Callinectes sp.).

Besides, marine turtles, including the green *Chelonia mydas* (Endangered), leatherback *Dermochelys coriacea* (regionally Critically Endangered; globally Vulnerable), and olive ridley *Lepidochelys olivacea* (Vulnerable) also occur in the area.

Finally, the ichthyofauna includes species that are ecologically adapted to the brackish environment, emphasizing some *Clariidae* and *Mugilidae* family species. Also included are fish species of the families *Soleidae, Lutjanidae, Lobotidae*, and *Plynemidae*. The inshore area is also an essential nursery for horse mackerel, withthe eggs and larvae exported offshore to -1300 m. Evidence from other systems indicates that seamounts and canyons can be crucial in retaining fish spawning products (Rojas & Landaeta, 2014). Thus, the boundary of the EBSA was expanded to include the shelf-incising canyons that likely play a crucial role in this nursery function. The largest adjacent seamounts are also included because they are recognized habitats important for leatherback foraging.

Although specific detailed biodiversity data on the offshore seamounts and canyons are lacking, these are significant features that are subject to low levels of impact and, hence, are likely to be in good condition and support a representative range of biodiversity. These ecosystems also support fragile, habitat-forming species, such as sponges and corals, which add to the site´s vulnerability.

[29] http://www.iucnredlist.org/

Despite limited biodiversity information, 13 of the 23 ecosystem types represented in this EBSA are threatened, including two Critically Endangered and nine Endangered types. Thus, the site is also essential for threatened species.

10.3.3. Flora and Fauna

To determine the existing biodiversity in the project area during this phase of existing information analysis, the Integrated Biodiversity Assessment Tool (IBAT) has been used.

The IBAT provides access to critical information on biodiversity priority sites to inform risk management and decision-making processes that address potential biodiversity impacts. Developed through a partnership of BirdLife International, Conservation International, International Union for Conservation of Nature (IUCN) and United Nations Environment World Conservation Monitoring Centre (UNEP-WCMC), the vision of IBAT is that decisions affecting critical natural habitats are informed by the best scientific information and in turn decision makers will support the quest to collect and enhance the underlying datasets and maintain that scientific information.

It provides an early indication of potential biodiversity concerns and can provide valuable guidance in making decisions. This information can be helpful when assessing the potential environmental risk and impact of a site, categorizing investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

It is important to note that using IBAT provides results within a 50 km buffer around the queried area, with no option to reduce the area for a more precise and tailored result. For this reason, data on registered species are provided for a more extensive area than what might be considered the project's influence area, thus adopting a conservative criterion for subsequent impact analysis. In the following figure, the 50 km buffer area is shown, within which the species consultation for the area has been obtained through IBAT.

Figure 130. Boundary of the selected area for IBAT download

In any case, in the figures presented throughout this section, a 2 km area around the project area has been chosen to visually delineate the presence of species in the project's vicinity. The boundary of the selected area is shown in the following figure.

Figure 131. Boundary of the selected area for the biodiversity analysis

Flora

Table below presents the data obtained from the query carried out through IBAT for flora included in the IUCN Red List of Threatened Species in the selected area, along with the level of protection established according to The IUCN (International Union for the Conservation of Nature) Red List of Threatened Species:

- EXTINCT (EX) A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycles and life form.
- EXTINCT IN THE WILD (EW) A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
- CRITICALLY ENDANGERED (CR) A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
- ENDANGERED (EN) A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.
- VULNERABLE (VU) A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

Table below shows flora species classified as threatened (critically endangered, endangered, and vulnerable) in the 50 km buffer zone provided by IBAT.

FLORA									
Taxon ID	Class	Order	Family	Genus	Binominal	IUCN Category	Population trend	Publication	Assessment date
185240	MAGNOLIOPSIDA	LAMIALES	LENTIBULARIACEAE	Genlisea	*Genlisea angolensis*	EN	Unknown	2010	26/02/2008
185309		MALPIGHIALES	PODOSTEMACEAE	Inversodicraea	*Inversodicraea cristata*	VU	Decreasing	2017	16/12/2007
185345		MYRTALES	LYTHRACEAE	Rotala	*Rotala smithii*	VU	Unknown	2010	26/02/2008
200688332		FABALES	FABACEAE	Guibourtia	*Guibourtia carrissoana*	VU	Decreasing	2022	05/07/2021
200691160		FABALES	FABACEAE	Millettia	*Millettia gracilis*	VU	Stable	2022	12/07/2021

Table 61. Threatened Flora Species reported from IBAT (Downloaded under license from the Integrated Biodiversity Assessment Tool)

From the information obtained from IBAT, of these 5 flora species included in the table above, only two of them were present in the area of influence of the project (2 km buffer) as shown in the figure below. Of the remaining three species, one was not present in the area and for the last two, no data on their extent and location were received.

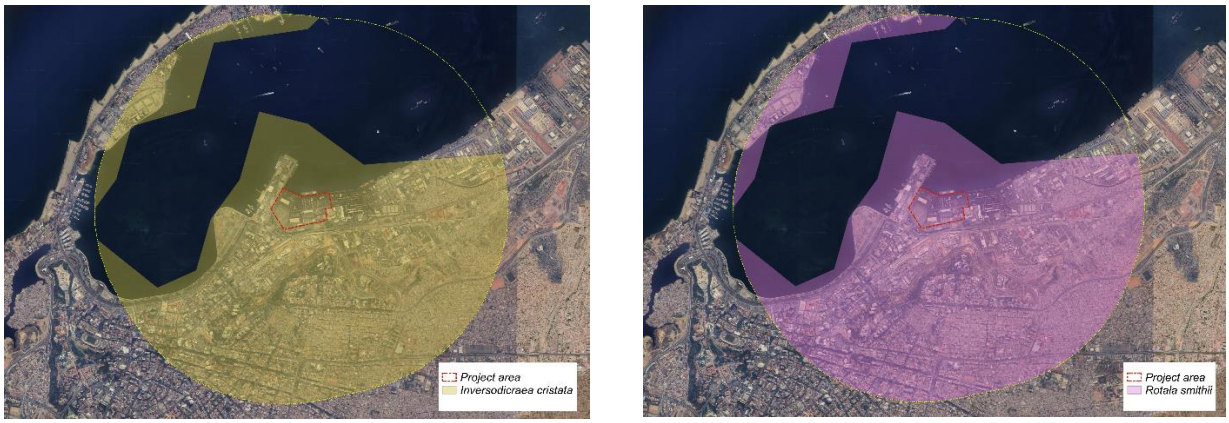


Figure 132. Threatened Flora Species distribution in the area of influence of the project. Reported from IBAT (Downloaded under license from the Integrated Biodiversity Assessment Tool)

Fauna

The table below presents the data obtained from the query carried out through IBAT for fauna included in the IUCN Red List of Threatened Species in the selected area, along with the level of protection established according to the IUCN (International Union for the Conservation of Nature) Red List of Threatened Species.

Similar to the case of flora, the table includes only species with some degree of threat.

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
198582	ACTINOPTERYGII	CLUPEIFORMES	CLUPEIDAE	Sardinella	*Sardinella maderensis*	Madeiran Sardinella	VU	Unknown	2015	23/07/2014
49217798	ACTINOPTERYGII	PERCIFORMES	SCIAENIDAE	Pseudotolithus	*Pseudotolithus senegalensis*	Cassava Croaker	EN	Decreasing	2021	17/03/2020
7859	ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	Mycteroperca	*Mycteroperca marginatus*	Dusky Grouper	VU	Decreasing	2018	20/11/2016
60623	ACTINOPTERYGII	PERCIFORMES	CICHLIDAE	Oreochromis	*Oreochromis andersonii*	Threespot Tilapia	VU	Decreasing	2007	01/03/2007
63336	ACTINOPTERYGII	PERCIFORMES	CICHLIDAE	Oreochromis	*Oreochromis macrochir*	Greenhead Tilapia	VU	Unknown	2007	01/03/2007
170338	ACTINOPTERYGII	PERCIFORMES	ISTIOPHORIDAE	Istiophorus	*Istiophorus platypterus*	Sailfish	VU	Decreasing	2022	01/05/2021
198647	ACTINOPTERYGII	PERCIFORMES	CARANGIDAE	Trachurus	*Trachurus trachurus*	Atlantic Horse Mackerel	VU	Decreasing	2015	09/05/2013
18177478	ACTINOPTERYGII	PERCIFORMES	MULLIDAE	Pseudupeneus	*Pseudupeneus prayensis*	West African Goatfish	VU	Decreasing	2015	13/05/2013
21132344	ACTINOPTERYGII	PERCIFORMES	POLYNEMIDAE	Pentanemus	*Pentanemus quinquarius*	Royal Threadfin	VU	Decreasing	2015	15/07/2014
49217962	ACTINOPTERYGII	PERCIFORMES	SCIAENIDAE	Pseudotolithus	*Pseudotolithus senegallus*	Law Croaker	VU	Decreasing	2021	17/03/2020
41007	ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippocampus	*Hippocampus algiricus*	West African Seahorse	VU	Decreasing	2017	22/11/2016
190422	ACTINOPTERYGII	TETRAODONTIFORMES	MOLIDAE	Mola	*Mola mola*	Ocean Sunfish	VU	Decreasing	2015	07/06/2011
193700	ACTINOPTERYGII	TETRAODONTIFORMES	BALISTIDAE	Balistes	*Balistes punctatus*	Bluespotted Triggerfish	VU	Decreasing	2015	16/06/2011
193736	ACTINOPTERYGII	TETRAODONTIFORMES	BALISTIDAE	Balistes	*Balistes capriscus*	Gray Triggerfish	VU	Decreasing	2015	06/06/2011
22695185	AVES	ACCIPITRIFORMES	ACCIPITRIDAE	Necrosyrtes	*Necrosyrtes monachus*	Hooded Vulture	CR	Decreasing	2022	15/07/2021
22695189	AVES	ACCIPITRIFORMES	ACCIPITRIDAE	Gyps	*Gyps africanus*	White-backed Vulture	CR	Decreasing	2021	06/07/2021
22695289	AVES	ACCIPITRIFORMES	ACCIPITRIDAE	Terathopius	*Terathopius ecaudatus*	Bateleur	EN	Decreasing	2020	04/05/2020

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
22696116	AVES	ACCIPITRIFORMES	ACCIPITRIDAE	Polemaetus	*Polemaetus bellicosus*	Martial Eagle	EN	Decreasing	2020	02/04/2020
22696221	AVES	ACCIPITRIFORMES	SAGITTARIIDAE	Sagittarius	*Sagittarius serpentarius*	Secretarybird	EN	Decreasing	2020	30/04/2020
22696033	AVES	ACCIPITRIFORMES	ACCIPITRIDAE	Aquila	*Aquila rapax*	Tawny Eagle	VU	Decreasing	2021	28/06/2021
22698425	AVES	PROCELLARIIFORMES	DIOMEDEIDAE	Thalassarche	*Thalassarche chlororhynchos*	Atlantic Yellow-nosed Albatross	EN	Decreasing	2018	07/08/2018
22696668	AVES	SULIFORMES	SULIDAE	Morus	*Morus capensis*	Cape Gannet	EN	Decreasing	2018	10/08/2018
22696806	AVES	SULIFORMES	PHALACROCORACIDAE	Phalacrocorax	*Phalacrocorax capensis*	Cape Cormorant	EN	Decreasing	2018	08/08/2018
39374	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus longimanus*	Oceanic Whitetip Shark	CR	Decreasing	2019	07/11/2018
39385	CHONDRICHTHYES	CARCHARHINIFORMES	SPHYRNIDAE	Sphyrna	*Sphyrna lewini*	Scalloped Hammerhead	CR	Decreasing	2019	08/11/2018
39386	CHONDRICHTHYES	CARCHARHINIFORMES	SPHYRNIDAE	Sphyrna	*Sphyrna mokarran*	Great Hammerhead	CR	Decreasing	2019	09/11/2018
39358	CHONDRICHTHYES	CARCHARHINIFORMES	TRIAKIDAE	Mustelus	*Mustelus mustelus*	Common Smoothhound	EN	Decreasing	2021	04/08/2020
60219	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus signatus*	Night Shark	EN	Decreasing	2021	21/06/2019
161707	CHONDRICHTHYES	CARCHARHINIFORMES	HEMIGALEIDAE	Paragaleus	*Paragaleus pectoralis*	Atlantic Weasel Shark	EN	Decreasing	2021	04/08/2020
3851	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus limbatus*	Blacktip Shark	VU	Decreasing	2021	18/11/2020
39350	CHONDRICHTHYES	CARCHARHINIFORMES	LEPTOCHARIIDAE	Leptocharias	*Leptocharias smithii*	Barbeled Houndshark	VU	Decreasing	2021	04/08/2020
39368	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus brevipinna*	Spinner Shark	VU	Decreasing	2020	11/02/2020
39370	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus falciformis*	Silky Shark	VU	Decreasing	2021	26/09/2017
39372	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Carcharhinus	*Carcharhinus leucas*	Bull Shark	VU	Decreasing	2021	24/11/2020

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
39380	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Negaprion	*Negaprion brevirostris*	Lemon Shark	VU	Decreasing	2021	04/09/2020
41850	CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	Rhizoprionodon	*Rhizoprionodon acutus*	Milk Shark	VU	Decreasing	2020	04/02/2020
44649	CHONDRICHTHYES	CARCHARHINIFORMES	PENTANCHIDAE	Galeus	*Galeus polli*	African Sawtail Catshark	VU	Decreasing	2021	31/08/2020
3854	CHONDRICHTHYES	LAMNIFORMES	ODONTASPIDIDAE	Carcharias	*Carcharias taurus*	Sand Tiger Shark	CR	Decreasing	2021	07/12/2020
4292	CHONDRICHTHYES	LAMNIFORMES	CETORHINIDAE	Cetorhinus	*Cetorhinus maximus*	Basking Shark	EN	Decreasing	2021	07/11/2018
39341	CHONDRICHTHYES	LAMNIFORMES	LAMNIDAE	Isurus	*Isurus oxyrinchus*	Shortfin Mako	EN	Decreasing	2019	05/11/2018
60225	CHONDRICHTHYES	LAMNIFORMES	LAMNIDAE	Isurus	*Isurus paucus*	Longfin Mako	EN	Decreasing	2019	05/11/2018
3855	CHONDRICHTHYES	LAMNIFORMES	LAMNIDAE	Carcharodon	*Carcharodon carcharias*	White Shark	VU	Decreasing	2022	07/11/2018
39339	CHONDRICHTHYES	LAMNIFORMES	ALOPIIDAE	Alopias	*Alopias vulpinus*	Common Thresher	VU	Decreasing	2022	06/11/2018
161696	CHONDRICHTHYES	LAMNIFORMES	ALOPIIDAE	Alopias	*Alopias superciliosus*	Bigeye Thresher	VU	Decreasing	2019	06/11/2018
60127	CHONDRICHTHYES	MYLIOBATIFORMES	MYLIOBATIDAE	Aetomylaeus	*Aetomylaeus bovinus*	Duckbill Eagle Ray	CR	Decreasing	2021	04/08/2020
161463	CHONDRICHTHYES	MYLIOBATIFORMES	RHINOPTERIDAE	Rhinoptera	*Rhinoptera marginata*	Lusitanian Cownose Ray	CR	Decreasing	2021	04/08/2020
161569	CHONDRICHTHYES	MYLIOBATIFORMES	MYLIOBATIDAE	Myliobatis	*Myliobatis aquila*	Common Eagle Ray	CR	Decreasing	2021	04/08/2020
60199	CHONDRICHTHYES	MYLIOBATIFORMES	MOBULIDAE	Mobula	*Mobula tarapacana*	Sicklefin Devil Ray	EN	Decreasing	2022	09/11/2018
60200	CHONDRICHTHYES	MYLIOBATIFORMES	MOBULIDAE	Mobula	*Mobula thurstoni*	Bentfin Devil Ray	EN	Decreasing	2022	09/11/2018
63153	CHONDRICHTHYES	MYLIOBATIFORMES	GYMNURIDAE	Gymnura	*Gymnura altavela*	Spiny Butterfly Ray	EN	Decreasing	2021	21/06/2019
198921	CHONDRICHTHYES	MYLIOBATIFORMES	MOBULIDAE	Mobula	*Mobula birostris*	Oceanic Manta Ray	EN	Decreasing	2022	12/11/2019

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
42564343	CHONDRICHTHYES	MYLIOBATIFORMES	AETOBATIDAE	Aetobatus	*Aetobatus narinari*	Whitespotted Eagle Ray	EN	Decreasing	2021	28/07/2020
110847130	CHONDRICHTHYES	MYLIOBATIFORMES	MOBULIDAE	Mobula	*Mobula mobular*	Spinetail Devil Ray	EN	Decreasing	2022	20/11/2018
126710128	CHONDRICHTHYES	MYLIOBATIFORMES	MOBULIDAE	Mobula	*Mobula hypostoma*	Atlantic Pygmy Devil Ray	EN	Decreasing	2022	08/11/2018
180502386	CHONDRICHTHYES	MYLIOBATIFORMES	GYMNURIDAE	Gymnura	*Gymnura sereti*	Seret's Butterfly Ray	EN	Decreasing	2021	22/07/2020
161453	CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	Dasyatis	*Dasyatis pastinaca*	Common Stingray	VU	Decreasing	2021	04/08/2020
161495	CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	Fontitrygon	*Fontitrygon margarita*	Daisy Whipray	VU	Decreasing	2021	04/08/2020
161519	CHONDRICHTHYES	MYLIOBATIFORMES	ZANOBATIDAE	Zanobatus	*Zanobatus schoenleinii*	Striped Panray	VU	Decreasing	2021	04/08/2020
104071039	CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	Bathytoshia	*Bathytoshia lata*	Brown Stingray	VU	Decreasing	2021	04/08/2020
19488	CHONDRICHTHYES	ORECTOLOBIFORMES	RHINCODONTIDAE	Rhincodon	*Rhincodon typus*	Whale Shark	EN	Decreasing	2016	18/03/2016
61408	CHONDRICHTHYES	RAJIFORMES	RAJIDAE	Rostroraja	*Rostroraja alba*	White Skate	EN	Decreasing	2006	31/01/2006
18175	CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	Pristis	*Pristis pectinata*	Smalltooth Sawfish	CR	Decreasing	2022	09/03/2022
63131	CHONDRICHTHYES	RHINOPRISTIFORMES	RHINOBATIDAE	Rhinobatos	*Rhinobatos rhinobatos*	Common Guitarfish	CR	Decreasing	2021	04/08/2020
161320	CHONDRICHTHYES	RHINOPRISTIFORMES	RHINOBATIDAE	Rhinobatos	*Rhinobatos albomaculatus*	Whitespotted Guitarfish	CR	Decreasing	2021	04/08/2020
161409	CHONDRICHTHYES	RHINOPRISTIFORMES	RHINOBATIDAE	Rhinobatos	*Rhinobatos irvinei*	Spineback Guitarfish	CR	Decreasing	2021	04/08/2020
18584848	CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	Pristis	*Pristis pristis*	Largetooth Sawfish	CR	Decreasing	2022	02/02/2022
104050689	CHONDRICHTHYES	RHINOPRISTIFORMES	GLAUCOSTEGIDAE	Glaucostegus	*Glaucostegus cemiculus*	Blackchin Guitarfish	CR	Decreasing	2019	03/12/2018
41745	CHONDRICHTHYES	SQUALIFORMES	CENTROPHORIDAE	Centrophorus	*Centrophorus uyato*	Little Gulper Shark	EN	Decreasing	2020	21/11/2019

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
63141	CHONDRICHTHYES	SQUALIFORMES	OXYNOTIDAE	Oxynotus	*Oxynotus centrina*	Angular Roughshark	EN	Decreasing	2021	31/08/2020
61418	CHONDRICHTHYES	SQUATINIFORMES	SQUATINIDAE	Squatina	*Squatina oculata*	Smoothback Angelshark	CR	Decreasing	2019	19/06/2017
161411	CHONDRICHTHYES	TORPEDINIFORMES	TORPEDINIDAE	Torpedo	*Torpedo mackayana*	West African Torpedo	EN	Decreasing	2021	04/08/2020
161562	CHONDRICHTHYES	TORPEDINIFORMES	TORPEDINIDAE	Torpedo	*Torpedo bauchotae*	Rosette Torpedo	EN	Decreasing	2021	04/08/2020
161328	CHONDRICHTHYES	TORPEDINIFORMES	TORPEDINIDAE	Torpedo	*Torpedo marmorata*	Marbled Torpedo Ray	VU	Decreasing	2021	31/08/2020
161397	CHONDRICHTHYES	TORPEDINIFORMES	TORPEDINIDAE	Torpedo	*Torpedo torpedo*	Ocellate Torpedo	VU	Decreasing	2021	04/08/2020
192492	GASTROPODA	NEOGASTROPODA	CONIDAE	Conus	*Conus xicoi*		VU	Stable	2012	28/10/2011
219	MAMMALIA	CARNIVORA	FELIDAE	Acinonyx	*Acinonyx jubatus*	Cheetah	VU	Decreasing	2022	17/05/2021
15951	MAMMALIA	CARNIVORA	FELIDAE	Panthera	*Panthera leo*	Lion	VU	Decreasing	2016	20/06/2014
15954	MAMMALIA	CARNIVORA	FELIDAE	Panthera	*Panthera pardus*	Leopard	VU	Decreasing	2020	11/07/2015
20425	MAMMALIA	CETARTIODACTYLA	DELPHINIDAE	Sousa	*Sousa teuszii*	Atlantic Humpback Dolphin	CR	Decreasing	2017	24/03/2017
2475	MAMMALIA	CETARTIODACTYLA	BALAENOPTERIDAE	Balaenoptera	*Balaenoptera borealis*	Sei Whale	EN	Increasing	2018	25/06/2018
2477	MAMMALIA	CETARTIODACTYLA	BALAENOPTERIDAE	Balaenoptera	*Balaenoptera musculus*	Blue Whale	EN	Increasing	2018	16/03/2018
10103	MAMMALIA	CETARTIODACTYLA	HIPPOPOTAMIDAE	Hippopotamus	*Hippopotamus amphibius*	Hippopotamus	VU	Stable	2017	16/06/2016
41755	MAMMALIA	CETARTIODACTYLA	PHYSETERIDAE	Physeter	*Physeter macrocephalus*	Sperm Whale	VU	Unknown	2019	30/06/2008
6557	MAMMALIA	PERISSODACTYLA	RHINOCEROTIDAE	Diceros	*Diceros bicornis*	Black Rhino	CR	Increasing	2020	14/01/2020
39321	MAMMALIA	PERISSODACTYLA	RHINOCEROTIDAE	Diceros	*Diceros bicornis ssp. minor*	South-eastern Black Rhino	CR	Stable	2020	14/01/2020

FAUNA										
Taxon ID	Class	Order	Family	Genus	Binominal	Common name	Category IUCN	Population trend	Publication	Assessment date
12767	MAMMALIA	PHOLIDOTA	MANIDAE	Phataginus	*Phataginus tricuspis*	White-bellied Pangolin	EN	Decreasing	2019	08/05/2019
13572	MAMMALIA	PRIMATES	CERCOPITHECIDAE	Miopithecus	*Miopithecus talapoin*	Southern Talapoin Monkey	VU	Decreasing	2020	20/03/2018
136943	MAMMALIA	PRIMATES	CERCOPITHECIDAE	Cercopithecus	*Cercopithecus mitis ssp. mitis*	Pluto Monkey	VU	Unknown	2020	24/10/2016
181008073	MAMMALIA	PROBOSCIDEA	ELEPHANTIDAE	Loxodonta	*Loxodonta africana*	African Savanna Elephant	EN	Decreasing	2022	13/11/2020
22104	MAMMALIA	SIRENIA	TRICHECHIDAE	Trichechus	*Trichechus senegalensis*	African Manatee	VU	Unknown	2015	18/07/2015
13300910	REPTILIA	SQUAMATA	VIPERIDAE	Bitis	*Bitis nasicornis*	Rhinoceros Viper	VU	Decreasing	2021	24/10/2019
8005	REPTILIA	TESTUDINES	CHELONIIDAE	Eretmochelys	*Eretmochelys imbricata*	Hawksbill Turtle	CR	Decreasing	2008	30/06/2008
4615	REPTILIA	TESTUDINES	CHELONIIDAE	Chelonia	*Chelonia mydas*	Green Turtle	EN	Decreasing	2004	30/04/2004
3897	REPTILIA	TESTUDINES	CHELONIIDAE	Caretta	*Caretta caretta*	Loggerhead Turtle	VU	Decreasing	2017	23/08/2015
6494	REPTILIA	TESTUDINES	DERMOCHELYIDAE	Dermochelys	*Dermochelys coriacea*	Leatherback Turtle	VU	Decreasing	2013	21/06/2013
11534	REPTILIA	TESTUDINES	CHELONIIDAE	Lepidochelys	*Lepidochelys olivacea*	Olive Ridley Turtle	VU	Decreasing	2008	30/06/2008
62256	REPTILIA	TESTUDINES	TRIONYCHIDAE	Trionyx	*Trionyx triunguis*	African Softshell Turtle	VU	Decreasing	2017	21/06/2016

Table 62. Threatened Fauna Species reported from IBAT (Downloaded under license from the Integrated Biodiversity Assessment Tool)

From the above table, only 31 are present in the area of influence of the project (2 km buffer zone), according to the data received through IBAT. However, considering the most up to date information available on the IUCN Red List of Threatened Species website, 4 of those species are currently extinct in the project area, as shown in the following figure.

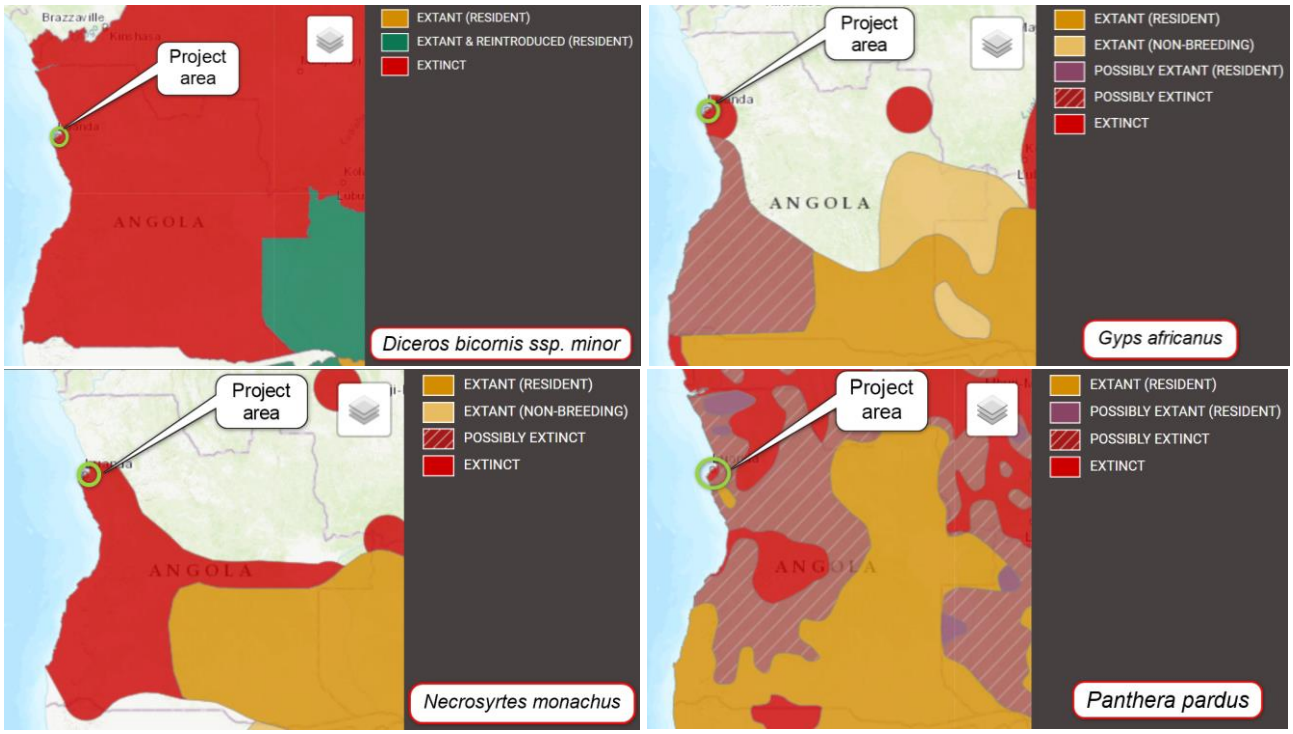


Figure 133. Geographic range of the species Diceros bicornis ssp. minor, Gyps africanus, Necrosyrtes monachu and, Panthera pardus in Angola. IUCN Red List of Threatened Species website

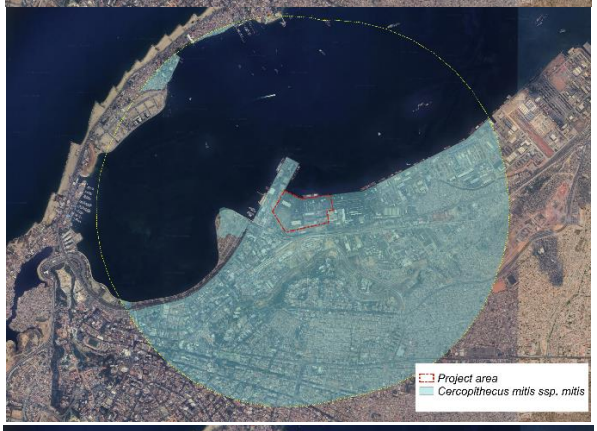
Thus, taking into account the above information, which is the most up-to-date information available, the following figure shows the area of distribution of the 27 species of fauna considered as potentially present in the selected area:

Project area
Carcharhinus limbatus

Project area
Carcharhinus signatus

Project area
Carcharias taurus

Project area
Caretta caretta


Project area
Cercopithecus mitis ssp. mitis

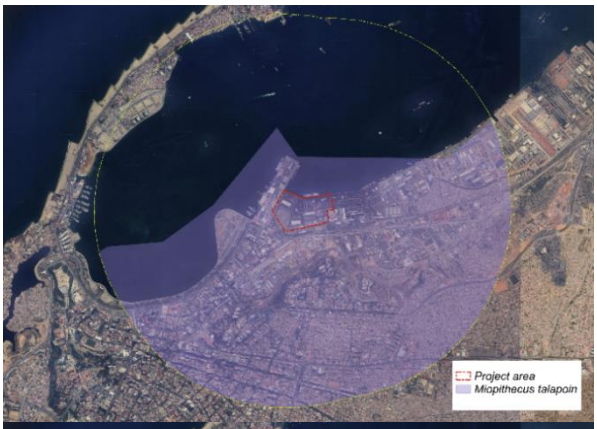
Project area
Dasyatis pastinaca

Project area
Dermochelys coriacea

Project area
Diceros bicornis

Project area
Fontitrygon margarita

Project area
Gymnura altavela

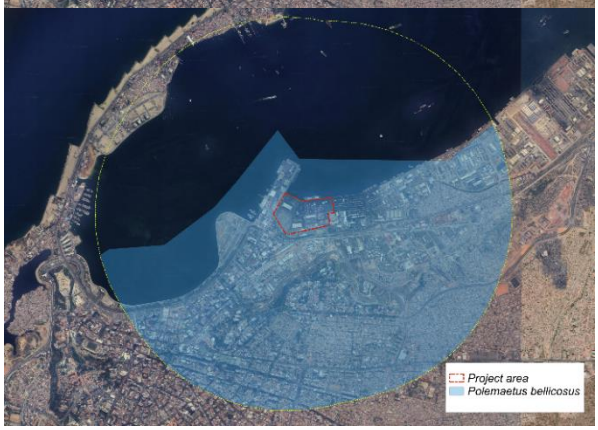

Project area
Miopithecus talapoin

Project area
Mustelus mustelus

Project area
Oreochromis andersonii

Project area
Oreochromis macrochir

Project area
Phataginus tricuspis


Project area
Polemaetus bellicosus

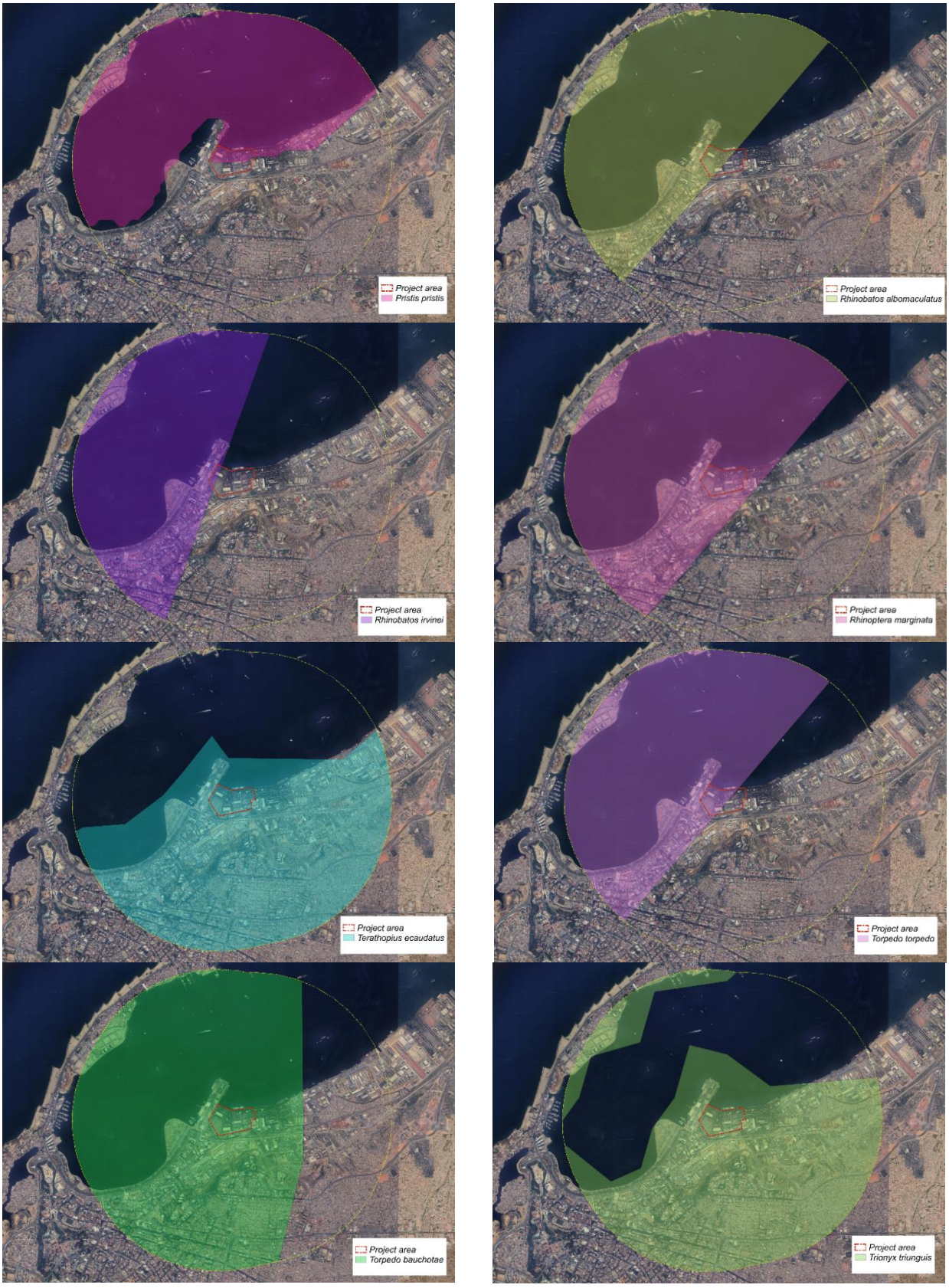

Project area
Pristis pristis
Project area
Rhinobatos albomaculatus
Project area
Rhinobatos irvinei
Project area
Rhinoptera marginata
Project area
Terathopius ecaudatus
Project area
Torpedo torpedo
Project area
Torpedo bauchotae
Project area
Trionyx triunguis

Figure 134. Threatened Fauna Species distribution in the area of influence of the project. Reported from IBAT (Downloaded under license from the Integrated Biodiversity Assessment Tool)

10.3.4. Baseline survey report

A study to provide a detailed description of the fauna present in and around the Unicargas Project site and its surroundings was carried out by Typsa-ellitoral. This included the identification of both marine and terrestrial ecosystems, as well as the various species of fauna and flora that inhabit them, the ichthyofauna, and benthic habitats.

Below is a summary of the most relevant aspects of the survey conducted, which provides the necessary information to complete the baseline.

10.3.4.1. Marine wildlife and ecological environment sighting surveys methodology

The primary objective of the surveys in the study area, where the Unicargas Project is proposed, is to identify the key biodiversity stakes (terrestrial and marine). Within this objective, two campaigns were carried out during January and February 2024 (terrestrial and marine surveys).

The actions included in each campaign are listed below:

- Terrestrial survey: Observation of the ecological environment, coastal fauna, and avifauna.
- Fish market survey: Observation of fish in the fish-markets.
- Marine survey: Opportunistic observation of marine mammals, reptiles, and avifauna.

On land, censuses are conducted in a 64 km strip along the Luanda coast, between the municipalities of Cacuaco and Samba. In this strip, four specific locations are chosen in which a transect is made in each one, and an observation is made from a fixed point. This coastal strip covers the visibility of the surroundings of the study area. Moreover, the closest-to-the-Site three main markets (Mercado de Peixe mundial, Mercado de Peixe Ilha do Cabo, and Mercado de Mabunda) are visited to gather information for the fish community study.

At sea, transects have been performed in the Port surroundings to cover the maximum area possible, from the northern end of Ilha do Mussulo in the South, to Ponta Spilimberta in the North.

10.3.4.2. Marine wildlife and ecological environment sighting surveys results

Three campaigns were conducted in January and February 2024, a marine survey a terrestrial survey and a fish market survey (Table 63). The list of actions included in each survey is provided below:

- Marine survey: Sea fauna watching.
- Terrestrial survey: Shore fauna watching and fish markets.

Terrestrial surveys (including fish market)	Marine surveys
28th January	29th January
30th January	3rd February
2nd February	

Table 63. Surveys dates: January and February 2024. Source: TYPSA-elittoral

As a result of the rugged terrain, access to the coast was challenging as there are no well-maintained roads, and most buildings are situated along the coastline. Even though the terrestrial survey areas were almost entirely covered, due to the length of the transects, six on-site observation points were chosen. Additionally, three extra points were added in the South due to the mangle ecosystems present in the area, to get additional information (Figure 135). The extra points are located within the Mussulo-Kwanza-Cabo Ledo Complex and the Ramiros-Palmeirinhas Coastal Area EBSA, encompassing a wide variety of species.

To conduct the fish-market survey, multiple visits were required because there was not much fishing activity on Sundays, Mondays, and Tuesdays. As a result, some markets had no fish on those days, and it was necessary to approach the few fishermen in the area who were selling fish, as was the case at the Mercado da Ilha.

Figure 135. Terrestrial monitoring spots. Source: TYPSA-elittoral

The marine survey was originally planned for three days, with three different tracks. However, due to weather conditions, the survey was shortened to two days (Figure 136), extending the duration of the working days. On February 3rd, we covered the maximum area by following the tracks planned for day 2 and 3.

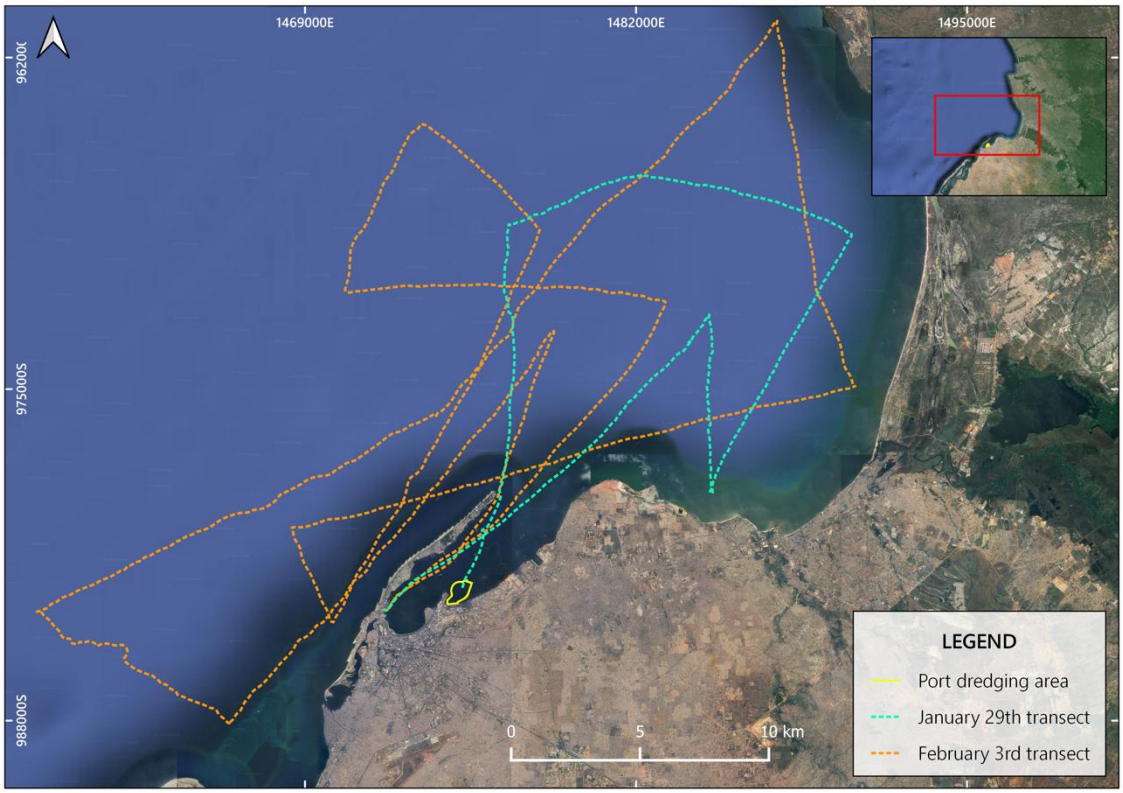


Figure 136. GPS marine survey recorded tracks. Source: TYPSA-elittoral.

a. Terrestrial survey results

A total of 313 individuals were recorded during the terrestrial survey on the 28th and 30th of January and the 2nd of February. However, photographic reports are not available for all of them. Most of the individuals identified were birds, like terns, seagulls, and egrets resting, feeding, and flying around the coastline. In this case, the waypoints of the sighting positions of every individual recorded are not available. Below, the are two tables (fauna and flora) with the results by species, the total number of individuals seen per species and their degree of protection (Table 64). Two species of the recorded ones are classified as Near Threated in the IUCN Red List. A photographic report of the species sighted is attached.

Species	Common name	Total number of individuals sighted	(IUCN) Red List	Angola Red List
Thalasseus sandvicensis	Sandwich Tern	10	Least concern	-
Sterna maxima	Royal Tern Garajau-real	70	Least concern	-
Microcarbo africanus	Long-tailed Cormorant Corvo-marinho-africano	4	Least concern	-
Ardea cinerea	Grey Heron	17	Least concern	-

Species	Common name	Total number of individuals sighted	(IUCN) Red List	Angola Red List
Egretta garzetta	Little Egret	23	Least concern	-
Bubulcus ibis	Western Cattle Egret	6	Least concern	-
Hirundinidae	Swallows	7	Least concern	-
Platalea alba	African Spoonbill	4	Least concern	-
Laridae	Seagull	56	Least concern	-
Corvus albus	Pied crow	8	Least concern	-
Passeridae	Sparrows	6	Least concern	-
Grapsus adscensionis	Sally lithfoot crab	20	-	-
Afruca tangeri	Fiddler crabs	60	-	-
Gorgoniidae	Sea fan	1	-	-
Megabalanus	Titan acorn barnacle	-	-	-
Patella sp.	Limpet	-	Least concern	-
Arenaria interpres	Ruddy Turnstone	1	Least concern	-
Numenius phaeopus	Eurasian Whimbrel	5	Least concern	-
Calidris ferruginea	Curlew Sandpiper, Pato de agua,	7	Near Threatened	-
Limosa lapponica	Bar-tailed Godwit	2	Near Threatened	-
Himantopus himantopus	Black-winged Stilt	2	Least concern	-
Heliophora orbicularis	West African Sand Dollar	4	-	-

Table 64. Terrestrial survey results - fauna. Source: TYPSA-elittoral

Species	Common name	Total number of individuals sighted	(IUCN) Red List	Angola Red List
Rhizophora mucronata	Red mangle; Mangais vermelho	-	Least concern	Vulnerable

Table 65. Terrestrial survey results - flora. Source: TYPSA-elittoral

The mangrove forest of *Rhizophora mucronata* located at point 2 of the extra observation points is an ecosystem with a high ecological value, as it harbors a great variety of diversity, even though it is in an area with a lot of litter. It is a dense area of approximately 0.16 km^2 of mangrove, **located more than 20 km away from the project area, so the works to be carried out will not directly affect this ecosystem.**

Some of the photos taken during the terrestrial survey and fish markets survey are included below.

Figure 137. Egretta garzetta located flying at point 1 of the Extra Observation Points.

Figure 138. Afruca tangeri crabs located resting in the sand, at point 2 of the Extra Observation Points.

Figure 139. Ardea cinerea and Egretta garzetta located feeding at point 1 of the observation points.

b. Fish markets survey results

Three fish-markets were visited:

1. Mabunda (Figure 140)
2. Mercado da Ilha (Figure 141), and
3. Mercado do Peixe Mundial (Figure 142).

The markets are situated on the beach, where they set up stalls with the catches and sell them to the public. The purpose of the visit is to tour the market and document the most fished species in the area. This will provide insight into the fish population in the Port area.

These markets attract many local visitors who come to buy and sell their goods. Unfortunately, these institutions have very basic facilities, with poor sanitary conditions. The Mabunda Market has an enclosed area with tables provided for the sale of fish, although most of the stalls are spread out over large areas of land that extend to the seashore and occupy the entire beach. The same goes for the other two markets, where the raw material for sale is usually placed directly on wooden tables with no more refrigeration than a bit of crushed ice, at best. Due to poor waste management, the sanitary conditions in the area are appalling, with a large amount of plastic rubbish found throughout the market, and areas where organic waste accumulates in the process of putrefaction.

These places are often overcrowded, and safety is not always guaranteed. The Mabunda market has its own surveillance team, which maintains the tranquility of the market. However, the Ilha and World markets do not have any professional surveillance team.

Figure 140. Mabunda fish-market. Source: TYPSA-elittoral

Figure 141. Mercado da Ilha fish-market. Source: TYPSA-elittoral

Figure 142. Mercado do Peixe Mundial. Source: TYPSA-elittoral

The fish market observation involved photographing and recording the names of the fish species sold as documenting fishing techniques and any additional information the fisherman and fishing observers provide.

During the visits to the markets on 28 and 30 January, fish species of interest to fishermen were identified, which are listed in the tables below, by their scientific name, common name and degree of protection. Within the species found, the *Rhinobatos sp* species is classified as Critical Endangered in the IUCN Red list, and 6 fish species are classified as vulnerable.

Species	Common name	(IUCN) Red List	Angola Red List
Calappidae	Box crab	-	-
Caranx hippos	Crevalle jack; Macoa	Least concern	-
Cephalopholis nigri	Niger seabass; Garoupa	Least concern	-
Chaceon maritae	Crab, Caranguejo do fundo	-	Vulnerable
Chelidonichthys sp.	Gurnard; Cabra	Least concern	-
Coryphaena equiselis	Pompano dolphinfish; Dourado	Least concern	-
Coryphaena hippurus	Common dolphinfish; Dourado	Least concern	-
Cynoglossidae	Tonguesole	Data deficient	-
Decapterus punctatus	Round scad; Carapau	Least concern	Vulnerable
Dentex macrophthalmus	Large eye dentex; Cachucho	Least concern	-
Diplodus sargus capensis	White seabream; Sargo	Least concern	-

Species	Common name	(IUCN) Red List	Angola Red List
Donax spp.	Butterfly clam; Conquilha	-	-
Euthynnus alleteratus	Little tunny; melva	Least concern	-
Exocoetidae	Sailin flyingfish	Least concern	-
Hemiramphus balao	Balao halfbreak; Peixe Agulha	Least concern	-
Katsuwonus pelamis	Skiojack tuna	Least concern	-
Kyphosus sectatrix	Bermuda sea chub; Chopa	Least concern	-
Lithognathus mormyrus	Striped seabream; Ferreira	Least concern	-
Lucinella divaricata	Ameijoinha	Not Evaluated	-
Lutjanus agennes	African red snapper; Pargo	Data deficient	-
Mactra glauca	Grey rough shell; Quingole	Not Evaluated	-
Muraenidae	Moray	Least concern	-
Pagrus auriga	Pargo	Least concern	-
Panulirus regius	Royal spiny lobster, Langostinha	Data deficient	-
Penaeidae	Shrimp	-	-
Penaeus kerathurus	Caramote prawn	-	-
Perna perna	Rock mussel; Mexilhão	Not Evaluated	-
Pomadasys jubelini	Sompat grunt; Roncador de pintas	Least concern	-
Pomatomus saltatrix	Bluefish	Vulnerable	-
Portunidae	Swimcrab	-	-
Sarda sarda	Atlantic bonito	Least concern	-
Sardinella maderensis	Madeiran sardinella	Vulnerable	-
Sardinops ocellata	Southen African pilchard; Sardinha	Least concern	-
Sciaenidae	Meagre; Corvina blanca	Least concern	-
Sciaenidae	Meagre; Corvina preta	Least concern	-
Selene dorsalis	African lookdown; Galo	Least concern	-
Senilia senilis	Saltwater clam; Mabanga	Not Evaluated	-
Sepiidae	Cuttlefish	Data deficient	-
Seriola carpenteri	Guinean amberjack; Piadeita	Least Concern	-
Seriola dumerili	Greater amberjack; Piadeita	Least Concern	-
Seriola rivoliana	Longfin yellowtail; Piadeita	Least Concern	-

Species	Common name	(IUCN) Red List	Angola Red List
Solea senegalensis	Senegalese sole; Lenguado	Data deficient	-
Sphyraena afra	Guinean Barracuda	Least concern	-
Stromateus fiatola	Blue butterfish; Taco-taco	Least concern	-
Thunnus alalunga	Albacore	Least concern	-
Thunnus albacares	Yellowfin tuna	Least concern	-
Thunnus obesus	Bigeye tuna	Vulnerable	-
Trichuiurus lepturus	Largehead hairtail, Peixe-Espada	Least concern	-
Umbrina canariensis	Canary drum; Calafate	Least concern	-
Umbrina ronchus	Fusca drum; Calafate	Data deficient	-
Xyrinchtys novacula	Pearly razorfish, Papagaio	Least concern	-

Table 66. Species Mabunda Market. Source: TYPSA-elittoral

Species	Common name	(IUCN) Red List	Angola Red List
Decapterus punctatus	Round scad; Carapau	Least concern	Vulnerable
Cephalopholis nigri	Niger seabass; Garoupa	Least concern	-
Cephalopholis taeniops	Bluespotted seabass; Garoupa-carnaval	Least concern	-
Conger conger	European conger	Least concern	-
Mycteroperca caninus	Seabass; Garoupa	Data Deficient	-
Mycteroperca costae	seabass; Garoupa	Data Deficient	-
Mycteroperca marginatus	Seabass; Garoupa	Vulnerable	-
Octopus sp.	Octopus; Polvo	Least concern	-
Pomadasys perotaei	Parrot grunt; Arrancador	Least concern	-
Sciaenidae	Meagre; Corvina branca	Least concern	-
Solea senegalensis	Senegalese sole; Lenguado	Data deficient	-
Stromateus fiatola	Blue butterfish; Taco-taco	Least concern	-
Trachurus trachurus	Atlantic horse mackerel; Carapau Vermelho	Vulnerable	-
Trichuiurus lepturus	Largehead hairtail, Peixe-Espada	Least concern	-

Table 67. Species Mercado da Ilha. Source: TYPSA-elittoral

Species	Common name	(IUCN) Red List
Calappidae	Box crab	-
Dasyatis margarita	Daisy stingray	Vulnerable
Diplodus sargus capensis	White seabream; Sargo	Least concern
Lithognathus mormyrus	Striped seabream; Ferreira	Least concern
Pseudopeneus prayensis	West African goatfish; Santo Antonio	Least concern
Rhinobatos sp.	Guitarfish	Critically endangered
Selar crumenophthalmus	Bigeye scad; Quicharra; chicharra	Least concern
Sphyraena afra	Guinean Barracuda	Least concern
Stromateus fiatola	Blue butterfish; Taco-taco	Least concern

Table 68. Species Mercado do Peixe Mundial. Source: TYPSA-elittoral

c. Marine survey results

On January 29th and February 3rd, marine surveys were conducted and a total of 125 birds were recorded, but not all of them have photographic evidence. Most of the birds identified were terns who were resting near the yacht club. Unfortunately, the sighting positions of each individual recorded are not available in this case. No cetaceans or sea turtles were spotted during the campaign.

The weather conditions were perfect for the campaign, with no wind, some clouds, but mostly sunny skies and excellent visibility. Due to the weather, many fishermen were fishing. In addition, due to the study area's proximity to the harbor, there were numerous large vessels present. A lot of trash was found in the ocean.

Attached is a table containing the results by species, including the total number of individuals seen per species and their degree of protection (Table 69). Additionally, a photographic report of the species sighted is included.

Species	Common name	Total number of individuals sighted	(IUCN) Red List
Ardea cinerea	Grey Heron	3	Least concern
Egretta garzetta	Little Egret	5	Least concern
Microcarbo africanus	Long-tailed Cormorant Corvo-marinho-africano	11	Least concern
Phalacrocorax lucidus	White-breasted Cormorant	3	-

Species	Common name	Total number of individuals sighted	(IUCN) Red List
Stercorarius sp.	Jaeger	7	Least concern
Sterna maxima	Royal Tern Garajau-real	67	Least concern
Thalasseus sandvicensis	Sandwich Tern	31	Least concern

Table 69. Marine survey results. Source: TYPSA-elittoral

The following are some the photos taken during the marine survey.

Figure 143. Thalasseus sandvicensis individuals resting.

Figure 144. Microcarbo africanus, Phalacrocorax lucidus and Sterna maxima resting.

Figure 145. Sterna maxima resting.

Figure 146. Large vessels in the survey area.

10.3.4.3. Benthic habitat survey and mapping methodology

The benthic communities in the Unicargas Project area were assessed by using a towed-camera system. Within this objective, one campaign was carried out on January 29th.

a. Video scanning filming/Towed camera system

The methodology used in the project for the validation of the geomorphology of the seabed and biological communities in the study area begins with the review of the report provided by AD Port Group "20210730_Unicargas_MBES_SBP_rep(20210730)", which refers to the previous work in the region by the

company Geosurveys. In this work, a bathymetric survey is carried out, and the results obtained are analyzed to determine those areas of interest or where there are doubts in the interpretation. Once this preliminary work has been carried out, the sampling grid of the study area is developed to cover the entire work area.

To acquire data and obtain information with the highest degree of detail, a mesh of vertical pits is proposed to cover the entire polygon encompassing the study area, as shown in Figure 147.

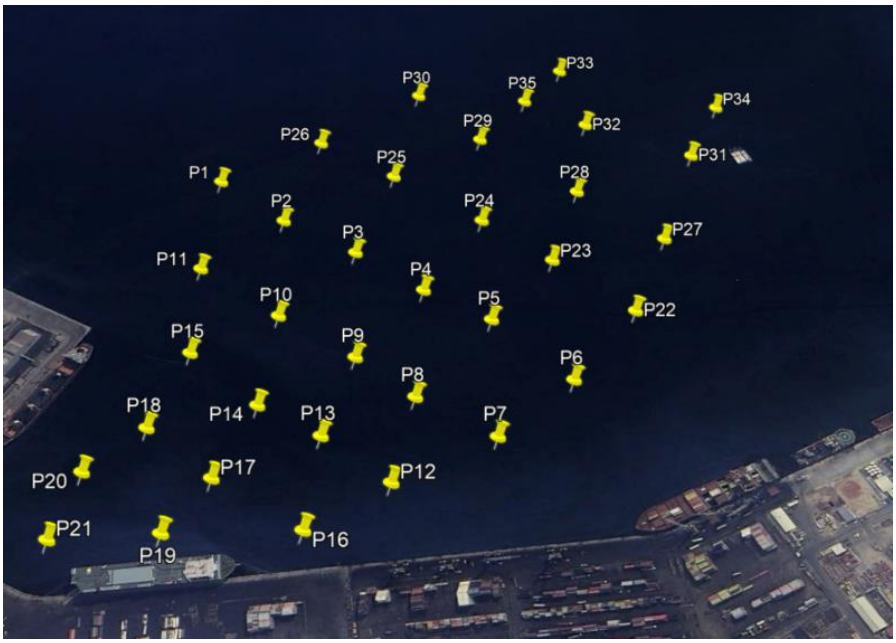


Figure 147. Points Planned for Video Scanning. Source: TYPSA-elittoral

Below are the coordinates of the points used to position the towed-camera system and make the recordings. A Garmin Etrex 10 GPS is used for continuous georeferencing in the water.

ID	UTM [33L]	
	X (m)	Y (m)
P1	307322	9027491
P2	307417	9027413
P3	307519	9027353
P4	307612	9027285
P5	307701	9027234
P6	307802	9027135
P7	307704	9027047
P8	307603	9027107

ID	UTM [33L]	
	X (m)	Y (m)
P9	307526	9027170
P10	307423	9027239
P11	307312	9027322
P12	307576	9026980
P13	307489	9027047
P14	307408	9027093
P15	307315	9027176
P16	307476	9026914
P17	307363	9026985
P18	307276	9027058
P19	307313	9026909
P20	307208	9026993
P21	307184	9026900
P22	307890	9027250
P23	307786	9027340
P24	307692	9027415
P25	307568	9027503
P26	307460	9027573
P27	307942	9027381
P28	307828	9027473
P29	307693	9027582
P30	307602	9027680

ID	UTM [33L]	
	X (m)	Y (m)
P31	307999	9027549
P32	307850	9027615
P33	307819	9027739
P34	308049	9027655
P35	307762	9027668

Table 70. Coordinates of the planned points. Source: TYPSA-elittoral

Traditionally, video scanning is used to visualize large areas of the seabed, on which the state of different ecosystems (moorlands, corals, rocky deposits, etc.) is to be assessed. This technique is based on long transects during which the equipment descends (between 1 and 2 meters) over the seabed and is towed while the seabed characteristic is assessed and recorded in real-time.

On a regular basis, this system is used on the seabed with known topography. In the case of unknown seabed or in those with possible presence of structural hazards, such as a port, where the presence of ropes, blocks, or rubbish deposited on the bottom can result in a risk for the equipment and may cause the equipment to become entangled during towing, the towing system is replaced by a vertical lowering system.

This methodology aims to avoid the potential hazards present in the area and minimize the risks of entanglement. For this vertical descent system, a dense mesh of points is established. This mesh is based on previous information available in the area (geophysics, maps, topography), and the aim is to cover all those structures considered of interest. If no prior information is available or in areas with no structure of interest, the mesh is distributed homogeneously to ensure total coverage of the region.

In the case of the Luanda harbor project, based on TYPSA-elittoral's previous experience in video scanning sampling in port areas, the vertical descent system was chosen to ensure the equipment's integrity and obtain the best possible results.

10.3.4.4. Benthic habitat survey and mapping results

a. Bottom morphology

The information obtained through reviewing previous area studies and validated through the video sweep campaign confirmed that all study areas have a soft bottom of the very fine-grained sludge type (Figure 148), which is expected in a port area.

Figure 148. Muddy fine sediment is present in the totality of the area. Source: TYPSA-elittoral.

Almost a third of the points (2, 6, 7, 10, 20, 29, 31, 33 and 35) showed an accumulation of calcareous debris of biogenic origin (Figure 149).

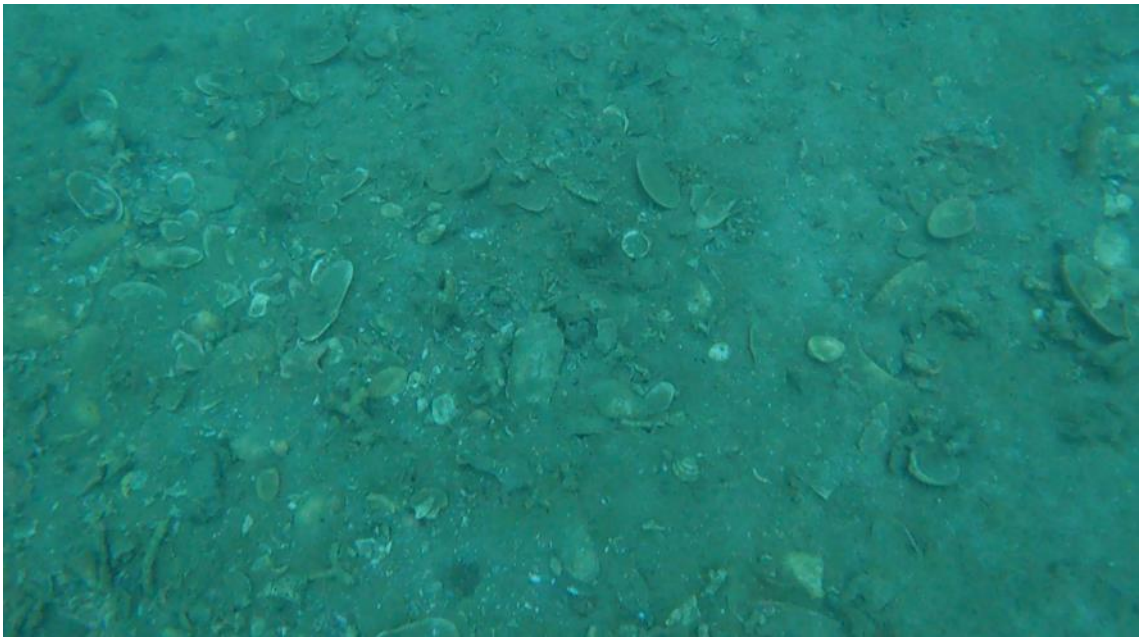


Figure 149. Mud with gravel at Point 2. Source: TYPSA-elittoral.

On the other hand, rocky outcrops or large blocks were located at the following points:

- Point 1: A large metal plate can be seen (Figure 150)
- Point 6: A small rocky outcrop buried in the mud is observed (Figure 151)
- Point 15: A large metal block is observed (Figure 152)

- Point 17: A large stone or block is observed (Figure 153)
- Point 25: A grouping of small stones is observed (Figure 154)
- Point 28: A rocky outcrop is observed (Figure 155).

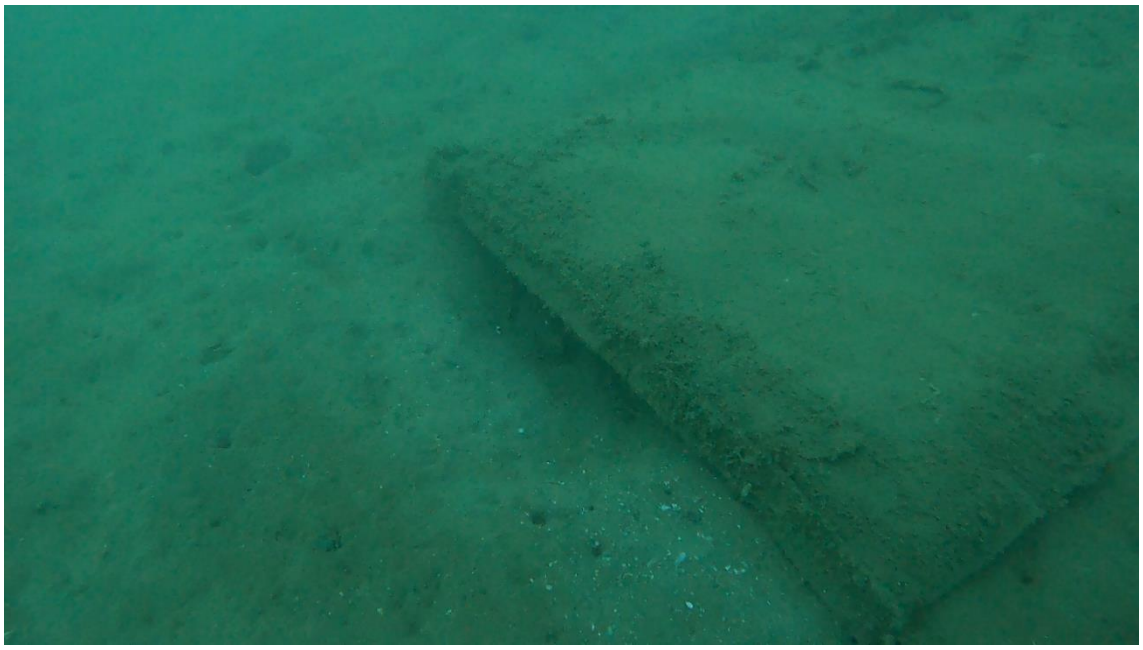


Figure 150. Metal plate at Point 1. Source: TYPSA-elittoral.

Figure 151. Metal plate at Point 6. Source: TYPSA-elittoral.

Figure 152. Large block in Point 15. Source: TYPSA-elittoral.

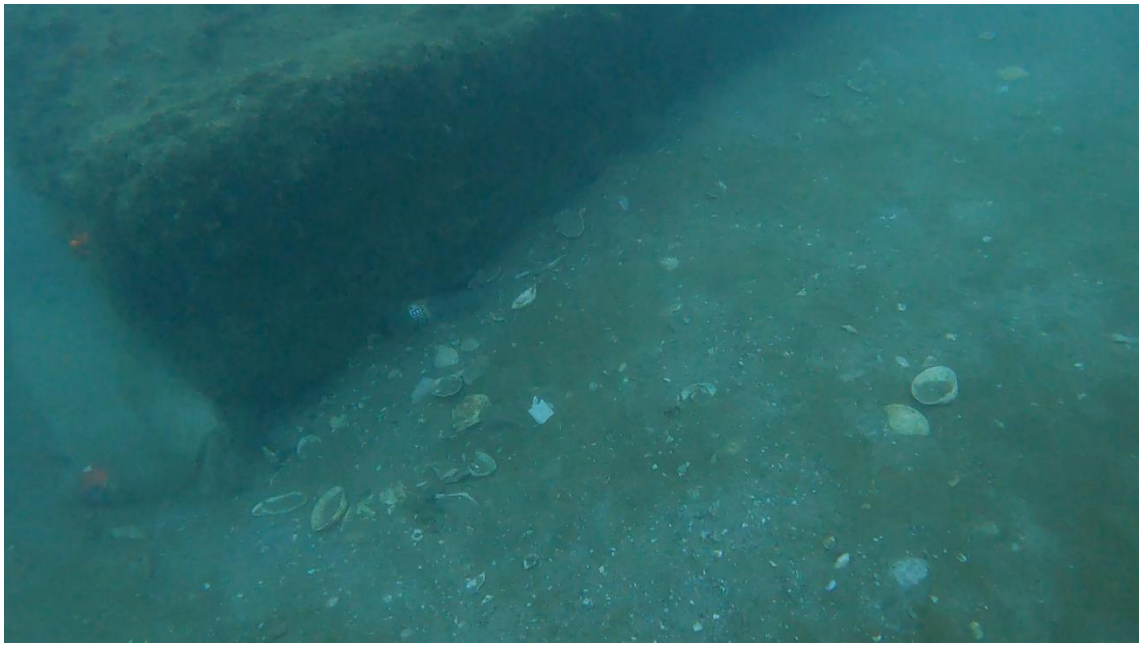


Figure 153. A large stone at Point 17. Source: TYPSA-elittoral.

Figure 154. Grouping of stones at point 25. Source: TYPSA-elittoral.

Figure 155. Rocky outcrop at Point 28. Source: TYPSA-elittoral.

With all this information and the review of previous works, it is possible to make a map with geographical accuracy of the nature of the seabed present in the study area represented in Figure 156.

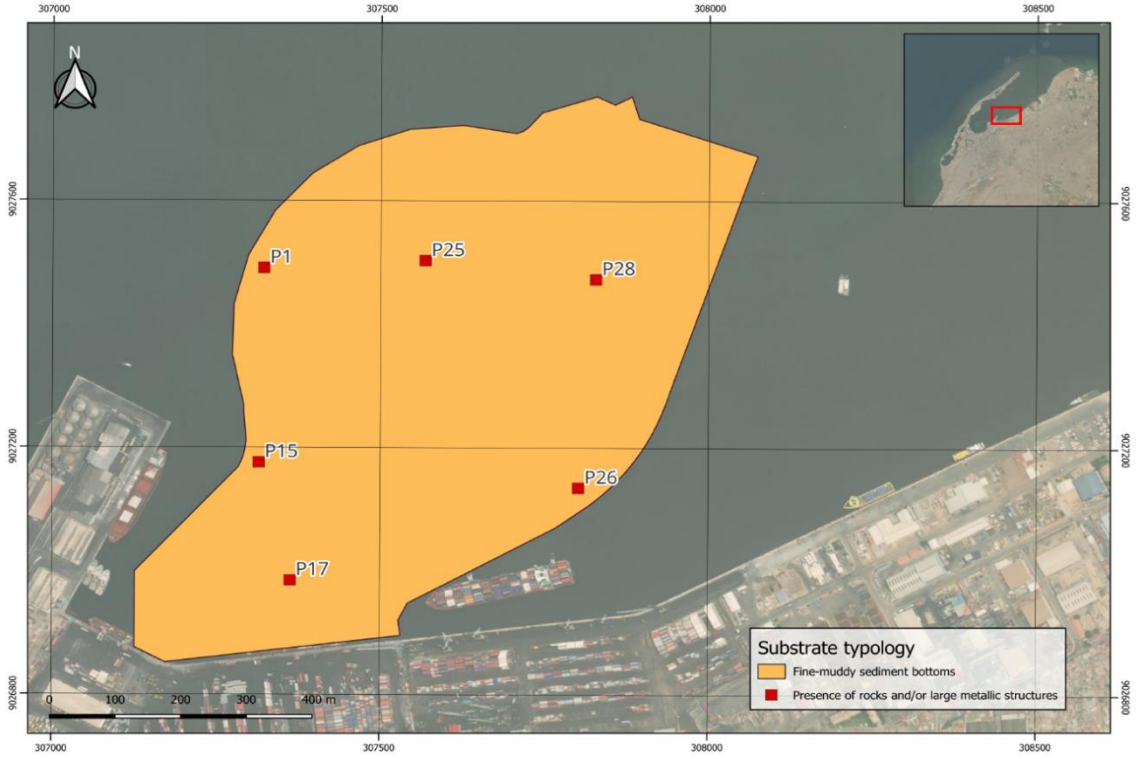


Figure 156. Map of substrate typology. Source: TYPSA-elittoral.

As described above, the entire study area has a morphology of fine, muddy sediment, characteristic of port areas, and the points where rocky outcrops or large metal blocks have been observed are marked on the map.

b. Bionomic survey of the area

This bionomic study aims to detect the central benthic communities in the area and subsequently study the possible impact of the works on them.

Due to the scarcity of rock outcrops in the study area, benthic communities are greatly limited in the study area, as they are more abundant in rigid substrate. Practically all of the observed bottom is mud, where in some points, we have observed holes in lagoons that seem to have been made by some organisms, as shown in Figure 157.

Figure 157. Holes in the mud at point 33. Source: TYPSA-elittoral.

On the other hand, there is a series of points where there is a small algal filamentous turf that covers the surface of the mud and spreads with a variable density, but in none of the points is it too high or of great biological interest (**Figure 158**).

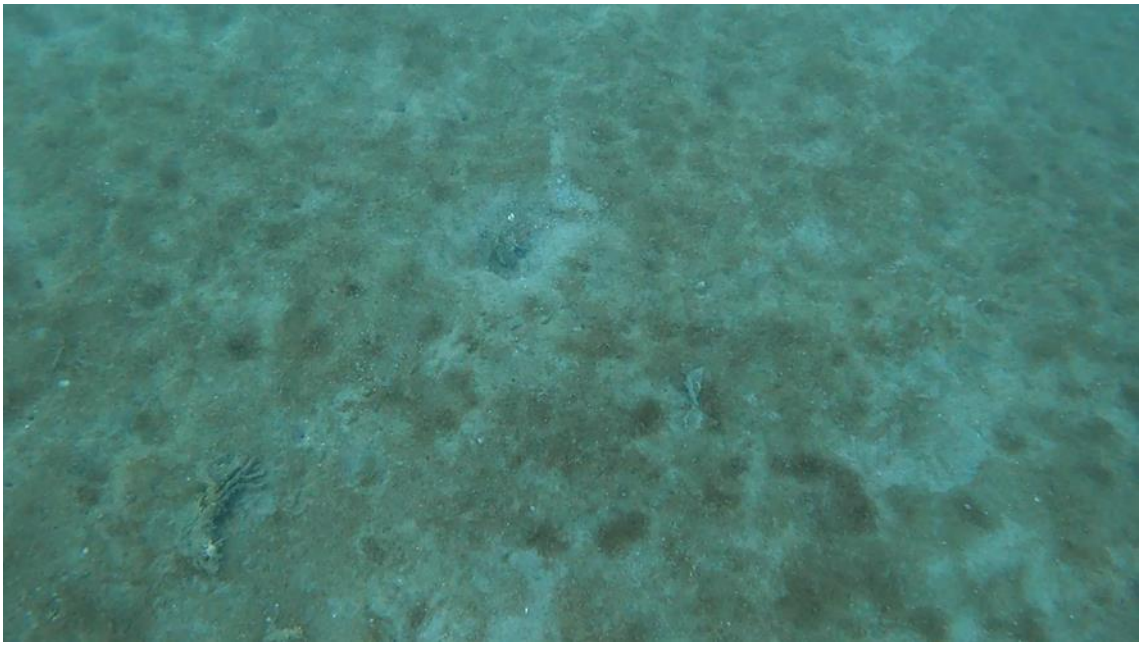


Figure 158. Mud covered by filamentous turf at Point 4. Source: TYPSA-elittoral.

Some points were also observed where there was the presence of marine invertebrates associated with sandy bottoms, as observed in Figure 159 to Figure 166.

Figure 159. Marine invertebrate at Point 2. Source: TYPSA-elittoral.

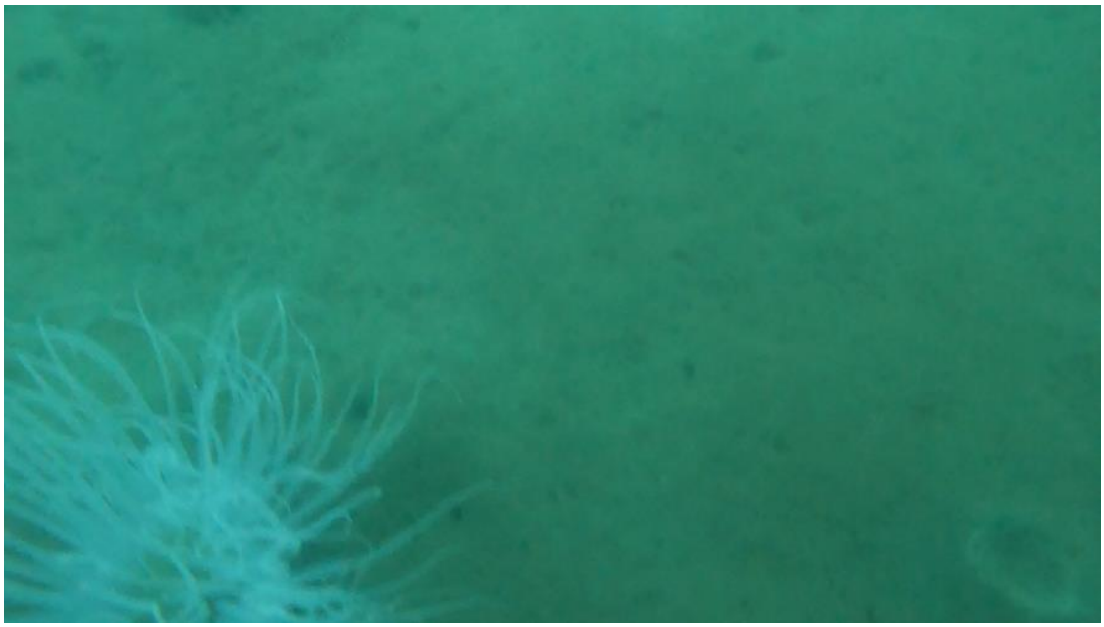


Figure 160. Marine invertebrate at Point 11. Source: TYPSA-elittoral.

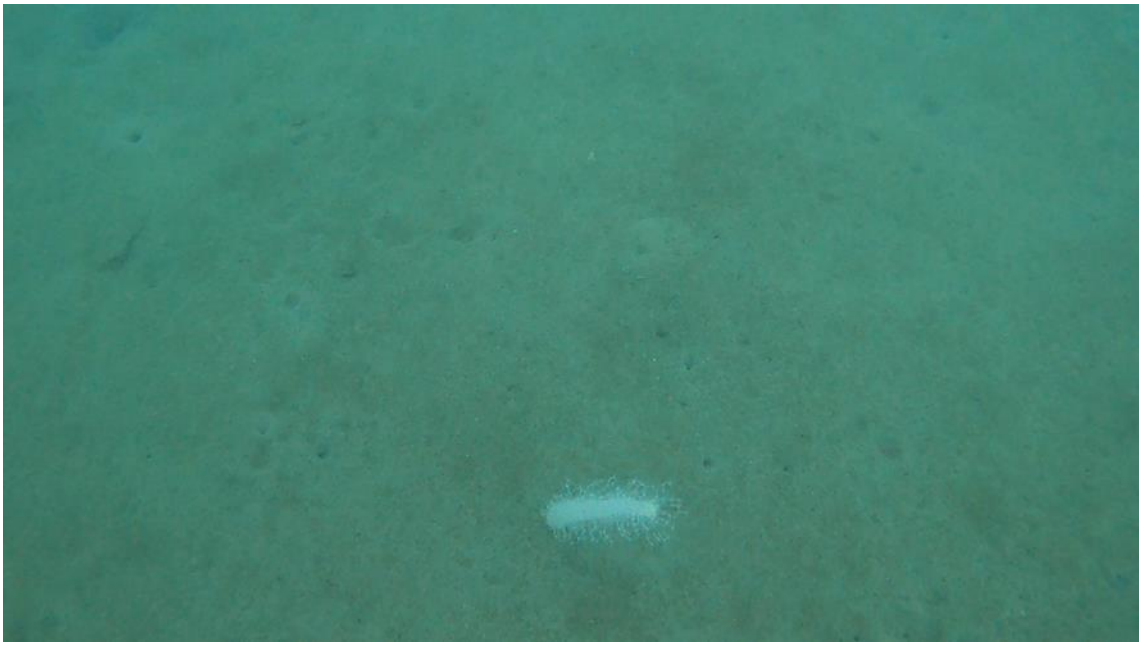


Figure 161. Marine invertebrate at Point 22. Source: TYPSA-elittoral.

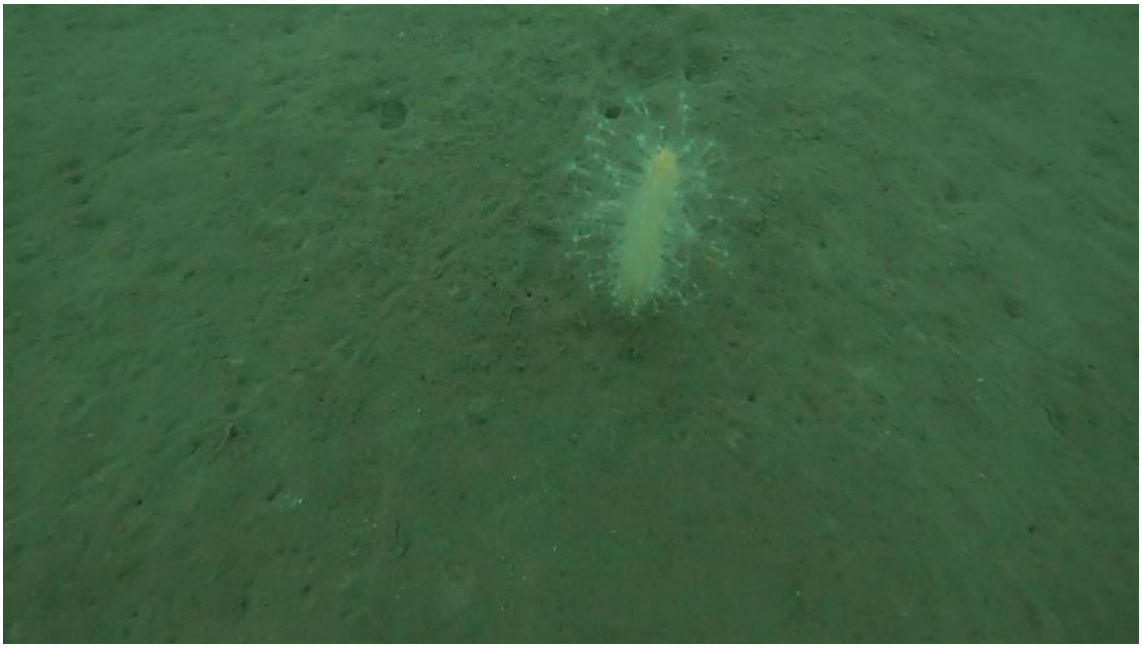


Figure 162. Marine invertebrate at Point 23. Source: TYPSA-elittoral.

Figure 163. Marine invertebrate at Point 27. Source: TYPSA-elittoral.

Figure 164. Marine invertebrate at Point 28. Source: TYPSA-elittoral.

Figure 165. Marine invertebrate at Point 31. Source: TYPSA-elittoral.

Figure 166. Marine Invertebrate at Point 34. Source: TYPSA-elittoral.

With this information, a small map summarizes what was observed during the campaign. There are three main areas: the mud with no apparent biological presence, an area where a layer of algal filamentous turf covers the mud, and finally, two small areas where all invertebrate sightings are concentrated in the study area (Figure 167).

Figure 167. Map of Benthic Biological Communities. Source: TYPSA-elittoral.

Additionally, as for the ichthyofauna record, not much biomass is observed, which is expected since it is not the ideal technique. Only small fish were observed, of which the following images are shown:

Figure 168. Fish observed at Point 15. Source: TYPSA-elittoral.

Figure 169. Fish observed at Point 17. Source: TYPSA-elittoral.

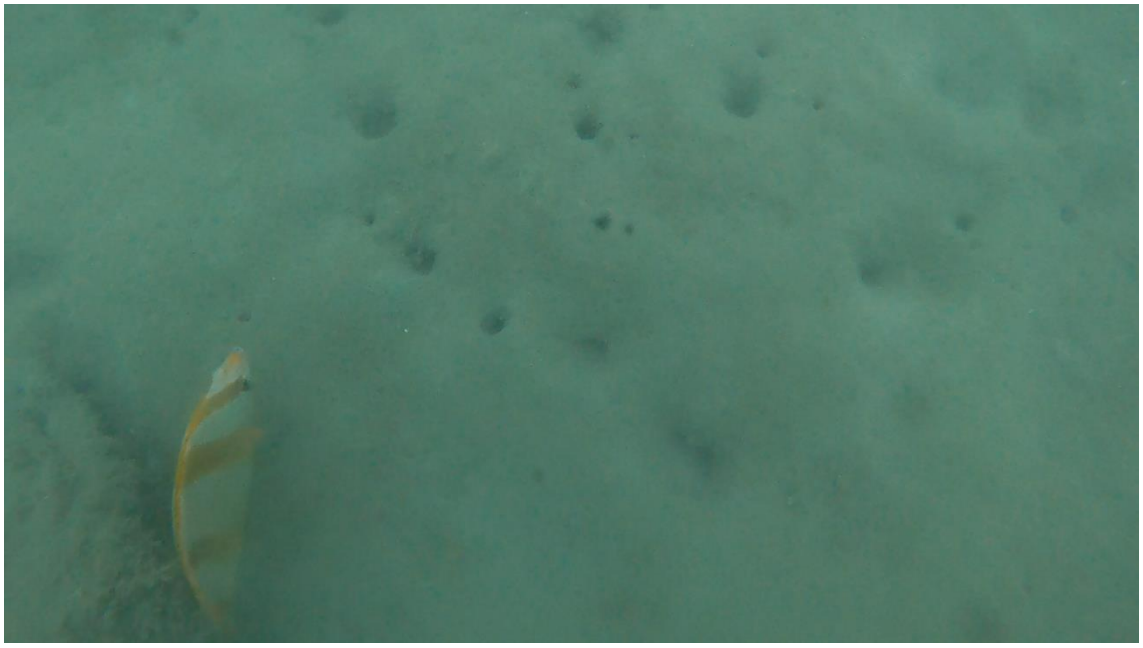


Figure 170. Fish observed at Point 27. Source: TYPSA-elittoral.

10.3.4.5. Results interpretation

a. Marine wildlife and ecological environment results interpretation

The investigation results indicate the expected situation for an area near a large city and a port, characterized by high population density and marked contamination in coastal environments. This contamination is mainly due to various types of waste and pollution affecting water quality.

Throughout the different sampling stages, it was observed that birds are the most abundant species, with *Sterna maxima*, *Egretta garzetta*, and *Ardea cinerea* being the most notable. These species are classified as Least Concern in the IUCN Red List and have no national or international protection.

During the terrestrial campaigns, two bird species, *Calidris ferruginea* and *Limosa lapponica*, were identified on Mussulo Island. Both species are classified as Near Threatened on the (IUCN) Red List. However, the Unicargas Project would not impact these species due to the long distance between the habitat where the birds were found and the port.

In local markets, a wide variety of species of fishing interest were found, among which only one species was classified as Critically Endangered (*Rhinobatos sp*), and six species classified as Vulnerable (*Sardinella maderensis, Thunnus obesus, Pomatomus saltatrix, Decapterus punctatus, Chaceon maritae, Trachurus trachurus, Dasyatis margarita*).

Rhinobatos sp. is a benthic species that is at a critical risk of extinction. It typically inhabits muddy and sandy areas, but it is also a strong swimmer. Unfortunately, the species has experienced a population decline mainly due to fisheries. Additionally, it has disappeared from environments that have been degraded by human activities. As a result, it is rare to find *Rhinobatos sp.* in busy and polluted port areas.

In the marine observation activities, only birds were spotted, and no sightings of cetaceans or sea turtles were made. Among the birds sighted, the *Sterna maxima* was the most abundant and does not have any official protection.

In 2017, environmental, health, and safety guidelines were published for ports, docks, and terminals. These guidelines suggest that any activity carried out in the marine environment can cause ecological consequences on the surrounding ecosystems. Therefore, we have used the inspection and description of the biological communities present in the area to serve as a baseline for the following activities of the Unicargas Project in the work area.

It is important to note that the species predominantly found in the area are pelagic in nature, indicating that the fishing grounds are not close to the Unicargas Project area. Moreover, it is essential to highlight that the area is heavily influenced by anthropogenic activities due to the existence of the port, which already impacts the fauna.

b. Benthic habitat survey and mapping results interpretation

The results obtained in this campaign are those expected for a port area: an area with high pollution, very fine sludge-like sediment and little biological presence. Few rock outcrops have been observed in the area, further limiting the biological diversity of the study area.

Thus, no organisms of high biological interest have been observed, except for the areas indicated above where a small concentration of invertebrates were spotted associated with soft bottoms. However, in any case, solitary individuals are located, not representing a biological community.

Thus, the conclusion of this study is, as expected, a very anthropogenic seabed with large amounts of garbage of different types, little apparent biological richness and homogeneity in the seabed characteristic of commercial ports influenced by port and human activity.

As mentioned in the environmental, health and safety guidelines for ports, harbors and terminals published in 2017, any work in the marine environment entails an alteration that causes potential ecological impacts on the ecosystems present. For this reason, we will take this inspection and description of the biological communities present in the area as a reference to analyze the possible influence of the activities regarding the Unicargas Project in the work area and make it clear that the apparent biological richness in the sampled area is low. Furthermore, the IUCN red list does not catalogue the few invertebrates sighted.

c. Interpretations of the environmental findings against regulatory environmental Standards and IFC Performance Standards

Throughout the activities carried out in the fieldwork, the criteria established by IFC standards were followed, according to the document "Environmental, Health, and Safety Guidelines - Ports, Harbors, and Terminals", published by IFC in February 2017, as a guideline for the construction and operation of new port and terminal facilities, or the expansion of existing facilities, which involve activities such as land reclamation, clearing and paving (or compacting) for loading/unloading zones, bulk dry/liquid and containerized cargo storage areas, fuel depots, buildings, and roads.

The IFC standards for dredging-related work, which are part of the works related to this project, state the following:

- Areas of high biodiversity value and areas of aquatic life used for feeding, breeding, and migration routes should be identified.
- The timing of the activities should consider seasonal factors such as migration periods, breeding and growing seasons, feeding times, and periods of reduced ecosystem resilience.

Thus, this study combines a bibliographic review with diversified and complete fieldwork identify the high-ecological-value areas in the region of Luanda, and highlight the most representative seabirds, marine mammals, fish, and marine invertebrates.

Besides, different campaigns are carried out within the Site, to obtain global information that helps us determine the species and communities that are present in the Site and can be influenced by the Unicargas Project.

Thus, after the work carried out by the TYPSA-elittoral team, both in the literature review and in the field, some final considerations can be drawn up that summarize all the multidisciplinary work that has been carried out.

- First, an in-depth literature review of Angolan fauna and flora in the Site and its surroundings is carried out to reference species visibly affected by the activities in the work area, with particular emphasis on those most vulnerable or endangered. After this review, it is concluded that:
    - Regarding marine mammals, there is no potential impact on local species in the work area since all cetacean sightings are collected more than ten miles from the port, so the interior of the port of Luanda is not a transit area for marine cetaceans. Thus, no specific considerations regarding seasonal factors should be considered.
    - Marine reptiles: the sea turtle breeding areas are far from the work area and would also be outside the Site. Thus, no specific considerations regarding seasonal factors should be considered.

- There are no records of nesting of protected seabird species in the area. Thus, no specific considerations regarding seasonal factors should be considered.

These are the three main groups of animals potentially affected by the work. Besides, the literature reported from local fisheries shows that most of the species caught in the area do not present any restriction.

- Besides, there are field works carried out in the area, from which some expected conclusions are drawn from the previous bibliographic review and the work area's peculiarities.
  - Marine campaigns of whales, turtles and seabirds were carried out mainly, where the result was relatively poor since only seabirds were detected, with a deficient number of species and individuals.
  - Land campaigns were also carried out near the port of Luanda with a similar result to the marine environment.
  - Finally, a study of the local fish markets is carried out, where apart from registering all the species, local fishermen and sailors were interviewed to get all the possible information. Still, the bibliographic study reaches the same conclusion since almost all the species registered have neither protection nor a high degree of vulnerability. The few species that do, such as *Rhinobatos sp.*, are not usually found in port areas or the vicinity.
- Finally, a video sweep study of the specific work area is also carried out for the morphological and bionomic survey of the area. Here, we observe that there is not a significant presence of benthic organisms in the region since almost the entire area is muddy, and there are no areas with an apparent biological richness.

In addition to all these studies, TYPSA-elittoral team observed that the pollution level within and around the work area is also highly noteworthy, with a high concentration of plastics and remains of human activity.

To sum up, the Unicargas terminal is a highly anthropogenic area, where, apparently, there are neither many individuals nor species listed as critically endangered or vulnerable within the Site or in the closest surroundings.

10.3.4.6. Identification of communities or groups that may be affected by the project

The project area is an industrial zone with a lot of transportation activity, including trucks and ships. The port is situated in an area with institutional buildings like ministries, embassies, and corporate headquarters, making it more commercial and work-oriented than residential. There is a large promenade by the sea where people can be seen playing sports or strolling, but most of them are usually hotel guests. Although it is not a tourist area, it does have a considerable number of foreigners who come for work purposes.

The Unicargas Project may cause some noise disturbance for the workers, but it will not significantly impact the surrounding population. It's worth noting that the ecosystem in which the port is located is heavily degraded, with a decline in both flora and fauna populations. The impact of the works on terrestrial fauna will be minimal, and the few birds found in the port area will move to quieter areas. The marine communities present are scarce due to the resuspension of sediments caused by the daily influx of ships, resulting in sub-optimal environmental conditions.

Based on observations and interviews with fishers conducted during the surveys, few fishing activities take place inside Luanda Bay. In the vicinity, in the outer part of the Ilha do Cabo, there is some artisanal fishing,

and to the North, outside the Luanda Bay, there is also artisanal fishing close to the coast. Still, it was not observed that these activities occur within the bay. Large fisheries with large vessels are carried out offshore. These vessels anchor within Luanda's bay but don't carry out their activities within it.

10.4. Socio-economic baseline conditions

The characterization of the social and economic environment relies on information obtained from literature, reports, and yearbooks in January 2024. Assessing the current situation will establish the basis for forecasting and evaluating the impacts generated by the Project.

In this regard, applicable Angolan legislation and best practices in environmental impact assessment are considered. The analysis and characterization of the social, economic and urban-territorial framework of the project area was carried out with a national approach, but mostly provincial. The national and provincial approach is carried out at the level of the general framework, and due to the lack of available data, a detailed local analysis was not carried out at the level of the municipality and district. This characterization aims to facilitate the accurate identification and evaluation of the expected impacts resulting from the Project's implementation.

The national, regional and socio-demographic characterization was mainly based on the Definitive Results of the 2014 Angolan General Population and Housing Census (2014 Census), with data from other statistical yearbooks and bulletins being used when necessary.

10.4.1. General framework

As stated in the Nationally Determined Contribution of Angola (NDC) document, Angola has been an independent nation since 11th November 1975, following over 500 years of Portuguese colonization, and has maintained political stability since the end of the 27-year civil war in 2002. In 2010, a constitution established a presidential parliamentary system with the president no longer elected by direct popular vote but instead as the head of the party winning the most seats.

Angola has made substantial economic and political progress since the end of the war in 2002. However, the country continues to face massive development challenges, which include reducing its dependency on oil and diversifying the economy; rebuilding its infrastructure; and improving institutional capacity, governance, public financial management systems, human development indicators, and the living conditions of the population.

The World Bank classifies the world's economies into four income groups — high, upper-middle, lower-middle, and low. The Republic of Angola is a lower-middle income country and is transitioning to be classified as an upper-middle income country.

The country has one of the lowest demographic densities in the world with only 20.6 inhabitants per km^2 and vast regions with no inhabitants or with less than 5 inhabitants per km^2, however continues to have one of the highest fertility rates of Africa (registering 5.9 children per woman on average in 2010-2015). Despite the demographic density is globally low, it is extremely unequal: the urban areas, which are constantly expanding, are contrasted with large sparsely populated areas, particularly in the provinces located along to the coast of the country.

10.4.2. Administrative framework

With an area of 1,246,700 km^{2,} Angola is administratively divided into 18 provinces, namely: Bengo, Benguela, Bié, Cabinda, Cuando Cubango, Cuanza Norte, Cuanza Sul, Cunene, Huambo, Huíla, Luanda, Lunda Norte, Lunda Sul, Malanje, Moxico, Namibe, Uíge and Zaire.

The province of Luanda, Figure 171, where the study area is located, is situated on the northern coast of Angola, covering an area of 18,826 km ^{2} and bordered by the province of Bengo to the North, the province of Kwanza Norte to the East, the province of Kwanza Sul to the South and the Atlantic Ocean to the West. Regarding the study area (considering the area of the Unicargas Terminal), is located in the province and municipality of Luanda, urban district of Ingombota, in the Bairro da Boa Vista.

According to the Angolan Government´s website (2024), Luanda province is made up of 9 municipalities, 22 communes and 41 urban districts. However, in this context it should be noted that the political-administrative division of the Luanda province established by Law no. 29/11 of 1 September, has not yet been fully implemented, particularly regarding the organization and internal structure of territorial units of municipalities. Consequently, in terms of socioeconomics, the existing and available data is based on the political-administrative division of Luanda province established under the terms of Decree-Law no. 02/07, of 3 January.

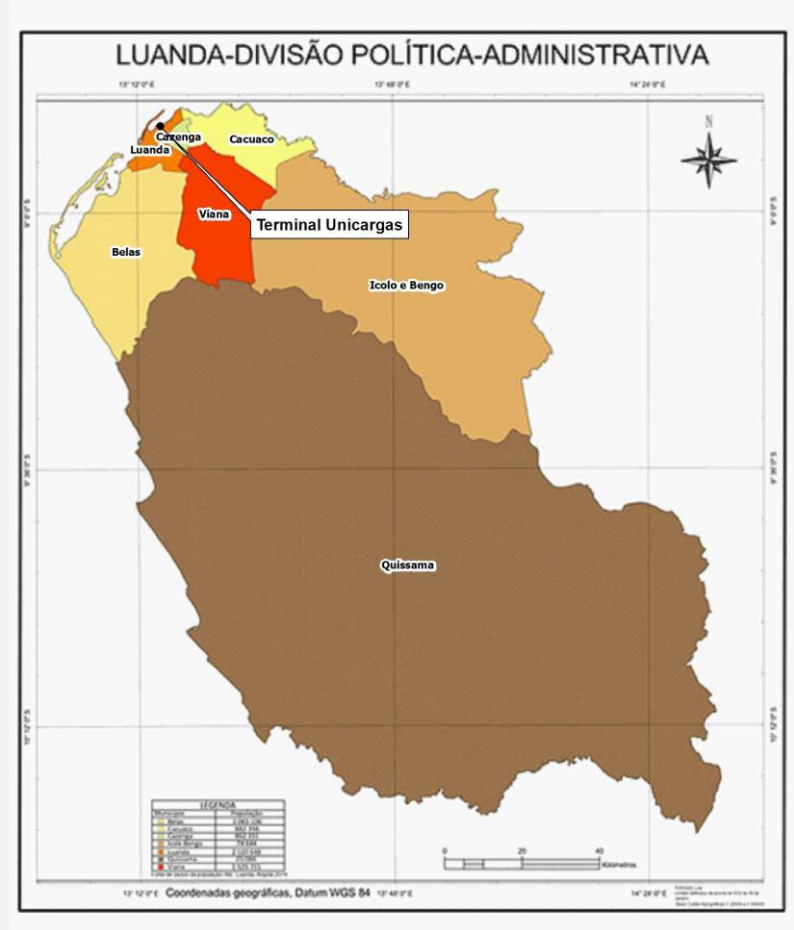


Figure 171. Administrative division of the province of Luanda. Source: TopoGIS Tecnologias, 2024

10.4.3. Vulnerable groups

Vulnerable groups are those segments of the population that are often at a heightened risk of adverse effects from project impacts or may face greater limitations in accessing the potential benefits of a project. Individuals or groups may be considered vulnerable due to attributes such as race, color, sex, language, religion, political or other opinions, national or social origin, property, birth, or other circumstances. Furthermore, factors like gender, age, ethnicity, cultural background, literacy levels, illness, physical or mental disabilities, poverty, economic marginalization, and reliance on unique natural resources also warrant consideration.

Trafficking in Persons Report (U.S. Department of State)

The U.S. Department of State's Trafficking Victims Protection Act (TVPA) of 2000 provides a detailed definition of human trafficking, focusing on two main types. First, it defines "severe forms of trafficking in persons" as situations involving sex trafficking where a commercial sex act is induced by force, fraud, or coercion, or where the victim is a minor under 18. Second, it addresses labor trafficking, describing the recruitment, harboring, transportation, provision, or obtaining of individuals for labor or services through force, fraud, or coercion, intended to subject them to involuntary servitude, debt bondage, peonage, or slavery. Importantly, physical movement of the victim is not necessary to meet this definition.

In its 2024 Trafficking in Persons Report, the U.S. Department of State classified Angola as a Tier 2 country, indicating that while Angola has not yet met the minimum standards for the elimination of trafficking, it has shown a commitment to making progress. Over the past year, the Angolan government took steps such as increasing investigations and prosecutions of traffickers, ensuring all identified victims received services, and collaborating with foreign governments on cross-border trafficking cases. However, certain critical areas still require improvement. The government identified fewer trafficking victims than in prior years, lacked sufficient protection services such as shelter access, and did not allocate adequate resources for its National Action Plan. Additionally, it has yet to establish labor regulations or prohibitions against worker-paid recruitment fees, limiting effective oversight of labor recruitment and leaving migrant workers more vulnerable to trafficking.

Labor law enforcement in Angola faces systemic challenges, including insufficient resources, corruption, and the limited scope of inspections to the formal economy, which only employs a quarter of Angolans. In 2023, Angola conducted over 8,000 labor inspections, but it did not report any instances of identifying forced labor victims nor did it report specialized training for inspectors on human trafficking. Despite budget increases for the labor inspectorate, the number of inspectors remains inadequate relative to the size of Angola's workforce. These constraints, combined with a lack of child labor-specific inspections, contribute to a persistent risk of forced and child labor.

Human traffickers in Angola exploit both domestic and foreign victims, with Angolans, including children as young as 12, coerced into forced labor across sectors such as brick making, construction, agriculture, fisheries, and diamond mining.

Young Angolan girls, some as young as 13, fall victim to sex trafficking, while children, including those from the Democratic Republic of Congo, are used in forced criminal activities such as petty theft. Refugee children lacking identity documents face added vulnerability, as they are unable to access education, leaving them susceptible to exploitation. Rural children are increasingly brought to Luanda for street work such as begging and car washing, where they risk forced labor under traffickers.

To address these challenges, the report recommends Angola intensify its efforts in investigating and prosecuting trafficking crimes, particularly in high-risk sectors like construction, mining, and animal herding, and ensure convicted traffickers face substantial prison terms. Enhanced regulation and enforcement, increased training for labor inspectors, and protective measures for vulnerable groups, especially children, are also highlighted as crucial steps toward tackling human trafficking and protecting at-risk populations in Angola.

Report to the United Nations Committee on Economic, Social and Cultural Rights (CESCR)

Angola's sixth periodic report to the United Nations Committee on Economic, Social and Cultural Rights (CESCR), submitted in 2023, provides an update on its efforts to uphold commitments under the International Covenant on Economic, Social and Cultural Rights, focusing on developments from 2017 to 2023. Angola recognizes the challenges to the implementation of the Covenant but reiterates its commitment to voluntarily upholding, respecting and protecting human rights in accordance with the provisions of the Covenant.

- Legislative and Institutional Framework: the report highlights Angola's legislative alignment with anti-discrimination principles, particularly through Article 23 of the Constitution and Article 212 of the Criminal Code, which penalizes discrimination across several dimensions, including race, gender, disability, and sexual orientation. Cases of discrimination, such as one involving a disabled woman in Namibe, have been addressed through legal channels.
- Gender Equality: Angola has implemented significant measures to promote gender equality, including the National Development Plan (2018–2022) and the National Gender Equality Plan. These initiatives focus on empowering women in social, economic, and political spheres, with targeted programs for women's entrepreneurship, support for victims of gender-based violence, and community development. Representation of women in government has increased, with women occupying high-level positions and constituting a substantial percentage of judiciary and legislative roles.
- Employment and Economic Diversification: a core focus of Angola's development plan is to foster job creation through economic diversification, especially in agriculture, fisheries, and forestry, aiming to reduce rural poverty and promote food security. The report notes a significant rise in the working-age population but a challenge in reducing unemployment. Approximately 80% of Angola's workforce remains in informal sectors, with higher rates in rural areas, among women, and among youth.
- Vocational Training and Employment Policies: between 2018 and 2022, vocational training facilities grew significantly, providing short courses in business and technical skills. A Plan of Action for Employability (2019–2023) sought to support vulnerable groups, including women and youth, by promoting self-employment and entrepreneurial skills. The upcoming national employment strategy (2023–2027) aims to enhance these efforts further.
- Support for Vulnerable Groups: Angola's Constitution provides for free legal aid, and alternative dispute resolution centers have assisted thousands, with 40% of users being women. Programs are in place to offer vocational training and job placements for people from disadvantaged backgrounds, supported by public-private partnerships to match training with market needs.

10.4.4. Population dynamics of the province of Luanda

According to the 2014 census, Luanda province had 6,945,386 inhabitants, representing 26.9% of the country´s entire resident population (25,789,024 inhabitants). In terms of type of residence, most of the population of Luanda province lives in urban areas, 97% (6,760,439 inhabitants), which is considerably higher than the national figure of 62% (16,153,987 inhabitants).

At municipal level, according to information from the 2014 Census, the municipality of Luanda is the second most populous with 1,852,737, representing around 20% of the entire provincial population. With less than 100 thousand inhabitants, it is possible to find the municipality of Quiçama with just 35,782 inhabitants.

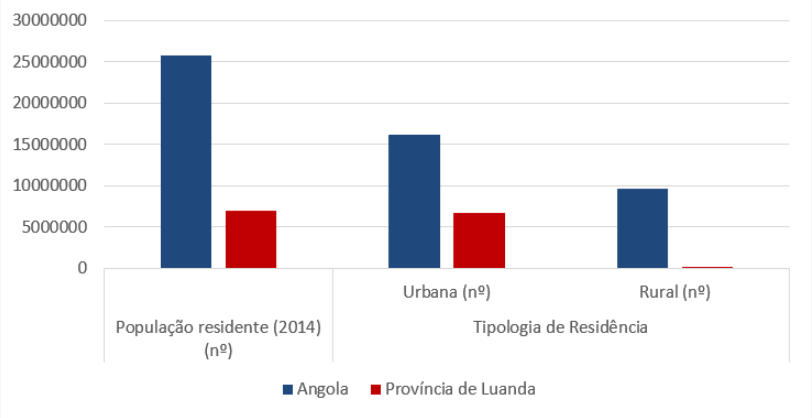


Figure 172. Population residing in Angola and Luanda province. Source: Final data from the 2014 Census (INE, 2024)

The marked asymmetry of regional development means that most people leave their original localities and areas of residence to settle in Luanda, as this is an economically more developed province.

10.4.4.1. Demographic structure

Gender

Table 71 provides population projections for the years 2023, 2024 and 2025 by gender in Angola and in the province of Luanda. The data has been extracted from the Population Projection document for Angola 2014-2050, published by the National Institute of Statistics (INE) of Angola in 2016.

	2023			2024			2025		
	Total	Man	Woman	Total	Man	Woman	Total	Man	Woman
Angola	34, 094, 077	16, 651, 535	17, 442, 542	35, 121, 734	17, 165, 289	17, 956, 445	36, 170, 961	17, 689, 759	18, 481, 202
Province of Luanda	9, 359, 552	4, 611, 201	4, 748, 351	9, 639, 901	4, 751, 328	4, 888, 573	9, 920, 997	4, 891, 775	5, 029, 222

Table 71. Population estimates in the province of Luanda, estimated for 2023, 2024 and 2025. Source: INE Population Projection 2014-2050.

The following table shows the population estimate by sex for the years 2023 and 2024 for the municipality of Luanda.

	2023			2024		
	Total	Man	Woman	Total	Man	Woman
Municipality of Luanda	2, 918, 492	1, 419, 015	1, 499, 478	3, 005, 894	1, 462, 136	1, 543, 758

Table 72. Population estimates in the municipality of Luanda, estimated for 2023, 2024 and 2025. Source: INE Population Projection 2014-2050 of the Province of Luanda.

In the province under scrutiny, the urbanization rate of the total population allows for categorizing the population as predominantly urban (Table 73).

In other words, most of the population resides in urban areas due to the underdevelopment in rural regions. These rural areas face significant deficits, ranging from employment opportunities, access to electricity, clean drinking water, basic sanitation, healthcare institutions, and various essential products and services for the population.

The data has been extracted from the Population Projection document for the province of Luanda 2014-2050, published by the National Institute of Statistics (INE) of Angola in 2016.

	2024					
Province	Urban			Rural		
	Total	Man	Woman	Total	Man	Woman
Luanda	9, 406, 581	4, 633, 268	4, 773, 313	233, 320	118, 060	115, 260

Table 73. Categorization of population estimates into urban and rural. Source: INE Population Projection 2014-2050 of the Province of Luanda.

Age structure

According to the Luanda Province Population Projection 2014-2050 (INE 2024), the population structure of the Luanda Province in 2024 shows considerably young age pyramid (Figure 173), corroborated by a considerably high percentage of the population aged between 0 and 14 years (40.7%) and a small number of people aged 65 or over, 2.2%. This trend is linked to high birth and death rates (a consequence of average life expectancy). The population structure also shows a slight numerical superiority of the female gender (translated into a masculinity index of 97.2 men for every 100 women). The superiority of the female gender is more evident from the 10-14 age group onwards.

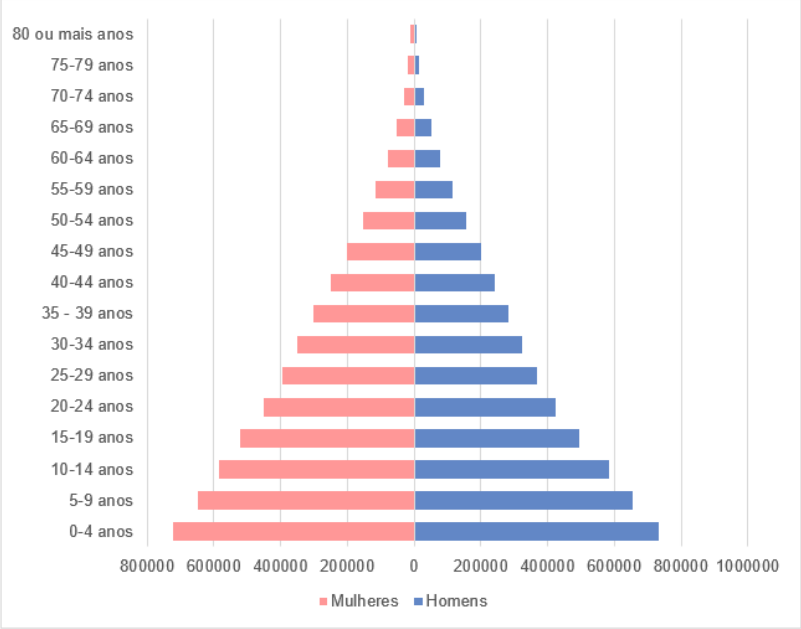


Figure 173. Projected population by age group for Luanda province, 2024. Source: Population Projection of the Province of Luanda 2014-2050 (INE 2024)

Regarding the age distribution of the population in the province of Luanda projected for the year 2024 in the previously mentioned document, a grouping of age has been made and is presented in the table below:

Province and Age Group	Total		Man		Woman	
	N. º	%	N. º	%	N. º	%
Luanda	9, 639, 901	100%	4, 751, 328	100%	4, 888, 573	100%
0-14 years old	3, 924, 443	40. 7%	1, 967, 116	41. 4%	1, 957, 327	40%
15-24 years old	1, 890, 966	19. 6%	918, 495	19. 3%	972, 471	19. 9%
25-64 years old	3, 612, 422	37. 5%	1, 766, 907	37. 2%	1, 845, 515	37. 8%
65 and over years old	212, 070	2. 2%	98, 810	2. 1%	113, 260	2. 35%

Table 74. Population by province and age group, according to gender, estimated for 2024. Source: INE Population Projection 2014-2050 of the Province of Luanda

The age pyramid show above is in turn reflected in the ageing and longevity index (Figure 173). According to data from the Luanda Province Population Projection (2014-2050), Luanda province has a considerably low ageing index, meaning that for every 100 residents aged up to 14 years, there were 5.4 aged 65 or over. In the same period, the province under analysis has a longevity index of 23.5, meaning that there is a low proportion of the population aged 75 or over within the elderly class.

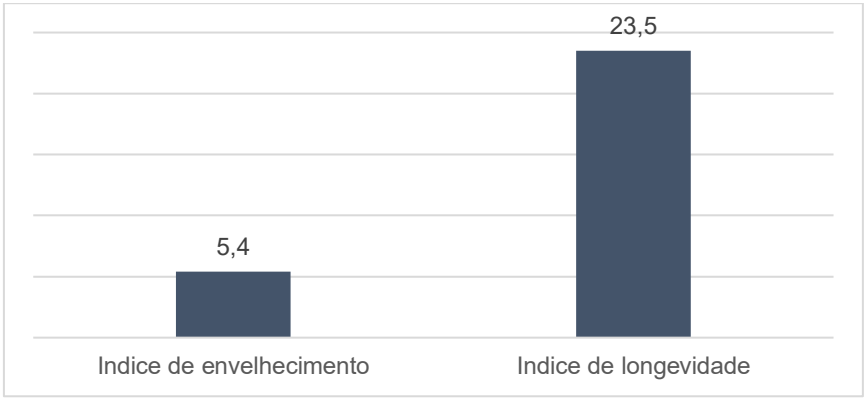


Figure 174. Ageing and longevity index for the province of Luanda, 2024. Source: Luanda Province Population Projection of the of 2014-2050 (INE 2024)

10.4.4.2. Education level

The literacy rate expresses the ratio between the population aged 15 or over who can read and write and the total population aged 15 or over. According to the 2014 Census, the literacy rate in Luanda province is 85.9%, 86.5% in urban areas and 63.2% in rural areas. In terms of gender, there is a higher literacy rate for men (53.5%) than for women (46.4%). It is also worth considering that the province of Luanda, where the Project under study is located, has a higher literacy rate than the national level (65.6%) (Refer to Figure 175).

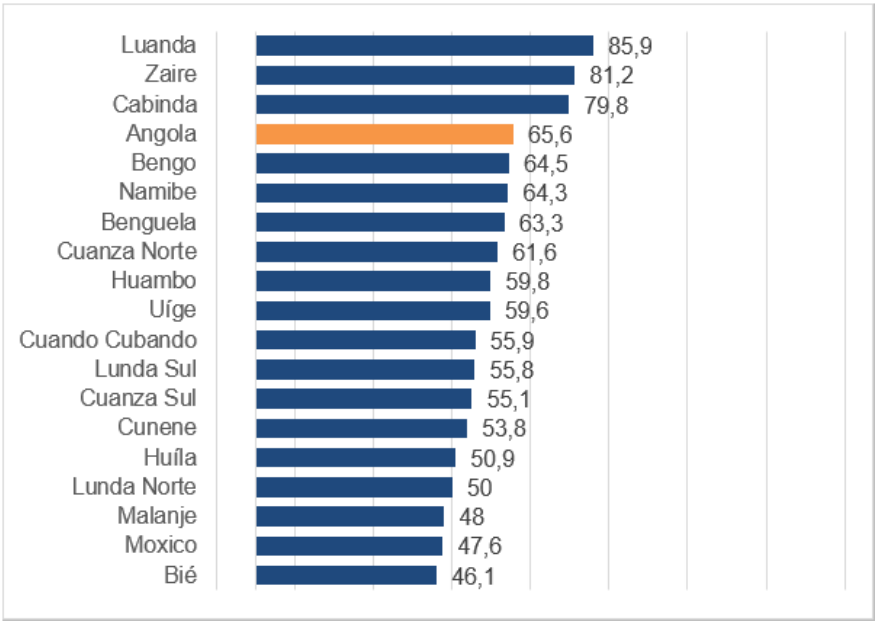


Figure 175. Literacy rate in the population aged 15 or over, by Province, 2014. Source: Definitive data from the 2014 Census (INE, 2024).

According to the 2014 Census, 36% (2,102,555 inhabitants) of the entire resident population aged 5 or over in Luanda province did not have any kind of completed education, with the vast majority, 96.7% (2,033,991 inhabitants) lived in urban areas. Less representative is the population with higher education qualifications, representing only 2.5% (146,806 inhabitants) of the entire population of Luanda.

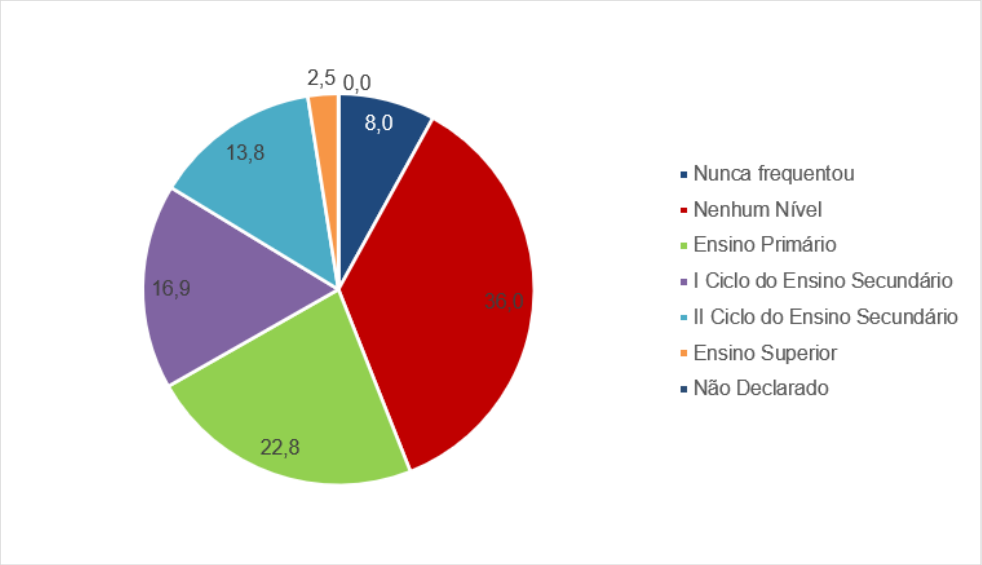


Figure 176. Population aged 5 or over in Luanda province by level of education, 2014. Source: Final data from the 2014 Census (INE, 2024)

10.4.4.3. Population distribution

According to the Social Statistics Yearbook (2015-2019), Luanda had the highest population distribution, 438.1 inhabitants / km ^{2}, compared to the other Angolan provinces, and its quantity being considerably higher than the national figure (24.2 inhabitants. /km^2). Cuando Cubango province had the smallest population, with 3.1 inhabitants /km ^{2}.

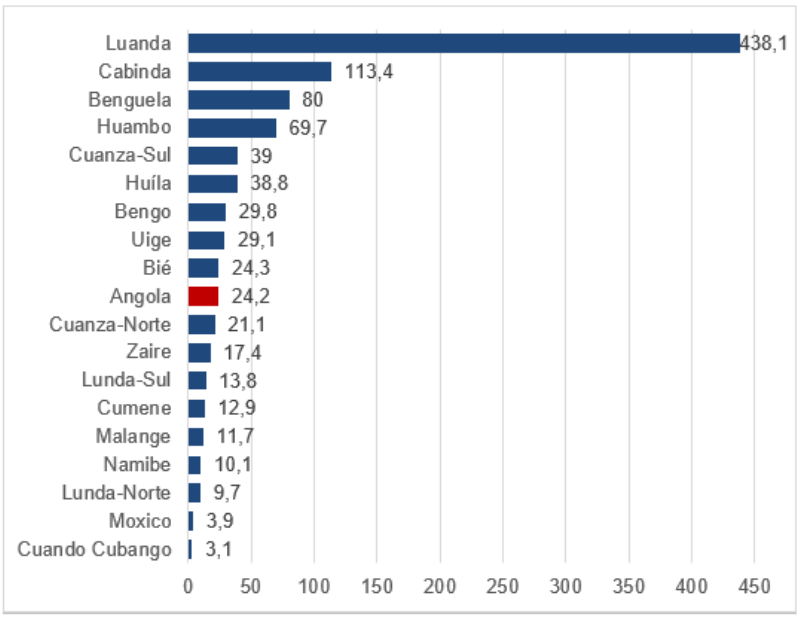


Figure 177. Population density projection, 2019. Source: Social Statistics Yearbooks 2015-2019 (INE, 2024).

10.4.4.4. Productive activities

Data on the economy and productive activities will not be presented at provincial level due to the lack of information on them. Therefore, the economic structure will be contextualized at national level, based on official reports identified later.

According to the Quarterly National Accounts (3rd Quarter 2023), Figure 178, Angola's Gross Domestic Product (GDP) has shown significant variations, with considerable exponential growth from the 1st quarter of 2023 (-1.1%), reaching 1.9% by the end of the 3rd quarter 2023.

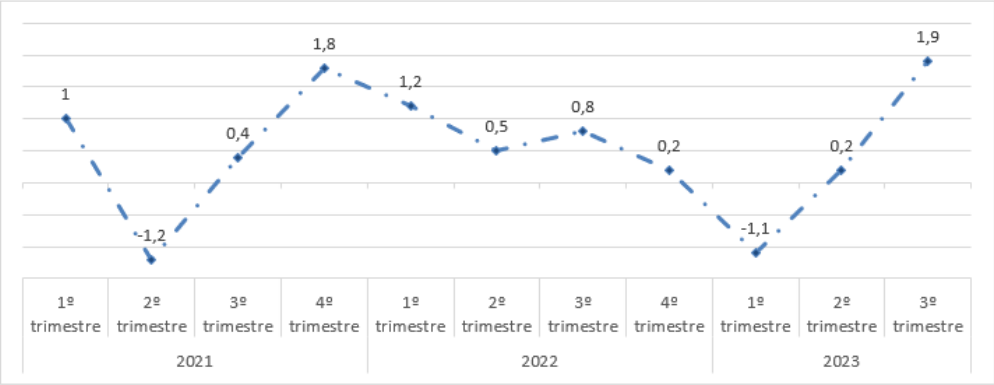


Figure 178. Change in Gross Domestic Product (GDP) by Quarter (Seasonally Adjusted). Source: Quarterly National Accounts (III Quarter 2023) (INE, 2024).

Figure 179, shows a direct influence on the variation GDP seen above. In this sense, the productive activities that contributed the most, in percentage points, to GDP growth during the 3rd quarter were the Diamond, Metallic and Other Non-Metallic Minerals (1.13%) and Fishing (0.65%). On the other hand, Subsidies (-0.9%) and Oil Extraction and Refining (-0.37%) were the activities that contributed the most to the decrease in GDP throughout the 3rd quarter of 2023.

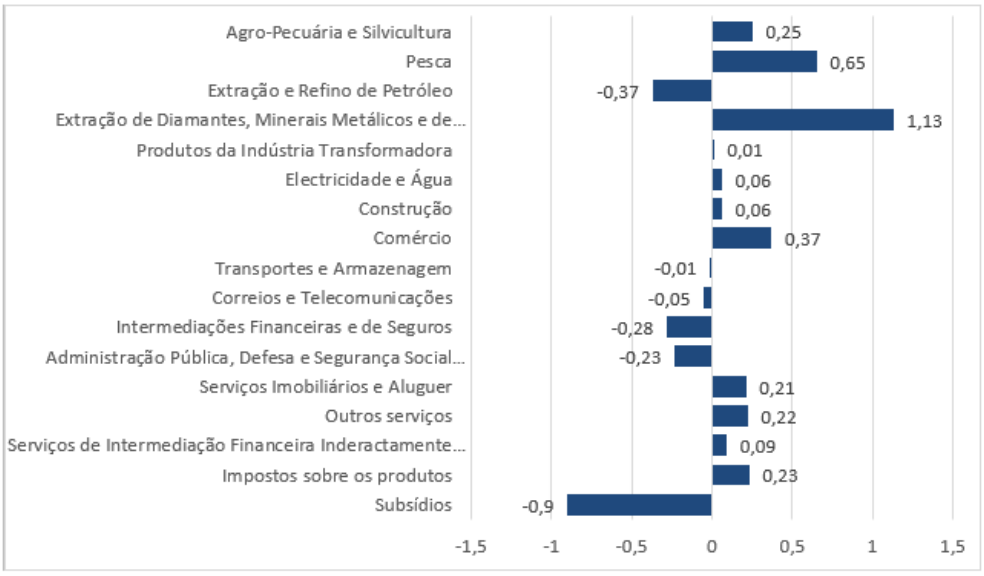


Figure 179. Contribution in percentage points to the GDP growth rate, III Quarter 2023. Source: Quarterly National Accounts (III Quarter 2023) (INE, 2024).

According to the data analyzed above and the National Development Plan 2018-2022 (Government of Angola, 2024) which, although its implementation covers the years between 2018 and 2022, is still underway, the national economy has actively benefited from a series of positive factors that have boosted its gradual growth. This is due not only to the economic measures implemented in the Development Plan (aimed at diversity and internal economic sustainability), but also to external and internal factors (financial support) aimed at financing private investment.

10.4.4.5.Employment situation

The fact that Luanda Province has a large young population has a significant impact on the functioning of the economic and productive structure, especially as there is a renewal of the labor force.

According to the Angola Employment Survey, Yearbook – 2022 (INE, 2024), (Refer to Table 75), the working population in Luanda province totaled 5,324,468 inhabitants, of which 4,626 664 were economically active, corresponding to an activity rate of 86.9%, slightly lower than the figure for Angola (89.8%). It should be noted that, in proportion, the male population has a higher activity rate (89.2%) than the female population (84.7%).

Of the total working-age population available in province, 2,771,004 were employed, representing an employment rate of 52%, lower than the national figure (62.7%). Once again, the male gender stands out, with an employment rate of 55.4 %, albeit very slightly higher than that of the female gender (48.9%).

On the other hand, 1,855,660 inhabitants are said to be unemployed, corresponding to an unemployment rate of 40.1% (higher than the national rate of 30.2%). In addition to unemployment 42.3% of the unemployed population is female.

Province	Working age population	Economically active population		Employed population		Unemployed population	
		No.	Activity Rate (%)	No.	Employment tax (%)	No.	Unemployment rate (%)
Luanda	5, 324, 468	4, 626, 664	86.6	2, 771, 004	52	1, 855, 660	40.1
Men	2, 593, 684	2, 312, 492	89.2	1, 436, 696	55.4	875, 796	37.9
Women	2, 730, 784	2, 314, 172	84.7	1, 334, 308	48.9	979, 864	42.3

Table 75. Employment situation (2022). Source: Angola Employment Survey, Yearbook – 2022 (INE, 2024)

It is important to consider that, according to the Angola Employment Survey, Yearbook – 2022 (INE, 2024), (Figure 180) a large percentage of the population of Luanda province is employed in the wholesale and retail trade, repair of motor vehicles and motorbikes sector (42.3%, 1,172,520 inhabitants), while public administrative activities, defense and social security is the second largest sector, employing 325,465 inhabitants (11.7%). Human health and social work activities is the sector that employs the smallest number of people, just 65,884 inhabitants (2.4%).

Figure 180. Employed population by sector of activity in the Province of Luanda (2014). Source: Angola Employment Survey, Yearbook – 2022 (INE, 2024)

10.4.5. Quality of Life Indicators

Housing stock

According to the 2014 Census, 6,945,386 people were registered in Luanda province, of whom 6,919,613 lived in private dwellings, 23,460 lived in institutional or collective dwellings. (such as creches, old people´s homes, orphanages, religious units) and 2,313 had no type of dwelling at all (refer to Table 76).

Province and area of residence	Population by province and area of residence (population number)		
	Housing private	Housing institutional or collective	No housing
Luanda	6, 919, 613	23, 460	2, 313
Urban	6, 737, 382	20, 900	2, 156
Rural	182, 231	2, 560	156

Table 76. Population by province and area of residence (2014). Source: Final data from the 2014 Census (INE, 2024).

Household

According to data from the 2014 Census (Figure 181), most household heads are men, 62%.

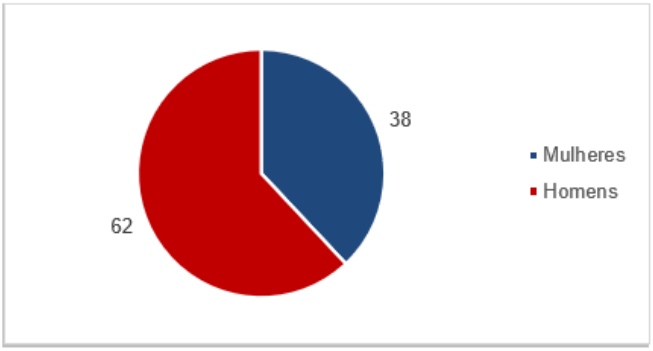


Figure 181. Proportion of heads of household heads by sex (2014). Source: Final data from the 2014 Census (INE, 2024)

In Luanda province, 27.6% of households are made up of 7 or more people and 9.7% are made up of just 1 person. On average, there are 5.1 people per household (Refer to Table 77).

Province	Household size (people)							Average number of people per household
	1	two	3	4	5	6	7 or more	
Luanda	9.7	8.0	11.0	15.2	14.5	14.2	27.6	5.1

Table 77. Households by area of residence, according to size and average number of people (2022). Source: Employment Survey in Angola, Yearbook – 2022 (INE, 2024)

Health

The demographic characteristics of the population, the type and quantity of health services available (hospitals and other health facilities) should ideally be directly related in order to meet the needs of the population in question. According to information from the 2015-2019 Social Statistics Yearbook (INE, 2014), there has been a slight increase in the number of health facilities in Luanda province, from 171 in 2015 to 185 in 2019. It can also be seen that, despite the obvious decrease in the number of health centers (going from

66 in 2017 to 37 in 2019), there has been an increase in the number of health posts (90), maternal and child centers (22), while the diversity of hospital types has increased (refer to Figure 182) .

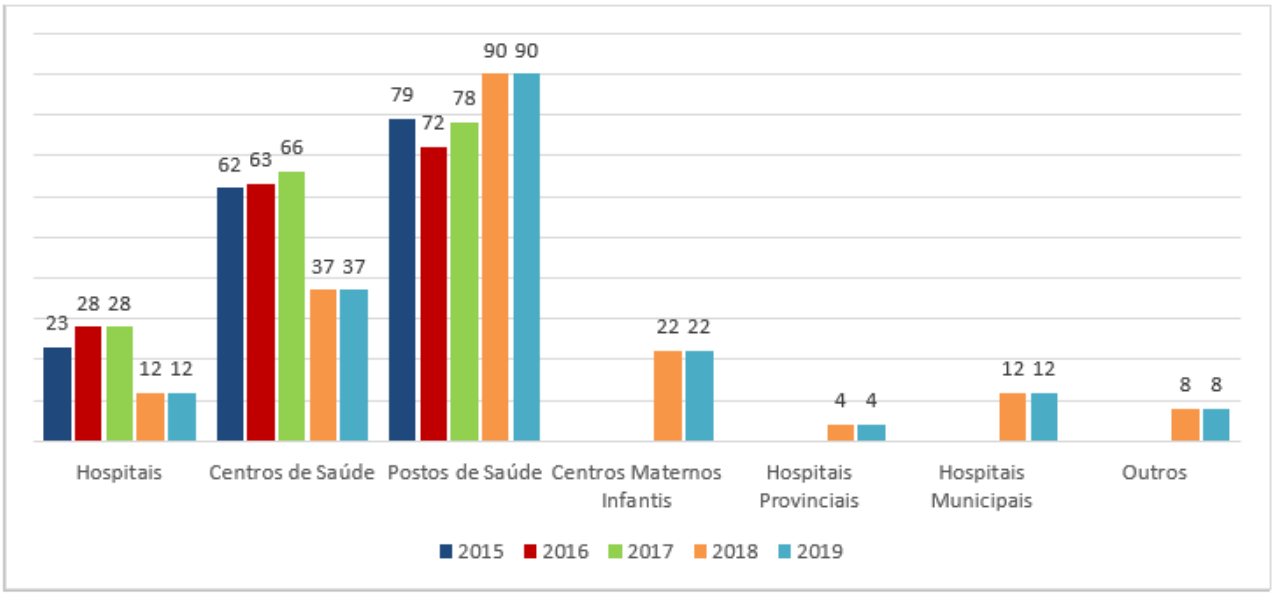


Figure 182. Distribution of the health network in the Province of Luanda. Source: Social Statistics Yearbooks 2015-2019 (INE, 2024).

According to the Population Projections of the Province of Luanda 2014-2050 (INE, 2024), the province recorded, in 2019, an average life expectancy at birth of 64 years, showing an increasing trend considering previous years (2018 - 63 .8; 2017 – 63.6; 2016 – 63.6; 2015 - 63).

Considering Figure 183, it appears that malaria was the most reported communicable disease (between 2016-2019), standing out not only for the number of registered infected people (7,051,349 inhabitants in 2019, which represents 66.5% of all diagnoses), but also due to its considerable evolution. Afterwards, however with considerably less representation, flu syndrome represents 8.2% of all diagnoses verified in 2019.

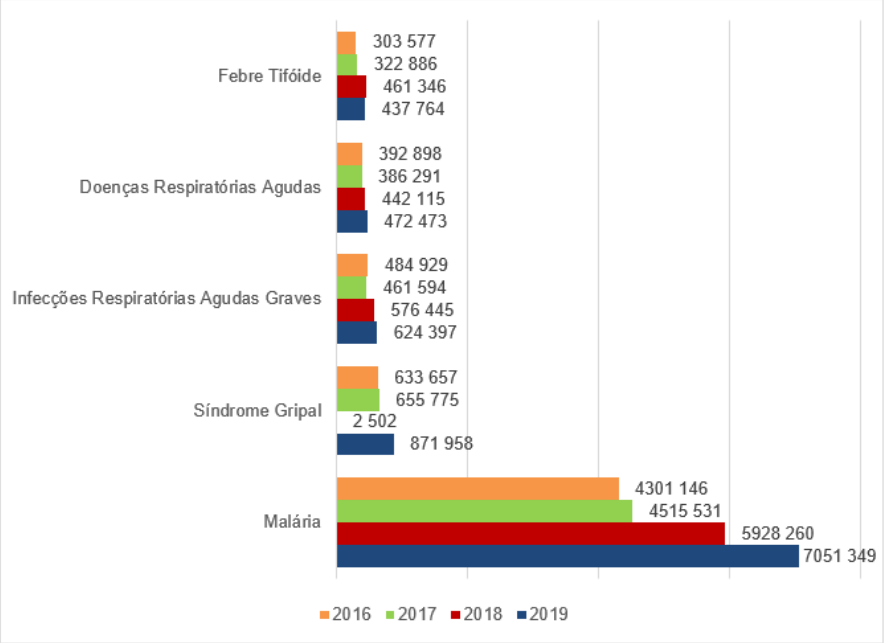


Figure 183. Most reported communicable diseases (2016-2019). Source: Social Statistics Yearbooks 2015-2019 (INE, 2024).

Basic sanitation and water supply

Basic sanitation and water supply is something of national interest and has a direct impact on the lives of citizens as it helps prevent diseases, reduces mortality and improves quality of life.

According to the 2014 Census, 695,946 resident households (3,204,188 inhabitants) in the province of Luanda used an appropriate water supply. The main source of drinking water used in the province of Luanda is the tanker lorry (683,138 households are supplied by this source), which is most significant in the urban region of Luanda (96.6%). Rainwater is used less frequently serving 694 households, 62.2 % in urban areas and 37.8%. (Refer to Table 78).

Main source of drinking water	Luanda	Urban	Rural
Tap in the residence connected to the public network	319, 598	99.8	0.2
Tap in the building/neighbor, connected to the public network	109, 171	99.8	0.2
Public fountain	236, 994	98.1	1.9
Pump hole	4, 254	90.8	9.2
Protected waterhole	23, 493	93.8	6.2
Protected spring	2, 436	91.5	8.5
Tanker truck	683, 138	96.6	3.4
Unprotected waterhole	5, 573	52.9	47.0
Unprotected spring	1, 187	56.5	43.5
Rainwater	694	62.2	37.8
Pond/River/Creek	13, 841	23.3	76.7
Other	83, 971	97.3	2.7
No. using appropriate font	695, 946	98.9	1.1
Number of people using appropriate font	3, 204, 188	99.1	0.9

Table 78. Households according to the main source of drinking water in Luanda, 2014. Source: Definitive data from the 2014 Census (INE, 2024)

According to, in addition to the table analyzed, the vast majority of households disinfect the water they use for consumption with bleach (809,800 households, 54.6%). It should be noted that 23.9% of households (355,538) living in the province under analysis do not treat the water they use for drinking.

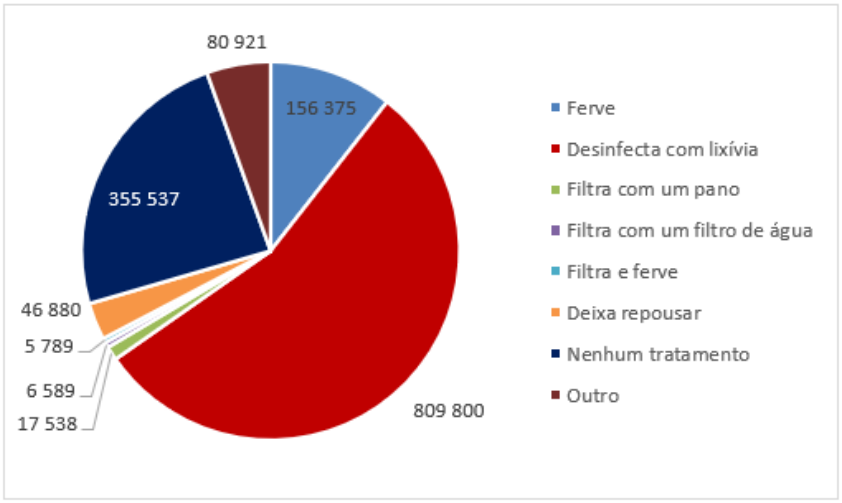


Figure 184. Households according to the treatment given to drinking water. Source: Final data from the 2014 Census (INE, 2024)

Regarding sanitation inside and outside the home, the type of toilet with the greatest use is the toilet connected to a septic tank (62.7% and 59%, respectively), thus corroborating the fact that 91, 1% of households use an appropriate sanitation method.

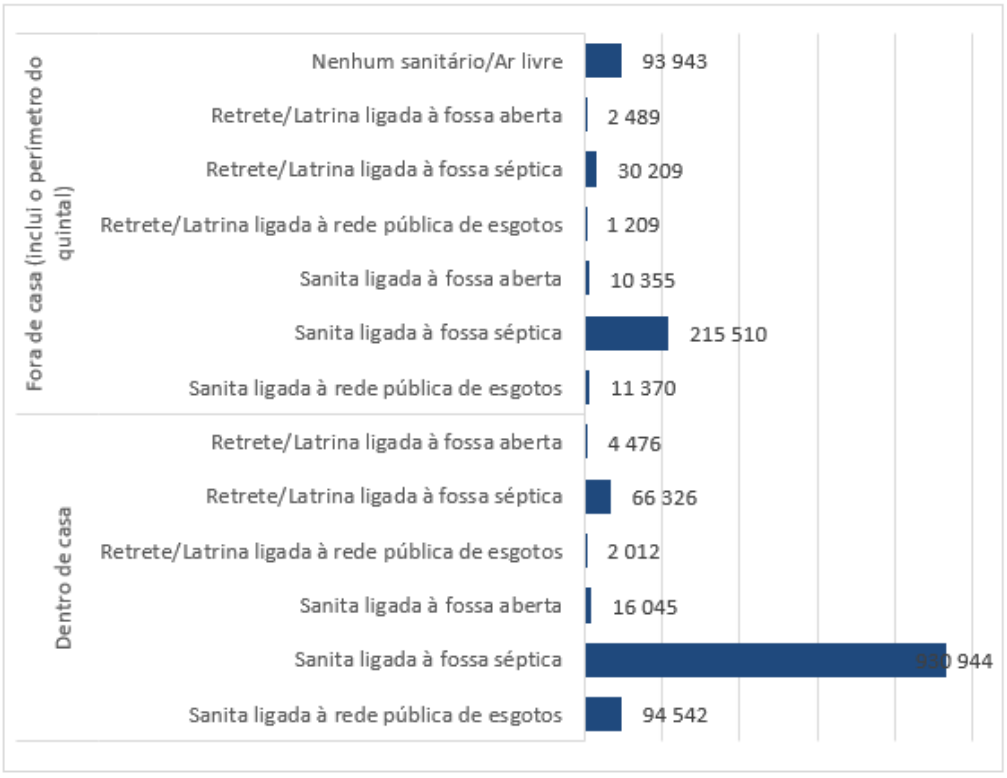


Figure 185. Households according to the type of toilet they normally use, 2014. Source: Definitive data from the 2014 Census (INE, 2024)

Security

Angola 2015 – 2019 Social Statistics Yearbook, INE 2022, includes information from the Ministry of the Interior´s Public Security Report for 2015 to 2017, which highlights the number of crimes and road accidents recorded by police authorities.

In 2016 Luanda recorded around 8,847 crimes, corresponding to 20% of crimes recording in Angola, with the most recorded types of crime being robbery (2,843) and theft (1,960).

With regard the causes of deaths from road accidents in 2017, Luanda recorded 417 collisions between motor vehicles, 180 collisions between motor vehicles and cyclists, 160 crashes and 903 pedestrian accidents.

10.4.6. Social characterization of the study area

The study area, made up of the Unicargas Terminal area (located to the west of the port area) is located in the municipality of Luanda, more specifically in Ingombota district, which has approximately 370,000 inhabitants over 9.6 km^2 of land.

The surroundings of the Unicargas Terminal are mainly characterized by companies that carry out port activities, namely container, oil and food transport companies. Near the Unicargas Terminal, there are two health units (Medline – Medical Assistance - 16 meters south and Clinica da Sagrada Esperança - 600 meters east), an educational establishment associated with the port area (Academia Portuária de Luanda - 60 meters southwest), as well as a heritage site (Fortaleza do Penedo - near to the eastern edge of the Unicargas Terminal).

Also noteworthy is the existence of some housing areas approximately 300 meters from the Unicargas Terminal, namely the houses in the marginal area and part of the Musseque of Bairro da Boa Vista, which is characterized by its high population density.

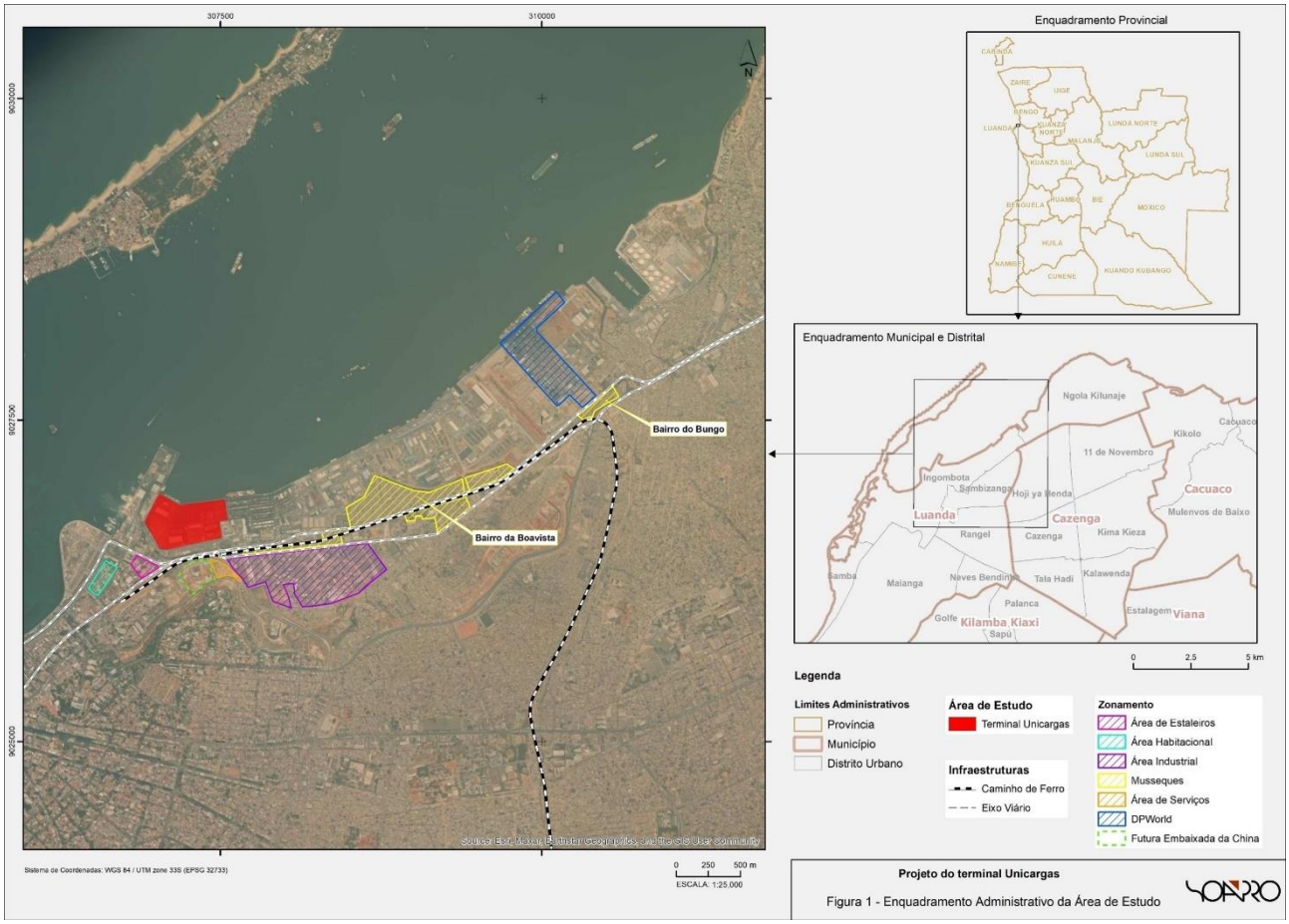


Figure 186. Administrative framework of the study area

In terms of accessibility, it is worth noting the National Road nº100 (EN100), towards Cacuaco, the Port and the Center of Luanda, which runs along the entire southern area of the Port of Luanda and the Bungo Station, along with the respective railway line that runs perpendicularly along the EN100. It's noteworthy that the EN100 experiences heavy traffic, especially in the section surrounding the port area, which is unidirectional (from the Port of Luanda to Luanda Centre), significantly constraining regular traffic flow.

10.4.6.1. Fishing Industry

Although fishing in Luanda generates income for the local communities, the legislation only allows fishing in the bay for subsistence (Aquatic Biological Resources Law No. 6-A/04 of October 8 of Ministry of Fisheries, Angola, 2004; Presidential Decree No. 41/05 of June 13 of Ministry of Fisheries, Angola, 2005).

Moreover, according to Presidential Decree No. 28/15 of January 13 of Ministry of Fisheries, Angola (2015), the capture of mollusk bivalves is prohibited in closed areas of Luanda Bay. However, there is no control of this activity in the bay, and the legislation is poor, encouraging undeclared landings, that makes resource management difficult.

The main source of information for this section is the article based on the research findings from the Luanda waterfront project titled "*Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola)*," authored by Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio, and Vânia Baptista. This study documents the small-scale fishing activities in Luanda Bay, providing key insights into local fishing practices

and their economic impact. It is the first study to document these small-scale fishing practices, offering valuable insights into resource exploitation and the contribution to the local economy.

The researchers gathered data through structured questionnaires administered to fishermen from two key communities: Luanda Island and Luanda Commercial Harbor. The questionnaire covered demographic details, fishing practices, and income levels. All 30 respondents were male, aged between 18 and over 65 years.

The study revealed that fishermen from Luanda Island primarily operated rowboats, known locally as "Chatas," and motorboats, while those from Luanda Commercial Harbor used improvised Styrofoam boards. The rowboats, used on Luanda Island, measured 3 to 6 meters in length and had a payload capacity of 80 to 360 kilograms. By contrast, the Styrofoam boards employed in the Commercial Harbor were much smaller, holding just one or two fishermen and supporting a limited payload of 20 to 40 kilograms.

Differences were also found in fishing practices and income between the communities. On Luanda Island, night fishing was prevalent, with a focus on fish, cephalopods, and crustaceans, while daytime fishing dominated in the Luanda Commercial Harbor community. Income levels varied, with Luanda Island fishermen earning an average of 14.4 euros per day, with a maximum of 39 euros, primarily from fish. Meanwhile, those from the Commercial Harbor earned lower daily averages of 8.4 euros, mainly from bivalves and crustaceans.

Despite being a source of income, the sector faces significant challenges. Luanda Bay suffers from high pollution levels due to surrounding urban and industrial activities, compromising water quality and fish safety. While subsistence fishing is legally permitted in the bay, lack of enforcement leads to undeclared landings, contributing to overfishing. Furthermore, contamination of fish and shellfish with toxins poses health risks to both fishermen and consumers.

10.4.6.2. General description of the Port of Luanda

The port of Luanda is the main port in the country, its cargo movement represents between 80% and 85% of the total cargo transported in Angola. The port also plays an important role in the redistribution of containers to other ports in the country (Tortosa G, 2021).

According to the document “Multipurpose Terminal of the Port of Luanda. Concession of the Seaport Infrastructure”, the port has 2,738 meters of docking pier. The maximum draft of the approach channel is 9.5 meters. The depth is bigger along the quay, varying between 10.5 meters and 12.5 meters, except in the cabotage terminal, where the draft ranges from 3.5 meters to 5.5 meters.

The docking pier is split into 7 terminals and a logistics platform that supports the oil industry:

Figure 187. Map of the Port of Luanda and Terminals. Source: Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, *DAR 2023.*

The following table presents the terminals and concessionaires of the Port of Luanda:

	Quay	Area	Concessionaire	Concession Deadline
Passenger Terminal	46.15 meters	4,090 sqm	IMPA	n.a.
General Cargo Terminal (GCT)	900 meters (depth: 5.5m-10m)	80,000 sqm	Multiterminais	20 years (2005-2025)
Multivalent Terminal (MVT)	536 meters (depth: 10m)	178,641 sqm	Unicargas EP	20 years (2005-2025)
Container Terminal (CT)	550 meters (depth: 10.5m-12.5m)	142,467 sqm	Sogester SA	20 years (2007-2027)
Multipurpose Terminal (MT)	610 meters (depth: 12.5m)	229,100 sqm	Concession terminated (Soportos SA)	
Cabotage Terminal	7.80 meters (depth: 3.5m)	n.a.	Inoperative Terminal	
Oil & Gas Terminal	2.064 meters (depth: 12.5 m)	1,597,544 sqm	Sonangol EP	25 years (1995-2020)

Table 79. Terminals and Concessionaires of the Port of Luanda. Source: Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, *DAR 2023.*

10.4.6.3. Components of Unicargas Terminal - Existing conditions

As part of the Luanda port, the Unicargas Terminal plays a significant role in the economic development related to maritime transport, so the rehabilitation project presents an opportunity to improve the terminal's capacity, optimize its operations, and contribute to sustainable economic development. In this sense, the current state of the facilities is detailed below as a reference base to justify the improvement needs that will contribute to economic development.

As stated in the document "*Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations*" (DAR, 2023), the main components of Unicargas Terminal are the following:

- Quay 1 and Quay 2
- Storage or Parking Area of Quay 1
- Zone of Loaded Containers
- Zone of Empty Containers
- Traffic Circulation Roads 1 and 2

The figure below reflects various of the main components mentioned above.

Figure 188. Location map of the different evaluated areas of Unicargas Terminal. Source: Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, *DAR 2023.*

The current state of the facilities is documented in the document Topside Condition Assessment Report". Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Desing & Surveys (DAR, 2023), whose main results are summarized below.

Topside

Regarding the existing water supply system, water storage tanks with dedicated booster pumps are provided for the buildings to ensure a continuous water supply during periods of water outage from the primary water source. Concerning the firefighting network, it should be noted that the premises are protected only by several fire hose cabinets distributed at the entrance of each building. The quay, marine terminal, cargo, and container areas do not have fire hydrants or fire hose cabinets. It is important to note that, according to the maintenance team of the terminal, a single water pipe serves both the firefighting network and the domestic water network.

It is worth highlighting that the Local Authority's water meter is located in a pumping station outside the port boundary. Unicargas has informed that the Public Water Company of Luanda (EPAL) directly issues the water bill to Unicargas.

Regarding the existing Storm Water Drainage System, the main storm water drainage system consists of channels passing below the terminal's pavement and across various open areas of the terminal. It is important to note that the external drainage, which receives storm water from the areas surrounding Unicargas Terminal and the Port of Luanda in general, passes through the area currently explored and operated by Unicargas, directing the water towards the sea. In a particular case, a warehouse (Warehouse 19, Shed 2) was found to be constructed above the main drainage channel passing through Unicargas Terminal.

The wastewater collection system of the Terminal of Unicargas consists of pipes collecting wastewater from bathrooms and toilets, either individually or collectively. The collected wastewater is eventually discharged into a septic tank or into the storm water drainage system. During the visit made by DAR on October 20, 2023, Unicargas representatives informed that a wastewater treatment plant is intended to be constructed by Luanda Port's authorities, which shall serve all the terminals of the port, including Unicargas.

The Unicargas Terminal has two Sheds/Facilities of Steel Structure: Shed 1 (warehouse 16) that will be dismantled as part of the planned project and intervention in the Unicargas Terminal and shed 2 (warehouse 19). This structure consists of one partition for dining/lunching, offices, and administration, and the last partition is for storing equipment and spare parts.

The Manoportos area has two Sheds/Facilities of Steel Structure: Shed 3 (consists of three partitions: one for offices and storing parts, another for an old workshop, and the last for washing cars) and Shed 4 (consists of two partitions, both for car parking).

Regarding electrical installations: there is a medium voltage (MV) Substation (SS3) and MV/LV Switchgears (within the transformer room, there are four transformers, each rated at 250 kVA with a voltage rating of 15kV/400V. Currently, three of these transformers are operational, while one is out of service. The primary purpose of these transformers is to supply power to Unicargas, Manoportos, and Direção Técnica. The power source for this substation is 15 kV and supplies 4 electrical substations within the port (SS1, SS2, SS3, and SS4). The feeder lacks the necessary capacity to meet the current demand of the port (SS1, SS2, SS3, and SS4). Hence, there is a project in progress for the construction of a new electrical substation (60/15 kV), along with a dedicated Switching Station that will be considered for each entity within the port. The low voltage panel boards are obsolete. The only existing low current system is the telecom network.

Figure 189. Layout of the 15 kV network in the Unicargas Terminal. Source: "Topside Condition Assessment Report". Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Design & Surveys, DAR 2023.

The building near SS3 is currently not in use and is owned by the port. The emergency backup source for the outdoor lighting high masts is currently being secured via an outdoor 500 kVA generator located outside this building.

In the terminal, there are currently three operational generators serving different areas and purposes:

A 500 kVA Continuous Power Generator (Port-Owned): This generator is fully operational and serves as a backup during power outages for the port. It is located behind SS3 and is primarily responsible for providing power to the outdoor lighting (high masts) and various offices situated within the port.

A 600 kVA Generator located behind the Warehouse: This generator is operational and primarily serves as a backup power source for Unicargas. The power supply transfer is done manually. It is mainly used to supply Unicargas warehouse, and all the sockets related to the refrigerated containers. However, it's worth mentioning that the connections are established manually with an external electrical panel.

A 30 kVA Generator located within the Unicargas area, rated at 30 kVA, is also operational. It is mainly utilized as a mobile power supply.

There are additional three generators which are currently out of service with the following capacities: 630 kVA, 550 kVA, and 440 kVA.

Regarding the outdoor lighting (high masts), the outdoor area of the terminal is illuminated by high masts. Additionally, the lighting inside the warehouse consists of fluorescent lamp lighting fixtures, and there are sockets/power installations inside and outside the warehouse.

Finally, there is a cafeteria at the Unicargas Terminal.

Marine condition

According to the document "Marine Side: Unicargas Terminal - Underwater Marine Condition Assessment Report" by DAR, the inspection work carried out by RSDIVERS Sociedade Submarina Comercial, LDA at Unicargas Terminal allowed for the assessment of the extension of the Quay Wall, originally identified and divided into 3 zones, namely Zone 1, Zone 2, and Zone 3, which in turn was subdivided into 13 incidence points.

Zone 1: Characterized by a depth of 10 meters along the entire length of the wall in an 85 m perimeter away from the pier to the South (S) and East (E). During the services, a crack was detected in the third base in the paved stones with a spacing of 12 cm.

Zone 2: At fender two (2), starting from the south side, with a depth around 10 meters, damage was found to the concrete caissons at the base of applied stones. It is possible to notice that most of the blocks are "paved" with smaller stones due to their positioning.

Zone 3: The cargo ship moored in Zone 3 (pier), which was in operation. The work starts on the eleventh (11) point at the thirteenth (13), with a depth of 10 meters and with good deep visibility. It was noticed the advanced erosion of the concrete caissons at the lower base of the Quay Wall, where there were blocks that had been "shod" with stones as a mechanism for their vertical stability. Regarding the steel elements, guides, and end joints, advanced corrosion was found, and some of them were detached from their place of operation, resting on the bed.

In general, the first assessment of the dive allowed to characterize that the soil is quite sandy, and the visibility is only good at a depth of five meters, with the lower composition of the Quay Wall resulting in overlapping concrete blocks, with stones and small blocks of concrete, to fill the voids and considerable distance between them, as well as to "shod" the blocks that present structural imbalance. The existence of many materials and residues resulting from accidental falls into the sea, such as tires, steel beams, rolls of wire mesh, and other materials that rest on the lower base of the Quay Wall, represents a danger to the ship movement and docking operations.

10.4.6.4. Maritime traffic

The following maritime traffic data have been obtained from the document "Investment Memorandum of the Multipurpose Terminal of the Port of Luanda".

Operational activity performance of the Port of Luanda

During 2018, the operational activity performance of the Port of Luanda showed that 3,719 vessels docked, out of which 555 were long-haul vessels and 3,164 were supply boats, mostly related to the oil industry. In comparison to the previous year of 2017, the number of vessels decreased by an average annual rate of 17%.

Type of vessel	2015	2016	2017	2018	1st S 2019	CAGR (15-18)
Long-Haul	900	732	633	555	302	-15%
Cabotage	5, 662	3, 890	3, 511	3, 164	1, 726	-18%
Total	6, 562	4, 622	4, 144	3, 719	2, 028	-17%

Table 80. Vessel traffic in the Port of Luanda (number of ships). Source: Investment Memorandum of the Multipurpose Terminal of the Port of Luanda, 2019.

The lower frequency of vessels arrivals to the terminals of the Port of Luanda was largely justified by the slowdown in the Angolan economy and the decreasing activity in the oil sector that followed the sharp drop in international oil prices. This led to a strong reduction in the level of imported goods and the transport of oil and its by-products by sea. The terminal that supports activity in the oil sector is the main responsible for the vessel traffic in the Port of Luanda, accounting for 85% of total traffic in the port in the last four years.

The following figure shows a chart indicating vessel traffic at each terminal. The data for the Unicargas Terminal is listed under the heading "MVT" (Multivalent Terminal).

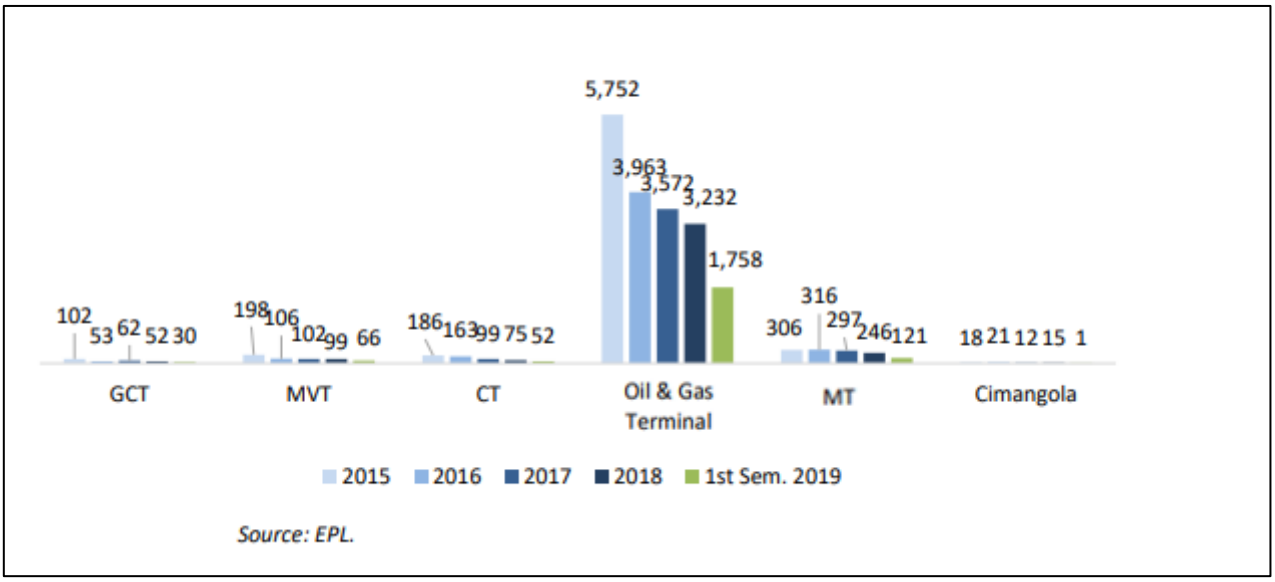


Figure 190. Vessel Traffic per Terminal (number of ships). Source: Investment Memorandum of the Multipurpose Terminal of the Port of Luanda, 2019

11. CLIMATE CHANGE

In 2015, the UN approved the 2030 Agenda on Sustainable Development, an opportunity for countries and their societies to embark on a new path with which to improve the lives of all. The agenda has 17 Sustainable Development Goals (SDG), ranging from the elimination of poverty to the fight against climate change, education, women's equality, the defense of the environment or the design of cities.

Angola presented in 2021, for the first time, at the United Nations, the voluntary report on the implementation of the 17 Sustainable Development Goals of the 2030 Agenda. In line with the 17 SDGs, the country aims to end poverty, promote prosperity and well-being for all, protect the environment and combat climate change. On the other hand, the National Strategy for Climate Disruption (ENAC by its acronym in Portuguese) 2018-

2030 is contextualized in Objective 13 - Climate Action, but is transversal to all the SDGs, since climate change affects the economy, people and ecosystems of countries.

The draft of Angola's Intended Nationally Determined Contribution (INDC) was developed in December 2015 and the final document was published in May 2021. As stated in this document, the Government of Angola recognizes the country's vulnerability to climate change and is aware of the impacts that the country has been suffering, and the tendency for them to become worse. In this context, Angola wants to be part of the solution, showing its commitment for emissions reduction and adaptation efforts.

Angola is committed to take part in the aspiration set at international level to fight against climate change, thus contributing to global efforts to reduce greenhouse gas (GHG) emissions. For this, Angola's Nationally Determined Contribution (NDC) encompasses for Mitigation and Adaptation purposes both unconditional and conditional measures for the reduction of GHG emissions and adaptation of its territory and population to the adverse impacts of climate change.

The Business-As-Usual (BAU) scenario considered for this NDC was developed using 2015 as the base year and provides projections for up to 2025. Angola plans to reduce GHG emissions up to 14% by 2025 as compared to the base year (unconditionally). The baseline corresponds to the most recent National GHG Inventory (2015), and accounts for 99.99 million tons of CO_2e. The emissions under the BAU scenario are estimated to be 103.9 million tons of CO_2e in 2020 and 108.5 million tons of CO_2e in 2025.

In this context, in 2022 the National Strategy on Climate Change was approved (ENAC 2022-2035). ENAC arises from the need to articulate objectives, instruments and institutions in the pursuit of sustained economic growth and sustainable development, against the backdrop of the provisions of the Paris Agreement, the Sustainable Development Goals and the need to articulate Angolan policy in terms of mitigation and adaptation to the impacts of climate change, according to the document. The approved instrument will lead to the development of the National Emissions Plan (PNE) and the National Adaptation Plan for Climate Change (NAPAs).

Given that some of the country's main economic sectors are extremely vulnerable to the impacts of climate change, Angola's NDC includes improvement actions that should be prioritized for implementation to strengthen the country's capacity for recovery and achieve the goals of the Long-Term Development Strategy-Angola 2050 (ELP-2050).

In this context, the National Development Plan 2023-2027 (PDN 2023-2027) includes *Axis 5: Modernizing and Enhancing the Efficiency of the Country's Infrastructure While Preserving the Environment*, with its first priority being Energy Policy.

Angola is in a stage of reconstruction and development. The Government is implementing its long-term development strategy. When it comes to reconstruction, it is expected to facilitate a more intense circulation of goods, and for that to happen the following objectives must be pursued (Angola Initial National Communication to the United Nations Framework Convention on Climate Change, n.d.).

- Continuing actions that aim to unclog the country 's ports and building new initial-rate or second-rate port infrastructures that will ensure the fluidity of international commerce and significantly reduce the high costs bared by the economy.

- Initiating the sustained launch of maritime activity in Angola, both in the national and international levels, improving security and inspection throughout the Angolan coast.

On the other hand, the scope of the "*Adaptation Plan to Climate Change from the Coastal Area of Angola, 2019*" includes the transport and infrastructure sector, which encompasses road network and seaports, in the seven sectors considered key.

As part of the project's alignment with the previously mentioned Adaptation Plan, as an adaptation measure to climate disruptions in the transportation and infrastructure sector, the modernization of the port system is highlighted, with the aim of constructing/improving protective structures.

The maritime transport sector in Angola is in full expansion given the need of the State to develop the country with the necessary infrastructures to allow the exploitation of the natural resources at its disposal. The country has demonstrated a strong political commitment regarding the financing of the reconstruction and expansion of its transportation infrastructure (*Economic Report and Commercial of Angola prepared by the economic and commercial office of Spain in Luanda, 2024*).

As mentioned in previous sections, Angola has five seaports, all located on the coast: Luanda, Lobito, Soyo, Namibe and Cabinda. The port of Luanda is the main trade route international and handles around 80% of the country's imports (Adaptation Plan to Climate Change from the Coastal Area of Angola, 2019).

According to this document, the coastal areas of priority intervention in the transport sector and infrastructures are Benguela, Lobito, N'Zeto, Ambriz, Dande, Quiçama and Baía Farta. Soyo and Luanda present moderate risk in the transport sector (terrestrial) (Figure 191). It is important to highlight land transport, since once the cargo arrives at the port, it will be transported by road.

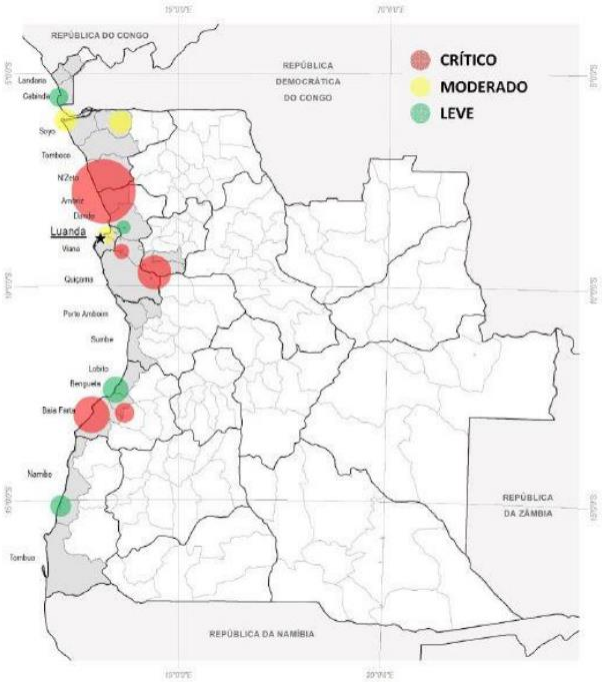


Figure 191. Levels of need for adaptation along the coastline at the level of the sector Transport (roads and bridges). Source: Climate Change Adaptation Plan for the Coastal Zone of Angola, 2019. Main vulnerabilities of the Angolan Coastline

The infrastructures ports at moderate risk are located in Cabinda, Lobito and Namibe (Figure 192).

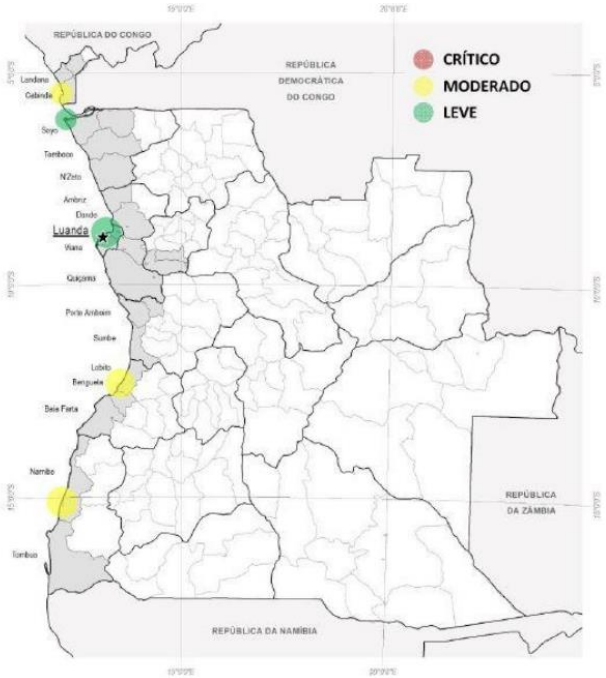


Figure 192. Levels of need for adaptation along the coastline at the level of the sector Transport. Source: Climate Change Adaptation Plan for the Coastal Zone of Angola, 2019. Main vulnerabilities of the Angolan Coastline

11.1. Objective

The aim of this section is to conduct an analysis of climate risks using IPCC (Intergovernmental Panel on Climate Change) climate scenarios in order to identify and determine the adaptation measures required to mitigate the most significant climate risks to an acceptable level of risk. IPCC is the United Nations body for assessing the science related to climate change.

This Section will also be developed in accordance with Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals.

The IPCC prepares comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for reducing the rate at which climate change is taking place. It also produces Special Reports on topics agreed to by its member governments, as well as Methodology Reports that provide guidelines for the preparation of greenhouse gas inventories.

Climate risk analysis serves as the foundation for identifying, evaluating, and implementing tailored adaptation measures aimed at reducing identified climate risks to an acceptable level. Adaptation measures for infrastructure projects related to climate change should guarantee an adequate level of resilience against various climate change impacts, including acute events such as intensified floods, droughts, heatwaves, forest fires, storms, landslides, and hurricanes, among others.

Climate risk assessment offers a structured approach for analyzing climate-related hazards and their consequences, thereby supplying essential information for informed decision-making.

The objective is to quantify the relevance of risks to the project in current and future climatic conditions, being the basis for identifying, assessing, selecting and implementing adaptation measures.

As a starting point to be able to identify those climatic hazards, it is necessary to define the context in which the project is located and study historical, present and future climate trends.

11.2. Alignment of the project with the National Development Plan 2023-2027 of Angola

The National Development Plan 2023-2027 aims to accelerate the sustainable socioeconomic impact of public policies in areas that contribute to strengthening the pillars of development.

The PDN 2023-2027, aims to respond to the strategic objectives defined in the long-term strategy "Angola 2050" (ELP), ensuring alignment and coherence between medium and long-term planning instruments and constant monitoring of the progress of Angola in relation to the objectives advanced in the ELP. This document mentions a series of policies, of which the following can be highlighted since they are related to the project.

Transportation and Logistics Policy

In the following figure of policy targets for the maritime and port subsector, the million/annual tons of cargo processed during the year 2022 at the latest availability is included.

Policy objectives			
Maritime and Port Subsector			
	2022*	2027	2050
Tons of cargo processed in the ports (millions/annual)	17.4	29.8	48.4

*Most recent year available

Table 81. Transportation and Logistics Policy. Source: PDN 2023-2027

To achieve the goals set for the sector, it will be necessary to implement a program: the Program for Expansion and Modernization of the Transportation and Logistics Sector. Within this program, Objective 28.9 aims to maximize the potential of port infrastructure, with Priority 28.9.1 focusing on the construction and concession of port infrastructure in the ports of Caio, Barra do Dande, Namibe, Luanda, Lobito, and Soyo.

Regarding environmental sustainability policies, specifically within Program 31, the "Climate Change Program," Objective 31.1 aims to prevent and control air, soil, and water pollution, while Objective 31.2 aims to strengthen the capacity for adaptation and resilience to climate change.

Likewise, within the framework of the Production Support Policy, Export Diversification, and Import Substitution, attention is given to Program 28: Domestic Trade Reorganization and Export Promotion Program.

11.3. Historical climate trends

Conforming to the document "Nationally Determined Contribution of Angola, 2021," Angola's territory displays significant climatic diversity due to its geographical position. This diversity arises from a combination of factors including its vast size along both the north-south and coastal-inland axes, diverse topography, and the influence of the cold Benguela Ocean Current. Consequently, Angola can be divided into three major climatic zones.

Moving from North to South, the climate transitions from hot and humid tropical in the north to progressively drier conditions, ultimately reaching a desert climate in the southwest near the border with Namibia. The central plateau region experiences a temperate tropical climate characterized by two distinct seasons: a hot and humid season with higher rainfall, and a cooler, drier season.

Generally, rainfall is more abundant in the northern and inland areas, with precipitation increasing at higher altitudes. Along the coast, the influence of the Benguela Current renders the regions arid or semi-arid.

To conduct the analyses, two main sources of data have been used:

- Climate Change Knowledge Portal of the World Bank Group: The Climate Change Knowledge Portal (CCKP) provides global data on historical and future climate, vulnerabilities, and impacts. This website presents the climate context of Angola for the current climatology, 1991-2020, derived from observed historical data. The information should be used to build a solid understanding of current climate conditions in order to appreciate future climate scenarios and projected changes. Historical data is produced by the Climatic Research Unit (CRU) of the University of East Anglia. Data is presented at a 0.5º x 0.5º (50km x 50km) resolution.
- FAO Hand-in-Hand (HiH) Geospatial Platform: This platform is the enabling tool for the HiH Initiative unlocking over two million data layers for more targeted, evidence-based interventions. This Digital Public Good provides open-access geographic information, key food security indicators, and agricultural statistics sourced from FAO and from external organizations such as NGOs, academia, the private sector, and space agencies. The platform is developed and scaled up by the FAO AgroInformatics team of the Digitalization and Informatics Division

11.3.1. Temperature

As the data in the Climate Change Knowledge Portal of the World Bank Group (CCKP) is presented at national and sub-national aggregations, the province of Luanda is selected for the analysis because the project is located in this province.

The following figures show the time series corresponding to the maximum and minimum temperatures in the historical reference period. As can be seen from 1901 to 2022, there is an increasing trend in both maximum and minimum temperatures.

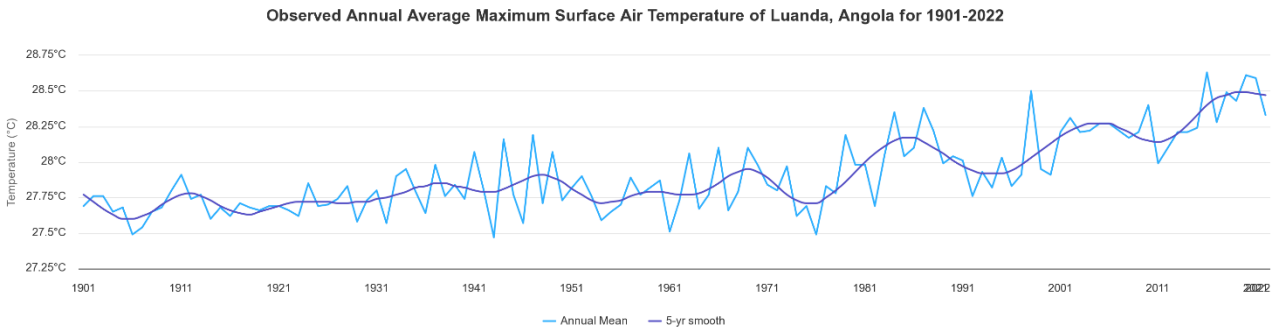


Figure 193. Timeseries of maximum surface air temperature of Luanda. Historical data (1901-2022). Source: Climate Change Knowledge Portal of the World Bank Group

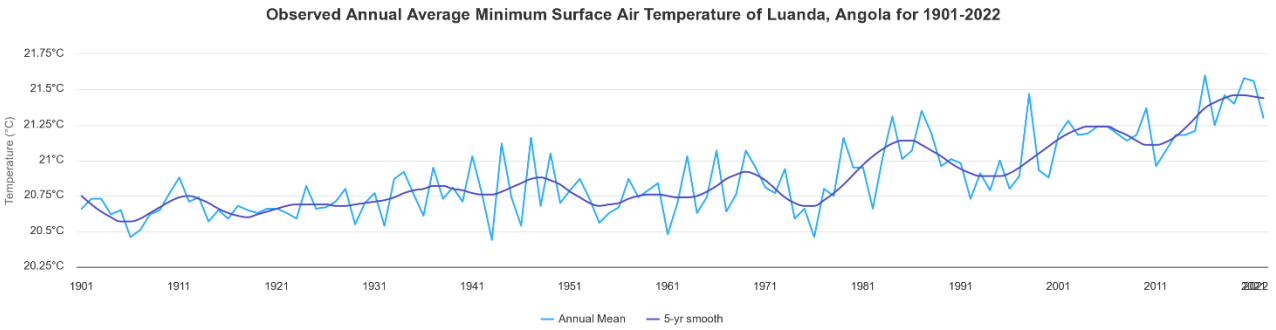


Figure 194. Timeseries of minimum surface air temperature of Luanda. Historical data (1901-2022). Source: Climate Change Knowledge Portal of the World Bank Group

The data in the series yields an average mean of 27.91°C for maximum temperatures and 20.88°C for minimum temperatures.

The annual data corresponding to the average of the considered models are displayed in the following table:

Year	Tmax (ºC)	5-yr smooth (ºC)	Tmin (ºC)	5-yr smooth (ºC)
1901	27.69	27.77	20.66	20.75
1911	27.91	27.77	20.88	20.74
1921	27.69	27.69	20.66	20.66
1931	27.80	27.74	20.77	20.71
1941	28.07	27.80	21.03	20.77
1951	27.82	27.81	20.79	20.78
1961	27.51	27.78	20.48	20.75
1971	27.84	27.89	20.81	20.86
1981	27.98	28.00	20.95	20.97
1991	28.01	27.97	20.98	20.94
2001	28.21	28.18	21.18	21.15
2011	27.99	28.14	20.96	21.11
2022	28.33	28.47	21.30	21.44

Table 82. Summary of historical temperature data. Source: Climate Change Knowledge Portal of the World Bank Group

On the contrary, despite the increase in both maximum and minimum temperatures over the years, as evidenced by the time series extracted from the World Bank platform, the figures derived from the FAO viewer for the project area during the 1981-2010 period (Hazard-Baseline) reveal an absence of extreme temperature risks.

11.3.2. Precipitation

The figure below illustrates the time series representing the average annual precipitation in millimeters, extracted from the Climate Change Knowledge Portal of the World Bank. It can be seen there has been no substantial variation in the trend of annual average rainfall from 1901 to 2022.

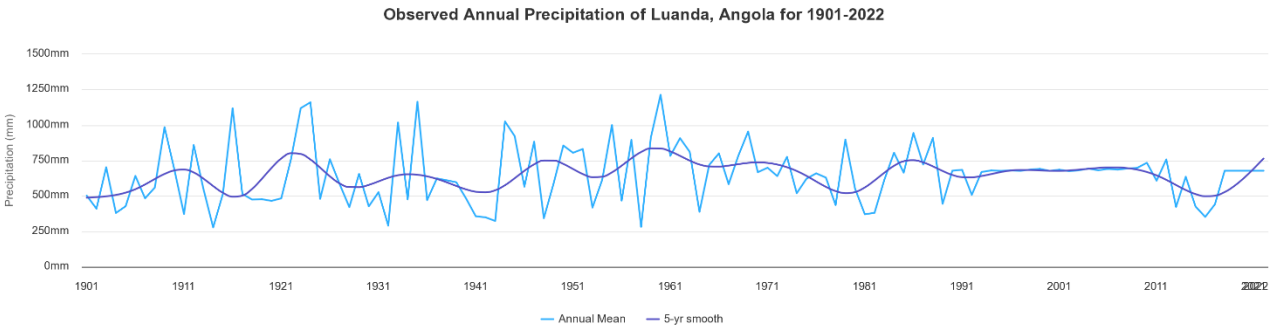


Figure 195. Timeseries of precipitations of Luanda. Historical data (1901-2022). Source: Climate Change Knowledge Portal of the World Bank Group

The data in the series reflects an average mean of 580.91 mm. The annual data corresponding to the average is shown in the following table:

Year	Precipitations	5-yr smooth
1901	502.19	487.71
1911	372.06	685.96
1921	482.93	764.10
1931	526.43	602.52
1941	356.61	529.61
1951	804.39	689.98
1961	782.33	814.18
1971	699.11	732.89
1981	370.67	559.80
1991	684.26	632.64
2001	685.20	676.74
2011	607.75	645.05
2022	677.95	763.53

Table 83. Summary of historical precipitation data. Source: Climate Change Knowledge Portal of the World Bank Group

It should be highlighted that the FAO viewer confirms the absence of extreme rainfall risk in the project area for the time period 1981-2010.

11.3.3. Other climate risks

A set of climate variables, not included in the World Bank platform but obtained from the FAO viewer, has been examined. Landslides, river floods, and wildfires did not pose any risk in the project area during the period from 1981 to 2010. While not directly affecting the project area, a portion of the ocean was susceptible to the risks associated with changing temperatures and acidification. Nonetheless, the project area faced the risk of drought during the specified timeframe.

Furthermore, in accordance with the "*Angola Disaster Risk Profile for Droughts and Floods, 2019*," regarding the risk of drought, the climate conditions for this period, as depicted in the figure below, indicate that the number of potentially affected individuals ranged between 10,000 and 50,000 people.

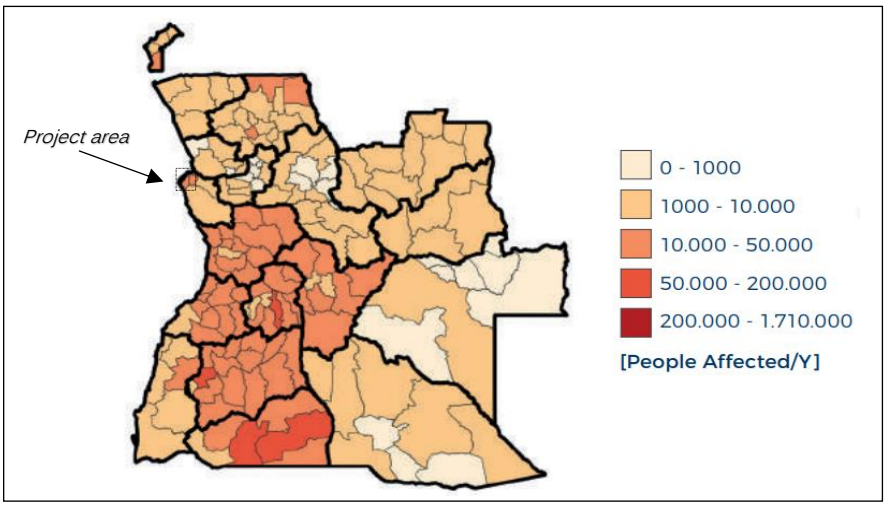


Figure 196. Number of individuals potentially affected by drought. Historical data (1979-2018). Source: Angola Disaster Risk Profile for droughts and floods

According to the document "*Technical Report on the status of coastal vulnerability in central African countries, 2020*", floods in Angola are a recurrent phenomenon. The city of Luanda has been affected since 2007 and has suffered floods in certain years which have generally resulted in the flooding of houses and commercial buildings and the interruption of transport for long periods. Floods have affected on average about 100,000 people every year, roughly 0.4% of the total population of the country, concentrated in the most urbanized provinces such as Luanda.

According to the document "*Angola Disaster Risk Profile for Droughts and Floods, 2019*", from 1979 to 2018, no people potentially affected by flood risk have been identified in the project area.

11.4. Analysis of future climate scenarios

11.4.1. CMIP6 projections for Luanda

The Climate Change Knowledge Portal (CCKP) offers a complete suite of indicators for in-depth analysis into future climate scenarios and potential risks due to changing climates. The Mean Projections page of the World Bank Group provides most used indicators presented as multi-model ensemble, which represent the range and distribution of the most plausible projected outcomes of change in the climate system for a selected Shared Socioeconomic Pathways (SSP). Data can be investigated as either the projected mean or anomaly (change) and can be analyzed as annual, seasonal, or monthly. The analysis can be further tailored by selecting different projected time periods and SSPs. SSPs are meant to provide insight into future climates based on defined emissions, mitigation efforts, and development paths.

Climate projection data is modeled data, derived from the Coupled Model Inter-comparison Projects (CMIPs). CCKP's General page presents the latest CMIP collection: Coupled Model Inter-comparison Projects Phase 6 (CMIP6), initially released August 2021. CMIP data is the foundational data used in the IPCC Assessment Reports.

Climate projection data is modeled data from the global climate model compilations of the CMIPs, overseen by the World Climate Research Program. Data presented is CMIP6, derived from the Sixth phase of the CMIPs.

The CMIPs form the data foundation of the IPCC Assessment Reports. CMIP6 supports the IPCC's Sixth Assessment Report. Data is presented at a 0.25º x 0.25º (25km x 25km) resolution.

The SSPs are used in CMIP6 and replace the Representative Concentration Pathways (RCPs) which were presented in CMIP5. In CMIP6, future climate scenarios are presented through five SSPs: SSP1-1.9, SSP1-2.6, SSP2-4.5, SSP3-7.0, and SSP5-8.5, which present different societal development pathways.

The total radiative forcing level by 2100 (the cumulative measure of GHG emissions from all sources) is presented at the end of each pathway (i.e., - 1.9, -2.6, -4.5, 7.0, 8.5, etc.).

- SSP1-1.9 is the most optimistic scenario, and global emissions are cut to net-zero around 2050. This is the only scenario that aligns with the Paris Accord of keeping global warming to 1.5°C by the end of the century.
- SSP1-2.6, stays below 2.0°C by the end century, supports increasing sustainability with global emissions cut severely, but reach net-zero after 2050.
- SSP2-4.5 presents a 'middle of the road' scenario in which emissions remain around current levels, before starting to fall around mid-century, but do not reach net-zero by 2100.
- SSP3-7.0 presents a pathway in which countries are increasingly competitive, and emissions continue to climb, roughly doubling from current levels by 2100.
- SSP5-8.5 presents a future based on an intensified exploitation of fossil fuel resources where global markets are increasingly integrated leading to innovations and technological progress.

As stated in the *IPCC, 2023: Climate Change 2023: Synthesis Report*, limiting human-caused global warming requires net zero anthropogenic CO_2 emissions. Pathways consistent with 1.5°C and 2°C carbon budgets imply rapid, deep, and in most cases immediate GHG emission reductions in all sectors (high confidence). Exceeding a warming level and returning (i.e. overshot) implies increased risks and potential irreversible impacts; achieving and sustaining global net negative CO_2 emissions would reduce warming (high confidence).

Limiting global temperature increase to a specific level requires limiting cumulative net CO_2 emissions to within a finite carbon budget, along with strong reductions in other GHGs. For every 1000 $GtCO_2$ emitted by human activity, global mean temperature rises by likely 0.27°C to 0.63°C (best estimate of 0.45°C). This relationship implies that there is a finite carbon budget that cannot be exceeded in order to limit warming to any given level.

The best estimates of the remaining carbon budget (RCB) from the beginning of 2020 for limiting warming to 1.5°C with a 50% likelihood is estimated to be 500 $GtCO_2$; for 2°C (67% likelihood) this is 1150 $GtCO_2$.

If the annual CO_2 emissions between 2020–2030 stayed, on average, at the same level as 2019, the resulting cumulative emissions would almost exhaust the remaining carbon budget for 1.5°C (50%), and exhaust more than a third of the remaining carbon budget for 2°C (67%).

Based on central estimates only, historical cumulative net CO_2 emissions between 1850 and 2019 (2400 ±240 $GtCO_2$) amount to about four-fifths of the total carbon budget for a 50% probability of limiting global warming

to 1.5°C (central estimate about 2900 $GtCO_2$) and to about two-thirds of the total carbon budget for a 67% probability to limit global warming to 2°C (central estimate about 3550 $GtCO_2$).

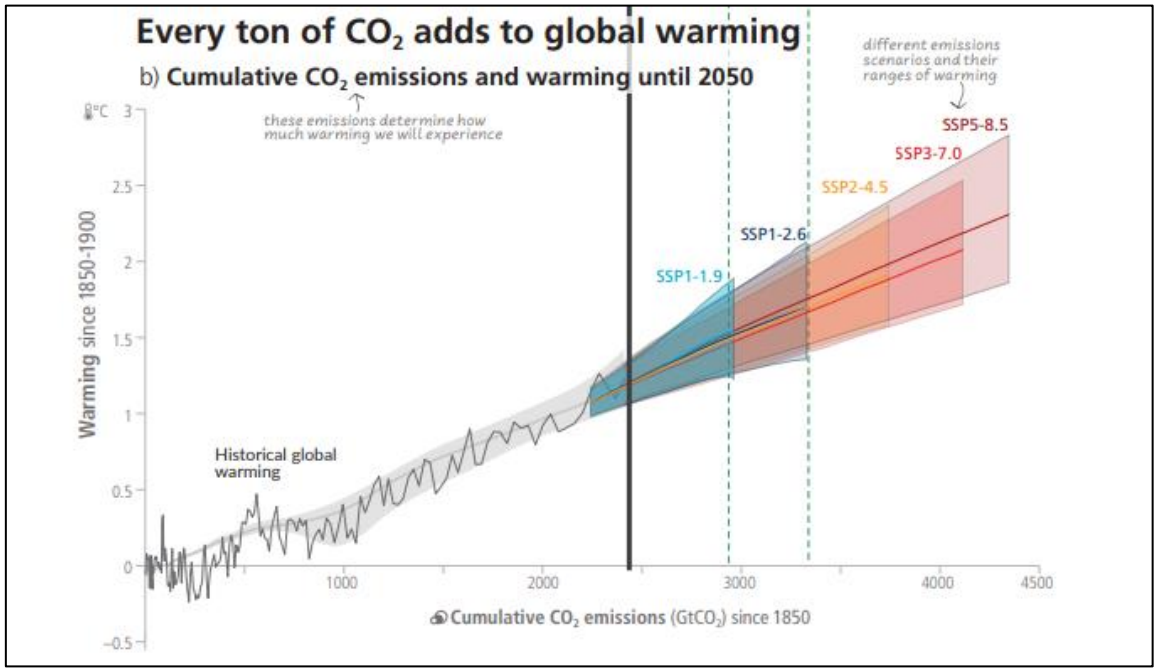


Figure 197. Relationship between cumulative CO_2 emissions and the increase in global surface temperature. IPCC, 2023: Climate Change 2023: Synthesis Report

As shown in the previous figure, historical data (thin black line) shows historical CO_2 emissions versus observed global surface temperature increase relative to the period 1850-1900. The grey range with its central line shows a corresponding estimate of the human-caused share of historical warming. Colored areas show the assessed very likely range of global surface temperature projections, and thick colored central lines show the median estimate as a function of cumulative CO_2 emissions for the selected scenarios SSP1-1.9, SSP1-2.6, SSP2-4.5, SSP3-7.0, and SSP5-8.5. Projections until 2050 use the cumulative CO_2 emissions of each respective scenario, and the projected global warming includes the contribution from all anthropogenic forces.

11.4.2. Temperature

The analysis has been based on three different climate scenarios (SSP2-4.5, SSP3-7.0, and SSP5-8.5), with their trends referenced against the historical period from 1950 to 2014.

Maximum temperature

The Climate Change Knowledge Portal of the World Bank forecasts an increase in maximum temperatures for Luanda compared to the reference period (1950-2014) for the scenarios under examination regarding this variable.

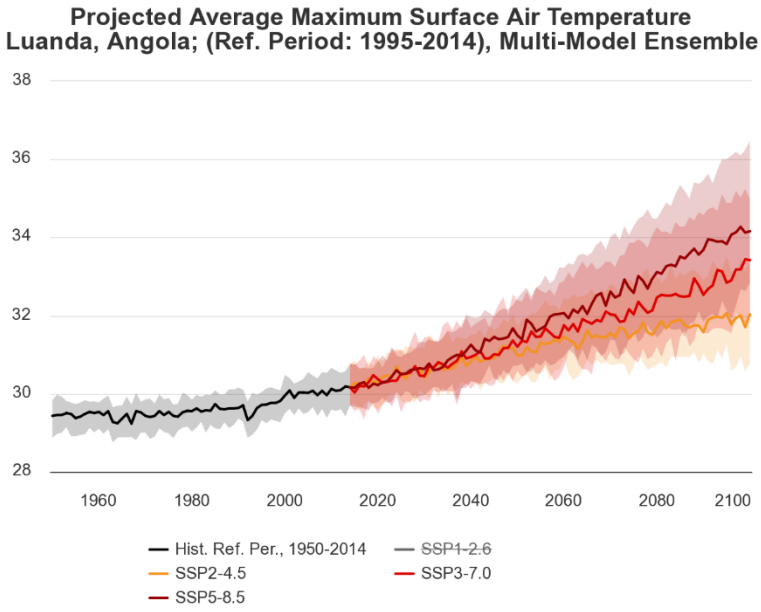
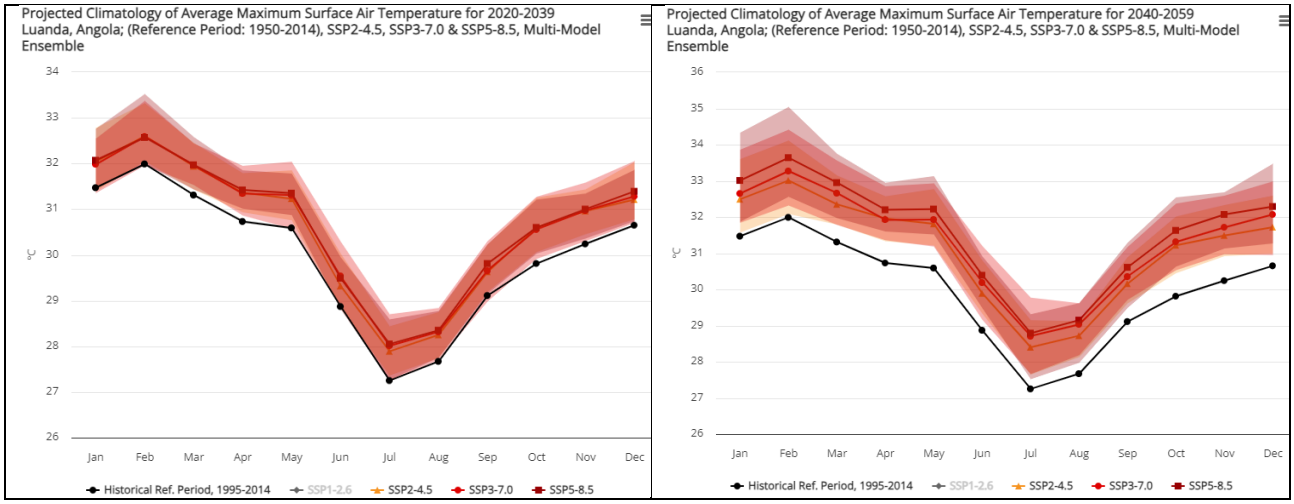


Figure 198. Projected maximum temperature multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

On the one hand, the following figure displays the monthly climate projection mean for the maximum temperature variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014. As can be seen, there is an increase in maximum temperatures from January to February and from July to December, and the lowest maximum temperatures are projected for the month of July.



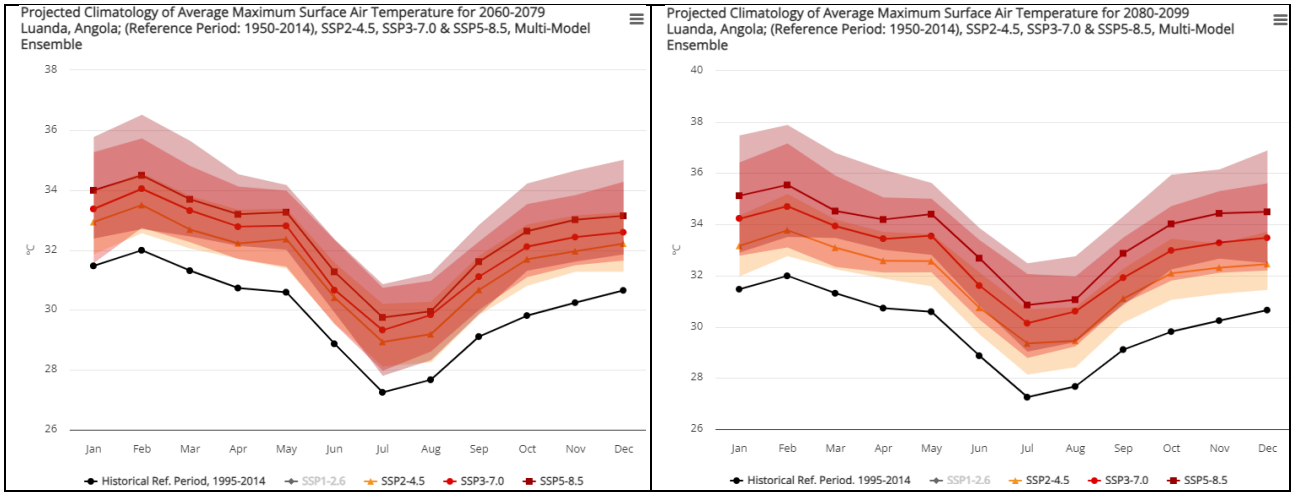


Figure 199. Mean values of maximum temperature projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

On the other hand, the following figure displays the monthly climate projection anomalies for the maximum temperature variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014.

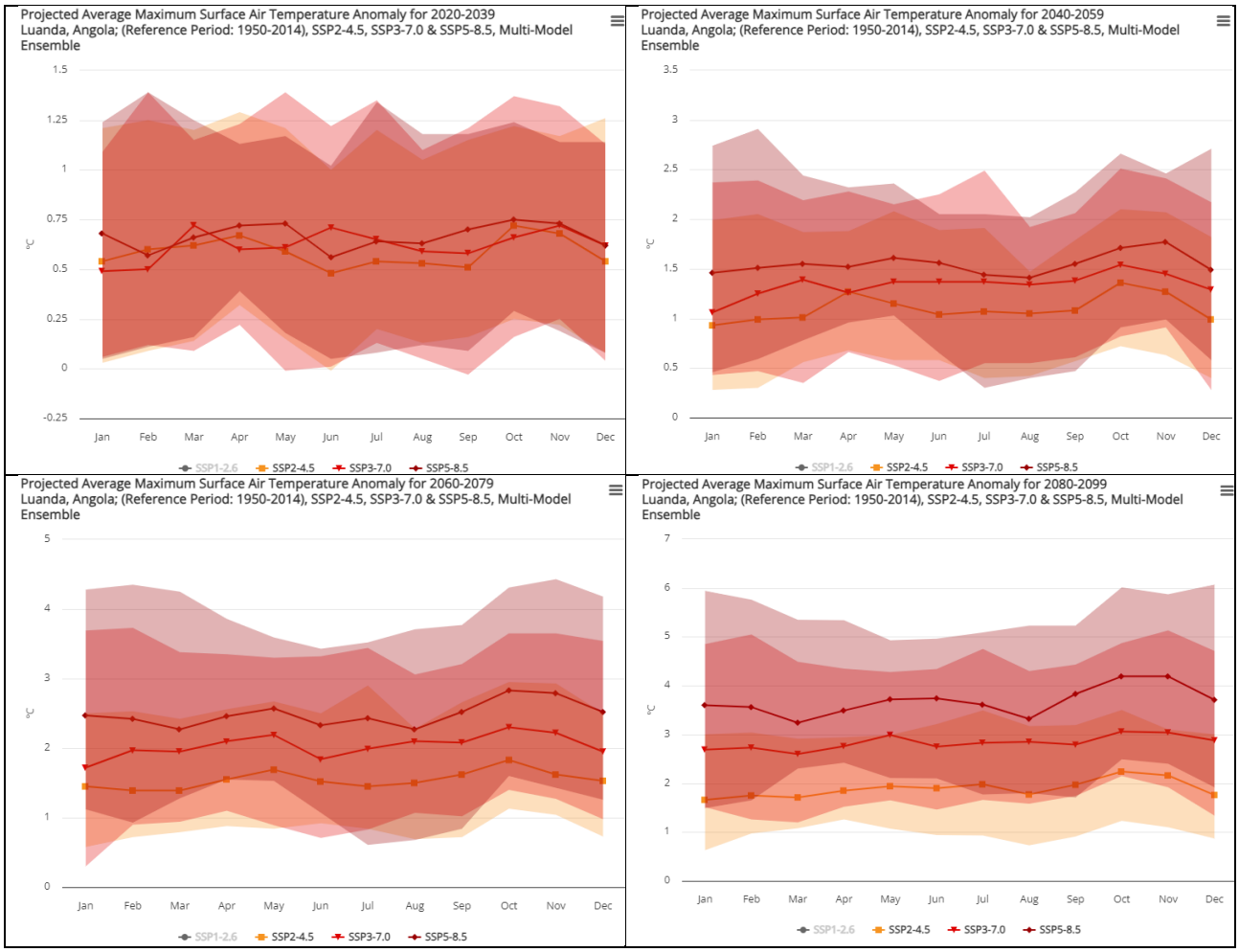


Figure 200. Anomaly values of maximum temperature projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The following table displays the changes in maximum temperature values across various scenarios, considering the specified time periods and using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Max Temp	2020-2039	0.59	0.62	0.67
	2040-2059	1.1	1.34	1.55
	2060-2079	1.55	2.03	2.49
	2080-2099	1.89	2.83	3.68

Table 84. Anomaly values of maximum temperature in the various scenarios. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5: In the near future (2020-2039), there is an increase of 0.59°C in the average maximum temperatures compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 1.1°C. Finally, in the distant future (2060-2079) and very distant future (2080-2099), temperatures rise by 1.55°C and 1.89°C, respectively.
- SSP3-7.0: In the near future (2020-2039), the average maximum temperatures increase by 0.62°C compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase intensifies to 1.34°C. In the distant future (2060-2079) and very distant future (2080-2099), temperatures increase by 2.03°C and 2.83°C, respectively.
- SSP5-8.5: In the near future (2020-2039), there is a 0.67°C increase in the average maximum temperatures in the project area compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more substantial, reaching 1.55°C. Finally, in the distant future (2060-2079) and very distant future (2080-2099), temperatures rise by 2.49°C and 3.68°C, respectively.

Minimum temperature

The Climate Change Knowledge Portal of the World Bank forecasts an increase in minimum temperatures for Luanda compared to the reference period (1950-2014) for the scenarios under examination regarding this variable.

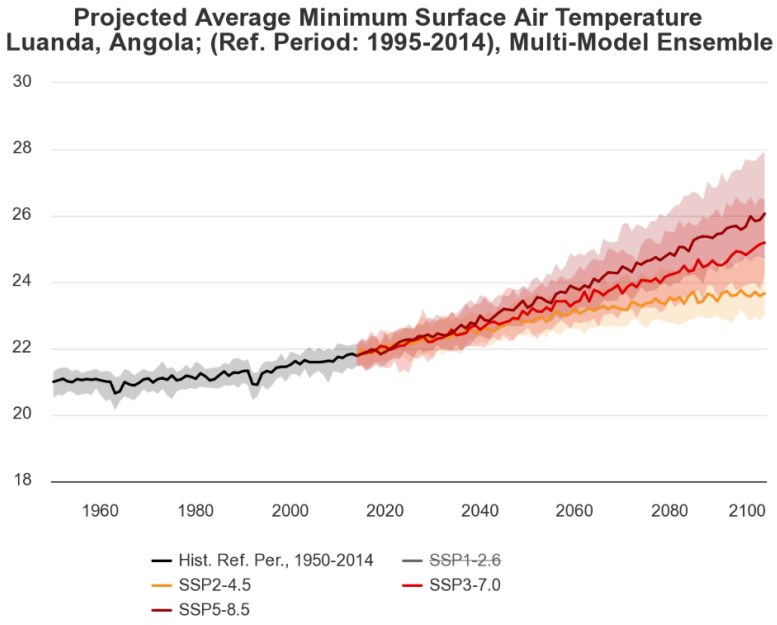


Figure 201. Projected minimum temperature multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

On the one hand, the following figure displays the monthly climate projection mean for the minimum temperature variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014. As can be seen, there is a clear increase in minimum temperatures in the months of January to April and from July to December.

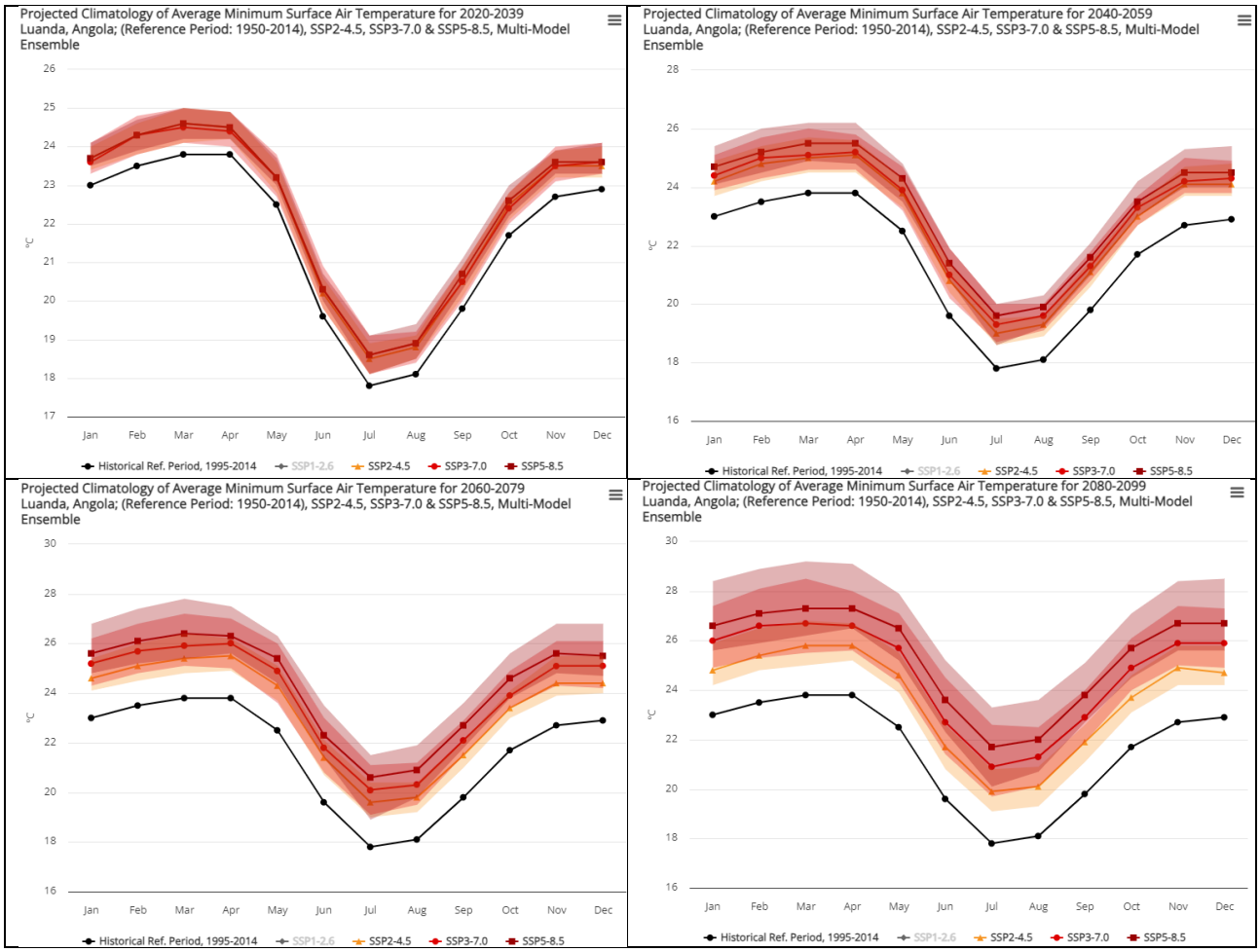


Figure 202. Mean values of minimum temperature projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

On the other hand, the subsequent figure displays the monthly climate projection anomalies for the minimum temperature variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014.

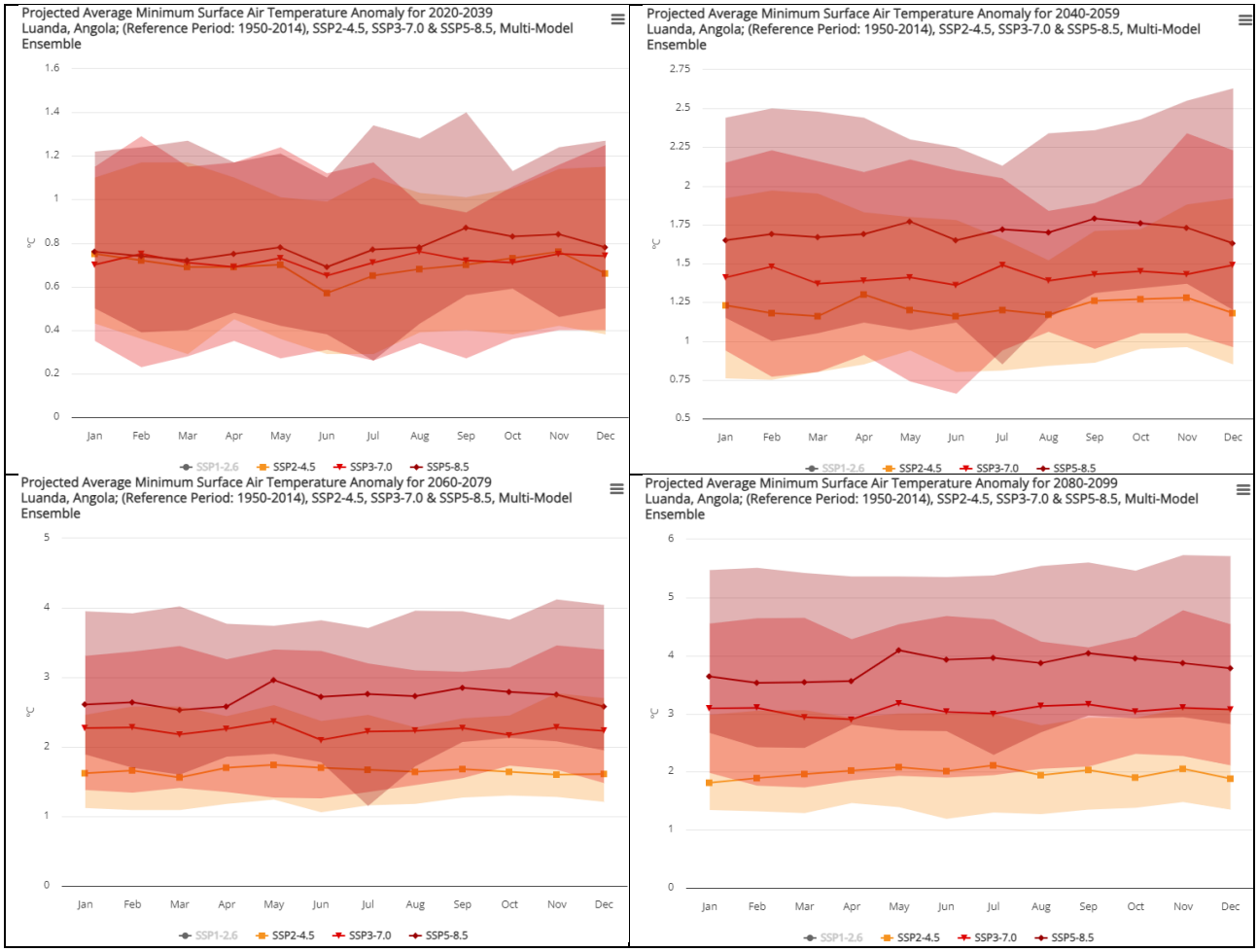


Figure 203. Anomaly values of minimum temperature projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The following table displays the changes in minimum temperature values across various scenarios, considering the specified time periods and using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Min Temp	2020-2039	0.69	0.72	0.78
	2040-2059	1.22	1.43	1.7
	2060-2079	1.65	2.24	2.71
	2080-2099	1.97	3.06	3.81

Table 85. Anomaly values of minimum temperature in the various scenarios considered. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5: In the near future (2020-2039), there is a 0.69°C increase in the average minimum temperatures compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 1.22°C. Finally, in the distant future (2060-2079) and the very distant future (2080-2099), temperatures rise by 1.65°C and 1.97°C, respectively.
- SSP3-7.0: In the near future (2020-2039), the average minimum temperatures increase by 0.72°C compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase intensifies, reaching 1.43°C. In the distant future (2060-2079) and the very distant future (2080-2099), temperatures increase by 2.24°C and 3.06°C, respectively.

- SSP5-8.5: In the near future (2020-2039), there is a 0.78°C increase in the average minimum temperatures in comparison to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more substantial, reaching 1.7°C. Finally, in the distant future (2060-2079) and the very distant future (2080-2099), temperatures rise by 2.71°C and 3.81°C, respectively.

On the other hand, the FAO viewer, for the SSP5-8.5 scenario, which is the least favorable of the trajectories analyzed, indicates that there is no extreme risk of high or low temperatures in the study area in the short term (2021-2040).

For the same scenario but in the medium term (2041-2060), the FAO viewer indicates risk of extremely high temperatures occurring in the project area during the specified period. For the variable of extreme low temperature, no risk is observed.

11.4.3. Number of hot days

The Climate Change Knowledge Portal forecasts an increase in the number of hot days (Tmax > 35ºC) compared to the reference period (1950-2014) for the examined scenarios involving this variable.

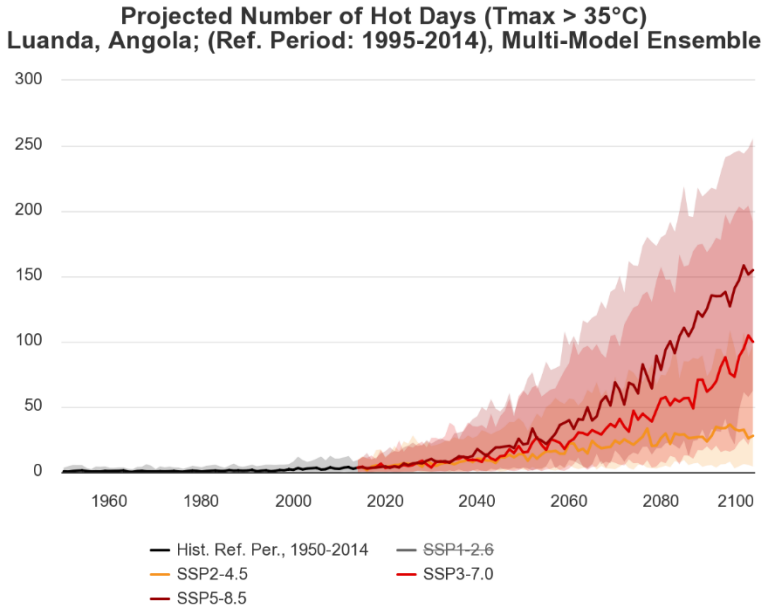


Figure 204. Projected number of hot days (Tmax>35ºC) multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

On the one hand, the following figure displays the monthly climate projection mean for the number of hot days variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014. As can be seen, there is a clear increase in the number of hot days from January to February, from Abril to May and from August to December.

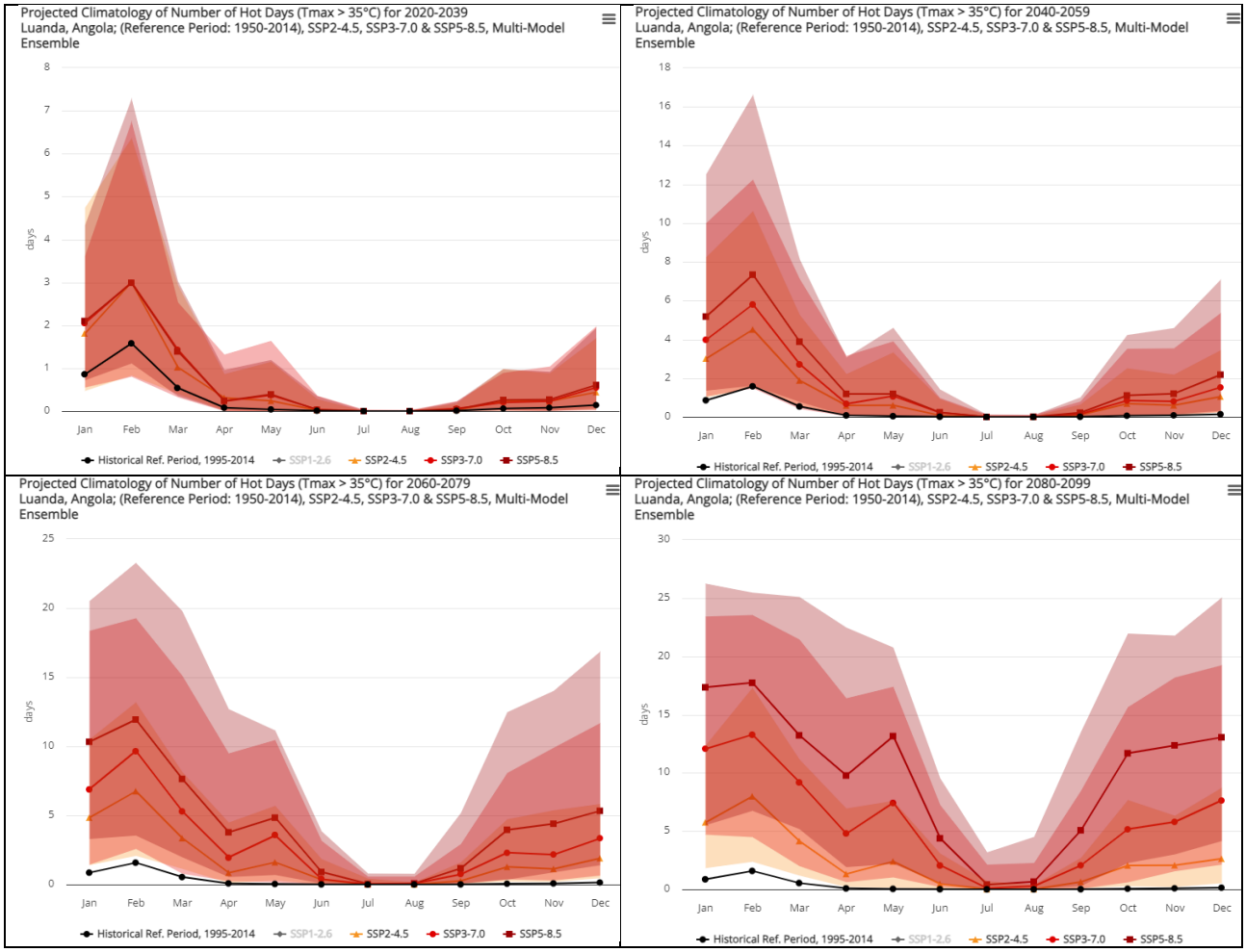
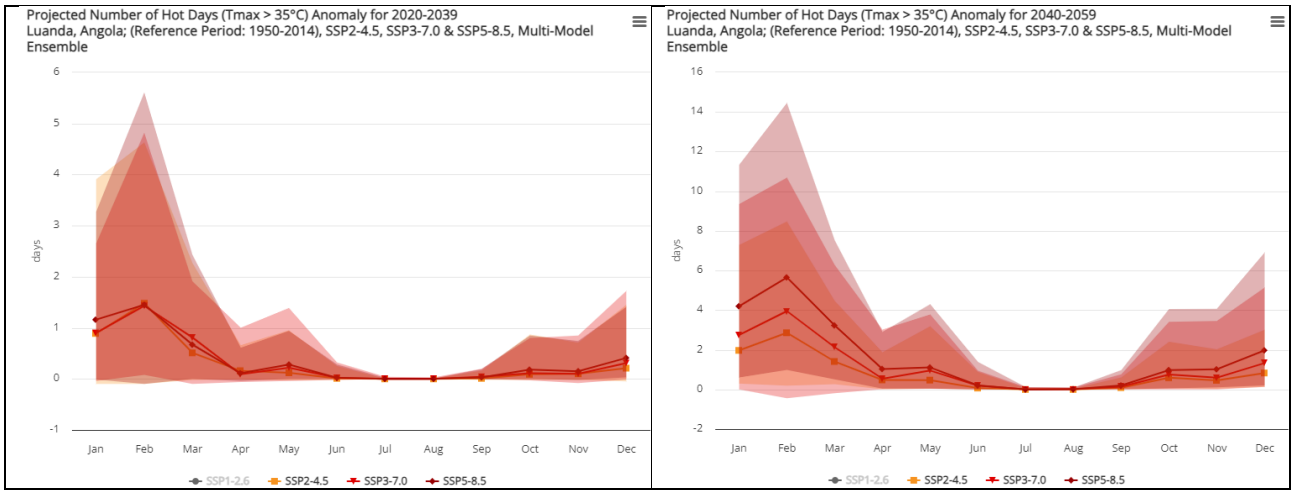


Figure 205. Mean values of number of hot days projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

On the other hand, the figure illustrates the monthly climate projection anomalies for the number of hot days, considering the near, medium, distant, and very distant future, with the reference period being 1950-2014.



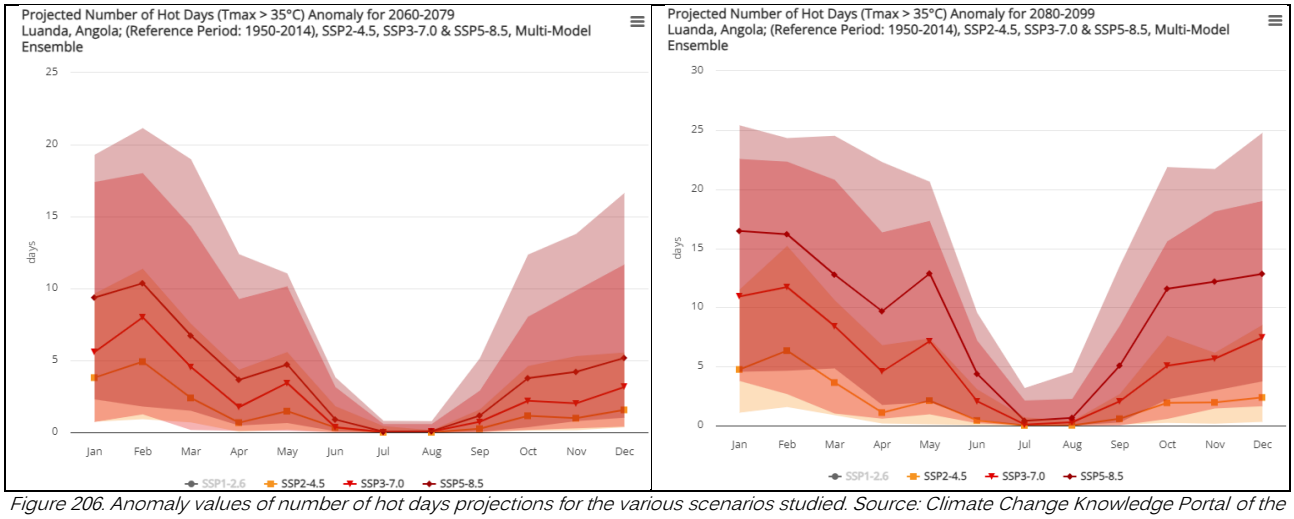


Figure 206. Anomaly values of number of hot days projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The table below displays the changes in the number of hot days across different scenarios, categorized by time periods and using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Number of Hot days (Max T > 35ºC)	2020-2039	0.30	0.34	0.37
	2040-2059	0.77	1.11	1.63
	2060-2079	1.46	2.65	4.18
	2080-2099	2.10	5.45	9.59

Table 86. Anomaly values of hot days in the various scenarios. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5 Scenario: In the near future (2020-2039), there is 0.3 days increase in the average number of hot days compared to the reference period (1950-2014). In the medium-term (2040-2059), the increase becomes more pronounced, reaching 0.77 days. Moving to the distant future (2060-2079), hot days are projected to rise by 1.46 days. In the very distant future (2080-2099), the increase is even more significant, at 2.1 days.
- SSP3-7.0 Scenario: In the near future (2020-2039), there is 0.34 days increase in the average number of hot days compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more substantial, reaching 1.11 days. In the distant future (2060-2079), hot days are expected to rise by 2.65 days. In the very distant future (2080-2099), the increase is projected to be substantial, at 5.45 days.
- SSP5-8.5 Scenario: In the near future (2020-2039), there is 0.37 days increase in the average number of hot days compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 1.63 days. In the distant future (2060-2079), the number of hot days is forecasted to rise by 4.18 days. In the very distant future (2080-2099), the increase is projected to be significant, at 9.59 days.

11.4.4. Number of Tropical Nights (Tmin>26ºC)

The Climate Change Knowledge Portal forecasts an exponential increase in the number of tropical nights (Tmin > 26ºC) compared to the reference period (1950-2014) for the examined scenarios involving this variable.

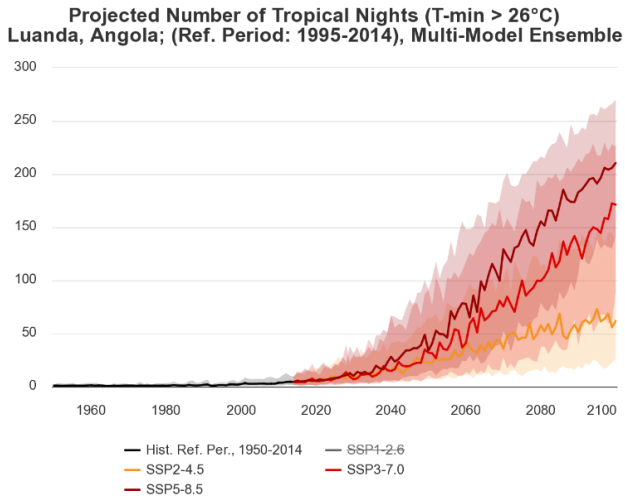


Figure 207. Projected number of tropical nights (Tmin>26ºC) multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure displays the monthly climate projection mean for the number of tropical nights (Tmin>26ºC) variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014. An increase in the number of tropical nights is observed from January to March and from September to December.

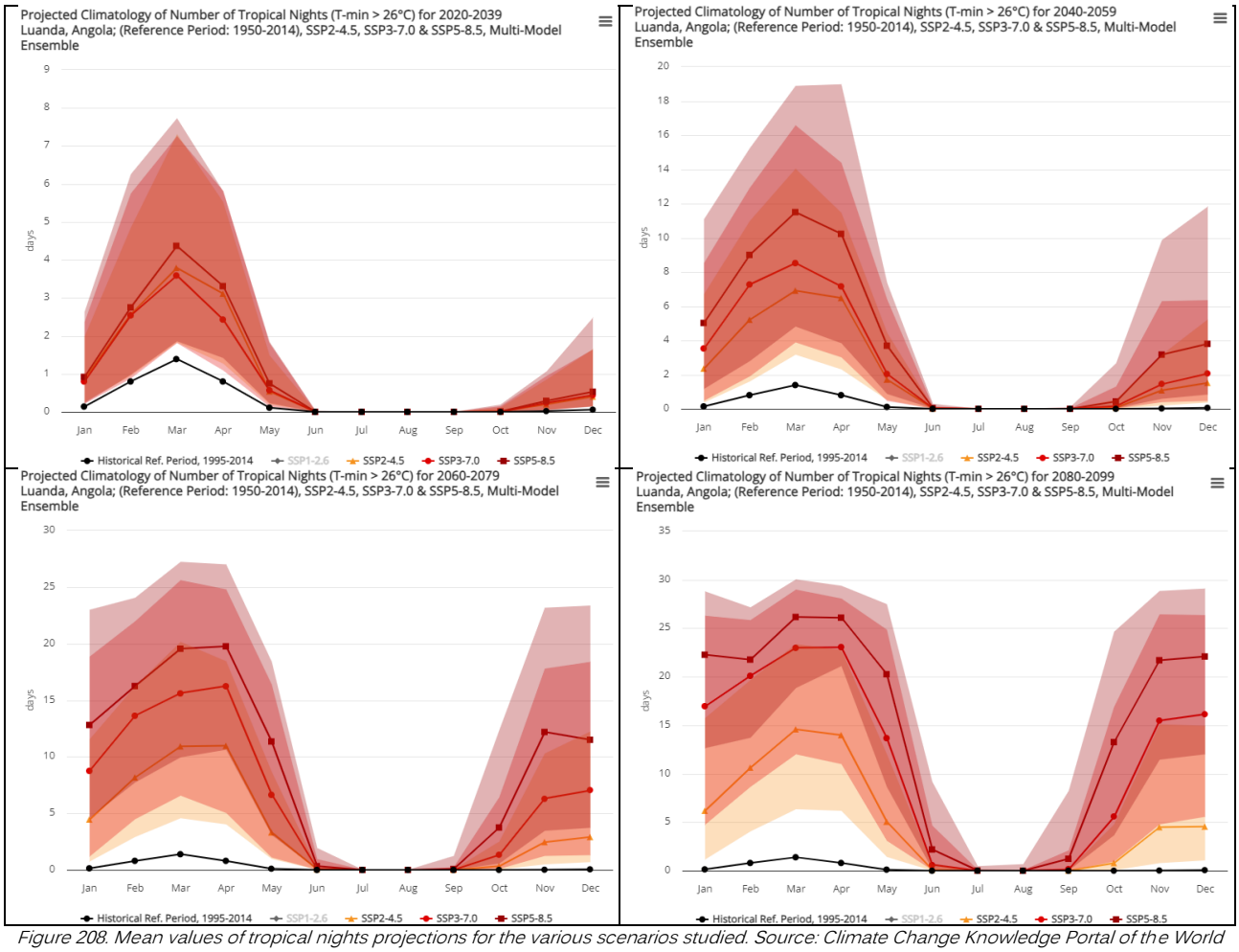


Figure 208. Mean values of tropical nights projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure illustrates the monthly climate projection anomalies for tropical nights, considering the near, medium, distant, and very distant future, with the reference period being 1950-2014.

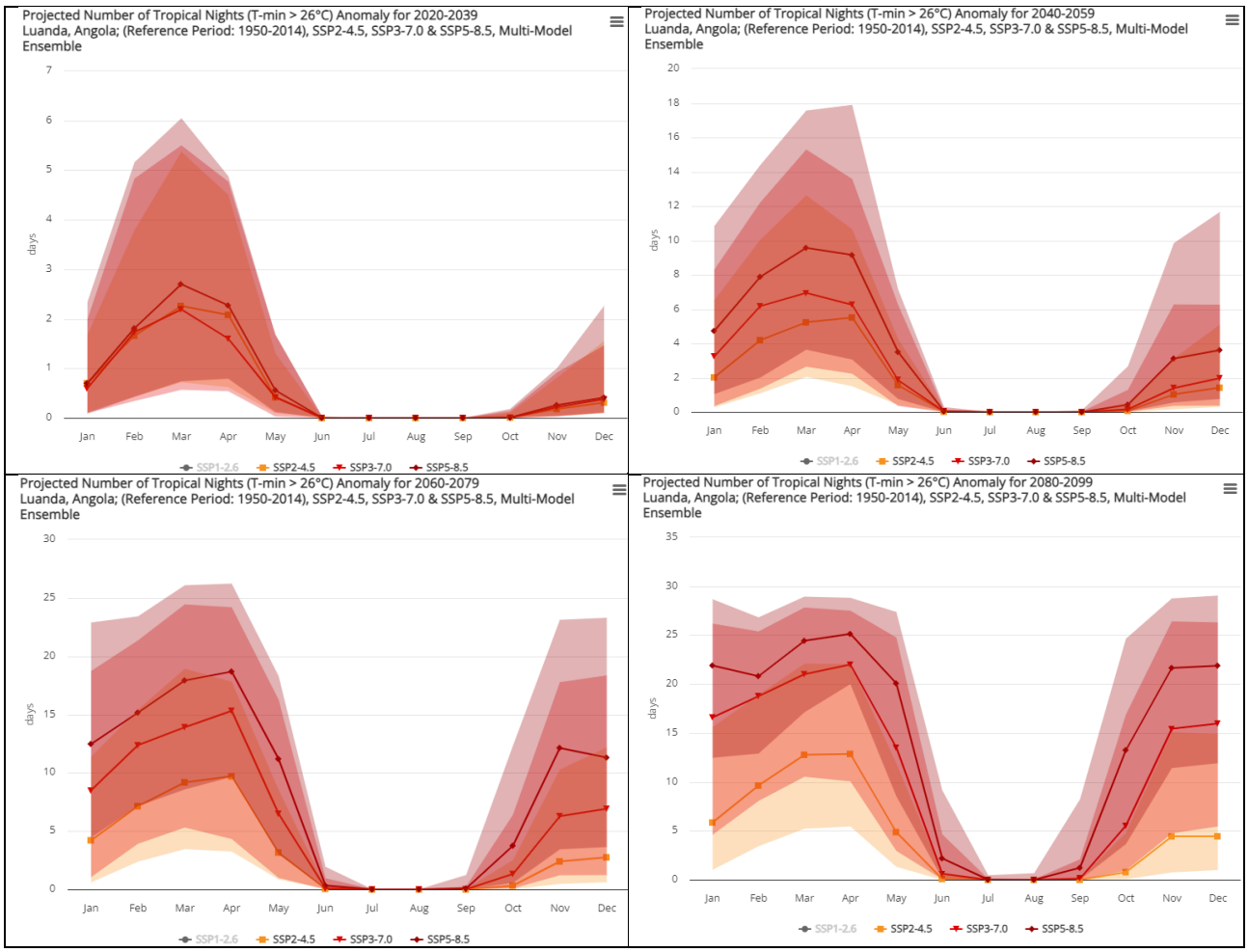


Figure 209. Anomaly values of tropical nights projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The subsequent table presents the changes in tropical nights values for different scenarios across various timeframes and using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Number of Tropical Nights (Tmin>26ºC)	2020-2039	0,64	0,6	0,73
	2040-2059	1,76	2,34	3,5
	2060-2079	3,24	5,93	8,59
	2080-2099	4,65	10,8	14,39

Table 87. Anomaly values of number of tropical nights in the various scenarios. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5 Scenario: In the near future (2020-2039), there is a 0.64 of tropical nights increase in the average compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 1.76 nights. In the distant future (2060-2079), the number of tropical nights is expected to rise by 3.24 nights. In the very distant future (2080-2099), the increase is projected to be 4.65 nights.
- SSP3-7.0 Scenario: In the near future (2020-2039), there is a 0.6-night increase in the average compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase is

accentuated, reaching 2.34 nights. In the distant future (2060-2079), the number of tropical nights is expected to rise by 5.93 nights. In the very distant future (2080-2099), the increase is projected to be 10.8 nights.

- SSP5-8.5 Scenario: In the near future (2020-2039), there is a 0.73-night increase in the average compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 3.5 nights. In the distant future (2060-2079), the number of tropical nights is forecasted to rise by 8.59 nights. In the very distant future (2080-2099), the increase is projected to be 14.39 nights.

11.4.5. Precipitation

The Climate Change Knowledge Portal forecasts an increase in precipitation compared to the reference period (1950-2014) for the examined scenarios involving this variable.

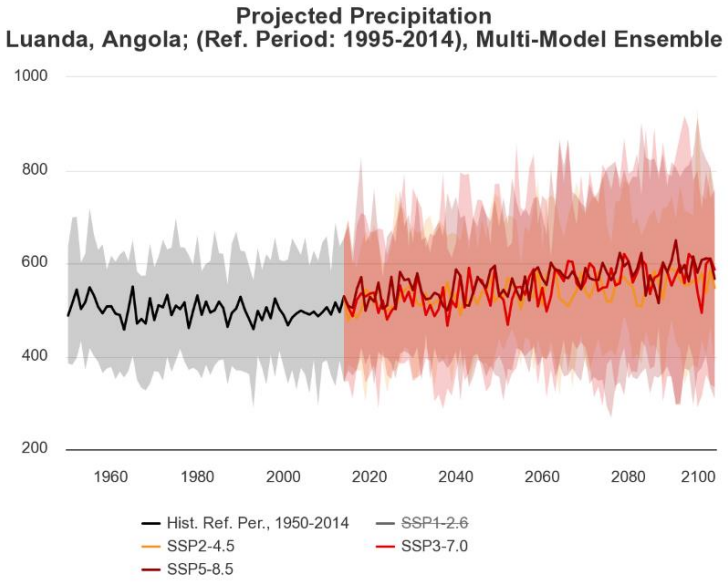
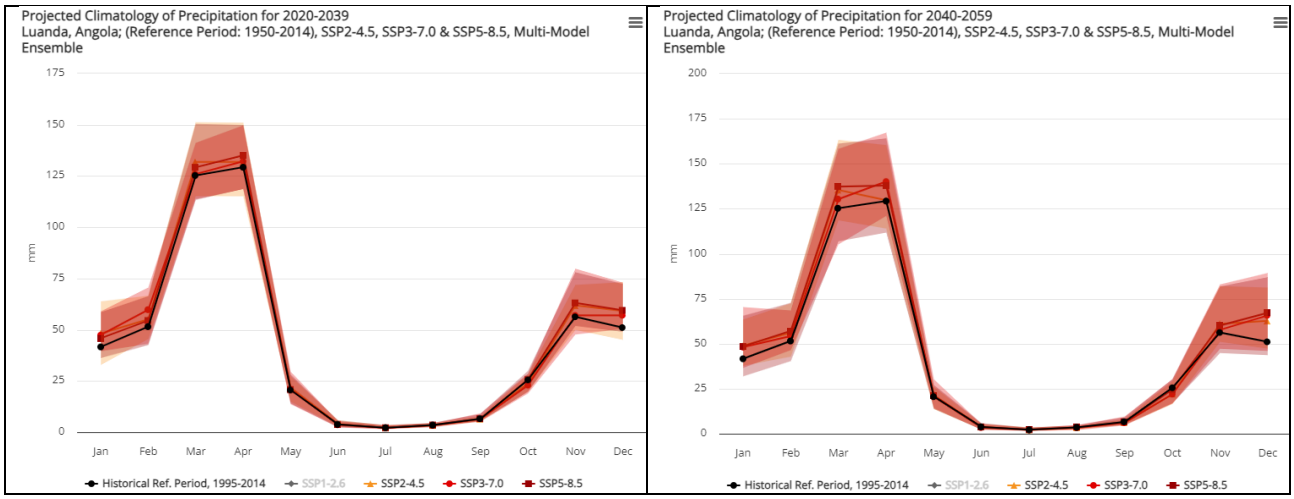


Figure 210. Projected precipitation multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure displays the monthly climate projection mean for the precipitation variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014.



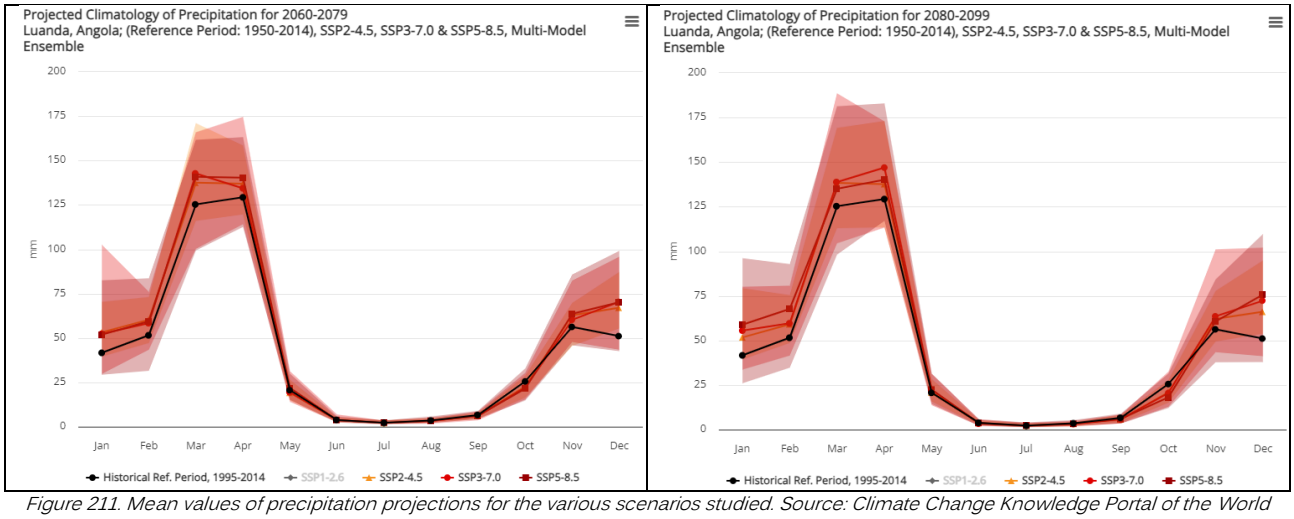


Figure 211. Mean values of precipitation projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure illustrates the monthly climate projection anomalies for precipitation, considering the near, medium, distant, and very distant future, with the reference period being 1950-2014.

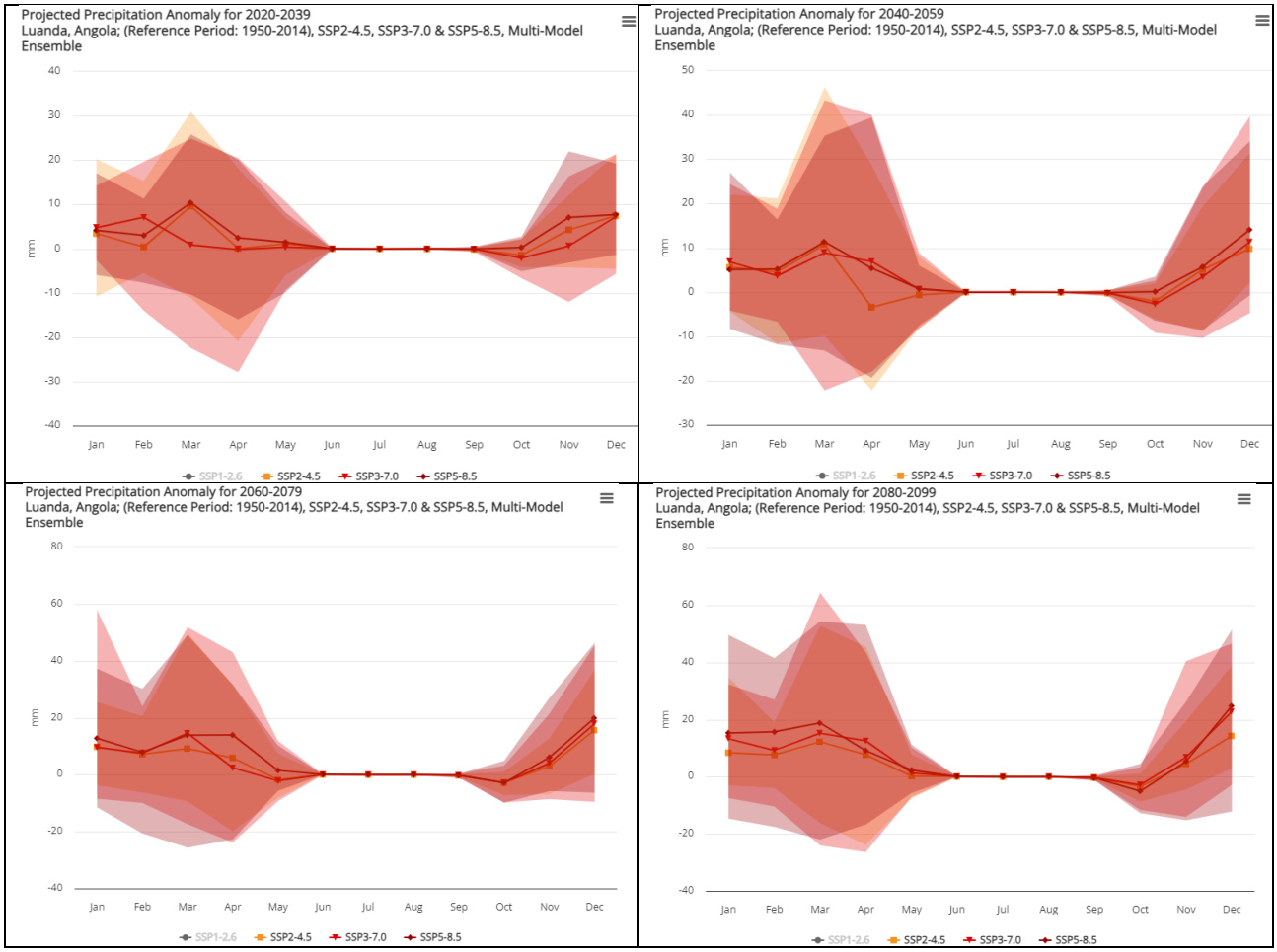


Figure 212. Anomaly values of precipitation projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The subsequent table presents the changes in precipitation values for different scenarios across various timeframes using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Precipitation (mm)	2020-2039	2.05	1.54	3.03
	2040-2059	2.47	3.23	3.97
	2060-2079	3.79	4.21	6.05
	2080-2099	4.24	6.48	7.14

Table 88. Anomaly values of precipitation in the various scenarios. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5 Scenario: In the near future (2020-2039), there is a 2.05mm increase in the average precipitation compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 2.47mm. In the distant future (2060-2079), precipitation is expected to rise by 3.79mm. In the very distant future (2080-2099), the increase is projected to be 4.24mm.
- SSP3-7.0 Scenario: In the near future (2020-2039), there is a 1.54mm increase in the average precipitation compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase is accentuated, reaching 3.23mm. In the distant future (2060-2079), precipitation is expected to rise by 4.21mm. In the very distant future (2080-2099), the increase is projected to be 6.48mm.
- SSP5-8.5 Scenario: In the near future (2020-2039), there is a 3.03mm increase in the average precipitation compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 3.97mm. In the distant future (2060-2079), precipitation is forecasted to rise by 6.05mm. In the very distant future (2080-2099), the increase is projected to be 7.14mm.

Days with precipitation >20mm

The Climate Change Knowledge Portal forecasts an increase in the number of days with precipitation exceeding 20mm when compared to the reference period (1950-2014) for the scenarios considered in relation to this variable.

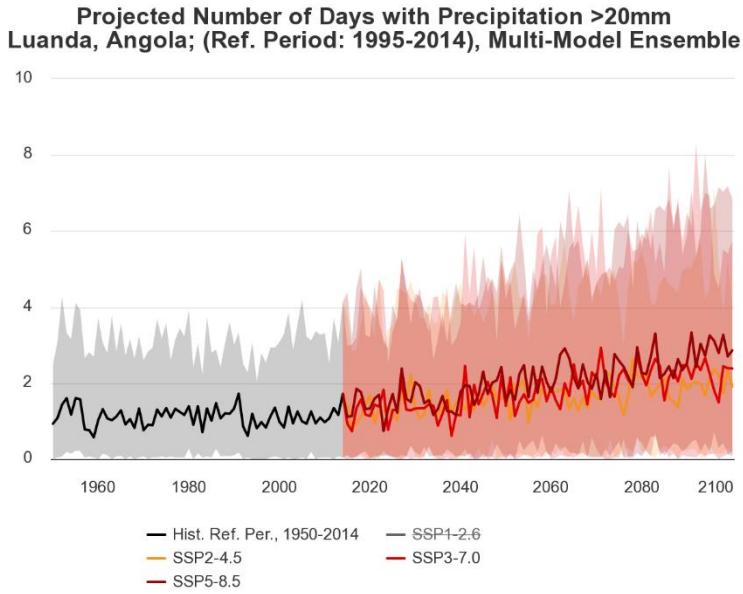


Figure 213. Projected days with precipitation >20mm multi-model ensemble of Luanda. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure displays the monthly climate projection mean for the precipitation variable in the near, medium, distant, and very distant future, with the reference period being 1950-2014. The number of days with precipitation >20mm increases from January to March and from October to December.

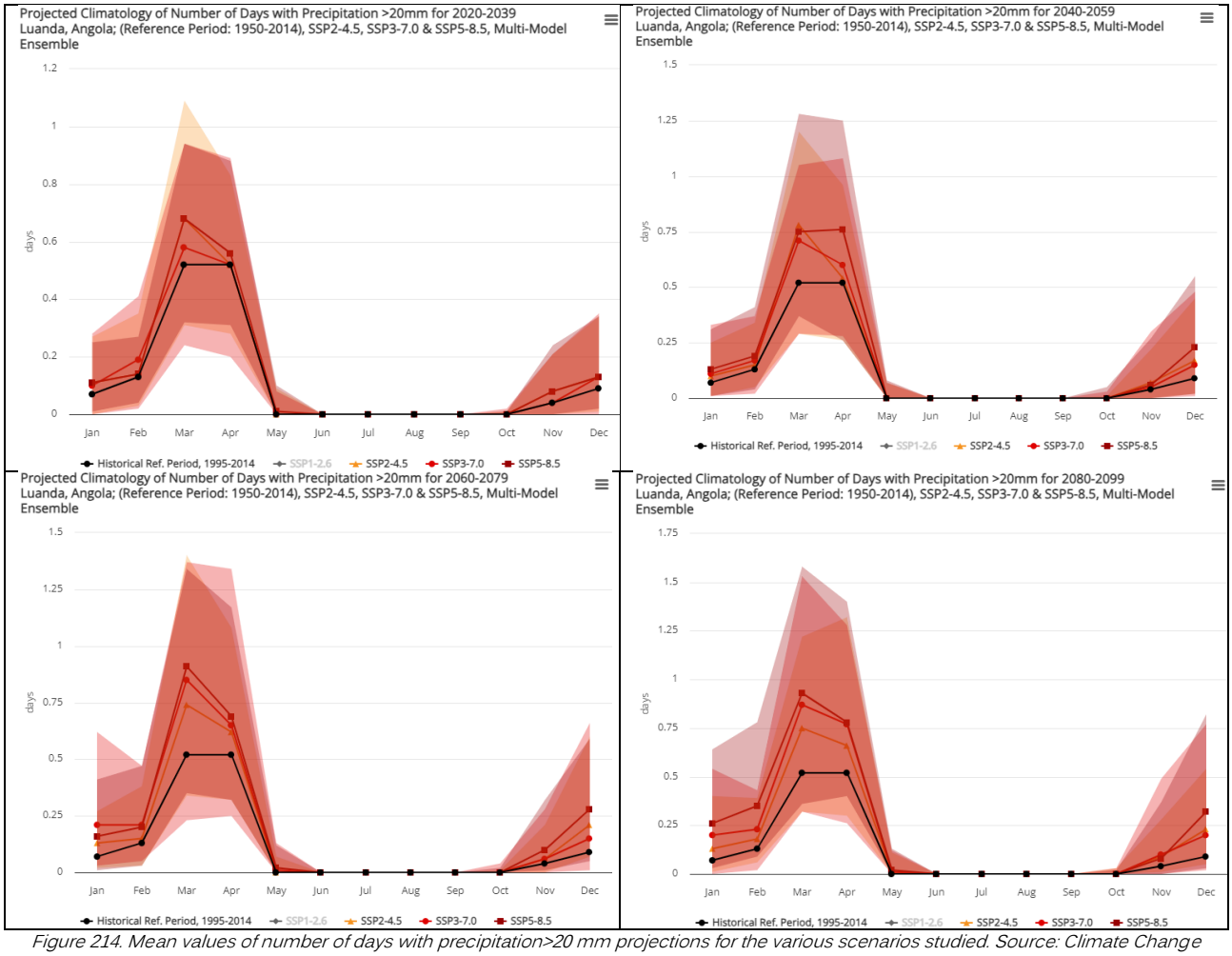
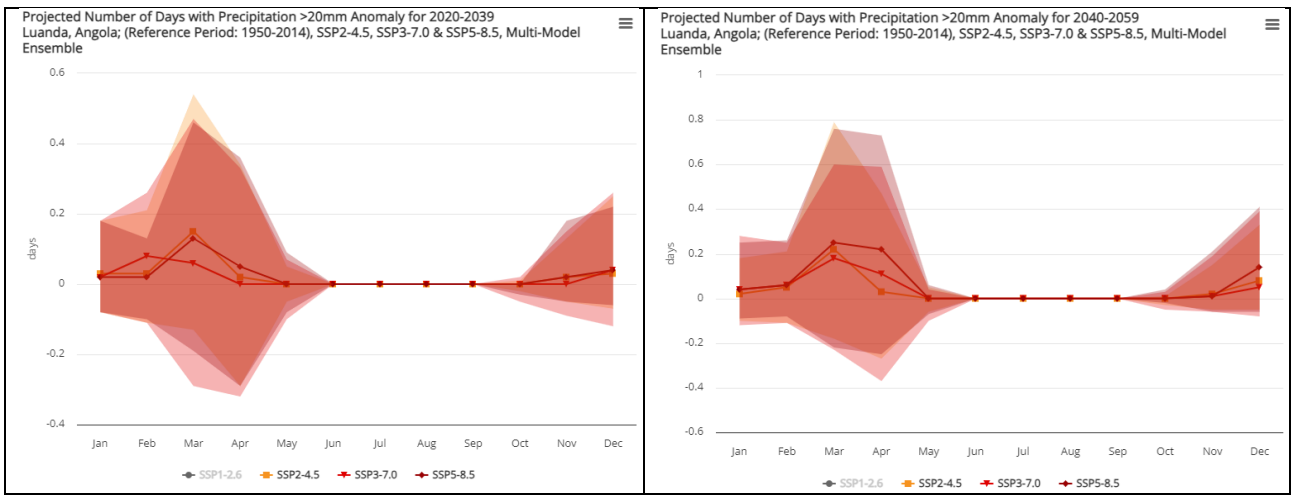


Figure 214. Mean values of number of days with precipitation>20 mm projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The following figure illustrates monthly climate projection anomalies for the variable "days with precipitation >20 mm" in the near, medium, distant, and very distant future, with the reference period being 1950-2014.



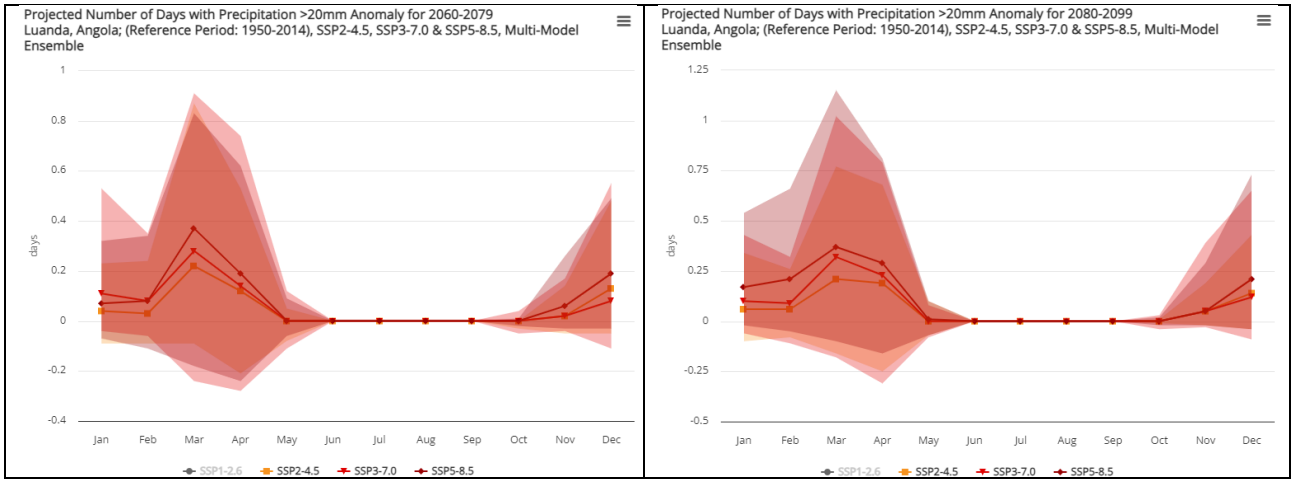


Figure 215. Anomaly values of Days with precipitation >20 mm projections for the various scenarios studied. Source: Climate Change Knowledge Portal of the World Bank Group

The subsequent table presents the changes in the number of days with precipitation >20mm for different scenarios across various timeframes and using 1950-2014 as a reference.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Days with precipitation >20mm	2020-2039	0.02	0.02	0.02
	2040-2059	0.04	0.04	0.06
	2060-2079	0.05	0.06	0.08
	2080-2099	0.06	0.08	0.11

Table 89. Anomaly values of days with precipitation >20 mm in the various scenarios. Source: Climate Change Knowledge Portal of the World Bank Group

- SSP2-4.5 Scenario: In the near future (2020-2039), there is a 0.02-day increase in the average number of days with precipitation >20 mm compared to the baseline period (1950-2014). In the medium term (2040-2059), the value increases, reaching 0.04 days. In the distant future (2060-2079), there is a projected increase of 0.05 days. In the very distant future (2080-2099), the increase is expected to be 0.06 days.
- SSP3-7.0 Scenario: In the near future (2020-2039), there is a 0.02-day increase in the average number of days with precipitation >20mm compared to the reference period (1950-2014). In the medium term (2040-2059), the value increases, reaching 0.04 days. In the distant future (2060-2079), there is a projected increase of 0.06 days. In the very distant future (2080-2099), the increase is expected to be 0.08 days.
- SSP5-8.5 Scenario: In the near future (2020-2039), there is 0.02 days increase in the average number of days with precipitation >20mm compared to the reference period (1950-2014). In the medium-term (2040-2059), this increase becomes more pronounced, reaching 0.06 days. In the distant future (2060-2079), there is a projected increase of 0.08 days. In the very distant future (2080-2099), the increase is expected to be 0.11 days.

Comparing the climate projection data from CMIP6 once again with the data provided in the FAO viewer for SSP5-8.6-Near Term (2021-2040) and SSP5-8.6-Mid Term (2041-2060), it can be confirmed that, according to the latter data source, there are no expected future risks related to floods, droughts, ocean temperature, or ocean acidification, all of which are directly associated with the precipitation variable.

11.4.6. Sea Level Rise (SLR)

Given the critical role of ports in the global trading system and their potential exposure to climate related damage, disruptions and delays, enhancing their climate resilience is a matter of strategic socio-economic importance for the global economy and society as a whole (UNCTAD, 2020a).

Although many climatic hazards can affect seaports (e.g. heat waves, extreme winds and precipitation), mean sea-level rise (SLR) and associated extreme sea-levels (ESLs) pose a particularly important threat, which is growing. A brief overview of the increasing hazards and impacts of sea level rise on ports under climate change illustrates the urgent case for action.

Sea-level rise is largely driven by global warming. Global warming of more than 1.0°C above pre-industrial levels has already been observed and is predicted to reach 1.5°C as early as in the 2030s, with significant impacts for coastal developing States (IPCC, 2018). A 2°C of global temperature increase - widely regarded as the threshold beyond which climate change risks may become unacceptably high - may be reached by the 2050s, depending on the future GHG emissions.

Global warming can force large mean sea level changes, by the combination of: (i) ocean thermal expansion due to the increase of the ocean heat content; (ii) ocean water mass increases from the melting of the continental ice sheets, caps and glaciers; (iii) isostatic adjustment, anthropogenic coastal subsidence and changes in land water storage (Regina Asariotis, Article No. 75 [UNCTAD Transport and Trade Facilitation Newsletter N°90 - Second Quarter 2021]).

Recent observations suggest a globally averaged mean sea level rise (SLR) of about 4.0 cm per decade (WMO, 2021). SLR projections are being continuously revised upwards, with recent projections suggesting that, by 2100, with 2°C of global warming above pre-industrial levels (specific Warming Level-SWL of 2°C), global SLR will be 30 - 93 cm higher than the mean of the 1986 - 2005 period (IPCC, 2018). Importantly, higher mean sea levels, combined with future extreme storm surges, waves and tides, could generate devastating extreme sea level (ESL) events, which pose a particular threat to seaports across the globe.

The dataset that has been used to study this variable is the IPCC WGI (Working Group I) Interactive Atlas. The Interactive Atlas (IA) is a new component of the AR6 WGI report, allowing regional exploration of observed and projected climate data (including CMIP5/6 and CORDEX) to support and extend the assessment undertaken in the WGI chapters.

The Interactive Atlas provides information for both observations and model simulations, the former for the recent past and the latter for paleoclimate, recent past, and future periods. To study this variable, scenario data from CMIP6 has been used (35 models, SSP2-4.5, SSP3-7.0, and SSP5-8.5 scenarios).

In the following figure, the shaded region indicates where the projection data has been extracted from:

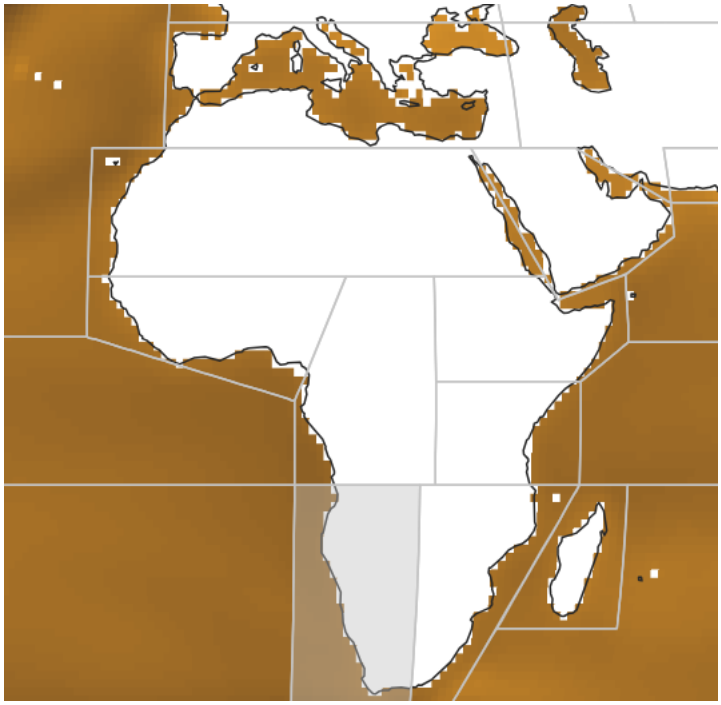
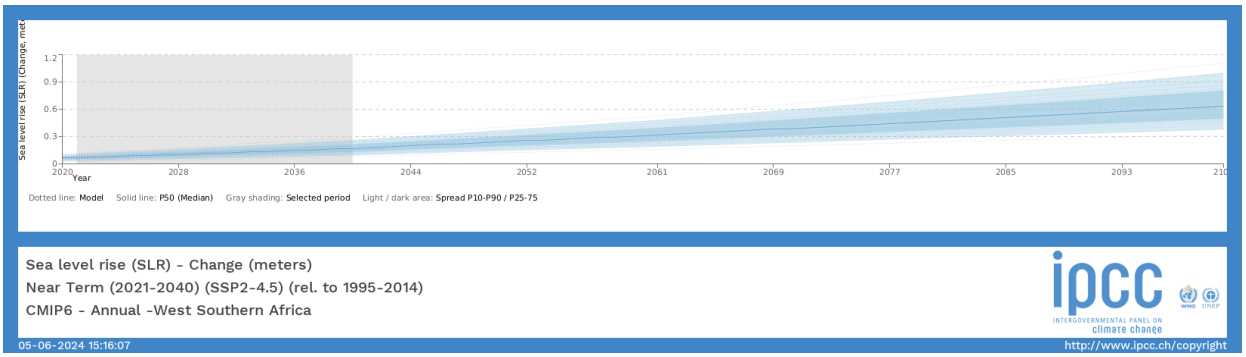


Figure 216. Shaded region from which the projection data has been extracted. Source: IPCC WGI Interactive Atlas

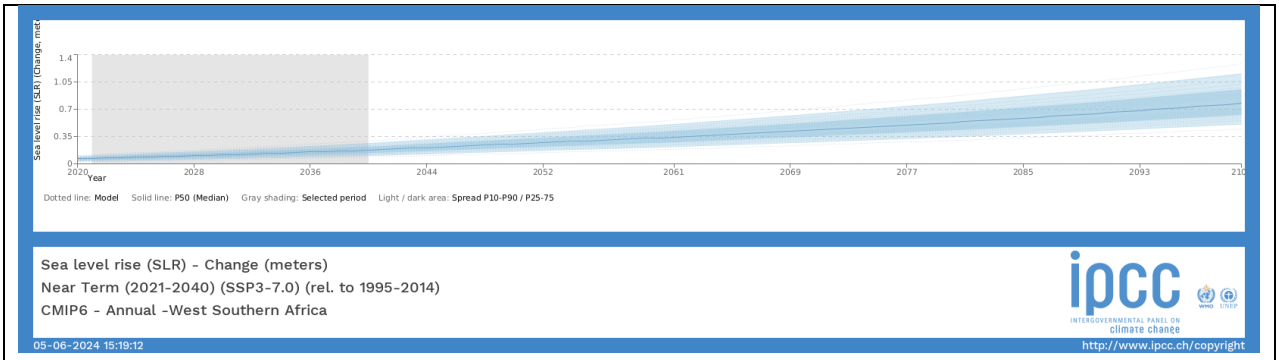
On the one hand, the following figure displays the annual climate projection mean for the sea level rise (SLR) variable in the near, medium, and long term, with the reference period being 1995-2014. As can be seen in the time series shown below, which display sea level rise (in meters) for the near term (2021-2040), medium term (2041-2060), and long term (2081-2100) under different scenarios, there is a practically linear increase in sea level rise from 2020 to 2100.

Near Term (2021-2040)

SSP2-4.5



SSP3-7.0



SSP5-8.5

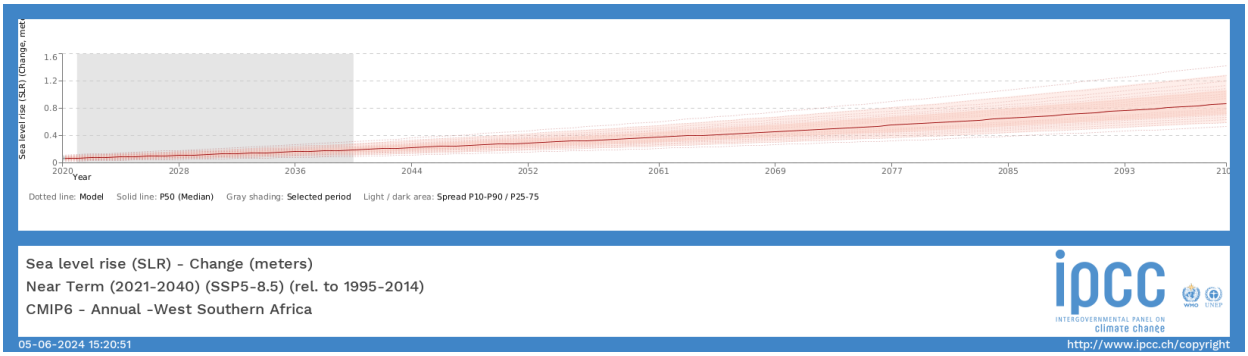
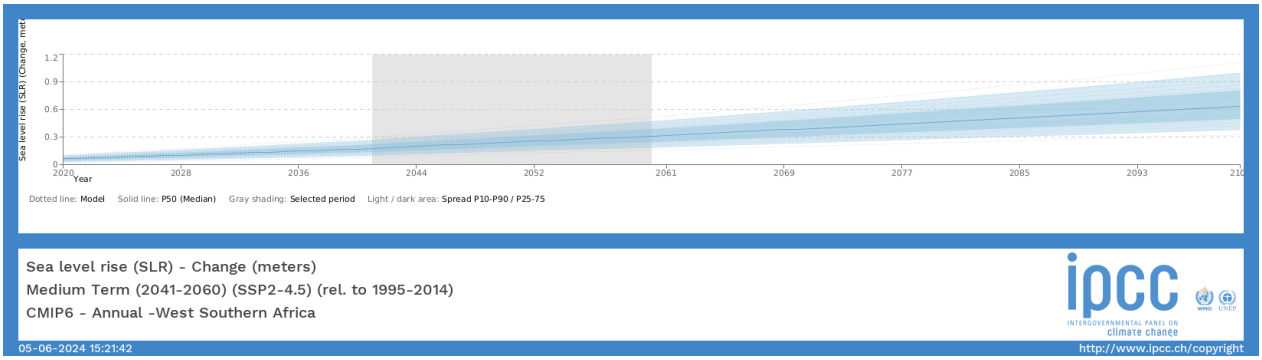


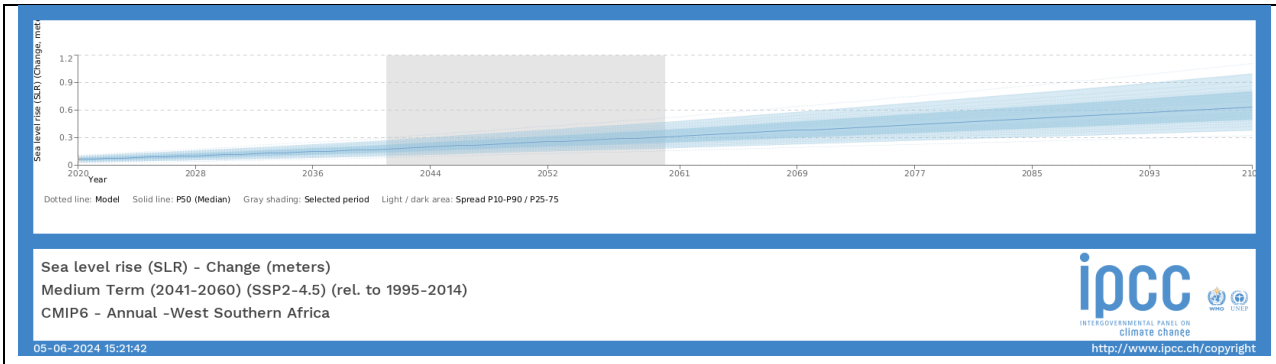
Figure 217. Near term mean values of sea level rise projections (2020-2100) for the various scenarios studied. Source: IPCC WGI (Working Group I) Interactive Atlas

Medium Term (2041-2060)

SSP2-4.5



SSP3-7.0



SSP5-8.5

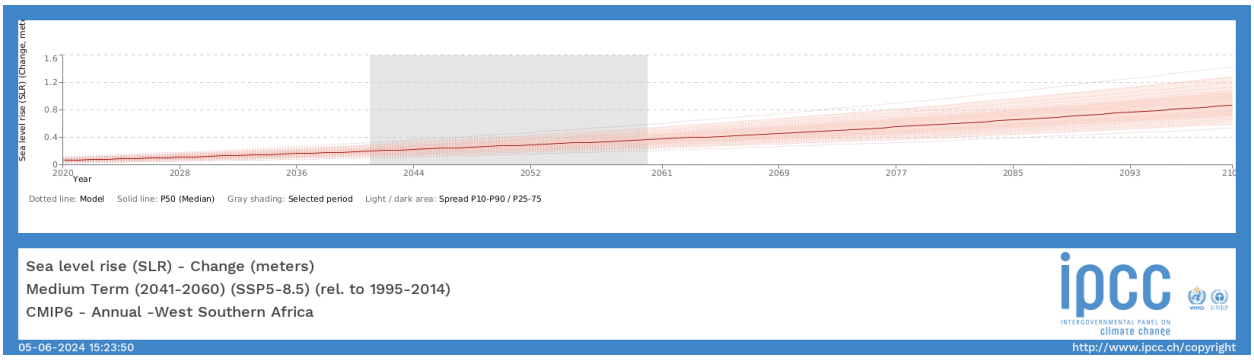
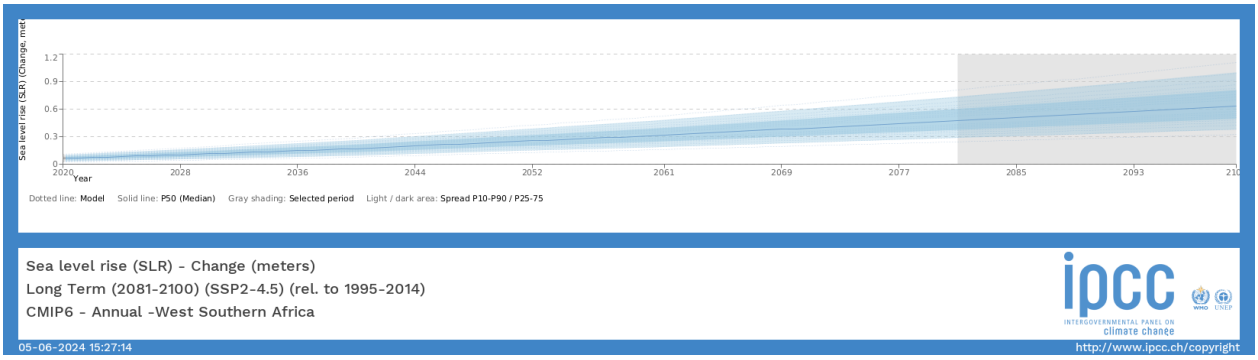


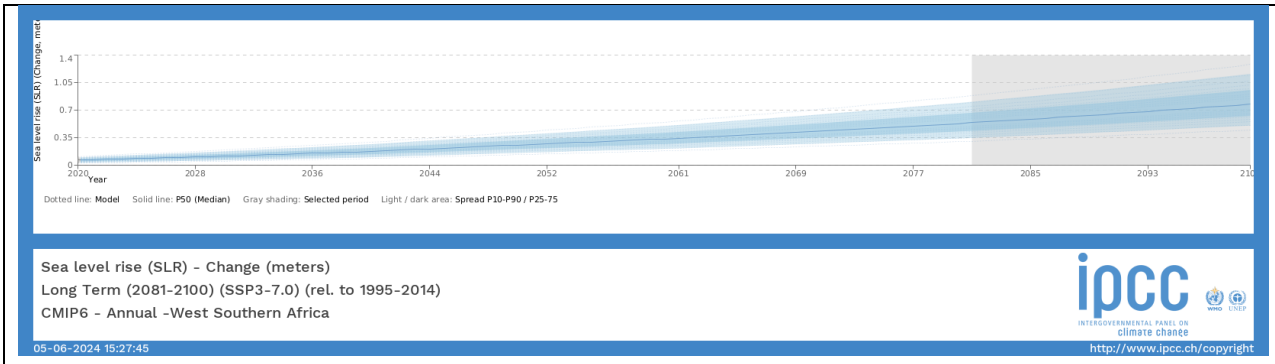
Figure 218. Medium term mean values of sea level rise projections (2020-2100) for the various scenarios studied. Source: IPCC WGI (Working Group I) Interactive Atlas

Long Term (2081-2100)

SSP2-4.5



SSP3-7.0



SSP5-8.5

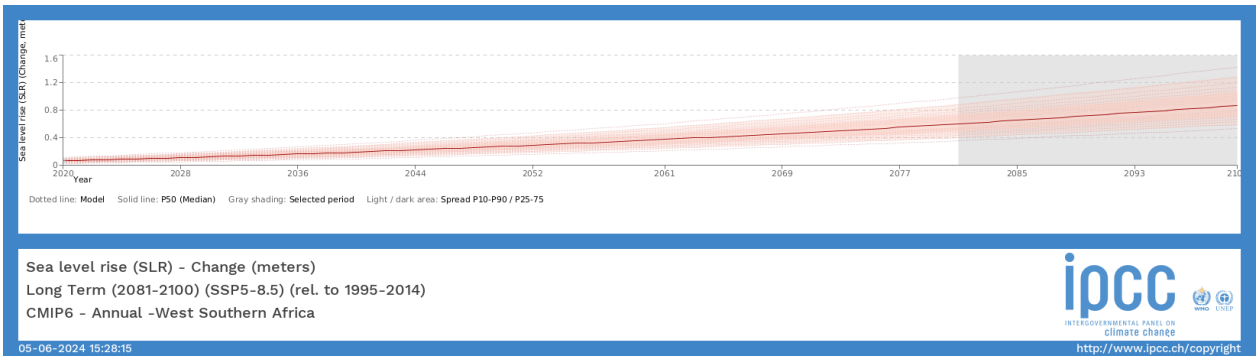


Figure 219. Long term mean values of sea level rise projections (2020-2100) for the various scenarios studied. Source: IPCC WGI (Working Group I) Interactive Atlas

On the other hand, the subsequent table presents the changes in sea level rise (in meters) for different scenarios across various timeframes and using 1995-2014 as a reference period.

Variable	Time Period	SSP2-4.5	SSP3-7.0	SSP5-8.5
Sea level rise (m)	2021-2040	0.1	0.1	0.1
	2041-2060	0.3	0.3	0.3
	2081-2100	0.6	0.7	0.8

Table 90. Anomaly values of sea level rise in the various scenarios. Source: IPCC WGI Interactive Atlas

- SSP2-4.5 Scenario: In the near future (2021-2040), there is a 0.1-meter increase in the average sea level rise compared to the reference period (1995-2014). In the medium term (2041-2060), the increase becomes more pronounced, reaching 0.3 meters. Moving to the long term (2081-2100), sea level is projected to rise by 0.6 meters.

- SSP3-7.0 Scenario: In the near future (2021-2040), there is a 0.1-meter increase in the average sea level rise compared to the reference period (1995-2014). In the medium-term (2041-2060), this increase becomes more substantial, reaching 0.3 meters. In the long term (2081-2100), sea level is expected to rise by 0.7 meters.

- SSP5-8.5 Scenario: In the near future (2021-2040), there is a 0.1-meter increase in the average sea level compared to the reference period (1995-2014). In the medium-term (2041-2060), this increase becomes more pronounced, reaching 0.3 meters. In the long term (2081-2100), the increase is projected to be 0.8 meters.

11.4.7. Other climate-related risks

There are additional climate-related risks that require analysis, which are not featured in the Climate Change Knowledge Portal for the World Bank Group. These risks include tsunamis, floods, cyclones, wildfires, soil stability, among others. Consequently, the UNISDR (United Nations International Strategy for Disaster Reduction) mapping platform, based on the Atlas GAR (Global Assessment Report on Disaster Risk Reduction - Risk Data Platform), has been used to access information regarding these climate-related risks. GAR Atlas risk results are presented in terms of probabilistic risk metrics.

This platform enables the visualization of various layers related to natural hazards and climate change specific to the geographical location of the project. It aids in the identification of areas that may be exposed to high or moderate levels of threat.

As indicated in the GAR reference document, the GIS (Geographic Information System) layers were developed using global data and models with relatively coarse resolution. Therefore, similar to the climate projections viewers for different scenarios, these should be utilized primarily to provide general trends on the analyzed threats.

The application includes a total of 21 layers encompassing both geophysical and hydrometeorological threats. These layers vary in source and resolution level to address the diverse nature of each threat, and the modeling methods applied.

A comprehensive review of the data provided by the viewer within the study area was conducted to gather information on variables not covered by the Climate Change Knowledge Portal. Some of the selected threats lack a probabilistic representation but have been quantified by the GAR using various indices and historical data. These, combined with simulation models, enable the generation of threat and risk maps for different return periods.

The primary risks under scrutiny encompass tsunamis, landslides, fires, earthquakes, volcanoes and floods. It is essential to note that, within the study area, as observed in the GAR Atlas, there are no indications of risk of tsunamis, landslides and volcanos within the project area. Below are the other risks that have been observed:

There are no active fires in the period from 01/01/2022 to 31/12/2022 in the project area. However, in Active Fires Density 2003-22 (based on MODIS Collection 6 Active Fire Product MCD 13ML), the reported fire density can be observed as the count of fires per square kilometer occurring within pixels of 0.1 decimal degrees (pixel dimensions vary from 20 km² at the Poles to 122 km² at the Equator). Only location points described as "presumed vegetation fire" in the attributes are included in the frequency calculation. In the project area, the reported fire density is 0.016 fires per square kilometer.

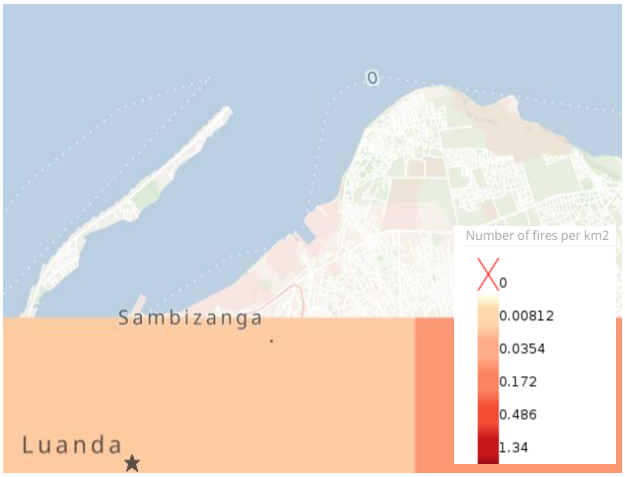
On the one hand, the Active Fires Assessment (Administrative Level 1) shows the trend of fire occurrence at the provincial level (GADM version 3.6 level 1) from 2003 to the present, based on MODIS Collection 6 Active Fire Product MCD 14ML. The administrative units are identified using the GADM version 3.6 polygon layer dissolved at level 1 for provinces. In the project area, a moderate decrease in the trend can be observed. On the other hand, the Active Fires Assessment (Administrative Level 0) shows the trend of fire occurrence at the country level (UN_0_UN Cartographic Section Level 0) from 2003 to the present, based on MODIS Collection 6 Active Fire Product MCD 14ML. The administrative units are identified using the UN Cartographic Section's

UN_0 polygon layer for countries. In the project area, there is an observable stable or undetectable trend. On both, the dashboard associated with the layer provides relevant information on the density of fires per square kilometer for each administrative unit, the evolution of the monthly cumulative fires for each year, the distribution of fires by land cover type (based on MODIS land cover data for each year), and the number of fires occurring in critical areas such as forests, protected areas (WDPA), and forests in protected area.

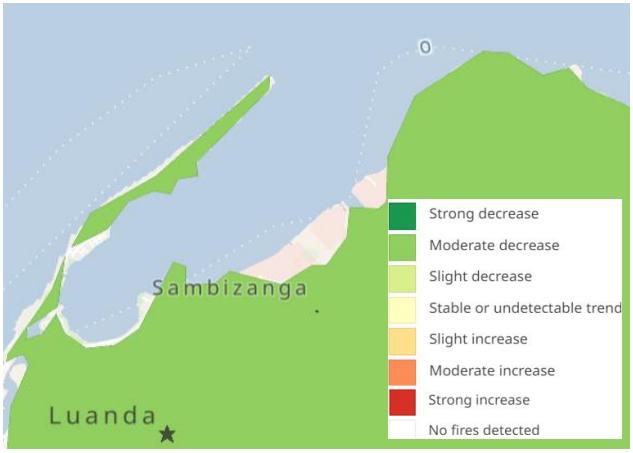
Related to earthquake events, there are no events with magnitudes higher than 5.0 as reported by the Advanced National Seismic System (ANSS) Catalogue over the period January 1970 to June 2015. On the other hand, the earthquake average annual loss (AAL) (USD$ million) and Earthquake Relative Average Annual Loss (%) correspond to the AAL, which accounts for a long-term overview of disaster risk by representing the expected loss averaged on an annual basis, considering the occurrence of small, medium, and extreme events. AAL can also serve as an indicator of the amount of savings a nation needs to set aside each year to cover the cost of long-term losses associated with a single peril or several of them. In the project area, an average annual loss of USD$4.6 million and 0.03% of the average annual loss is reported.

Furthermore, this dataset provides an estimation of the global risk induced by flood hazards. Within the project area, the risk is categorized as medium. Regarding Flood Population Exposure (People/year), 7 people/year are reported in the project area. Additionally, Flood Average Annual Loss is USD$165.69 million, and finally, the Flood Relative Average Annual Loss is reported at 0.94%.

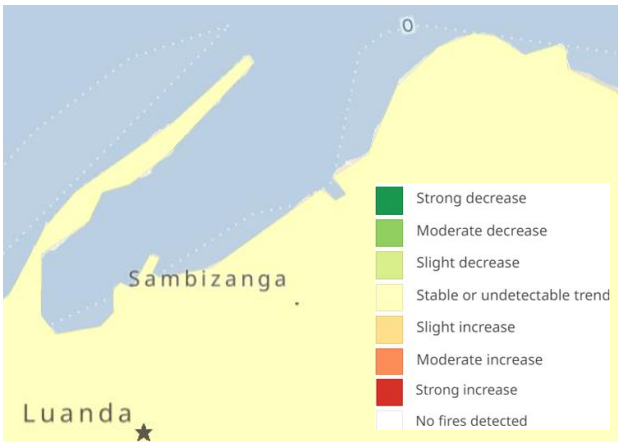
Active fires density 2003-2022



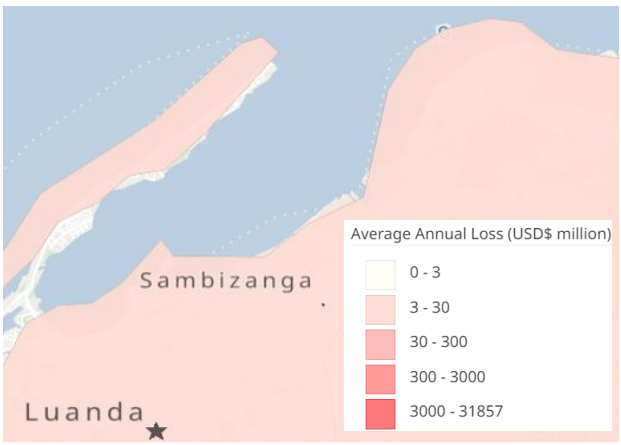
Active Fires Assessment (Administrative Level 1)



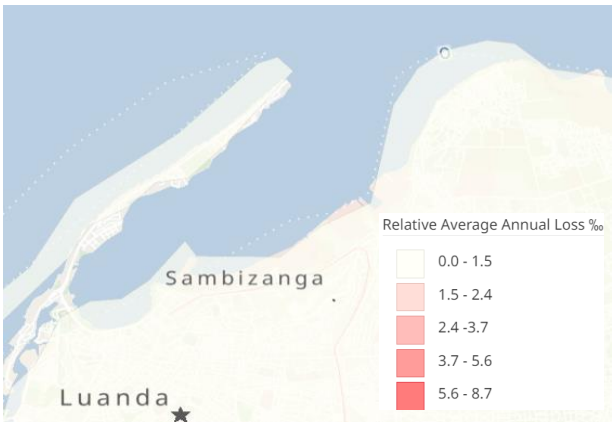
Active Fires Assessment (Administrative Level 0)



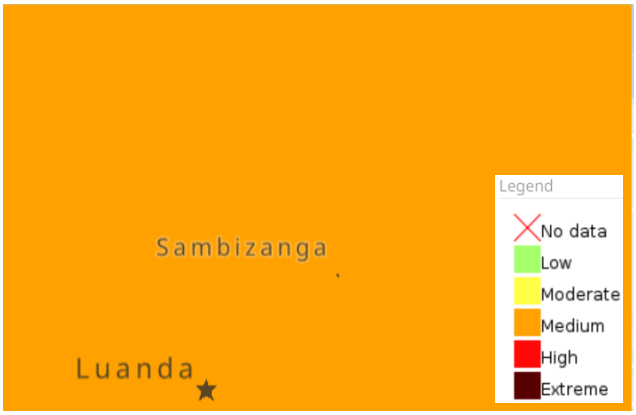
Earthquake Average Loss (USD$million)



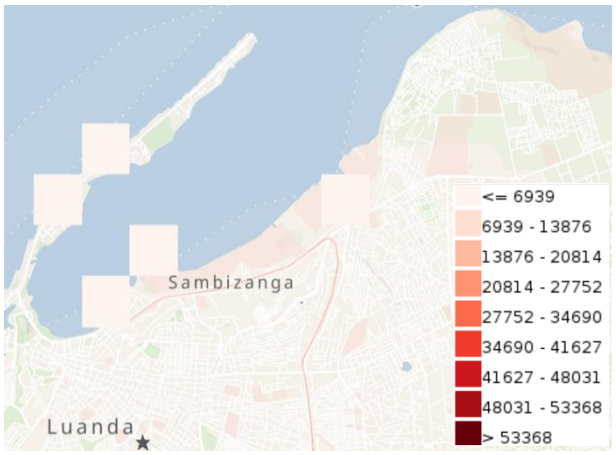
Earthquake Relative Average Annual Loss



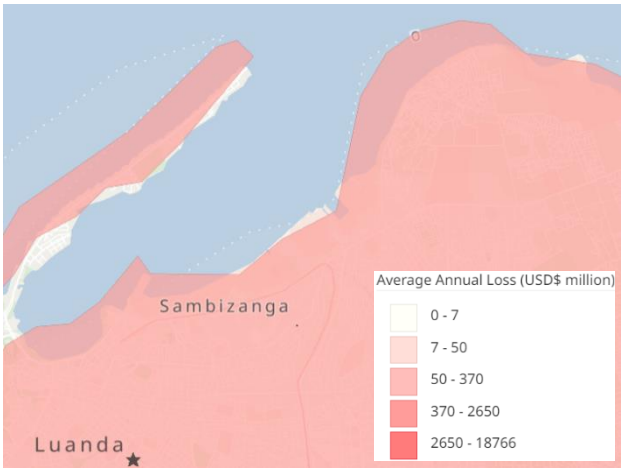
Flood Mortality Risk



Flood population Exposure (People/Year)



Flood Average Annual Loss (USD$ million)



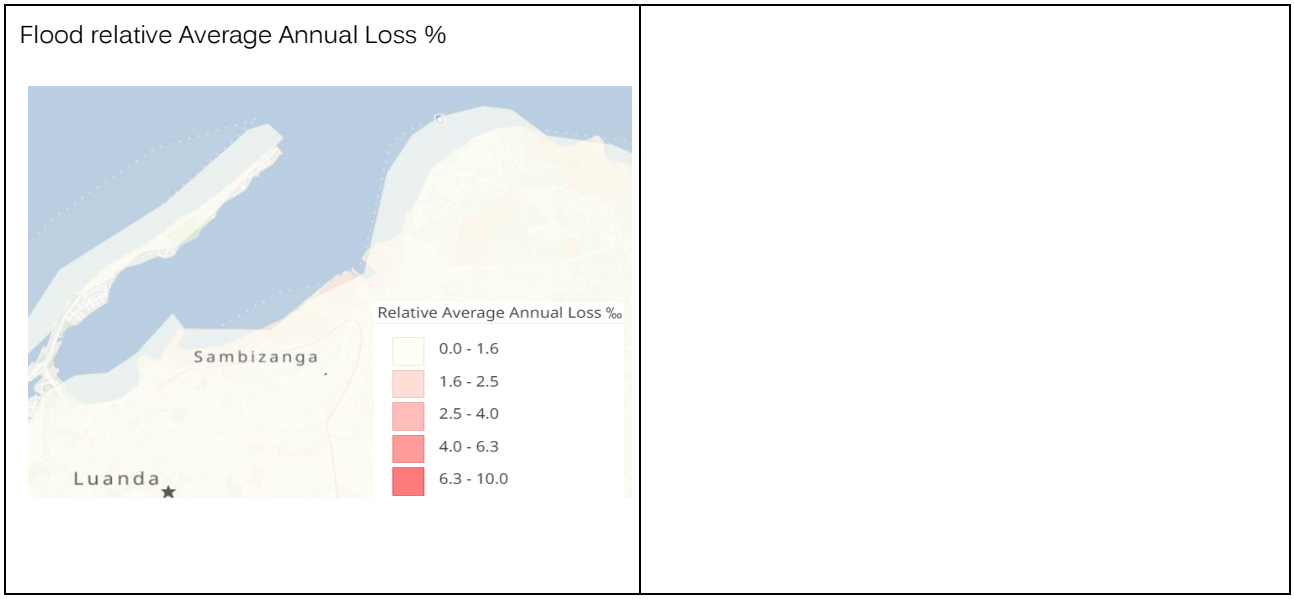


Figure 220. Other climate-related risks studied in the project area. Source: Atlas GAR

According to the document " *Angola Disaster Risk Profile for droughts and floods, 2019*," flood and drought projections are conducted based on the number of potentially affected individuals. In the climate projections for 2051-2100, no future flood risk is expected. However, the probability of occurrence of droughts will increase in the project area under projected conditions 2051-2100 (Figure 221). In any case, considering it is a port area and taking into account the operational activities of the terminal where the project is being developed, this drought risk is not expected to cause any potential impacts in the future.

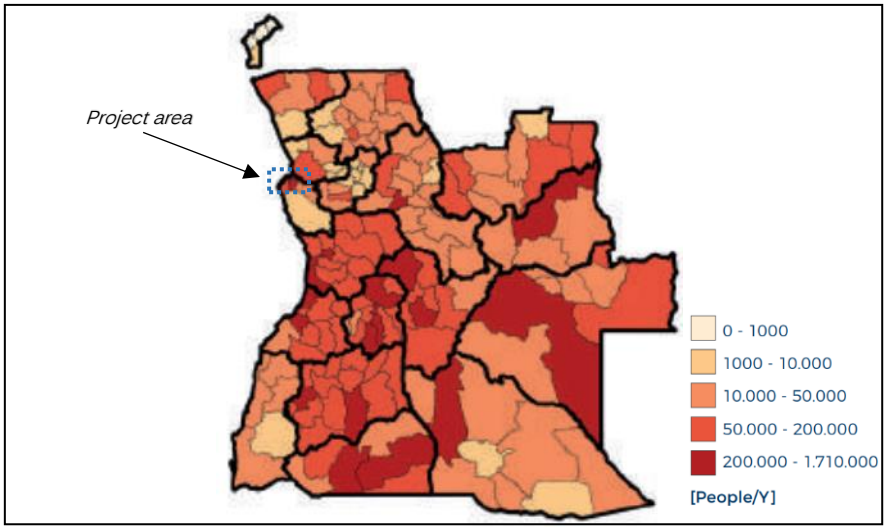


Figure 221.Projected climate conditions for droughts in the project area 2051-2100. Source: Disaster Risk Profile of Angola for droughts and floods

11.4.8. Adaptation Plan to Climate Change for the Coastal Zone of Angola. Republic of Angola, November 2019

The Coastal Climate Change Adaptation Plan for Angola aims to alert and guide decision-makers and policymakers, as well as relevant institutions in different sectors, to the need for and importance of taking preventive and adaptive measures in each sector in response to the effects of climate change.

The document consists of 5 main chapters where projections of different climatic variables for the coastal zone of Angola and their possible impacts are characterized, followed by the main vulnerabilities of the key sectors considered and the identification of the main climate change adaptation measures to be implemented. The document concludes with the identification of mechanisms for the implementation of the Plan.

Even though in some of the parameters analyzed, the data included in this document may show trends or values different from those seen in previous sections, it has been considered interesting to include it, as it is the specific plan of Angola officially published by the competent national entities in this matter. It should be noted that this is a publication from the year 2019, while the latest official data from the IPCC working groups correspond to 2022-2023 and include more complete and updated weights and variables for the trajectories of the scenarios to consider. However, this section includes complementary data that, in any case, constitute a necessary reading and consideration because it is an official document published by the Ministry of Environment of the Republic of Angola.

The following figure illustrates de Angola-Benguela Front:

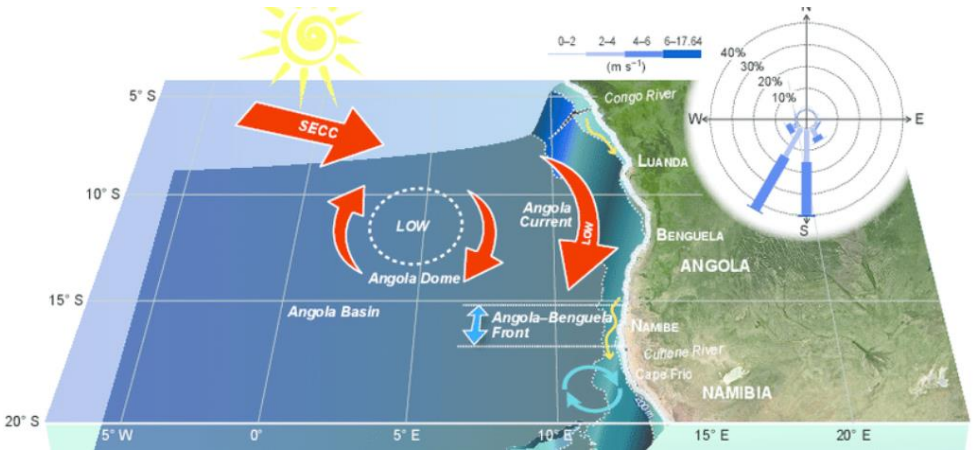


Figure 222. Angola-Benguela Front. Source: Kirkman et al. 2016. Spatial characterization of the Benguela ecosystem for ecosystem-based management

The future projections in RCP4.5 for Angola indicate an increase in the average annual temperature of 1.2 to 3.2ºC in 2060, with warmer and less cold days and nights, a generalized warming of the surface waters on the northern and southern borders of the front of the large marine ecosystem of the Benguela current, a variation in annual rainfall of between -27% and +20% in 2090, a greater likelihood of extreme events such as heat waves, droughts and intense rainfall. The sealing of urban soil will increase the risk of flooding caused by occasional high intensity rains.

The direction of the winds should not change, nor should the direction of the sea currents. The pH of rainwater is expected to become more acidic, particularly in urban environments, more as a consequence of the increase in the urban population and pollution of anthropogenic origin and not so much due to climate change.

An increase in the frequency and intensity of flooding is expected in Angola's coastal zone in all seasons except June, July and August, interspersed with longer periods of drought.

The average sea level is expected to rise, which will have direct consequences for Angola's coastal zone, not only because this is where the country's population is concentrated, but also because it will affect coastal biotopes such as mangroves, increasing their salinity and making it impossible for plant species to survive or altering the local flora. Projections for the rise in average sea levels vary between 0.26 and 0.77m, not considering the increase in average global temperature. Considering this increase, the rise in sea level is expected to be between 0.35 and 0.93 m by 2100.

In the following table, a summary of projections for other climate variables of the coast of Angola is presented:

Projection	Condition	Trend
Air temperature	By the end of the 21st century, the average global temperature of the Earth's surface will probably exceed 1.5°C compared to the 1850-1900 period.	Increase in the phenomenon
Temperature of sea water	Positive changes in water temperature in the cold Benguela current could affect upwelling pulses of the planktonic system. There are shading effects and causes with the condition of the fish fauna and commercial overfishing activities in the area, as well as secular variations typical of marine dynamics.	Slight increment or stability in behavior of the phenomenon, but with uncertain effects
Temperature of currents from the sea	The tropicalization of the equatorial warming zone of the cold Benguela Current is expected by 2050. However, the warming of the Benguela Current as well as new phenomena such as the Benguela El Niño respond to secular dynamics that cannot yet be statistically separated from possible consequences of global warming.	Stability in behavior of phenomenon, but with under-sizing of data to establish effects arising
Precipitation	Average annual rainfall is expected to decrease in the south and north of the country and increase in the central coast. In monthly terms, a decrease is expected in the driest months, extending the dry season to April and October. Maximum daily rainfall is expected to increase throughout the territory, with this increase being more pronounced in coastal areas. In	Increase in the phenomenon

	the south, precipitation episodes will decrease until the end of the century but will be more intense in the future.	
Elevation of the sea level	Increase in average sea level by the year 2100 between 0.26m and 0.77m considering the 67% confidence interval, between 17% and 84%. Already incorporating an increase in the global average temperature between 1.5°C and 2.0°C, the rise in sea level would be between 0.35m and 0.93m for the same confidence interval.	Slight increase or stability in behavior of the phenomenon, but with uncertain effects.
Direction of winds	No drastic changes foreseen. Local phenomena produced by urban corridors may have a specific impact, more linked to the effects of urbanization than global warming.	Slight increment or stability in behavior of phenomenon, however with effects uncertain.
Direction of currents of sea	No drastic changes planned in terms of direction. Variability may be recorded in terms of vertical adjustments resulting from changes in temperature.	Slight increment or stability in behavior of phenomenon, however with effects uncertain.
pH of rainwater due to anthropogenic action	Significantly linked to the emission into the atmosphere of compounds derived from fossil fuels or possible open-pit mining of sulfur compounds.	Increment of the phenomenon.
pH of rainwater by natural effects	No drastic changes predicted by natural conditions. Anthropogenic action would be mainly responsible.	Slight increase or stability in the behavior of the phenomenon, but with uncertain effects.
Occurrence of extremes events	Drought: They will tend to increase in frequency and intensity in the coastal area, but with significant consolidation in the central and western regions of the country. Floods: An increase in the frequency of floods and their intensity is expected but interspersed with more consolidated dry periods.	Increase of the phenomenon.

Table 91. Summary of the projections by climate variable. Source: Adaptation Plan to Climate Change of the coastal area of Angola, 2019

11.4.9. Summary of Climate Risks

Taking into consideration the analyses conducted in the preceding sections, which have been based on data obtained from various projections and scenarios published in the Climate Change Knowledge Portal of the World Bank Group, the results can be summarized as follows:

- Temperatures and heat waves: According to the analyses carried out, on the one hand, the variation of maximum and minimum temperatures ranges between an increase of approximately 0.6°C and 4°C. In relation to heat waves, the range of heat days ranges from an increase of 0.3 days to approximately 10 days.

  On the other hand, the range of the number of tropical nights with minimum temperatures above 26ºC, ranges from 0.6 and 14 days, all the results given are in relation to the reference period, depending on the projection and scenario considered.

  In any case, the analyses reveal an increasing trend in the evolution of both maximum and minimum temperatures, heat waves and tropical nights. In addition, according to FAO forecasts, there may be a risk of extremely high temperatures in the area.

- Precipitation: The analyses conducted indicate an increase in precipitation within the range of 1.5 to 7mm, which does not translate into a risk of torrential rainfall in the study area. It is worth noting, however, that most of the rains concentrate in the months of March and April. Similarly, the variable of days with precipitation exceeding 20 mm yields results that do not exceed a single day under any circumstances. Therefore, this climatic variable is not considered a risk to the project and its lifespan.
- Other Risks: There is no evidence of increasing trends in risks such as tsunamis, floods, cyclones, forest fires, soil stability, among others, in the area.

11.5. Climate change adaptation

The Paris Agreement states that one of its aims is to increase "the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development" (Article 2). It also established the global goal of "enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change" (Article 7).

According to the analyses conducted throughout the preceding sections, the primary climate change-related risks that can impact the project are the increase in temperatures, heat waves, and precipitation.

The adaptation component identifies strategic measures to improve adaptive capacity, enhance resilience, and reduce risks caused by climate change, thus contributing to the achievement of the country's Sustainable Development Goals (SDGs) and National Development Plan objectives (Nationally Determined Contribution of Angola, 2021).

The Adaptation Plan to Climate Change for the Coastal Zone of Angola includes a section on measures for adaptation to climatic alterations in the Transport and Infrastructure sector. Within it, the promotion of the use of construction materials adapted to the worsening of risks applicable to ports is presented.

In addition, PIANC, or the World Association for Waterborne Transport Infrastructure, is a global organization that focuses on advancing the design, construction, and maintenance of ports, harbors, and waterways. It

provides expertise and guidance on various aspects of maritime infrastructure, including climate change adaptation planning. PIANC offers recommendations and best practices to help port authorities and maritime stakeholders address the challenges posed by climate change, such as rising sea levels, extreme weather events, and changing precipitation patterns. Through its publications and working groups, PIANC promotes sustainable and resilient solutions for the maritime industry, aiming to enhance safety, efficiency, and environmental stewardship in waterborne transportation.

Regarding PIANC's "Climate Change Adaptation Planning for Ports and Inland Waterways," it mentions that adaptation objectives should ideally be "SMART" (Specific, Measurable, Attainable, Realistic, Timely). However, in practice, they can only be as SMART as the available information allows.

In line with the Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals, it is essential to address construction and operational aspects for consideration as part of climate change adaptation planning. This involves carefully choosing or upgrading cargo handling, storage, and transportation equipment, considering factors like crane stability, the positioning of electrical equipment, and corrosion protection. Additionally, a comprehensive assessment of cargo transport routes should be conducted, as well as improving on-site drainage systems and ensuring regular maintenance.

The increment of precipitation and temperatures has the potential to impact the durability, strength, and integrity of port structures. Certain noteworthy factors related to construction materials may encompass issues such as corrosion, dehydration, and brittleness, thermal expansion of materials, and alterations in asphalt properties.

11.5.1. Climate change adaptation measures

The following are some adaptation solutions to be taken:

- Use heat resistant materials like concrete pavements instead of asphalt. Use reflective materials for pavements and buildings to minimize heat-related risks. Most of the pavements in the project are concrete based (concrete slabs or concrete paving blocks).
- Use corrosion-resistant materials where applicable and possible.
- Strengthen docks, cranes, and other equipment to withstand weather conditions for resilient infrastructure; all infrastructure and equipment is designed in line with relevant Standards and Regulation and in line with the environmental conditions.
- All electrical facilities are designed in a safe manner and are protected from flooding by the robust storm water management system. This has been designed to protect essential systems and equipment from water damage and ensure continuity of operations during extreme weather events.
- A storm water system is a part of the project, and the port incorporates a robust drainage system. Both measures ensure effectiveness in management of stormwater runoff and prevent flooding during heavy rainfall events.
- Outfalls are incorporated as part of the storm water management systems, in addition to oil interceptors.

These measures aim to enhance climate resilience and amid evolving climate conditions and occurrences, such as increase in temperatures, heat waves and precipitation.

11.6. Climate change mitigation

According to "*IPCC Summary for Policymakers*", mitigation is a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Mitigation also contributes to the objective expressed in Article 2 of the United Nations Framework Convention on Climate Change.

As mentioned in previous sections, Angola is committed to take part in the aspiration set at international level to fight against climate change, thus contributing to global efforts to reduce greenhouse gas (GHG) emissions. For this, Angola's Nationally Determined Contribution (NDC) encompasses for Mitigation and Adaptation purposes both unconditional and conditional measures for the reduction of GHG emissions and adaptation of its territory and population to the adverse impacts of climate change.

The mitigation component identifies measures for the period 2020-2025 in the Energy sector (including transport), among others.

Angola's mitigation contribution takes the form of a reduction in GHG emissions relative to a business-as usual (BAU) emissions baseline (2015) over the period 2015-2025. The contribution comprises of two components:

- Unconditional contribution: A reduction of 14% relative to BAU (2015) in the year 2025; equivalent to an estimated mitigation level of 15.4 million tons of carbon dioxide equivalent (tCO2e) in that year. This is an unconditional target, based on domestically supported and implemented mitigation measures and policies.
- Conditional contribution: An additional reduction of 10% relative to BAU in the year 2025; equivalent to an estimated mitigation level of 11.1 million tCO2e e in that year. This represents an additional targeted contribution, based on the provision of international support and funding.

The combined unconditional and conditional contribution is therefore a 24% reduction in GHG emissions compared to BAU scenario in 2025; this is equivalent to an estimated mitigation level of up to 26.5 million tCO_2e in 2025.

11.6.1. Climate change mitigation measures

The following mitigation measures are included in the Environmental Operating License for the project, as named by Empresa Portuária de Luanda - Administration and Infrastructure, of the company Empresa Portuária de Luanda E.P Therefore, Unicargas Terminal must comply with the following mitigation measures:"

- Creating good practices in energy efficiency and renewable energy sources.
- Give preference to LED lighting for the exterior of the project.
- Progressively replacing inefficient light bulbs with efficient ones and installing control devices (light sensors and movement sensors).
- Carrying out campaigns to supply efficient lamps and control devices (light sensors and motion sensors) to households.
- Promoting the replacement of diesel generators with natural gas turbines.
- Promoting the use of solar and solar photovoltaic technologies to produce electricity and heat in installations.

- The tops of the respirators, open to the atmosphere and in a visible place, must be fitted with wire mesh flame arresters and release the gases at a height of 4m or more from the ground.
- Vehicle fleets should be properly maintained, reducing excessive emissions of gases from vehicles and mobile generators.

The mitigation measures that are specifically considered in the project design are as follows:

- Implement energy-efficient design principles for buildings and infrastructure to minimize energy consumption and reduce GHG emissions using energy-efficient lighting, heating, ventilation and air conditioning (HVAC) systems, as well as optimizing building orientation and insulation.
- Use fuel-efficient equipment and vehicles, such as electric or hybrid-powered machinery and vehicles, to minimize emissions during construction and operation activities at the terminal. STS cranes considered for the project are electric, while RTGs are hybrid type.
- Reduce carbon footprint in port logistics employing fuel-efficient equipment and vehicles indicated in the previous point. Additionally, the port is getting upgraded to support Cold Ironing.
- Where applicable, the use of low-sulfur fuels in port, or as required by international regulations will be required.
- When practical and without affecting the safety of vessel navigation, the use of reduced ship propulsion power in port access areas will be applied. The cold ironing will significantly reduce the GHG emissions of ships while berthing.
- The port layouts and facilities have been designed to minimize travel distances and transfer points, from ships' off-loading and on-loading facilities to storage areas, and to avoid/minimize re-storage and re-shuffling of cargo. The berths and yards are planned within the immediate proximity, and all facilities are within the terminal (yards, storage, cargo handling, etc.).

11.7. Greenhouse gas emissions

The maritime transportation area plays an important role in pollution, especially in relation to port waters and adjacent areas (*Angola Initial National Communication to the United Nations Framework Convention on Climate Change*, n.d.). International shipping is responsible for approximately 3% of total anthropogenic greenhouse gas emissions (Fourth IMO GHG Study, 2020). Compared to emissions from international shipping, GHG emissions from port infrastructure and activities are relatively small.

Year	Global anthropogenic CO_2 emissions	Total shipping CO_2	Total shipping as a percentage of global
2012	34,793	962	2.76%
2013	34,959	957	2.74%
2014	35,225	964	2.74%
2015	35,239	991	2.81%
2016	35,380	1,026	2.90%
2017	35,810	1,064	2.97%
2018	36,573	1,056	2.89%

Figure 223. Emissions 2012-2018 (million tons) as a share of global anthropogenic CO_2 emissions. Source: Fourth IMO GHG Study

The GHGs included in the carbon footprint calculation are seven, as outlined in the Kyoto Protocol. The main sources of these gases are specified as follows:

- Carbon dioxide (CO_2): Stationary combustion of fossil fuels, indirect use of electricity, production and processing of oil/gas.
- Methane (CH_4): Biomass decomposition, coal extraction, municipal solid waste, landfills, urban wastewater treatment, etc.
- Nitrous oxide (N_2O): Stationary combustion of fossil fuels/biomass, municipal solid waste incineration, urban wastewater treatment, transportation, etc.
- Hydrofluorocarbons (HFC): Refrigeration/air conditioning/insulation industry.
- Perfluorocarbons (PFC): Aluminum production.
- Sulfur hexafluoride (SF_6): Electricity transmission systems, specific electronic industries (e.g., LCD screen manufacturing).
- Nitrogen trifluoride (NF_3): Plasma and thermal cleaning of CVD reactors.

The emissions quantification process converts all greenhouse gas emissions into tons of carbon dioxide, referred to as CO_2e (carbon dioxide equivalent), using Global Warming Potentials (GWP). Therefore, the results will be provided in tons of CO_2 equivalent (tCO_2e).

The calculation of emissions will be structured according to the three scopes defined in the *GHG Protocol, a Corporate Accounting and Reporting Standard* published by the World Resources Institute and referenced in the guidelines of numerous organizations:

Scope 1 - Direct GHG emissions: direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

Scope 2 – Electricity indirect GHG emissions: Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

Scope 3 – Other indirect GHG emissions: Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company.

The first two scopes are referenced in the *IFC Guidance Notes on Performance Standards for Environmental and Social Sustainability*. The third point, which is stated as optional in the GHG Protocol, is not mentioned in the IFC Performance Standards.

An indicative list of scope 3 categories extracted from the GHG Protocol Corporate Standard is presented below:

- Transport-related activities
    - Transportation of purchased materials or goods
    - Transportation of purchased fuels
    - Employee business travel
    - Employees commuting to and from work

  - Transportation of sold products
  - Transportation of waste
- Electricity-related activities not included in scope 2
  - Extraction, production, and transportation of fuels consumed in the generation of electricity (either purchased or own generated by the reporting company)
  - Purchase of electricity that is sold to an end user (reported by utility company)
  - Generation of electricity that is consumed in a T&D system (reported by end-user)
- Waste disposal
  - Disposal of waste generated in operations
  - Disposal of waste generated in the production of purchased materials and fuels
  - Disposal of sold products at the end of their life

As stated in the GHG Protocol, the company can determine which scope 3 categories are relevant for the project. They may be relevant for several reasons: they are large (or believed to be large) relative to the company's scope 1 and scope 2 emissions, they contribute to the company's GHG risk exposure, they are deemed critical by key stakeholders (e.g., feedback from customers, suppliers, investors, or civil society), there are potential emissions reductions that could be undertaken or influenced by the company.

In addition, it is important to highlight that not all investment projects require a carbon footprint assessment to be undertaken. Only investment projects with significant emissions must be assessed. According to IFC Guidance Note 3, "*for projects that are expected to or currently produce more than 25,000 tons of CO_2-equivalent annually, the client will quantify direct emissions from the facilities owned or controlled within the physical project boundary, as well as indirect emissions associated with the off-site production of energy used by the project. Quantification of GHG emissions will be conducted by the client annually in accordance with internationally recognized methodologies and good practice*".

The main objective of this section is to estimate GHG emissions based on available information to establish at least the approximate magnitude of potential emissions during both the construction and operational phases. This estimation considers the primary activities and associated aspects relevant to each phase. I addition, as indicated in the referred IFC Guidance Note, there are occasions where emissions arise from within a project's site, but not from the client's operations: such emissions should not be included in this GHG quantification.

11.7.1. Carbon footprint calculation methodology

For a detailed analysis, the project's carbon footprint will be estimated following the methodology outlined in the IFC Guidance Notes on Performance Standards for Environmental and Social Sustainability. Within Guidance Note 3, *Resource Efficiency and Pollution Prevention*, various GHG emission estimation methodologies are recognized for use by private sector projects.

The most authoritative and up-to-date methodologies can be found in the *2006 Guidelines for National Greenhouse Gas Inventories* by the Intergovernmental Panel on Climate Change (IPCC), which offer recommended estimation methodologies for a range of activities and sectors. In this sense, it is necessary to consider that the IPCC Guidelines have been updated, publishing the document *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, which provides supplementary methodologies to estimate sources that produce emissions of greenhouse gases and sinks that absorb these gases. It also

addresses gaps in the science that were identified, new technologies and production processes have emerged, or for sources and sinks that were not included in the 2006 IPCC Guidelines.

In Volume 1 (General Guidance and Reporting) of the updated document *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, it is stated that, as with the 1996 Guidelines and the IPCC Good Practice Guidance, the most common simple methodological approach is to combine information on the extent to which a human activity takes place (referred to as activity data or AD) with coefficients that quantify the emissions or removals per unit of activity. These coefficients are called emission factors (EF). The basic equation is therefore:

$$\text{Emissions} = AD \bullet EF$$

Additionally, the publication of the European Investment Bank *EIB Project Carbon Footprint Methodologies for the assessment of project greenhouse gas emissions and emission variations* (January 2023) has also been taken into account. The EIB's methodology is in line with the International Financial Institutions (IFI) *Framework for a Harmonized Approach to Greenhouse Gas Accounting*, published in November 2015, and version 02.0 of the *IFI Guideline for a Harmonized Approach to Greenhouse Gas Accounting*, published in June 2021.

The methodologies described in the referenced document are grounded in established guidelines from several reputable sources. These include:

- Intergovernmental Panel on Climate Change (IPCC): Guidelines for National Greenhouse Gas Inventories
- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD): GHG Protocol Corporate Accounting and Reporting Standard
- International Financial Institutions (IFI): Framework for a Harmonized Approach to Greenhouse Gas Accounting

In cases where project-specific factors are not available, these methodologies utilize a Tier 1 IPCC factor, which is applicable at the global or transnational level. Additionally, the development of these methodologies is informed by ISO 14064 Parts 1 and 2, along with the Verified Carbon Standard, both of which offer guidelines for creating greenhouse gas inventories at corporate and project levels.

11.7.2. Greenhouse gas emissions estimation

In the ESIA stage, where the project has yet to develop a detailed construction plan, it is crucial to address the uncertainties inherent in estimating greenhouse gas emissions. At this point, the precise information required for accurate GHG emission calculations, such as detailed data on construction materials, quantities, types of machinery, and their usage patterns is not yet available. This is typical for projects in their pre-construction phases, and international best practices recognize this limitation.

In this ESIA, a cautious approach has been adopted, by working with the best available data provided by the owner, which includes preliminary approximations on material volumes and likely machinery usage during the construction phase.

The estimates follow internationally recognized methodologies, in line with guidance provided by the IFC Performance Standard 3 (PS3) on Resource Efficiency and Pollution Prevention. This standard acknowledges

that early-stage assessments often lack specific data and advises that calculations at this point be based on reasonable assumptions. PS3 suggests that as more detailed project information becomes available, the estimates can be refined to reflect more accurate data.

The approach used for calculating emissions adheres to widely accepted global protocols, such as the *Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories* and the *GHG Protocol* developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). These methodologies provide structured frameworks for calculating emissions, even in the absence of precise project-specific data. Where necessary, global or regional default emission factors (such as IPCC Tier 1 factors) have been applied to account for emissions from construction materials and activities.

As this is an early-stage assessment, the GHG calculations presented are preliminary. However, these calculations are sufficient to provide an indication of the potential scale of emissions.

In addition, it has to be considered that when evaluating Greenhouse Gas emissions for a project, it is essential to distinguish between the construction phase and the operation phase, as the dynamics and key factors that contribute to emissions differ significantly.

The construction phase typically results in a concentrated burst of emissions over a short period, characterized by the heavy use of machinery and equipment and the use of construction materials with high associated embodied carbon emissions. Thus, the construction phase often represents a period of peak GHG emissions for a project. These emissions are mostly non-recurring, related to one-time activities such as material sourcing and initial site development.

In contrast, the operation phase involves emissions that are more consistent but potentially much lower than those in the construction phase. While the operation phase represents the majority of a project's lifecycle, its annual emissions are usually lower compared to the intensive GHG output during the initial construction.

11.7.2.1. Construction phase

Material production

It is essential to prioritize the rationalization of material usage and promote resource efficiency from raw material extraction to the end of the material's life cycle. This includes considering the environmental impacts generated during production and transportation, as well as the materials' characteristics, durability, and capacity for natural reintegration or transformation into raw materials for other products. By considering materials with these attributes during design and construction, the project can demonstrate its commitment to human well-being, environmental conservation, and health.

To calculate greenhouse gas (GHG) emissions, two different information sources were consulted to obtain the relevant emission factors:

- HueCO_2 is a software application designed to help calculate the carbon footprint of a project. Developed by the Spanish Association of Engineering, Consultancy, and Technology Services Companies, it includes a Database of Emission Factors (BDFE) from different sources, containing emission data for key materials and machinery used in infrastructure construction projects. This

software was promoted by the Biodiversity Foundation, which is part of the Spanish Ministry for the Ecological Transition and the Demographic Challenge.

- One Click LCA is a cloud-based software platform that provides life cycle assessment (LCA) and environmental impact analysis for building and construction projects. It offers a comprehensive database of environmental product declarations (EPDs) and life cycle inventory (LCI) data for construction materials and products, enabling users to calculate carbon footprints and other environmental metrics across the life cycle of infrastructures. The platform supports compliance with green building certifications such as LEED, BREEAM, and DGNB, and facilitates reporting for embodied carbon, energy use, and other sustainability indicators. One Click LCA simplifies the LCA process, allowing users to assess environmental impacts quickly, compare materials, and identify opportunities for reducing carbon emissions and improving the sustainability of construction projects.

The following table presents the available information on the materials to be used in the construction of the project. For each material, it indicates the estimated quantity, density (where applicable for calculations), and the corresponding emission factor. Additionally, the database used to obtain the necessary data for each material's calculations is also noted.

Type of material	Database denomination	Quantity (Indicative)*	Unit	Density of material (kg/m³)	Emission factor	Emissions (t CO_2e)	Source of information
Pavement (concrete paving blocks)							
80 mm Interlock Paving Blocks	Concrete	3,065	m^3		282 kg CO_2e/m^3	864.33	hueCO₂
100 mm Interlock Paving Blocks	Concrete	13,600	m^3		310.2 kg CO_2e/m^3	4,218.72	hueCO₂
Fill material							
Sand Bedding	Aggregates (including aggregates, sand, gravel, crushed stone, macadam)	5,215	m^3	2,000	3.7 kg CO_2e/t	38.59	hueCO₂
Crushed Aggregate Base Course, CBR >= 80%	Aggregates (including aggregates, sand, gravel, crushed stone, macadam)	26,274	m^3	2,000	3.7 kg CO_2e/t	194.43	hueCO₂
150 mm Crushed Aggregate Base Course, CBR >= 80%	Aggregates (including aggregates, sand, gravel, crushed stone, macadam)	25,482	m^3	2,000	3.7 kg CO_2e/t	188.57	hueCO₂
Cement Bound Granular Material CBGM	Gravel-cement	62,136	m^3	1,700	31.25 kg CO_2e/t	3,300.98	hueCO₂
Quay wall piles							
Concrete	Concrete	18,296	m^3		244 kg CO_2e/m^3	4,464.22	hueCO₂
Steel Reinforcement	Hot-rolled profile steel S275	4,628	T		1,735 kg CO_2e/t	8,029.58	hueCO₂
Marine works (capping beam, rail beam, anchor wall, etc.)							

Type of material	Database denomination	Quantity (Indicative)*	Unit	Density of material (kg/m³)	Emission factor	Emissions (t CO_2e)	Source of information
Concrete	Concrete	17,016	m^3		244 kg CO_2e/m^3	4,151.90	hueCO_2
Steel Reinforcement	Hot-rolled profile steel S275	2,600	T		1,735 kg CO_2e/t	4,511.00	hueCO_2
Topside Buildings and Facilities							
Concrete	Concrete	1,368	m^3		244 kg CO_2e/m^3	333.79	hueCO_2
Steel Rebar	Corrugated steel bars for reinforced concrete (39% recycled material)	253	T		1,860 kg CO_2e/t	470.58	hueCO_2
Steel Frames	Hot-rolled profile steel S275	2,000	T		1,735 kg CO_2e/t	3,470.00	hueCO_2
Infrastructure Works (pipes, cables, etc.)							
Copper conductors XLPE insulated, PVC sheathed feeder cables	Cooper and XLPE power cable	2,426	m		2.17 kg CO_2e/m	5.26	One Click Database
Aluminum conductors XLPE insulated, PVC sheathed feeder cables	Aluminum core power cable	13,100	m		10.02 kg CO_2e/m	131.26	One Click Database
HDPE pipes	High-density polyethylene (HDPE) pipes	4,952	m		124 kg CO_2e/m	614.05	One Click Database
PPR pressure pipes	Pre-insulated pipes from polypropylene random copolymer (PP-R)	115	m		5.84 kg CO_2e/m	0.67	One Click Database
PVC pipes	315 mm nominal diameter PVC pipe	1,200	m		31.84 kg CO_2e/m	38.21	hueCO_2
						35,026.14	

Table 92. Estimation of total CO_2 emissions from material production during the construction phase. (*) Note: Quantities estimates are high level for the preliminary design stage

Based on the data collected in the previous table, the estimated total CO_2 emissions associated with the production of the materials to be used in the project amount to 35,026.14 tCO_2e.

Since the data used reflect the total materials required for the construction, the emissions estimation obtained corresponds to the full duration of the works. Given that the construction phase is expected to last 1.5 years, the annual value of emissions attributed to this factor is calculated as 23,350.76 tCO_2e/year.

Machinery operation

To determine the emission factors for the machinery used in the construction works, several reference sources were consulted. The hueCO_2 database served as the primary source for most of the equipment. In addition, other sources were used for specific machinery types, ensuring a well-rounded estimation of emissions.

In all cases where detailed information about the specific machinery to be used was not available, the highest-powered equipment options were selected to maintain a conservative approach in estimating greenhouse gas emissions.

Based on the information provided by ADPG regarding the equipment likely to be used during construction, both for land and marine packages, as well as the operational hours of each type of machine, the following table has been constructed, which has been completed with the associated emission factors indicated for each case.

Machinery	Database denomination	Emission factor (kg CO_2e/h)	Utilization Hours/day	Days per week	Estimated deployment weeks	Emissions (tCO_2e) during construction phase
Terrestrial Land Topside Works						
50-ton mobile crane	Mobile crane 40-60 t	66.75	5	6	32	64.08
Concrete transit mixers (2 nos)	Concrete mixer truck 6-9m^3	25.95	4	6	24	29.89
Backhoe	Backhoe 56 kW (75 cv)	24.71	3	6	24	10.67
Wheel loader	Wheel loader 8 to 12 m^3 capacity 500-600 kW (700 to 800 hp)	193.60	5	6	32	185.86
Dump trucks (3 nos)	Dump truck 225 kW (1304 hp) 8-12 m^3 20 t	39.54	6	6	16	68.33
Concrete pump truck	Concrete pump truck with a 6m3 capacity	24.71	4	6	24	14.23
Forklift	2.5-ton diesel forklift truck	7.92	5	6	52	12.36
Water truck	Water tank truck (6000-8000 L)	46.77	6	6	52	87.55
Single-drum roller	Tandem vibratory roller 75 kW (102 hp) 7.5 to 10 t	22.00	6	6	24	19.01
Grader	Motor grader > 350 kW (533 hp)	130.96	6	6	24	113.15
Excavators (long reach & standard)	Pneumatic Excavator 95-118 kW (129-160 hp)	35.83	6	6	32	41.28
Pneumatic roller	Pneumatic roller 98 kW (133 cv) 27 t	27.01	6	6	24	23.34
Boom truck	Boom truck 10 t 100 kW (138 cv)	59.30	5	6	52	92.51
Power Generator 100 KVA (2 nos)	Power Generator 80 kW 220/380 V 100 kVA	57.08	10	6	78	534.27

Machinery	Database denomination	Emission factor (kg CO_2e/h)	Utilization Hours/day	Days per week	Estimated deployment weeks	Emissions (tCO_2e) during construction phase
Power Generator 300 KVA	Power Generator 80 kW 220/380 V 100 kVA	81.048	10	6	24	116.71
Marine works						
Crawler crane (200 to 300-ton capacity)	Mobile crane 300 t	120.15	8	6	35	201.85
Mobile crane (100 to 150-ton capacity)	Mobile crane 120-180 t	100.00	5	6	35	105.00
Excavators	Pneumatic excavator 95-118 kW (129-160 hp)	35.83	6	6	16	20.64
Wheel loader	Wheel loader 8 to 12 m^3 capacity 500-600 kW (700 to 800 hp)	193.60	5	6	21	121.97
Dump trucks (2 nos)	Dump truck 225 kW (1304 hp) 8-12 m^3 20 t	39.54	6	6	16	45.55
Concrete transit mixers (2 nos)	Concrete mixer truck 6-9m^3	25.95	4	6	35	43.60
Concrete pump truck	Concrete pump truck with a 6m^3 capacity	24.71	4	6	35	20.76
Power Generator 100 KVA (2 nos)	Power Generator 80 kW 220/380 V 100 kVA	57.08	10	6	52	356.18
Power Generator 300 KVA	Power Generator 80 kW 220/380 V 100 kVA	81.048	10	6	16	77.81
						2,406.57

Note: The estimate is based on the assumption that wall works will be carried out using land-based equipment. The above utilization and deployment rates are indicative assumptions based on experienced judgment.

Table 93. Estimation of total CO_2 emissions from machinery operation during the construction phase.

Based on the data collected in the previous table, the estimated total CO_2 emissions associated with the machinery operation during construction phase amount to 2,406.57 tCO_2e.

Similar to the calculations related to materials, this data corresponds to the total period of the construction phase. Given that, as previously indicated, the works are expected to last 1.5 years, the corresponding annual value is 1,604.38 tCO_2e/year.

Total GHGs emissions

The GHG emissions estimation corresponds to the aggregation of factors identified as primary sources of emissions during the construction phase. Considering the previously conducted calculations, the total annual CO_2 emissions during the construction period amount to:

$$23{,}350.76\ tCO_2e/year + 1{,}604.38\ tCO_2e/year = 24{,}955.15\ tCO_2e/year$$

11.7.2.2. Operational phase

Operational activities – Scope 1 & 2

This section provides an estimate of GHG emissions during the operation phase based on data provided by ADPG regarding expected operational activity and energy consumption after construction works are completed, which corresponds to Scope 1 & 2 GHGs emissions. The estimation uses these projected values along with standard emission factors.

The approach taken for estimating GHG emissions during the operational phase of the terminal involves several key components. Firstly, operational data provided by ADPG has been used as the foundation for this estimation. This data represents the anticipated activity at the terminal, including container handling operations, yard movements, and the use of equipment once the terminal becomes fully operational. The values supplied by ADPG are considered indicative of the terminal's expected future performance. The base concession period for ADPG is 20 years, and the port is expected to reach its full capacity by 2036. Consequently, the years 2036–2045 are projected to have similar values for electricity and diesel consumption.

The GHG emissions estimation is grounded on the following assumptions, which are based on approximate data provided by ADPG regarding the anticipated conditions during the terminal's operational phase:

- Operational activity: the projection of annual container throughput for the terminal is set at approximately 350,000 TEUs per year. This figure reflects ADPG's expectations regarding the growth and operational capacity of the terminal, which is consistent with published data for similar facilities.
- Equipment operation: the estimated number of yard movements and equipment usage combined is projected to be approximately 510,000 operations per year. This figure represents the total activity level, including yard moves by RTGs, RS/ECH, forklift usage, and terminal tractor operations, once the terminal reaches its full operational capacity.
- Energy consumption: both electricity and diesel consumption figures are derived from the projected operational activity involving machinery movements and usage. Electricity consumption per TEU has been calculated based on ADPG's projections for electrically powered equipment, which include ship-to-shore cranes and hybrid rubber-tired gantries. The expected annual electricity consumption is approximately 2,500,000 kWh for STS equipment during typical operations. These projections provide a clear picture of energy demands. Diesel consumption estimates, on the other hand, are based on ADPG's expected fuel usage for equipment such as RTGs, terminal tractors, reach stackers, and empty container handlers. The total annual diesel consumption is estimated at 1,067,178 liters, accounting for various types of yard equipment and vehicles. These values reflect average annual consumption once the terminal reaches full operational status.

In addition to the operational data, standard emission factors have been applied to translate the projected levels of operational activity into GHG emissions. These emission factors, which are widely recognized in environmental and energy studies, account for both electricity and diesel fuel consumption, ensuring that the conversion of operational activity into emissions is consistent with established methodologies.

In this regard, the publication *EIB Project Carbon Footprint Methodologies for the Assessment of Project Greenhouse Gas Emissions and Emission Variations* (January 2023) from the European Investment Bank (EIB) has been consulted. As mentioned in previous sections, the EIB's methodology aligns with the

International Financial Institutions (IFI) Framework for a Harmonized Approach to Greenhouse Gas Accounting published in November 2015, and version 02.0 of the *IFI Guideline for a Harmonized Approach to Greenhouse Gas Accounting*, released in June 2021. This document includes emission factor data corresponding to the value of the Combined Margin for firm electricity generation/consumption for different countries, obtained according to the *UNFCCC (United Nations Framework Convention on Climate Change) methodological approach*.

- For electricity consumption, a factor of 0.748 $kgCO_2e/kWh$ has been used, which corresponds to the Angolan national grid's emission intensity.
- For diesel consumption, a factor of 2.7 $kgCO_2e$ per liter has been applied. This standard value represents emissions associated with the operation of commercial and industrial machinery using diesel fuel.

Based on all the previously provided data, the estimation of GHG emissions per year is calculated as follows:

Electricity: 2,500,000 kWh * 0.748 $kgCO_2e/kWh$ = 1,870,000 $kgCO_2e$ => 1,870 tCO_2e

Diesel: 1,067,178 liters * 2.7 $kgCO_2e$/liter = 2,881,380 $kgCO_2e$ => 2,881 tCO_2e

Combined total: 1,870 tCO_2e + 2,881 tCO_2e = 4,751 tCO_2e

The total estimated GHG emissions for machinery operation during operational phase are approximately 4,751 tCO_2e/year, based on the projected activity levels and energy consumption provided by ADPG. The emissions are expected to gradually increase until the terminal reaches its full capacity, after which they are anticipated to stabilize.

Emissions from on-site land traffic within the terminal – Scope 3

Based on the principles of the Greenhouse Gas Protocol, emissions from truck traffic to attend the site for loading/unloading the containers and general cargo fall under Scope 3 "other indirect emissions". According to the GHG Protocol, Scope 3 emissions are those that result from the company's activities but occur from sources not owned or controlled by the company. In this case, the trucks are not owned by the terminal nor controlled by it; they belong to third parties, such as transportation companies that attend the terminal for loading and unloading containers and cargo.

Unlike Scope 1 and Scope 2 emissions, which are mandatory, Scope 3 reporting is optional under the GHG Protocol. The IFC Performance Standards, which guide environmental and social sustainability practices, also reference only Scope 1 and Scope 2 emissions. In this regard, the GHG Protocol allows companies to determine which Scope 3 categories are relevant based on several criteria: they are large (or believed to be large) relative to the company's scope 1 and scope 2 emissions, they contribute to the company's GHG risk exposure, they are deemed critical by key stakeholders (e.g., feedback from customers, suppliers, investors, or civil society), there are potential emissions reductions that could be undertaken or influenced by the company.

It has to be considered that accurate calculation or estimation of emissions from truck traffic requires specific information, such as the routes taken, types of trucks used, fuel consumption, and frequency of trips. In this case, such data is not available, making it infeasible to accurately estimate the associated emissions. Without

reliable data, including truck traffic emissions would lead to highly speculative results that could undermine the credibility of the emissions inventory.

Emissions from maritime traffic within the terminal – Scope 3

Emissions from maritime traffic at the terminal are also considered Scope 3 emissions. However, since approximate data are available for an estimation and given that this constitutes the terminal's primary activity during its operational phase, a rough estimate is performed to indicate the potential emissions scale.

To estimate emissions from maritime traffic, the same methodology from previous sections is applied (*activity * emission factor*), using in addition the *Technical Guidance to Prepare National Emission Inventories* developed by the European Monitoring and Evaluation Program (EMEP) and the European Environment Agency (EEA). This EMEP/EEA guidebook, updated on 2023, assists in reporting air emissions under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP) and the EU National Emission Reduction Commitment Directive, providing detailed guidance on compiling atmospheric emissions inventories. The Guidebook is published by the EEA, with the CLRTAP Task Force on Emission Inventories and Projections managing its technical content. This guidance is also validated for emissions estimation under Decision 2022/2 of the Air Convention's Executive Body.

Maritime traffic emissions at the terminal (CF_{MT}) include those associated with commercial, passenger, and mixed vessels calling at the terminal. Emissions occur during maneuvering phases within the sheltered port waters and while vessels remain moored at the dock. The maritime traffic carbon footprint (CF_{MT}) will generally be calculated as the sum of emissions from vessels' fossil fuel consumption (CF_{MTF}) and, where applicable, electricity supplied from the shore to docked vessels (CF_{MTE}).

For estimating emissions derived from fuel consumption by vessels at the terminal (CF_{MTF}), available data on vessels calling at the terminal are categorized by traffic type as shown in the following table:

Type of vessel	Vessels per year	Fuel
Container	156	Diesel
General cargo	30	Diesel
RO-RO	40	Diesel

Table 94. Estimation of the type and quantity of vessels that will operate in the terminal after construction completion

CF_{MTF} can be calculated as the sum for each traffic type (i) of the emissions produced by the engines of vessels of that type during the maneuvering phase ($CF_{MTi\text{-}Maneuvering}$) and while the vessels are docked at berth ($CF_{MTi\text{-}Docked}$).

$$CF_{MTF} = \sum CF_{MTi\text{-}Maneuvering} + \sum CF_{MTi\text{-}Docked}$$

For each type of traffic (i), $CF_{MTi\text{-}Maneuvering}$ can be obtained from the power consumed during the maneuvering of vessels (j) entering and exiting the port within the traffic category (i), using the following expression:

$$CF_{MTi\text{-}Maneuvering} = \sum [NP_{ME} * LF_{ME\text{-}Maneuvering} * t_{ME\text{-}Maneuvering}]_j * EF_{MEi} + \sum [NP_{AE} * LF_{AE\text{-}Maneuvering} * t_{AE\text{-}Maneuvering}]_j * EF_{AEi}$$

Where:

NP_{ME} and **NP_{AE}**: nominal powers of the main and auxiliary engines of the vessel, respectively

$LF_{ME\text{-}Maneuvering}$ and $LF_{AE\text{-}Maneuvering}$: load factors at which each type of engine operates during the maneuvering period

$t_{ME\text{-}Maneuvering}$ and $t_{AE\text{-}Maneuvering}$: utilization times of each type of engine during the maneuvering phase (h)

EF_{MEi} and EF_{AEi}: Emission factors (g/kWh) corresponding to the main and auxiliary engines of a vessel of type i

Similarly, for each type of traffic (i), $CF_{MTi\text{-}Docked}$ can be obtained from the power consumed by each vessel (j) within the traffic category (i), using the following expression:

$$CF_{MTi\text{-}Docked}=\sum [NP_{ME}* LF_{ME\text{-}Docked}*t_{ME\text{-}Docked}]_j*EF_{MEi}+\sum [NP_{AE}* LF_{AE\text{-}Docked}*t_{AE\text{-}Docked}]_j*EF_{AEi}$$

Where:

NP_{ME} and NP_{AE}: nominal powers of the main and auxiliary engines of the vessel, respectively

$LF_{ME\text{-}Docked}$ and $LF_{AE\text{-}Docked}$: load factors at which each type of engine operates while the vessel is at berth

$t_{ME\text{-}Docked}$ and $t_{AE\text{-}Docked}$: utilization times of each type of engine while the vessel is at berth (h)

EF_{MEi} and EF_{AEi}: Emission factors (g/kWh) corresponding to the main and auxiliary engines of a vessel of type i

The nominal power of the main engines (NP_{ME}) of vessels operating in a port can be estimated based on its gross tonnage (GT), using the formulas provided in the EMEP-EEA Emission Inventory Guidebook 2019, as indicated in the following table:

Type of traffic		NP_{ME}
Liquid bulk		$14.755*GT^{0.6082}$
Solid bulk		$35.912*GT^{0.5276}$
General cargo	Conventional cargo	$5.56482*GT^{0.7425}$
	Container cargo	$2.9165*GT^{0.8719}$
	Ro-Ro traffic	$164.578*GT^{0.4350}$

Table 95. Estimation of Nominal Power of Main Engine based on vessel's GT. Source: EMEP/EEA air pollutant emission inventory guidebook 2023. Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2021. European Environment Agency. October 2020

Based on the characteristics of the vessels that will operate in the terminal and available databases, an estimated average GT value has been applied to proceed with the nominal power calculations as indicated in the previous table. In all cases, values corresponding to the largest capacity vessels have been considered to ensure results are consistently based on a conservative criterion. The results obtained are presented in the following table:

Type of traffic		NP_{ME} (kW)
General cargo	Conventional cargo	4,400
	Container cargo	28,000
	Ro-Ro traffic	10,500

Table 96. Estimation of Nominal Power of Main Engine based on vessel's GT. Source: EMEP/EEA air pollutant emission inventory guidebook 2023. Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2021. European Environment Agency. October 2020

The nominal power of a vessel's auxiliary engines (NP_{AE}) can be estimated based on the NP_{ME}, by applying the ratio between the rated power of auxiliary and main engines, according to traffic type, as included in the EMEP-EEA[30] 2019 (updated 2023) Emission Inventory Guidebook. These data are presented in the following table:

Type of traffic		Ratio NP_{AE}/NP_{ME}
Liquid bulk		0.3
Solid bulk		0.3
General cargo	Conventional cargo	0.23
	Container cargo	0.25
	Ro-Ro traffic	0.24
Passengers in Transport Mode		0.16
Cruise Passengers		

Table 97. Ratio of Nominal Power Between Auxiliary and Main Engines, by Traffic Type. Source: EMEP/EEA air pollutant emission inventory guidebook 2023. Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2021. European Environment Agency. October 2020

For the load factors ($LF_{ME\text{-}Maneuvering}$, $LF_{AE\text{-}Maneuvering}$,$LF_{ME\text{-}Docked}$ and $LF_{AE\text{-}Docked}$), the average values proposed by EMEP-EEA Air Pollutant Emission Inventory Guidebook 2019 can be used:

Type of traffic		Load factor of the main engines		Load factor of the auxiliary engines	
		Maneuver ($LF_{ME\text{-}Maneuvering}$)	Docked ($LF_{ME\text{-}Docked}$)	Maneuver ($LF_{AE\text{-}Maneuvering}$)	Docked ($LF_{AE\text{-}Docked}$)
Liquid bulk		20%	20%	50%	60%
Solid bulk					40%
General cargo	Conventional cargo				
	Container cargo				
	Ro-Ro traffic				
Passengers in Transport Mode					
Cruise Passengers					

Table 98. Load factors at which the main and auxiliary engines operate during maneuvering and berthing stages. Source: EMEP/EEA air pollutant emission inventory guidebook 2023. Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2021. European Environment Agency. October 2020

Engine utilization times (in hours and fractions of hours) during entry and exit maneuvers ($t_{ME\text{-}Maneuvering}$ and $t_{AE\text{-}Maneuvering}$) depend on the distance traveled (nautical miles) between the port entrance and the berthing terminals along the entry and exit maneuver routes, as well as the vessel's speed (knots) along these routes.

Distance can be estimated using a scaled map of the port layout. Vessel speed during maneuvering generally depends on port operational conditions, typically around 5 knots. By default, engine utilization times during this phase can be calculated by applying the engine utilization percentages shown in Table 99.

These percentages correspond to those recommended by CEDEX (Spanish Center for Studies and Experimentation in Public Works), after adapting the percentages proposed by the EMEP/EEA 2019 Emission Inventory Guidebook 2019 to updated characteristics of typical port system.

[30] *EMEP/EEA air pollutant emission inventory guidebook 2019 (updated 2023). Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2019. European Environment Agency. October 2020.*

Main engine utilization rate		Auxiliary engine utilization rate	
Maneuver	Docked	Maneuver	Docked
100%	5%	100%	100%

Table 99. Utilization of main and auxiliary engines during maneuvering and docking stages at the quay. Source: EMEP/EEA air pollutant emission inventory guidebook 2023. Technical report No 13/2019; 1.A.3.d Navigation (shipping) 2021. European Environment Agency. October 2020

Engine utilization times while the vessel is docked at the berth ($t_{ME\text{-}Docked}$ and $t_{AE\text{-}Docked}$) can similarly be estimated by applying the relevant utilization percentages from previous table to the total time the vessel remains docked at the berth.

Finally, the following average emission factors published for the different types of vessels are applied:

Type of traffic		Emission Factor (gCO_2/kWh)
Main engine	Conventional cargo	701
	Container cargo	673
	Ro-Ro traffic	721
Auxiliar engine		705

Table 100. CO2 Emission Factors. Source: Methodological Guide for Calculating the Carbon Footprint in Ports published by the public entity State Ports of the Ministry of Transport and Sustainable Mobility of the Government of Spain

Taking into account all the data and formulas presented throughout this section and considering an average berthing time of 48 hours for each vessel, an estimation of CO_2 emissions due to maritime traffic is made for each type of vessel that will operate in the terminal. The main data is summarized in the following table.

Type of vessel	General cargo	Container cargo	Ro-ro traffic
Vessels per year	30	156	40
NP_{ME} (kW)	4,400	28,000	10,500
NP_{AE} (kW)	1,012	7,000	2,520
$LF_{ME\text{-}Maneuvering}$	0.2	0.2	0.2
$LF_{ME\text{-}Docked}$	0.2	0.2	0.2
$LF_{AE\text{-}Maneuvering}$	0.5	0.5	0.5
$LF_{AE\text{-}Docked}$	0.4	0.4	0.4
EF_{ME} (gCO_2e/kWh)	701	673	721
EF_{AE} (gCO_2e/kWh)	705	705	705
Emissions during maneuvering (tCO_2e/year)	29.2	972.9	96.1
Emissions during docking (tCO_2e/year)	455.4	16,192.4	1,509.8
Emissions maneuvering + docking (tCO_2e/year)	484.6	17,165.2	1,605.9
TOTAL EMISSIONS (tCO_2e/year)			19,655.7

Table 101. Estimation of the type and quantity of vessels that will operate in the terminal after construction completion

11.7.3. Conclusions

As outlined in the previous sections, the GHG emissions for the project are estimated as follows:

- Construction phase: approximately 24,955.15 tCO_2e per year, attributed mainly to emissions from material production and machinery operation.

- Operational phase: approximately 24,406.7 tCO_2e per year, combining emissions from electricity and diesel consumption (4,751 tCO_2e) and maritime traffic (19,655.7 tCO_2e) corresponding respectively to Scope 1&2 emissions and Scope 3 emissions.

This analysis provides an approximate order of magnitude for the project's potential emissions, relying on general assumptions due to limited detailed data at this early stage. Given the lack of specific information on material specifications, exact equipment types, and operational processes, the calculations utilize standard emission factors and guidelines, including those from HueCO_2, One Click, the GHG Protocol, IFC standards, the EMEP/EEA air pollutant emission inventory guidebook, the EIB Project Carbon Footprint Methodologies for the assessment of project greenhouse gas emissions, and other sources of information.

Sometimes, in order to have an idea that allows us to evaluate the values obtained for the GHG emissions estimates, it is tempting to compare one port with another or multiple ports with each other. As stated in the *Port Emissions Toolkit, Guide No.1, Assessment of port emissions (GEF-UNDP-IMO GloMEEP Project and IAPH, 2018)*, from a comparative perspective, this is highly problematic, as each emissions inventory is tailored to each port based on port-specific driving factors, level of detail, operational and geographical boundaries, data quality, methods used, the number of years inventoried, and many other factors. Since the emissions inventory forms the basis for measuring and forecasting emissions, it is not advisable to compare published port emissions inventories without fully considering and documenting the differences between them.

Based on this consideration, and acknowledging the inherent limitations and approximations, it would be feasible to establish a relationship between the TEUs handled annually at a port and the emissions associated with corresponding activities.

The United Nations Conference on Trade and Development (UNCTAD) does not directly report CO_2 emissions per TEU in its *Review of Maritime Transport* reports, but it does provide data on maritime transport emissions, fleet composition, and the impact of decarbonization policies, which indirectly supports emissions calculations. For emissions estimations related to TEU capacity, researchers and environmental agencies sometimes extrapolate from vessel and port activity data provided in UNCTAD reports and other databases like those of the International Maritime Organization (IMO).

In regions like North America and Europe, for medium container throughput ports (handling around 300,000–400,000 TEUs annually), CO_2 estimates can range between 0.05 and 0.1 tons per TEU, influenced by vessel fuel types, handling efficiency, and port infrastructure.

Given that the analysis presented in previous sections assumes operational activity with an annual projected container throughput of approximately 350,000 TEUs for the terminal, and considering the emission rate per TEU cited for similar medium-sized terminals, an estimated total operational emissions figure of 24,406.7 tCO_2e per year yields an index of 0.07 tCO_2 per TEU. This index falls within the reference range considered for terminals of this capacity. However, as previously noted, it is important to consider that this estimate excludes certain emissions due to the unavailability of data for some sources.

In any case, this approach offers a broad perspective on emissions, underscoring the areas likely to contribute most to the carbon footprint, that can be used for resource-efficient practices and emission-reduction strategies, particularly during material selection and operational planning. These preliminary

calculations will require refinement with detailed project data to support a more accurate and actionable emissions profile as the project progresses.

12. IMPACT ASSESSMENT

The impact assessment methodology used in this Environmental and Social Impact Assessment (ESIA) Report establishes a framework for characterizing the potential biophysical and socio-economic impacts—direct and indirect, positive and negative—that will result from implementing the Project. Potential Project impacts are assessed for each component of the biophysical and socio-economic environment described in Section 10. This methodology is based on models commonly applied in impact assessments and aligns with the International Finance Corporation (IFC) Performance Standards.

It is important to emphasize that the port terminal is already operational and that the Project involves its remodeling. This specific aspect of the Project means that the primary environmental factors are already altered from their original state. Therefore, the impact assessment focuses on the potential modifications that the Project may introduce to the current state. Additionally, it should be noted that the port holds a general operational environmental license, which has been recently renewed following relevant checks and monitoring. This ensures that current port activities comply with environmental requirements, regulatory standards, and the Management Plan.

Impact identification was based on the preliminary impact scoping developed during the Scoping Phase and was updated based on findings from specialist studies and other more detailed analyses undertaken for this Environmental and Social Impact Study. It should also be noted that the impact assessment reflects the specialists' understanding of the Project to be implemented, as outlined in the Project Description in Section 7.

It is important to note that certain facilities could be considered associated facilities, which will be developed as part of parallel projects by other companies, some of which have their own specific environmental procedures. This includes projects such as dredging, aspects of the electricity network, and modifications or improvements to access roads that will serve various terminals within the Port of Luanda. The mitigation measures established for these facilities in their respective environmental assessments, once available, should be considered in this project where relevant, particularly due to their potential synergistic impact with the activities of the Project under review.

The primary goal of the impact assessment is to identify and evaluate the significance of potential impacts on identified receptors and resources based on established assessment criteria. This includes developing and describing measures to avoid, minimize, reduce, or compensate for any potential adverse environmental effects and reporting the significance of residual impacts following mitigation.

For each identified impact, a detailed description is provided, with its significance assessed according to a standardized methodology as outlined in the following section. Based on the significance rating, specific mitigation measures are then defined to reduce the residual impact to acceptable levels.

In this ESIA, all impacts associated with this phase are analyzed, with corresponding mitigation measures established to align with both national legislation and IFC guidelines.

A summary of the impact assessment for each identified impact is presented in table format at the end of this chapter.

12.1. Impact Assessment Methodology

The ESIA methodology follows a structured process to identify all real and perceived environmental and social impacts that can result from the construction and operation of the project. In summary, the ESIA process has comprised the following steps:

- Definition of the proposed project and identification of the different elements that conform it, processes and activities that will be involved.
- Description of the baseline condition of the existing geographical, environmental, social and policy contexts of the project site and its surrounds. This identified the values for each matter that could be impacted by the Project, and their condition.
- Identification and description of the impacts that are expected to occur as part of the construction and operation of the Project.
- Assessment of the identified environmental and social impacts that may arise from the project activities and processes.
- Design preventive/mitigation measures, as actions to be implemented to achieve commitments aimed at avoiding and/or mitigating adverse environmental and social impacts.

12.1.1. Identification, analysis and assessment of Impacts

To identify potential impacts or effects, an analysis must be conducted on the project's elements, processes, and activities. This analysis will determine which aspects are likely to alter various environmental factors within the project area or lead to pollutant emissions or resource consumption.

The methodology used here involves the following steps:

- Identifying project activities that could impact natural, social, economic, or cultural elements;
- Identifying the natural, social, economic, or cultural aspects that may be affected by the project;
- Establishing cause-effect relationships within an impact identification matrix;
- Identifying and assessing significant impacts.

All activities and actions that could potentially impact the environment will be listed, covering both the construction and operational phases. Similarly, all physical, biological, socio-economic, and cultural features that may be affected should be enumerated.

The impact identification matrix will feature project actions in its rows (organized by project phases) and the natural, social, economic, and cultural elements in its columns. Based on the anticipated effect of each project action on each factor, intersections within the matrix will be marked as follows:

- "+" for positive impacts;
- "-" for negative impacts;
- "P" for potential impacts, which include changes that could occur under specific conditions (e.g., risk of accidents or hazardous spills).

Interactions with no significant effect on natural, social, economic, or cultural factors will remain unmarked.

Once the matrix is completed, each impact is described, explained, and assessed to determine which are the most significant and require more intensive mitigation measures. The significance of impacts on resources or receptors results from the interaction between the impact's nature (positive or negative), its magnitude (degree of change from baseline conditions), and the environmental value or sensitivity of the resources/receptors affected (e.g., workers or surrounding communities).

In other words, the significance of effects is determined by combining the environmental value (or sensitivity) of the receptor or resource with the magnitude of the impact on that resource, resulting in the environmental effect.

12.1.1.1. Identification and Evaluation of Receptors

Receptors are defined as:

- Elements of the environment that are of value to the functioning of natural systems (i.e. areas or elements of ecological, landscape or heritage value, species, habitats and ecosystems, soil, air and water bodies).
- Human receptors, such as stakeholders (i.e. users of dwellings, places of recreation, places of employment, community facilities or household relocation) and human systems (e.g. employment market, population disease susceptibility and disease communicability, exposure to toxicity of chemicals).

The environmental value (or sensitivity) of the resource or receptor will be defined by using the criteria below (Table 102).

Value (sensitivity)	Description of Value
Very High	High importance and rarity on an international scale and limited or no potential for substitution. The receptor has already reached it carrying capacity, so any further impact is likely to lead to excessive damage to the system that it supports. Locations or communities that are highly vulnerable to the environmental impact under consideration or critical for society (e.g. indigenous peoples, hospitals, schools).
High	High importance and rarity on a national scale, and limited potential for substitution. The receptor is close to reaching it carrying capacity, so a further impact may lead to significant damage to the system that it supports. Locations or communities that are particularly vulnerable to the environmental impact under consideration (e.g. residential areas, vulnerable/marginalized groups).
Medium	High or medium importance and rarity on a regional scale, limited potential for substitution. The receptor is already significantly impacted, but it is not close to reaching it carrying capacity. Further impacts will increase the stress of the underlying system, but evidence does not suggest that it is about to reach a critical point. Locations or groups that are relatively vulnerable to the environmental impact under consideration (e.g. commercial areas).

Value (sensitivity)	Description of Value
Low (or Lower)	Low or medium importance and rarity on a local scale. The receptor is not significantly impacted and shows a large spare carrying capacity. Impacts are not likely to generate any noticeable stress in the underlying system. Locations or groups that show a low vulnerability to the environmental impact under consideration (e.g. industrial areas).
Very Low	Very low importance and rarity on a local scale. The receptor is not impacted and shows a very large spare carrying capacity. Impacts are very unlikely to generate any noticeable stress in the underlying system. Locations or groups that show a very low vulnerability to the environmental impact under consideration (e.g. industrial areas).

Table 102. Environmental value of receptor or resource

The existence of receptors that are legally protected (e.g. designated areas, protected habitats, or species) will be taken into consideration for the assessment of the sensitivity of the receptors.

12.1.1.2. Nature and Magnitude of Impacts

The following types of impacts have been considered according to its Nature:

- ✓ *Positive Impacts* – Impacts that have a positive, desirable, or favorable effect on the sensitive resources or receptors (e.g. landscape providing artificial habitat for a variety of species, creating jobs during the construction and/or occupation phases of a project).
- ✓ *Negative Impacts* – Impacts that are detrimental and have a negative influence on sensitive resources or receptors.

The **Magnitude** of the impact is defined where possible in quantitative terms. The magnitude of an impact has a few different components, for example: the extent of physical change, the level of change in an environmental condition, its spatial footprint, its duration, its frequency and its likelihood of occurrence where the impact is not certain to occur. The criterion that has been used for assessing the magnitude of impacts includes the geographical scale of the impact, the permanence of impact and the reversibility of the impacted condition. A brief description of the magnitude of the impacts is provided in the table below (Table 103).

Magnitude of Impact	Description of Magnitude
Major	*Positive:* Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality. *Negative:* Loss of resource and/or quality and integrity; severe damage to key characteristics, features, or elements. A major impact is usually large scale, permanent and irreversible.
Moderate	*Positive:* Benefit to, or addition of, key characteristics, features, or elements; improvement of attribute quality. *Negative:* Significant impact on the resource, but not adversely affecting the integrity; Partial loss of/damage to key characteristics, features, or elements. Moderate impacts usually extend above.

Magnitude of Impact	Description of Magnitude
Minor	*Positive:* Minor benefit to, or addition of, one (maybe more) key characteristics, features, or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring *Negative:* Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristic, features or elements. Minor impacts usually are only noticeable within the site and are temporary and reversible.
Negligible	*Positive:* Very minor benefit to or positive addition of one or more characteristics, features, or elements. *Negative:* Very minor loss or detrimental alteration to one or more characteristics, features, or elements.
No change	No loss or alteration of characteristics, features, or elements; no observable impact in either direction.

Table 103. Criteria for magnitude of impacts

12.1.1.3. Extent of the Impact

Depending on the characteristics of the action, the extent of the area affected by the impact varies from a Localized extent to a Total one.

Magnitude of Impact	Description of extent
Localized	The area affected by the impact is located in a specific zone
Partial	The impact partially affects the project area.
Extensive	The impact affects a large area of the project. This attribute can also be considered within this category when the extent is inadequate in the sense that the action occurs in an area critical to the factor under consideration.
Total	The impact affects the entire project area.

Table 104. Criteria for extent of impacts

12.1.1.4. Timing between the action and its effect

The time elapsed between the occurrence of the action and the appearance of the effect varies according to the type of impact. Immediate to less than one year; Medium term, 1 to 5 years; Long term, more than 5 years.

Magnitude of Impact	Description of Timing
Immediate	The effects of the action appear immediately or within less than a year.
Medium term	The effects can appear within 1 to 5 years
Long term	The effects appear in more than 5 years. This attribute can also be considered within this category when the timing is inopportune in the sense that the action occurs at a critical time for the factor under consideration

Table 105. Criteria for timing of impacts

12.1.1.5. Duration of the effect from its appearance

This attribute is based on the time the effect would last from the occurrence of the corresponding action. It must be considered that the return to the initial conditions may be natural or by applying corrective measures.

Magnitude of Impact	Description of Duration
Brief	The effects of the action last less than one year
Temporary	The effects of the action last between 1 and 10 years
Permanent	The effects of the action last more than 10 years

Table 106. Criteria for duration of impacts

12.1.1.6. Reversibility of the effect

This attribute indicates the possibility to reconstruct by natural means, without applying corrective measures, the initial conditions after the effect has occurred.

Magnitude of Impact	Description of Reversibility
Short term	The alteration produced by the impact can return to natural initial conditions in a short term
Medium term	The alteration produced by the impact can return to natural initial conditions in a medium term
Irreversible	The alteration of the initial conditions caused by the impact cannot be restored or undone

Table 107. Criteria for reversibility of impacts

12.1.1.7. Criteria for Likelihood of Occurrence of Environmental and Social Effects

'Event related impacts' are potential unplanned impacts that are dependent on the occurrence of an event that has a finite probability such as an accidental, uncontrolled release of hydrocarbons that might occur under non-routine operating condition. Because event-related impacts may not occur, assessment of potential impacts that are event-related may take into consideration the likelihood of occurrence (Table 108).

The likelihood of an unplanned event can be derived from historical information, modelling, industry data, stakeholder interviews and professional judgment. In addition, likelihood considers anticipated or planned mitigation measures, engineering controls and procedures in place to prevent or reduce the probability of the identified event taking place.

Magnitude of Impact	Description of Likelihood
Likely	The consequence can reasonably be expected to occur on this project during the lifecycle of the facility
Occasional	The consequence may occur on this project during the lifecycle of the facility
Seldom	The consequence could occur on this project during the lifecycle of the facility but only under exceptional conditions

Magnitude of Impact	Description of Likelihood
Unlikely	The consequence has occurred in the industry in the past but is not likely to occur on this project during the lifecycle of the facility (e.g. construction, operation, decommissioning)
Remote	The consequence has occurred once or twice in the industry

Table 108. Criteria for likelihood of impacts

12.1.1.8. Determination of Significance of Effects. The Importance of Impacts

The significance of effects is determined by the combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project's impact value (change). In other words, it is the product of the impact acting on the receptor that results in an environmental effect. The table below (Table 109) displays the criteria used to assess the significance of environmental effects. Definitions for each significance category are provided in Table 110.

		Magnitude of impact (degree of change)				
		No change	Negligible	Minor	Moderate	Major
Sensitivity of Receptor	Very High	Neutral	Minor	Moderate or Major	Major	Major
	High	Neutral	Minor	Minor or Moderate	Moderate or Major	Major
	Medium	Neutral	Negligible or Minor	Minor	Moderate	Moderate or Major
	Low	Neutral	Negligible or Minor	Negligible or Minor	Minor	Minor or moderate
	Very Low	Neutral	Negligible	Negligible or minor	Minor	Minor

Table 109. Criteria for determining significance of effects (the importance of impacts)

Significance Category	Criteria
Major	Only adverse effects are assigned this level of importance as they represent key factors in the decision-making process. Effects are associated with sites and features of national or regional importance. Effects exceed statutory limits. Mitigation measures are unlikely to remove such effects.
Moderate or Major	Important considerations on a local scale but, if adverse, are potential concerns to the project and may become key factors in the decision-making process. Mitigation measures and detailed design work are unlikely to remove all of the effects upon the affected communities or interests.
Moderate	These effects, if adverse, while important on a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource. They represent issues where effects will be experienced but mitigation measures and detailed design work may ameliorate or enhance some of the consequences upon affected communities or interests. Some residual effects will still arise.
Minor	Local issues are unlikely to be of importance in the decision-making process. Effects do not exceed statutory limits. Nevertheless, they are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures.
Negligible	Effect that is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. No mitigation is required.
Neutral	No effect. No mitigation is required.

Table 110. Definition of significance of effects (Importance)

The significance of the effect (importance) is determined by comparison, wherever possible with company, locally, nationally, or internationally accepted standards. If no standards are available then it is necessary to develop project specific limits, based on guidance or best practice, as necessary. Such standards or limits are referred to as the Significance Threshold. If the size and type of effect is greater than the significance threshold, then this is termed a Significant Effect. Potential significant effects need to be avoided and are therefore prioritized by identifying mitigation measures to reduce the effect to an acceptable level. Significant effects are considered 'Major' or 'Moderate'.

In addition, all predicted impacts with a beneficial impact (positive impacts) will be color coded dark green.

12.1.1.9.Cumulative impacts

As stated in the document Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets (IFC, 2013), *Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively*

referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future ones. For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities.

IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts recognizes that because of the increasing significance of systemwide risk factors such as climate change, water availability, decline of species biodiversity, degradation of ecosystem services, and modification of socioeconomic and population dynamics, among others, cumulative impact assessment and management (CIA) is an essential framework for risk management.

Section 15 includes an analysis of potential cumulative impacts to assess their effects on environmental components. A rapid cumulative impact assessment, based on the *IFC – World Bank Group Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets. Good Practice Handbook*. (August 2013)[31] has been developed to support this evaluation.

12.2. Air Quality

12.2.1. Construction Phase

12.2.1.1. Impact-generating activities

The construction phase of the Development of Unicargas Terminal includes a range of construction works for the improvement of the top side area (approximately 192,000 m^2) including, among others, the refurbishment of pavement, installation of utilities and construction of new buildings. In addition, it encompasses all necessary works to rehabilitate/repair and construct the quay walls, as well as other elements such as the capping beam or tie-in to existing adjacent berths. In terms of potential air quality impacts, during construction phase, the following activities are foreseen to influence air quality:

- Building demolitions, since all existing warehouses, workshops and/or buildings are being demolished and removed. Other equipment, such as the existing weighbridge, might also need to be demolished.
- Land levelling, due to removing of current pavement which is degraded (total surface to rehabilitate amount to 166,030 m^2). Since diverse uses are to develop among the terminal areas, new sections to accomplish are also different and will require varied depth to reach.
- Construction itself, not only of the buildings but also other necessary elements foreseen in the project (i.e. weighbridges, road accesses, etc.)
- Movement and operation of vehicles and machinery associated with construction activities. It is expected that the required materials will be delivered by road, by means of heavy trucks. Ground works will involve the use of excavators (long reach and standard), backhoe, wheel loader, dump trucks, concrete transit mixers, concrete pump truck, grader, drum roller, pneumatic roller, forklift

[31] *IFC – World Bank Group. Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets. Good Practice Handbook. August 2013.*

and/or boom truck. In relation to marine side works, land base operations equipment will include crawler crane (200-300 tons capacity), mobile crane (100-150 tons capacity), excavators (long reach and standard), backhoe, wheel loader, dump trucks, concrete transit mixers and/or concrete pump truck, while for marine-base construction operations the main equipment will encompass a crane barge or jack-up barge, supply barge, tug boat, speed boat and a boat to move around the crew.

The temporary construction facility, one area where air quality impacts might increase due to machinery and equipment, is located south of the Terminal plot. The figure which shows the preliminary location is included in the Waste Management Plan of the ESMP (Volume III).

Considering the baseline air quality values at the project area, where particulate matter concentration (mainly $PM_{2.5}$ one) shows levels classified Moderate, even Unhealthy for sensitive groups, the emissions arising from demolition as well as construction works, might pose a significant impact in the project area. In addition, combustion of gaseous emissions, associated with the operation of fuel-based equipment and the circulation of light and heavy vehicles, will also have an effect which will be assessed.

12.2.1.2. Impact Assessment - Construction Phase

Impact: Increase in dust emissions

The more common impact on air quality resulting from civil works is the emission of particulate matter that could result in temporary air quality degradation. Civil construction activities that involve demolish and earth movements outcome this type of emissions which can be significant, and particularly remarkable during dry season if no control measures are put in place.

The intensity of these emissions is a function of several parameters, such as:

- The nature of the specific construction activity under way (construction methodology, number and type of vehicles and equipment in operation, etc.);
- The duration of the activity;
- The size of the work front;
- Meteorological conditions during the activity (wind speed and direction, rain events);
- The proximity of sensitive receptors to the work site;
- Adequacy of the control measures in place;
- The sensitivity of the receptors to the emitted pollutants.

The magnitude of the impacts of each specific work front will thus be dependent of the parameters listed above.

Dust emissions are expected to occur mainly during the demolition of the existing buildings, the removal of current pavement and the necessary surface leveling on the topside area. These impacts, however, will only be relevant for sensitive receptors located in the immediate vicinity of the terminal, apart from workers and Unicargas Terminal's users.

However, as explained before, the project area is a restricted access zone, with strict security measures and access control where no free vehicle and pedestrian traffic happens. In addition, the adjacent zone is a mainly industrial area, where administrative, residential and tourist buildings are scarce. According to these, it must be highlighted that the Unicargas Terminal location and characteristics will attenuate this potential impact.

The PM pollution problem already exists in Luanda, and levels may be even higher in the Port Area due to shipping activity. The Air Quality Survey performed in March 2024 at the Unicargas Terminal (see Section 10.2.2.2) concluded that neither measurement point P02- Technical area or P03- Gatehouse complied with $PM_{2.5}$/PM_{10} reference standards values[32]. Values measured, especially at P03 which is located close to the southwest limit of the plot, confirm that air quality reference framework is clearly disturbed already. This disturbance is caused not only by current activity at the Terminal but also by emissions generated by heavy traffic and heavy vehicles on EN100 Road. In addition, predominant winds (from south and southwest) may contribute to disseminating pollutant from the city area to the Port.

Construction activities are expected to increase the already elevated particulate matter levels in the project area and surrounding zones, likely exceeding international health standards, such as those set by the WHO, and causing a pollution episode with potentially significant effects.

The impact is considered negative, with a moderate magnitude; while air quality will experience measurable changes, not all parameters will be affected, and the effects will be noticeable primarily within the project site and its immediate vicinity. The impact's scope is extensive, encompassing the entire project area, and its onset will be immediate but temporary, as the effects are expected to last less than one year. The impact is also reversible in the short term.

Regarding receptor sensitivity, two distinct groups are identified: receptors located in adjacent areas up to 200 meters from the project boundary, and, separately, workers and users of Luanda Port.

[32] As explained in the specific technical report, reference values selected to compare with are Air Quality Guidelines -AQG- of the World Health Organization -WHO- 2021. Values for Inhalable Particles are: $PM_{2.5}$ (24 hours averaging time) 75 µg/m³ and PM_{10} (24 hours averaging time) 150 µg/m³.

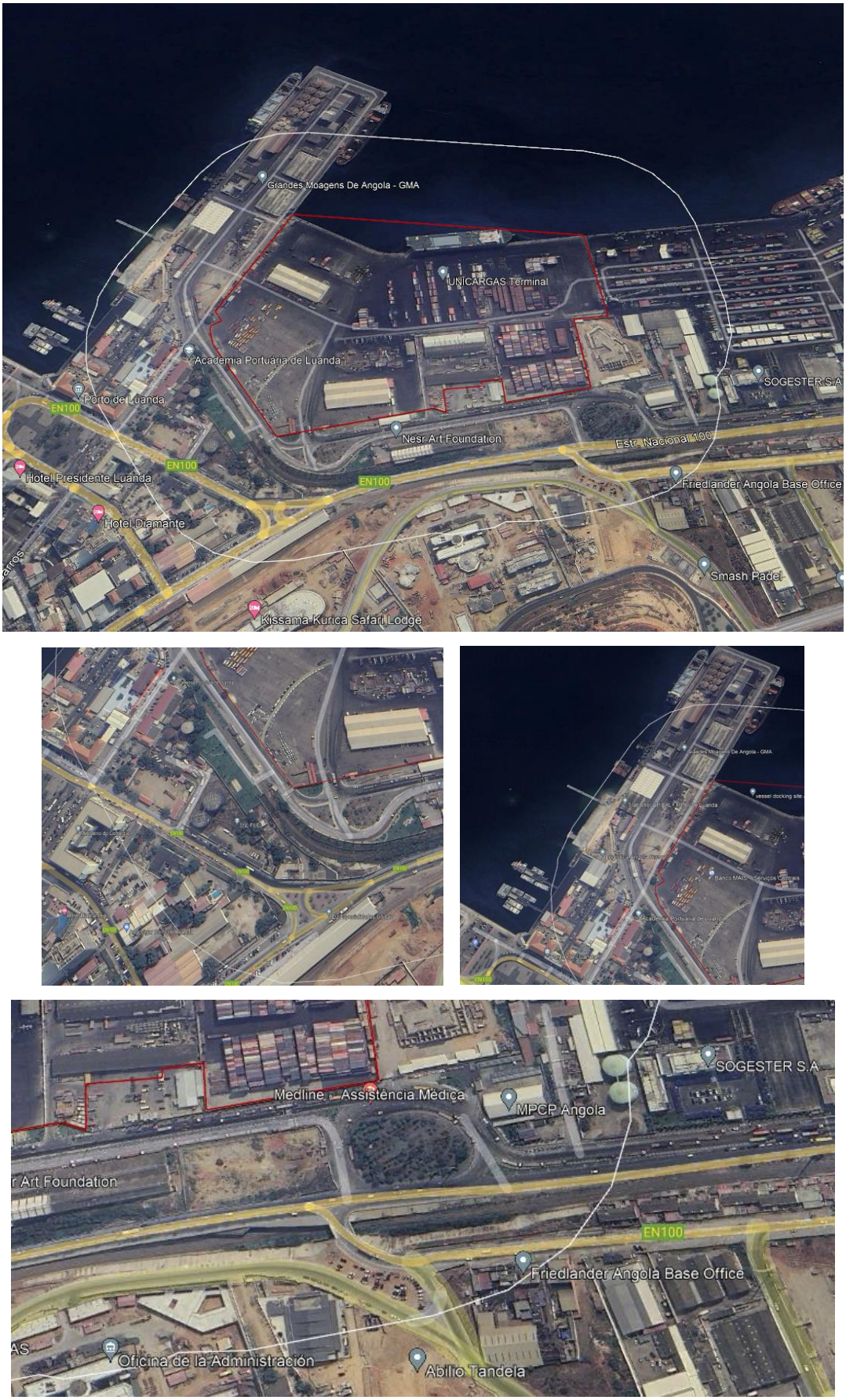


Figure 224. Views of the project's limit of works -red color- and 200 m buffer around its boundary -white color-

Figure 225. Land Uses in Unicargas Terminal and surroundings. Source: Noise Study (Acusttel 2024)

The value of the first one is medium, since sensitive receptors are all outside the Terminal plot and very limited since they encompass just a few residential dwellings and administrative buildings. Workers are included in the medium category; they could be impacted but are relatively vulnerable (the Health and Safety Program will prevent any effects). Lastly, Luanda's Port users are also considered in the medium category, as their time spent in the space is temporary and discontinuous.

However, and since the baseline conditions show already disturb values, the impact of the increase of dust emissions is assessed as **moderate**, and preventive/mitigation measures should be applied.

Impact: Increase in atmospheric concentrations of exhaust gases from the operation of heavy vehicles and equipment

Construction vehicles and machinery will inevitably emit pollutant gases, namely exhaust gases from the internal combustion engines. These pollutant gases include CO, NOx, SO_2, volatile organic compounds (VOCs) and TSP, among other residual pollutants, such as heavy metals, aldehydes and other minor organic compounds. The use of the machines, vehicles and equipment during work and its consumption of fuel will thus have an impact on air quality.

Total pollutant gases emissions generated by construction equipment depend on several variables, such as maintenance status of the equipment, equipment technical specifications, number of hours of operation and number of equipment working simultaneous in a specific work front. In addition, the necessity of materials, machinery/equipment transport, or waste transport for management/disposal among others, will also increase gaseous emissions caused by light and heavy vehicles traffic.

These impacts, however, will be relevant for sensitive receptors located in the immediate vicinity of the Terminal, apart from workers and users of the Port's terminal (not only Unicargas one but adjacent also). Again, location characteristics may be illustrated: the project area is a restricted access zone, with strict security measures and access control where no free vehicle and pedestrian traffic happens. In addition, the adjacent zone is a mainly industrial area, where administrative, residential and tourist building are scarce (see Figure 224). According to these, it must be highlighted that the Unicargas Terminal location and characteristics will attenuate the potential impact.

According to the Air Quality Monitoring campaign carried out within the project limits in March 2024 (Section 10.2.2.2), O_3 values measured at all locations (three ones: P01- Rear of Offices, P02- Technical Area and P03- Gatehouse) exceed reference standard limits[33]. As in particular matter case, pollution in Luanda and the Port area already exists, adding to the traffic, industry, etc. the shipping activity. However, values measured for other contaminants such as CO, SO_2 or NO_2 follow the reference standard.

The nature of the impact is negative, and its magnitude is moderate; while there will be measurable changes in air quality, not all parameters will be affected, and the repercussions will be noticeable only within the site and immediate areas. The extent of the impact will be complete, affecting the entire project area, and immediate but brief, as the effects will last less than one year. The action is reversible in the short term.

Referring to the sensitivity, or value of the receptors, two different groups must be distinguished: sensitive receptors, located in the adjacent areas to the limit of works (considering 200 m each side of that perimeter) and on the other hand workers and Unicargas Terminal/Luanda's Port users.

The value of the first one is medium, since sensitive receptors are all outside the Terminal plot and very limited since they encompass just a couple of residential dwellings and few administrative buildings. Workers are included in the medium category, could be impacted but are relatively vulnerable (Health and Safety Program will prevent affections). Last, Luanda's Port users are also considered medium category as their time to stay at the space is temporal as well as discontinuous.

However, since the Port area due to shipping activity might be susceptible to pollution episodes (already showing disturbance values although according to air quality survey just in one parameter), the impact of the increase in pollutant emissions is assessed as moderate, and preventive/mitigation measures should be applied.

12.2.2. Operational Phase

12.2.2.1. Impact-generating activities

The project at Unicargas Terminal seeks to develop and update current infrastructures to support and grow demand for the existing Container Berth and Roro/General Cargo. This will imply that during the operational phase slightly larger vessels and a greater number of them are expected at Luanda's Port. Referring to pollutant emissions, this activity increase will have a significant effect that is described below.

[33] *As explained in the specific technical report, reference values selected to compare with are Air Quality Guidelines -AQG- of the World Health Organization -WHO- 2021. Values for O_3 are (8 hours averaging time) 160 µg/m³.*

In addition, any necessary maintenance works (dredging, utilities, pavement) will require the use of equipment and machinery and thus combustion of gasoline/diesel fuel. However, these works will be localized and sporadic so their impact on air quality might be considered negligible. No mitigation measures will be considered, apart from regular good practices.

12.2.2.2. Impact Assessment - Operational phase

Emissions will arise from several sources, such as diesel engines used for the propulsion of ships, ship-based auxiliary engines, but also from land-based activities involving the use of vehicles such as cargo handling equipment, goods transport to as well as to/from the terminal, etc. Other sources of air emissions, including volatile organic compounds -VOC-emissions from fuel storage tanks and fuel transfer activities, will also pose a potential impact on air quality.

This impact will also occur during maintenance works, such as maintenance dredging (that will be carried out by Others since it is not part of ADPG Operations Works), when needed if needed, utilities renovation/restore, pavement conservation, etc., since machinery, equipment and vehicles might be used. Magnitude and scale of the impact will depend on generating activity since increasing goods transport exceeds the project area boundaries although maintenance works are limited and localized.

According to the information gathered from ADPG which has been used for GHG emissions estimation, data processed and analyzed indicates gaseous emissions will rise significantly due to increase of Terminal's activity. In terms of fuel consumption, current Unicargas Terminal's monthly estimation sums 24,075 liters (288,900 l/year) while forecast for 2026 of equipment diesel consumption[34] grows to 547,342 l/years, nearly doubling current value. In addition, current vehicular traffic is estimated at 125 trucks per day and foreseen to be 662 trucks/day, multiplying by more than 5 times present data. These estimations do not include vessels emissions, which might also have widely referred values.

It must be highlighted that the project area has no sensitive receptors included in its perimeter since it is a fenced zone with restricted access and thus no free transit of vehicles and persons. Only workers and Unicargas Terminal services' users are the authorized people within the limits since no passerby is allowed. The surrounding space is characterized by being mainly an industrial area except for a few residential dwellings located west and east, administrative buildings and even cultural and tourist attractions. The potential impact of the emissions increase on sensitive groups like children or elderly people will be limited, since it is considered a general scale effect, which scope will affect partially Luanda City.

The Environmental, Health and Safety (EHS) Guidelines for Ports, Harbors, and Terminals[35], must add the specific recommendations for the management of air emissions resulting from the operation and maintenance of ships used for the transport of bulk cargo and goods referred at Environmental, Health, and Safety (EHS) Guidelines for Shipping[36], as well as the EHS General Guidelines[37] one. Other International regulations, such as the one introduced in the Marine Pollution Convention -MARPOL- by the International

[34] *Equipment encompasses: RTG -Rubber-Tired Gantry- cranes (Hybrid), RS -Reach Stackers-, ECH -Empty Containers Handler-, Terminal tractors + Trailers, Forklift 3 Ton, not including MHC-Mobile harbor crane- (purchase decision pending) and STS-Ship to Ship- (electricity consumption).*
[35] *Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals. February 2017 World Bank Group.*
[36] *Environmental, Health, and Safety Guidelines for Shipping. April 2007. World Bank Group.*
[37] *Environmental, Health, and Safety General Guidelines. April 2007. World Bank Group.*

Maritime Organization -IMO-, aiming to control and prevent air pollution from shipping transport may also be taken into consideration. Its Annex VI.- Prevention on air pollution from ships entered into force in 2005 so countries which have ratified the protocol (Angola among others) shall introduce regulations to limit air pollution emissions from ships, including ozone-depleting substances, NO_x, SO_x, Volatile Organic Compounds -VOCs- and shipboard incineration..

However, based on pollution activity, values to control and comply with might be different.

Emissions due to maintenance works will have a localized effect that will last briefly and will be considered negligible. Since no sensitive receptors are within the limits and the extent of the effect will be very limited, this impact is assessed as negligible or minor.

Regarding general and substantial increase of emissions in the project area due to operational activities, the effects are evaluated as moderate, total (even surpassing the project area considering cargo transport to and from the Port), permanent and the effects will appear in the medium term. It is expected to return to the initial conditions in the medium term and it is likely to happen. Although the project area does not house sensitive receptors or significant natural values in terms of air quality, the significant increase of the emissions and potential exceed of the project limits, the impact is classified as moderate.

12.3. Noise & Vibrations

12.3.1. Construction Phase

12.3.1.1. Impact-generating activities

The construction phase of the Development of Unicargas Terminal will involve an increase of noise levels mainly generated by the operation of construction vehicles and machinery, in addition to the range of activities carried out in each specific work front. Related to vibrations, the use of some specific machinery to carry out certain works (i.e. hydraulic hammer, excavators and/or grader, among others) will generate vibrations in the construction area. The main construction activities likely to generate relevant noise emissions and vibrations include:

- Demolition of existing buildings and sheds such as the warehouses, main Guard House, Entrance Building, or the Firefighter's Building. Additionally, it is foreseen the removal/dismantled of auxiliary systems such as the storm water drainage, wastewater collection and disposal system, electrical system and substation, etc. All these actions will cause a significant increase in noise levels.
- The removal of nearly all plot surface pavement will also influence noise levels and especially vibrations, since will include to remove a large surface of pavement and the subsequence terrain leveling. Specifically, these works and the machinery to be used are among the nosiest ones and the greater vibrations to generate.
- Rehabilitation and repair of the quay walls works, with the necessary action to guarantee the integrity of the concrete structure, fender replacement or metal guides and joints recovery among others. All actions will again imply the use of machinery, handling materials, etc. and thus, an effect on base noise and vibration levels, including marine side.
- Movement and operation of vehicles and machinery: the movement of vehicles and the operation of machinery, at the work fronts or in transit, will be also an expected temporary noise. Regarding vibrations, especially heavy vehicles and larger machinery, will also influence raising baseline levels.

Typical construction vehicles include backhoes, pulling machines or dumpsters, while ground works will involve the use of excavators, front-end loaders, rippers, dozers, graders, rollers and water trucks. Heavy-duty trucks will be used to haul away material that can't be stockpiled or disposed of on-site and to bring in necessary construction materials and equipment.

- Buildings construction: temporary noise impacts associated with the construction of all buildings which will be caused using machinery and the process itself, including, as an example, the use of concrete and gravel trucks that haul in materials for the foundation.
- Re-pavement of the Terminal, instalment of the needed infrastructure systems, necessary furniture (included the quay walls ones), STS crane rails, etc. will be part of the construction works to accomplish, contributing to temporary increase of noise and vibration levels.

The noise and vibration impact of these construction activities is described and evaluated below.

12.3.1.2. Impact Assessment – Construction Phase

Impact: Noise & vibration impact from construction activities

All the construction activities and equipment operations described in the previous section will result in temporary noise and vibration emissions with potential annoyances to the community. Since, as already explained, Unicargas Terminal adjacent zone is a mainly industrial area, with just a few administrative, residential and tourist building around (see Figure 224 and Figure 225), the potential impact over sensitive receptors will be attenuated. Also, as the area has access restrictions, with strict security measures and access control, no passerby or vehicle traffic happens.

However, noise values monitored during survey campaign carried out in March 2024 at three locations within the Unicargas Terminal (see Section 10.2.2.4) have been compared with reference standards[38]. L_{Aeq} values at measurement points P01- General Services Cup as well as P03- Gatehouse are the ones which presents higher values (also L_{max} in both cases), above referred standards for residential/institutional/educational areas although comply with industrial/commercial requirements. When analyzing influence factors on noise values, highest records match with the arrival of ships with goods and the pertinent unload and movement of trucks (at P01, near quays) and movement of heavy and light vehicles (at P03, at the Entrance). This data shows that noise baseline levels at the Port area already exceed recommended residential levels, although the Port's area may match industrial values.

Among the construction activities with the potential to generate impacts on ambient noise, some are clearly noisier and generate more vibrations, such as earthworks or demolition. Others, such as the transportation of materials and the movement of heavy vehicles, will still generate noise (and vibrations), but at lower levels. It should also be pointed out that the sound/vibration levels generated by the construction activities will depend on several other factors, such as the type and number of equipment mobilized for the construction work, and the duration of their operation. Additionally, it is worth noting that some activities are very limited

[38] *Since no Angolan legislation on noise exists, the referred standards are those from the Worl Health Organization -WHO- 1999, also adopted by Environmental, Health, and Safety Guidelines -IFC 2007-. For residential, institutional and educational receptors, maximum levels (L_{Aeq} -1hour) are 55 dB during day (07:00-22:00) and 45 dB during nighttime (22:00-07:00); and for industrial and commercial receptors, 70 dB during both day and night periods.*

in time and space (such as earthworks), while others will be more continuous (such as the movement of machinery). The latter, however, will not generate very high average levels of noise.

The dispersion of the sound energy from the construction activities with distance is done in a spherical geometry. Noisy equipment emits spherical sound waves, for which the decay of sound energy is inversely proportional to the square of the distance. To this attenuation effect with distance, other sound attenuation effects must be added, such as the effect of the dominant winds (predominant south, west and southwest).

The Noise Study conducted by Acusttel (2024) has modeled construction noise, considering activities involved during the works such as the rehabilitation of the quay wall, installation of finishing beams, construction of buildings, etc. The following figures illustrate the meshes where the transmission of sound levels to the surrounding areas can be analyzed, both during the day and at nighttime. Directly below, smaller-sized versions of both figures depicting the pre-operational situation have been included to facilitate comparison.

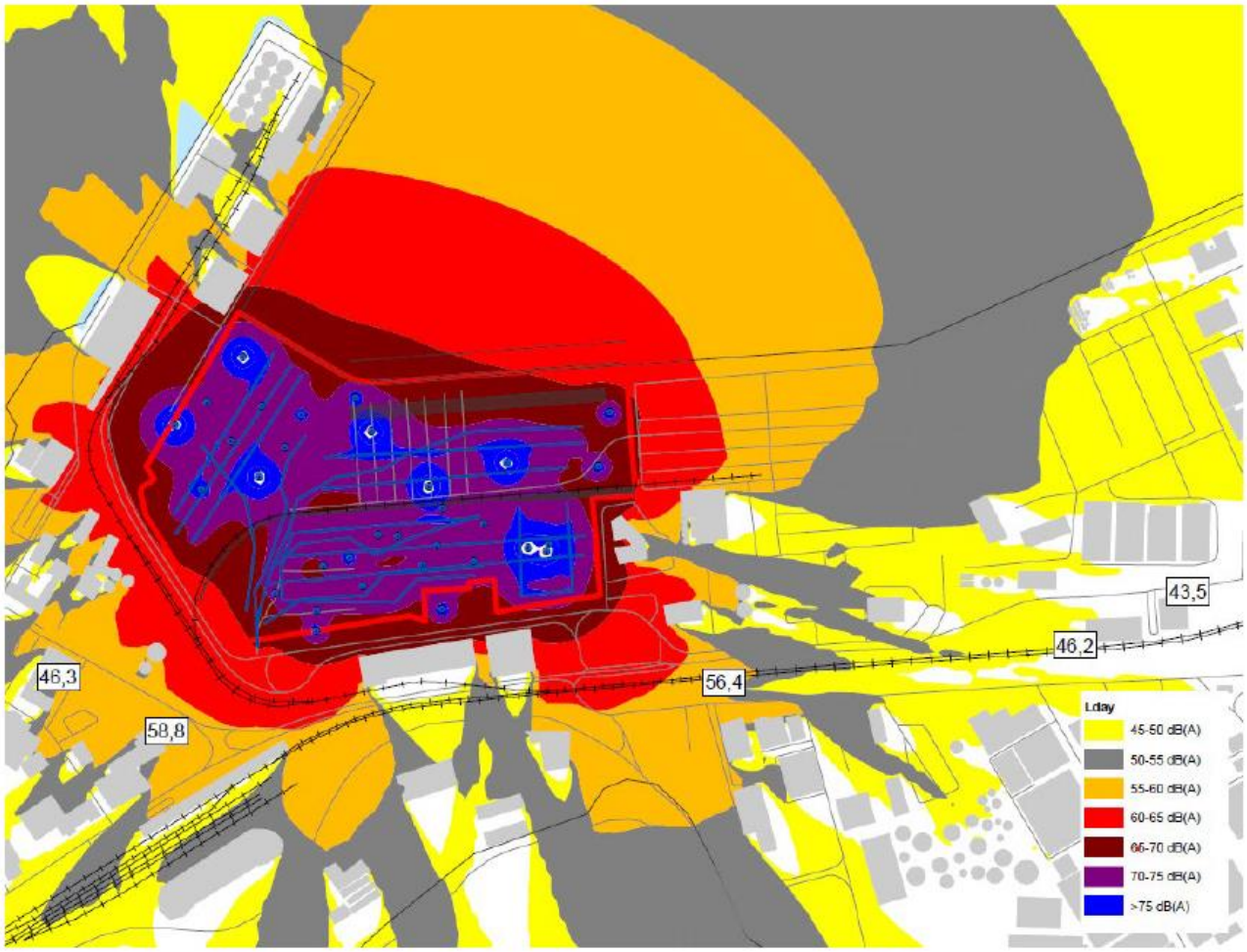


Figure 226. Construction noise levels for day period (07:00-22:00 h). Source: Noise Study (Acusttel, 2024)

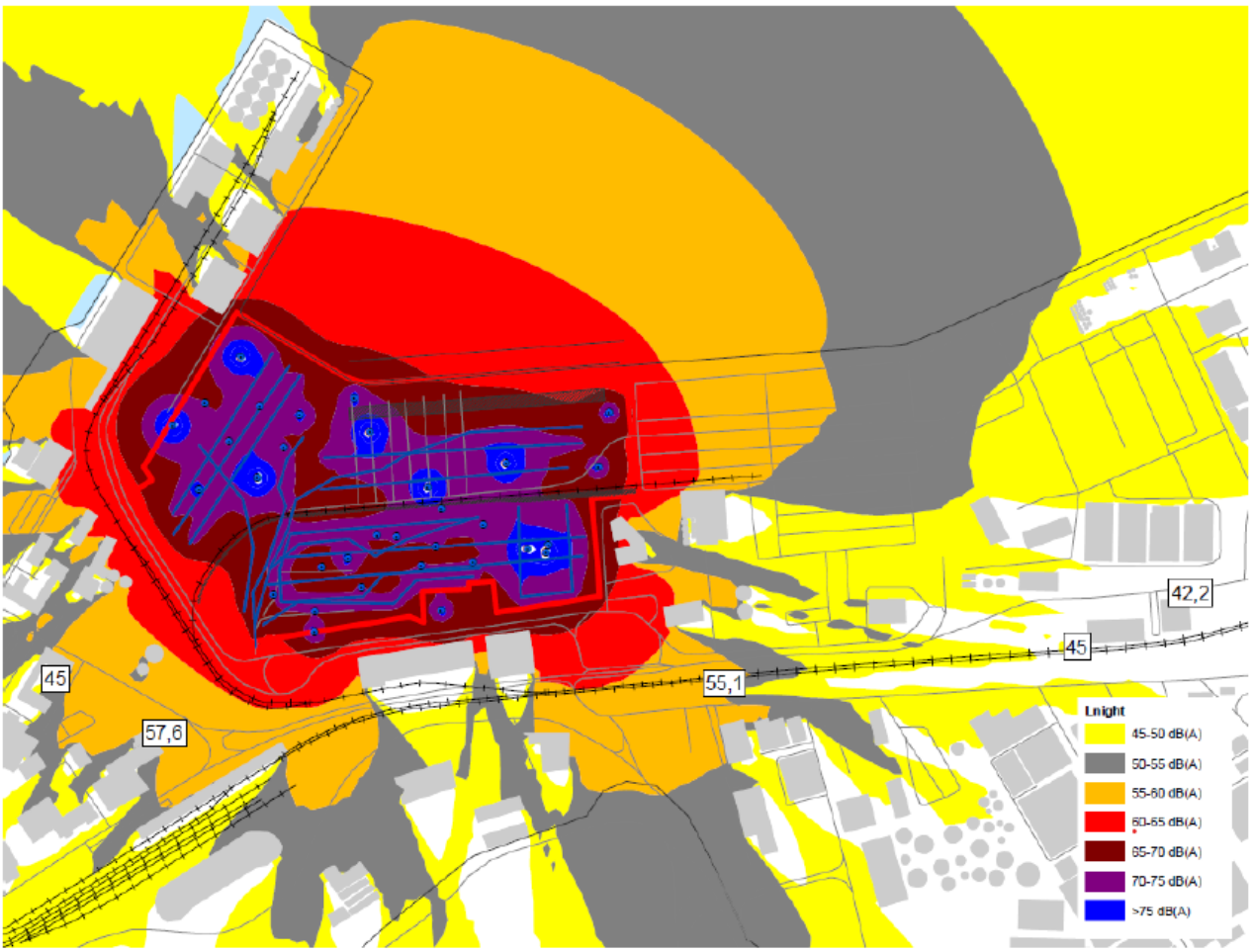


Figure 227. Construction noise levels for night period (22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

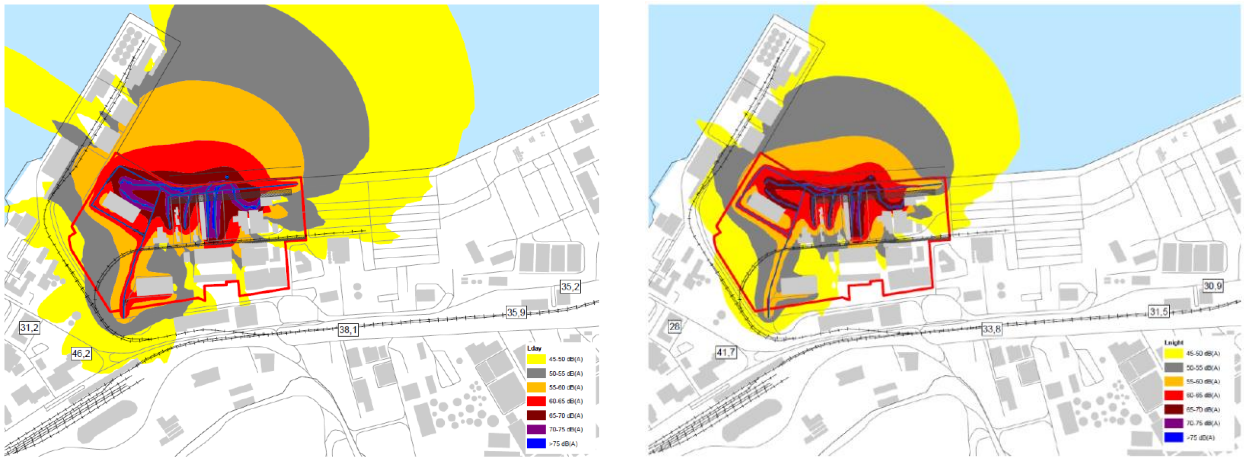


Figure 228. Preoperational noise levels for day and night periods (07:00-22:00 and 22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

Noise levels calculated (considering all equipment is working at the same time) surpass the standards referred. The highest values at a residential adjacent area rise to 58.8 and 57.6 dBA. Although during daytime the worst value just surpasses the standard limit by nearly 4 dBA, nighttime value increases in more than 12 dBA reference data.

In addition, related to the marine side, underwater noise and vibrations levels will increase due to works actions that might impact adversely aquatic habitats as well as health and behavior of aquatic species. Underwater propagation sound depends on each location, as well as the impact related to the sensitivity of the species located.

The impact is reversible since once work is finished the initial conditions will return. The extent of the impact is total as it affects the entire project area, although noise and vibration levels will concentrate in some areas or moments. The effect is brief, reversible in a short period of time, likely, and moderate in magnitude.

Although the location of the project will significantly reduce the potential impact since no receivers are located inside the Terminal's plot, some residential, governmental, commercial or historical buildings will be affected. In addition, the other potential impacts receptors will be workers and Unicargas Terminal/Luanda's Port users, which might be included as well in the same category. Workers are relatively vulnerable since they can be impacted but the Health and Safety Program will prevent these affections. Last, Luanda's Port users are also considered medium category as their time to stay at the space is temporal as well as discontinuous.

On the marine side, there are no protected species identified in the area. The zone consists of an already operating Port, where natural values are scarce and no remarkable species have been located and thus, the value of these sensitive receptors is considered in the low category. Also, the impact magnitude will be minor, since works in the marine side will be less noisy and limited, as well as partial as the surface affected is reduced.

The impact of the increase in noise and vibrations emissions during construction phase over receptors is assessed as moderate in the terrestrial side and negligible or minor in the marine side.

12.3.2. Operational Phase

12.3.2.1. Impact-generating activities

As explained in the Air Quality section, the project seeks the development and update of current infrastructures to support and grow demand for the existing Container Berth and Roro/General Cargo. Consequently, during operational phase slightly larger vessels, in addition to a greater number of them, are expected at Luanda's Port. Shipping operation, cargo handling, goods and materials transport, imply the increase of base noise levels and thus, an impact which might be assessed. Vibrations from vessels arriving at Luanda's Port will also increase.

Operational maintenance activities may also generate noise and/or vibrations, as vehicles and machinery/equipment will be used. These vehicles' traffic and activities will be intermittent, sporadic as well as limited in nature and can be considered negligible, thus not further assessed here.

12.3.2.2.Impact Assessment – Operational Phase

Impact: noise and vibrations emissions increase from operational activities

Resulting noise and vibrations from operations of Ports, Terminals, etc. include cargo handling, vehicular traffic and loading/unloading of containers and ships might be avoided or minimize to prevent harmful exposure to workers, nearby communities as well as sensitive receptors (which may include wild fauna)[39].

During the operational phase of the development of Unicargas Terminal, larger vessels and in great number will arrive at Luanda's Port. Consequently, noise and vibrations will increase both on the terrestrial and the marine side. Terrestrial noise will be related to cargo handling, loading/unloading of containers, materials and good transport, etc. in addition to the ship noise itself. Noise levels are already disturbed (according to site survey carried out in the area) although the absence of sensitive receptors within the plot reduces the potential impact caused.

However, the Noise Study carried out by Acusttel (2024) has calculated the potential transmission of sound levels to the nearest areas, considering just the Port Activity and adding to it the EN-100 road noise. The results are shown in the following figures, including at the end the figures of the preoperational situation and the related to road EN-100 alone, at a smaller size, to compare.

[39] *Noise and Vibration chapter -Environmental, Health and Safety Guidelines for Ports, Harbors and Terminals IFC 2017.*

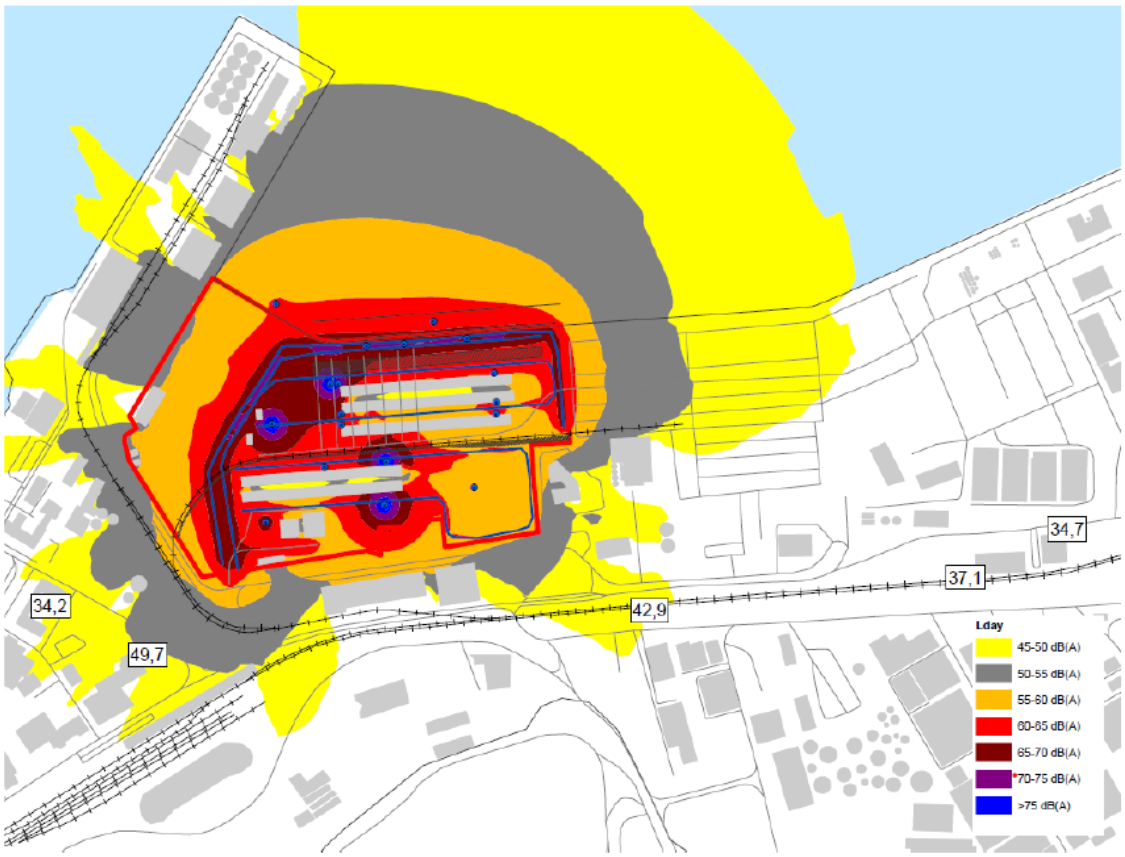


Figure 229. Operational noise levels for daytime (07:00-22:00 h). Source: Noise Study (Acusttel, 2024)

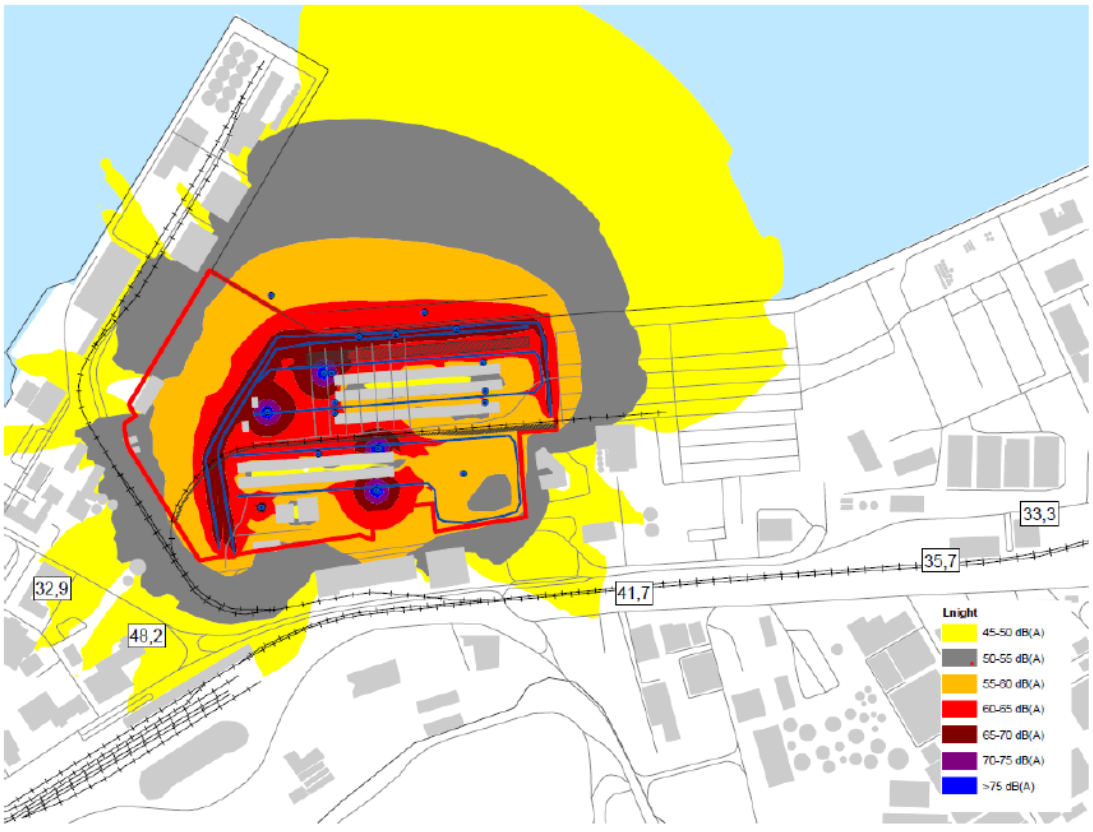


Figure 230. Operational noise levels for nighttime (22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

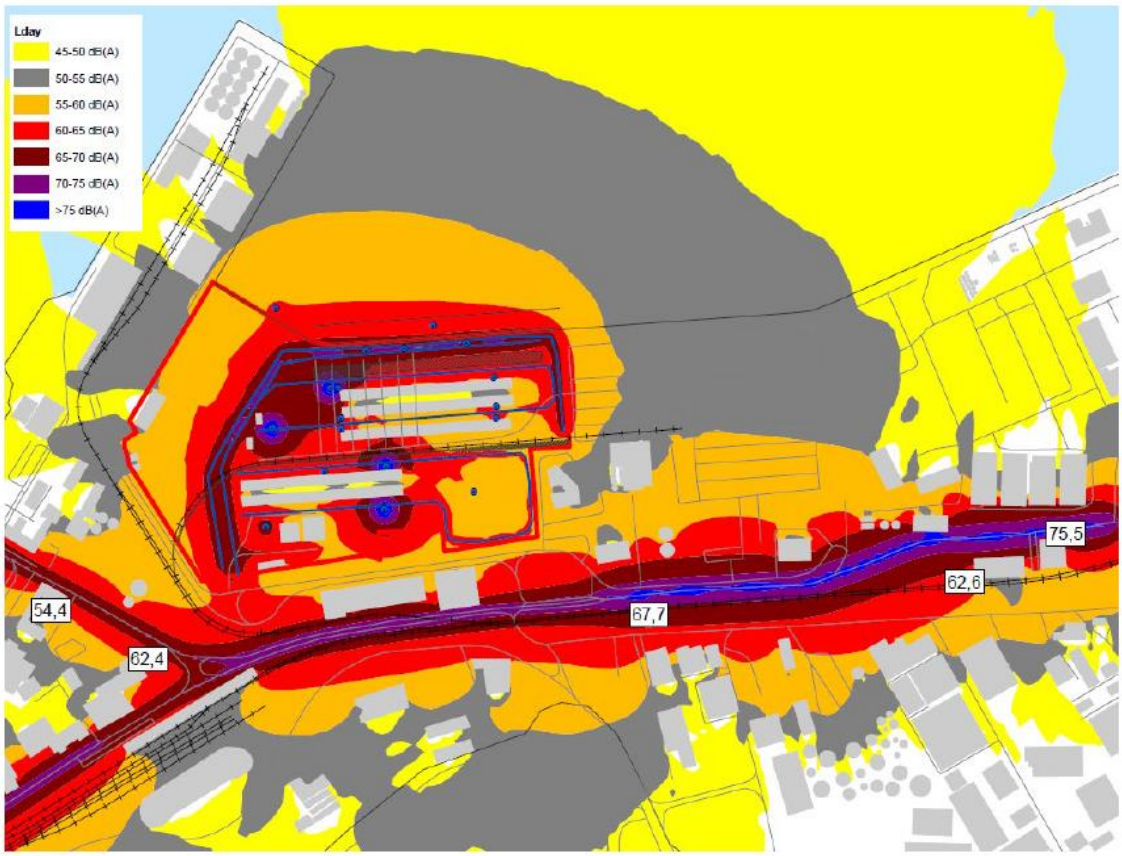


Figure 231. Operational noise levels, including Port activity and EN-100 road, for daytime (07:00-22:00 h). Source: Noise Study (Acusttel, 2024)

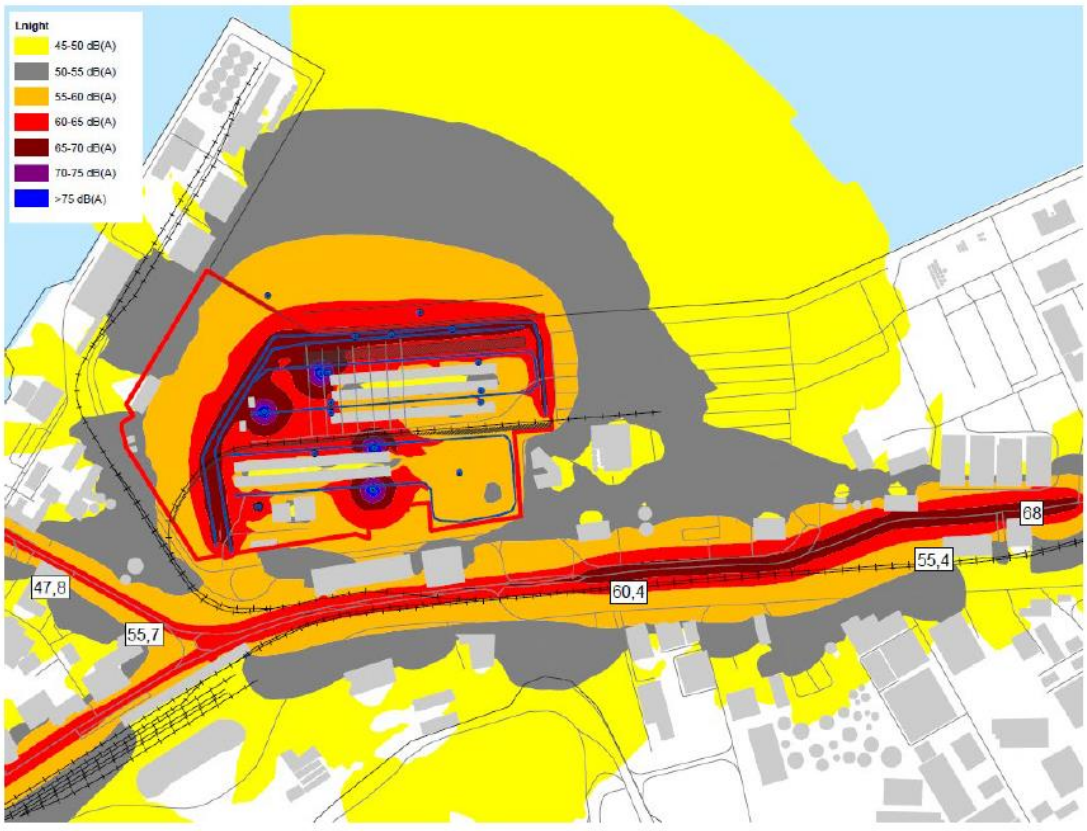


Figure 232. Operational noise levels, including Port activity and EN-100 road, for nighttime (22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

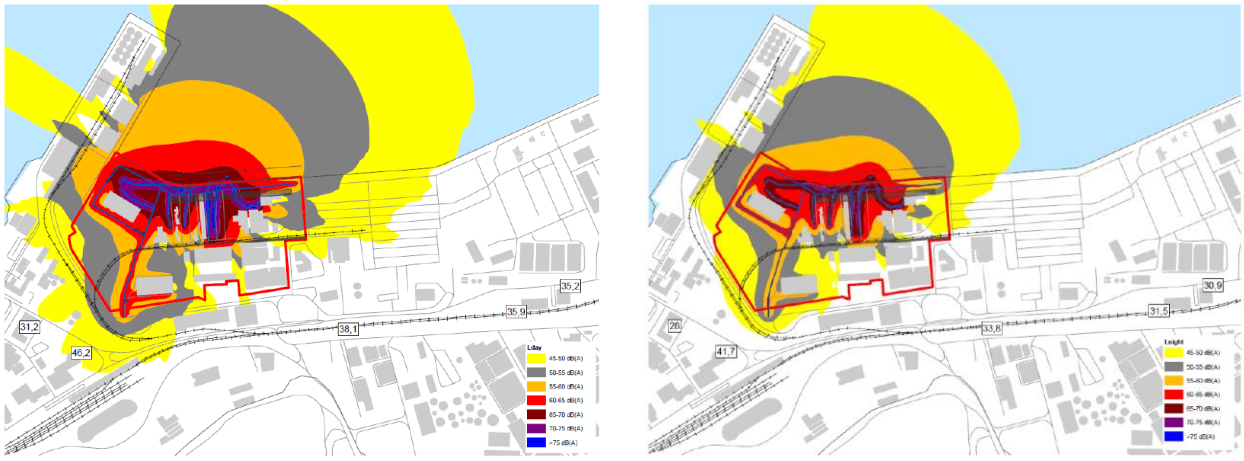


Figure 233. Preoperational noise levels for day and night periods (07:00-22:00 and 22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

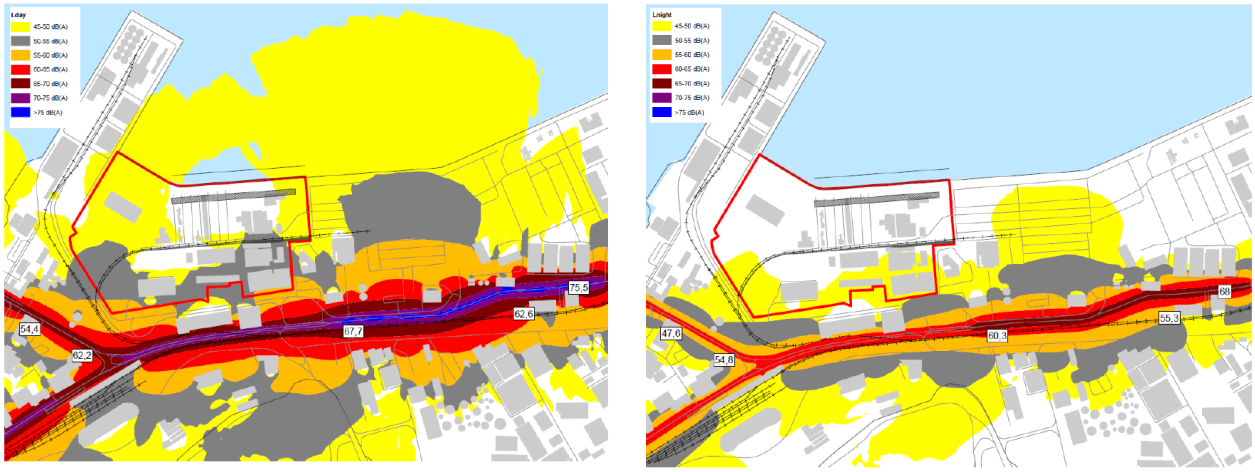


Figure 234. EN-100 road noise levels noise levels for day and night periods (07:00-22:00 and 22:00-07:00 h). Source: Noise Study (Acusttel, 2024)

Considering just the Terminal's activity foreseen for the noise levels at operational phase, although values increase in relation to current ones, daytime calculation data (49.7 dBA as higher value obtained in a residential area) comply with reference standard. On the other hand, the nighttime value is slightly greater than the standard one: 48.7 calculated versus 45 dBA referred. Nonetheless, calculated values considering the adjacent EN-100 road noise are more adverse. The highest value at an adjacent residential area reaches 62.4 during daytime and 55.7 dBA at night. Both data are above the noise reference standards for those types of land use, residential (+institutional +educational), which is 55.0 and 45.0 dBA respectively.

On the marine side, it is studied that commercial ships cause underwater-radiated noise, which may have short and long-term negative consequences on wildlife fauna, especially marine mammals. Documented[40] impacts on marine mammals, fish and invertebrates include developmental impairment, poor body condition, increased predation, DNA fragmentation, or behavioral changes among others. Primary sources of URN-Underwater Radiated Noise- generated by ships are associated with propellers, hull form, onboard

[40] *Revised Guidelines for the Reduction of Underwater Radiated Noise from Shipping to address adverse impacts on Marine Life. IMO-International Maritime Organization. August 2023.*

machinery, wake flow and operational/maintenance aspects. In addition, vibrations are mainly linked to ship machinery and induce structure-borne noise. Since vessels will rise in number and dimensions at Unicargas Terminal, operational phase will imply greater marine noise and vibrations.

At the terrestrial side, even noise levels during operational phase of the Terminal do not increase significantly, the baseline values, mainly caused by the road EN-100, are already above reference standards at some locations. The absence of receivers within the Terminal's plot reduces the potential impact within the Terminal that activities might cause (70 dBA for industrial zones). Workers and frequent Terminal services' users shall be protected against this negative impact. At the adjacent areas, where EN-100 already causes a significant noise impact, its negative effect will be intensified. The effect is negative, total (although different intensities will occur throughout the plot), with immediate timing. The reversibility might be over a short period of time, and the effect is likely to happen. The magnitude is considered to be moderate, but since the sensitivity of receptors is medium, the impact is assessed as moderate.

Referring to the marine side, the effect of the increase in noise and vibrations levels due to Unicargas Terminal rise activity, is minor, negative, partial, immediate, temporary and likely. As already mentioned, no protected or threatened fauna species are located in Luanda's Port. In addition, current species there already coexist with shipping activity, not only from Unicargas Terminal but the whole Port. Potential receptors of the impact have a low value on sensitivity, which results in a negligible or minor impact assessment. However, potential actions are included in the mitigation measures chapter, focused on good practices and recommendations.

12.4. Marine Water Quality

12.4.1. Construction Phase

12.4.1.1. Impact-generating activities

During the construction phase of the Unicargas Terminal Development, one of the main activities generating impact on seawater quality would be those related to underwater cleaning works for the construction of the quay wall that require a certain degree of excavation in some cases, due to the mobilization of sediments from the seabed, which favors a potential increase in the water column of turbidity and pollutants present in the sediments.

In addition, sea water may be affected by the discharge of liquids from any of the machinery used in the works, either directly into the sea or from the top and ending up in the sea.

Finally, all those works related to the generation of dust and waste, such as excavations or deposit of materials, which can end up in the sea due to wind or runoff, can be a source of contamination for the sea water.

12.4.1.2. Impact Assessment – Construction Phase

Impact: Effects on water quality due to an increase in suspended solids

The works that are most associated with increased suspended solids in seawater are those required to rehabilitate the quay wall, especially those involving a certain degree of excavation of seabed sediments in some cases for seabed cleaning activities. The coarser material, such as gravel, coarse sand and clay balls, is immediately deposited on the bottom and accumulates below the discharge zone. Most of the finer

granular material also quickly descends to the bottom, but a small percentage of the discharged material remains in suspension, becoming incorporated into the water column and generating turbidity.

Turbidity is a phenomenon that decreases the transmittance of light in the water column, affecting, if its intensity and duration is sufficient, the fauna and flora communities present in the area. The turbidity associated with these seabed cleaning activities results from the permanence in the water column of the material placed in suspension during the process. Therefore, the turbidity generated by these activities depends mainly on two factors: the amount of material placed in suspension and the time the material remains in the water column.

According to the results obtained in the survey of the water quality obtained both in situ and in Eurofins IPROMA laboratory, turbidity values remain within the range at all stations, so it is expected that with works involving sediment movement, turbidity will increase above these values.

The resuspension of sediments also causes the pollutants present in these sediments to be mobilized and incorporated into the water column, although in all cases these are temporary effects, since the original conditions will recover once the source generating the impact ceases.

Due to the ease of transport of suspended sediments and pollutants through water, there is a possibility that sensitive receptors located in areas far from the project area may be affected, so the sensitivity of the impact is considered high. However, the magnitude of the impact is considered minor negative.

The impact will occur immediately from the moment the action generating the impact occurs, but the effects of the impact will be brief. The extent of the impact is considered to be partial, as it only partially affects the project area. The impact will be reversible in the short term, and it is likely to occur.

In view of all the above and since it is not expected that the sediments and pollutants in suspension transcend beyond the area of port influence, the magnitude of the impact is considered to be minor. Therefore, the significance of the impact will be minor or moderate.

Impact: Risk of accidental spillages during the execution of the works

The liquid substances that may be dumped by the machinery used in the works (mainly fuels and oils), both in the marine side and in the top side, are always a factor of high polluting potential for marine waters, as the low degradability and difficult dilution of these materials means that they remain in the water for a long time, which can have a considerable impact and even affect areas far from the works.

According to the results of the campaign to characterize marine water quality (see section 10.2.6.1), regarding Oils and Fats, it should be noted that traces of these substances have been found in almost all the stations sampled. As has already been mentioned, the study area is located within a port that is currently in operation, and is, therefore, a heavily anthropized area.

If any incident occurs, spills of these characteristics would float and move until they were deposited on the land area. With the correct application of the respective preventive and corrective measures, since it is generally a small spill, it would not have relevant repercussions. However, considering the application of good construction practices and preventive measures there is a seldom likelihood of occurrence.

Although the probability of an accidental spill due to the works is low, the area on the marine side that will be affected by the project is small and during the biological campaign the presence of biota was not observed (only sludge on the seabed), if it does occur, the possibility of contaminants from the accidental spill spreading to more distant areas and the possible presence of endangered species in these far-off areas makes it an impact with a high sensitivity.

If an accidental spill occurs, after the application of preventive measures with the provision of emergency and contingency plans for this type of accidents, it is expected that the spill will be controlled before affecting areas outside the port boundaries. Thus, the impact is considered to be of a negligible magnitude, localized, immediate, with a brief duration, reversible in a short term with a seldom likelihood of occurrence, and, therefore, the significance of the impact is considered to be minor.

12.4.2. Operational Phase

During the operational phase, no significant changes in water quality are expected with the rehabilitated Unicargas Terminal with respect to those already existing in the currently operating terminal given that, although the expected capacity will be greater than the current one, the impact is considered negligible considering the implementation of the preventive and corrective measures foreseen in the present study, which follows the recommendations of the IFC applicable Guidelines, the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao), the Solid Waste and Effluent Management Plan (Plano de Gestão de Resíduos sólidos e efluentes) for Luanda Port Company E.P. and the Environmental Management Plan (Plano de Gestão Ambiental) of the Port of Luanda.

12.5. Marine sediments

12.5.1. Construction Phase

12.5.1.1. Impact-generating activities

The construction phase of the Development of Unicargas Terminal will involve an increased movement of marine sediments mainly due to the rehabilitation and repair works of the quay wall.

In that sense, the main action related to the replacement of the quay wall that could potentially affect the marine sediments present in the area immediately adjacent to the quay wall would be works related to seabed cleaning activities, as well as works to secure the concrete structure and the recovery of metal guides, among others. This will involve the removal of the seabed, with the consequent increase in turbidity and resuspension and dispersion of possible contaminants that could settle and contaminate sediments in areas away from the project, as well as the potential risk of direct destruction of the adjacent habitat of benthic biota.

12.5.1.2. Impact Assessment – Construction Phase

Impact: Effects on the environment due to the movement of seabed sediments.

Seabed cleaning activities can be considered as an artificially induced process of erosion, transport and deposition of sediments. These operations could have the potential to alter the physical, chemical and biological conditions of ecosystems.

In relation to physical changes, during seabed cleaning works, bottom sediments are mechanically removed and suspended in the water column. Heavier sediments, such as gravel and sands, settle quickly, but fine sediments, such as clays and silts, remain suspended, carried by currents and waves. They could cover large areas, causing turbidity and thus reducing the light penetration necessary for photosynthesis processes and changes in radiative heat.

Some of the parameters that reflect the chemical changes in water quality resulting from these works and affecting sediments quality are oxygen demand, increased nutrients, presence of trace amounts of heavy metals and pesticides in the water column and changes in salinity levels.

In relation to the suspension and distribution of contaminated sediments, water is the main vehicle for transporting pollutants and the medium in which they can develop chemical and physical reactions. On the one hand, it is common for sediments in harbors to be contaminated. On the other hand, these cleaning works do not in themselves add new pollutants to the aquatic environment, except in cases of accidental oil or hydrocarbon spills. However, they do have the potential to suspend contaminated sediments and thus facilitate their distribution through water currents.

In addition, during these seabed cleaning activities there could be changes in nutrients and in the water renewal rate in the affected area, direct destruction of the habitat of benthic biota and changes in the morphology of the seabed due to the removal of sediments, high levels of turbidity (increased suspended sediment), changes in temperature and salt content, which may be intolerable for many of the living species in the area.

As reflected in the results of the campaign to characterize the quality of the sediments currently present in the port of Luanda (see section 10.2.6.2), according to the Australian guidelines recommended by EHS, the values of Cr, Cu, Cd, Hg, and Pb remain within the specified range at all stations. However, at station 5, the values of Zn exceed the range established in the guidelines, while 9 out of the 10 stations remain within the specified range.

The total concentrations of the analyzed PCBs, VOCs, and PAHs, which are subject to international recommendations and guidelines considered in IFC standards, remain within the acceptable range at all stations. In this regard, the normalized total PCBs, TPHs, and PAHs comply with the limits established in the Australian guidelines across the entire area.

Regarding nutrients, concerning TOC, the values recorded in all stations would fall within the range established by Australian standards, never being less than 0.2% or exceeding 10% in any sampling station.

According to the Spanish Royal Decree 817/15, the work area has been assigned a moderate to deficient ecological potential since the recorded concentrations of total nitrogen and phosphorus exceeded the limits for more favorable ecological potentials.

Regarding ROM 5.1-13, TOC is the only parameter subject to an environmental quality standard, and it remains below the quantification limit in all the stations.

All these results, together with the ones obtained in relation to the redox potential, which indicates that it is a poorly oxygenated area, potentially reduce the presence of a diverse benthic community, as the growth of more sensitive species is limited. In addition, during the ecological campaign it was observed that the project

area adjacent to the quay wall that is going to be rehabilitated consisted basically of mud with no apparent biological presence. Therefore, it can be considered an area with scarce or nonexistent benthic community.

Despite this and taking into account that the area to be cleaned for the quay wall works is relatively small, given the possibility of dispersion of pollutants due to these works and possible presence of endangered species in areas away from the project, the sensitivity is considered to be high.

The impact is temporary and reversible in the short term, as once the works are completed the initial conditions will be restored and likely to occur. Due to the sediment-dispersing capacity of the water the extent of the impact is considered partial as it only partially affects the project area. The effect will appear immediately and will last for a brief time. The nature of the sediment's resuspension impact is negative but the magnitude is considered to be negligible, given the very localized seabed cleaning works to be carried out and taking into account the fact that, unless unexpected events such as oil or hydrocarbon spills occur, or unexpected dispersion of sediments during these activities, the works are not expected to increase the amount of pollutants already existing in the sediments, which are due to port activities not only in the Unicargas terminal but also in the other terminals currently active in the Port of Luanda.

The significance of the impact on the marine environment during the construction phase is, thus, assessed as minor.

Impact: Effects due to direct loss of seabed

Seabed cleaning works lead to the removal of sediments from the seabed, modifying its morphology and directly affecting the benthic flora and fauna communities present in the area.

According to the direct observations carried out in the biological campaign, the project area where the restoration of the quay wall is to be carried out consists of a mud zone where no biological presence was detected.

Taking into account these results and considering that it is a localized impact that only affects the area where the cleaning activities are being carried out, it is considered that the sensitivity of the receptor is low. Given that the affected area will be very small, the impact is considered to be brief because the bottom will stabilize in a short period of time and, if there is any benthic community in the area, it will be able to re-establish itself. In addition, it is an immediate and a short-term reversible impact and is likely to occur.

In view of the above, the impact is considered to be of minor magnitude, and therefore the significance of this impact is assessed as negligible or minor.

12.5.2. Operational Phase

During the operational phase, although the additional capacity obtained with the construction of the Unicargas terminal will result in an increase in shipping activity and more loading and unloading operations, due to the increase in the terminal's capacity, sediment mobilization is not expected to occur beyond that which is already occurring on a regular basis due to the ongoing operation of the Unicargas terminal and the other terminals currently active in the port of Luanda. Thus, the impact is considered to be of low magnitude and significance (negligible).

12.6. Soil

The Unicargas Terminal project involves the expansion of an existing and operational activity within an already urbanized area. From the perspective of geology, geomorphology, or topography, the project site has undergone significant alterations and no longer exhibits its original natural characteristics. Consequently, no impacts have been directly associated with these factors. It's worth noting that any potential impacts related to these factors may be reflected in the soil and sediments assessment, as they are dependent on these morphological parameters. Below, the impacts identified and assessed for soils are outlined.

12.6.1. Construction Phase

12.6.1.1. Impact-generating activities

During the Project's construction phase, since it encompasses the removal of nearly all pavement from the topside area, a large surface will rest bare. Although the Terminal area does not have any natural soil due to its already urbanized, excavation works will arise subsoil which will remain bare until pavement starts. This situation will increase the risk of any pollution incident, since the other main potential effect, loss of structure/compaction is not considered as soil's natural characteristics are already deeply disrupted. The main construction activities likely to affect soils in the topside area include:

- Demolition of existing buildings and sheds such as the warehouses, as well as the removal of nearly all plot surface pavement and subsequent terrain leveling. All these actions will imply excavations and removal of current surface, resulting in bare soil exposed to potential pollution.
- Movement and operation of vehicles and machinery: the movement of vehicles and the operation of machinery, at the work fronts or in transit, will also increase the risk of pollution. Typical construction vehicles, excavators, rollers, water trucks, etc. will run throughout the area, and will concentrate in the construction camp.
- Buildings construction and pavement of the Terminal: both actions will require again the use of machinery, equipment, etc.

The soil impact of these construction activities is described and evaluated below.

12.6.1.2. Impact Assessment – Construction Phase

Impact: Risk of soil pollution from construction activities

The referenced construction activities will result in a large extent of bare soil being exposed to potential pollution risk due to spillages or leakages. The use and maintenance of vehicles, machinery, and required equipment, as well as the improper storage or handling of hazardous materials, increase the risk of leaks or spills. Therefore, pollutants could reach any soil portion and contaminate it. Both the storage and use of fuel, chemicals, and sanitary provisions during the construction phase will introduce this risk of soil pollution.

Temporary construction camp will be the area where machinery and vehicles will concentrate, and where maintenance activities will take place, if it is not possible to do it outside, at official garages. Besides, waste storage area will be placed within, and all procedures related to their management will also be there, as well as materials and substances storage. The risk will be focused on those areas, although any accident could also occur in any work front because of wrong management of equipment, accident or negligence.

The increase of pollution risk will be localized although throughout a great part of the surface project's area. The magnitude of the impact is assessed as moderate although likelihood is occasional and good practices as well as preventive mitigation measures will be applied. The effects will appear immediate, will last for a temporary duration and will be reversible in the medium term. The temporary construction camp shall have all necessary safeguards for environmental protection and safety for workers and surrounding people, if any. However, a plan to avoid all these potential harmful spillages must be designed and workers must be instructed on it. On completion of the works, the campsite shall be suitable decommissioned, removing all construction debris, waste or scraps. Given that the sensitivity of the receptor is considered to be low, the impact is assessed as minor.

Impact: Potential contamination due to surface polluted soils appearance

The construction phase of the Development of Unicargas Terminal will involve the removal of nearly all pavement of the topside, surface which reaches 192,000 m^2. As detailed in 10.2.4.1 Soil Quality and Contamination Desktop and Visual Assessment there are several spots where potential sources of contamination were identified such as vehicles parked, products/substances storage, etc. In addition, at several soil sampling points, hydrocarbons spills were observed, as well as chemical substances and organic matter (see figure below).

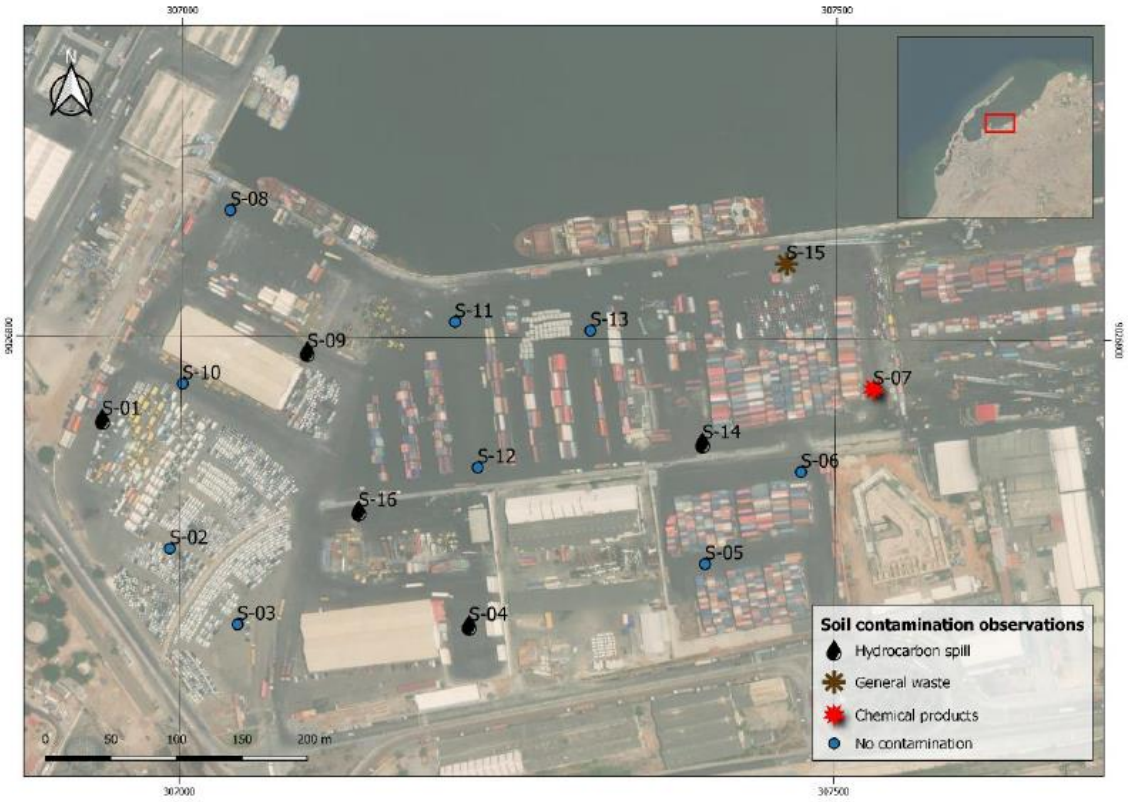


Figure 235. Soil contamination (by type) sighting at the soil sampling points throughout the project area. Source; Soil Quality and Contamination Desktop and Visual Assessment (elittoral, 2024)

Since the soil site survey identifies potentially contaminated areas, when removing pavement, those soil and pavement spots must be managed and disposed of properly, separate from the rest of the construction and demolition wastes. There is a potential risk of pollution if those contaminated materials are not managed, handled, transported, and disposed of correctly.

In addition, it must be checked if throughout the plot, at those sites where there are signs of potential soil contamination, the pavement is deteriorated, and pollutants could have reached the lower soil layers. If so, pollutants might spread to a wide area. Again, those soils/pavement might be considered as a hazardous waste, acting accordingly.

The effect is negative, localized, immediate, and can last for between 1 and 10 years (temporary). Since the likelihood of occurrence is seldom, and good practices as well as preventive mitigation measures will be applied, the impact is assessed as negligible or minor.

12.6.2. Operational Phase

12.6.2.1. Impact-generating activities

During the operational phase of the Project, no activities are foreseen to influence the soil. However, the project seeks the development and update of the current infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo. Consequently, during operational phase slightly larger vessels, in addition to a greater number of them, are expected at Luanda's Port. This increase in shipping operations will lead to a rise in the carriage of goods and materials, and thus, an intensification of land transportation.

Operational pavement/roads maintenance activities may also be more frequent, adding vehicles and machinery/equipment to be used.

It might be considered the risk of any spillage/leakage both from vehicles transit (goods and materials transport) and from vehicles/equipment/machinery of maintenance works. However, since these maintenance vehicles traffic and activities will be intermittent, sporadic as well as limited in nature, can be considered as having a negligible effect and thus not further assessed here.

The soil impact is described and evaluated below.

12.6.2.2.Impact Assessment – Operational Phase

Impact: Risk of soil pollution from operational activities

The increase of vehicular traffic may also increase the probabilities of any spillage/leakage accident within the Terminal area. Although the renovation of pavement will be accomplished, and thus the impermeability, there is a potential risk of pollution.

The increase of potential pollution will be negative, minor, localized, immediate, temporary, reversible in the medium term and occasional. However, the impact is assessed as minor since good practices as well as preventive mitigation measures will be applied.

12.7. Biodiversity

12.7.1. Preliminary considerations

First, it is important to mention that most of the impacts, particularly those affecting sediments, marine water, air quality and those impacts caused by noise will have a direct or indirect effect on biodiversity.

Considering the significant distance between the protected areas and the area under study (the Mussulo IBA is approximately 11 km away, and the Quiçama National Park and IBA are around 40 km away), the impact of the project works on them is considered to be negligible or not significant, given their typology and the fact that the terminal is already in operation.

In line with the above rationale, the potential impacts on the habitats included in the baseline established in section 10.3, are also considered null or non-significant impacts for the following reasons:

- In relation to the terrestrial habitat types defined by the International Union for Conservation of Nature (IUCN), most of the project area is in Urban habitat. As shown in the Figure 123 in chapter 10.3.2 and according to the information obtained from Imagery Layer by UNEP_WCMC_Data_Publisher, a small part of the project is located over tiles of *Temperate Desert* and *Dry Savannah* habitat.
  However, the project area is located within the Luanda port precinct, which is currently already in operation and which, as can be seen in the figure below, corresponds in its entirety to an urbanized and paved area, and where none of the terrestrial habitats listed above are present, except for the so-called *Urban area*.

Figure 236. Urban environment of the Unicargas Terminal. Google earth

Therefore, considering the habitats defined by the IUCN, there are currently no natural habitats affected by the Unicargas Terminal project since the area is located in an anthropized and already degraded environment.

- Considering the Natural and Modified habitats, as shown in Figure 127 (chapter 10.3.2) the mapping of which has also been obtained from UNEP_WCMC_Data_Publisher, the coastal area adjacent to the port terminal is classified as "Likely critical habitat", but it is also located in an area considered "potential modified" habitat.

  Despite this, at a much more local scale, as explained above and can be seen in Figure 236, the project area corresponds to an anthropized and degraded zone where no natural habitats are present as it is an existing and active port terminal. Therefore, no Likely or Potential Critical Habitats are considered to be affected by the Unicargas Terminal project.

  According to the results obtained in the ecological study carried out by Typsa-ellitoral to provide a detailed description of the fauna present in and around the Unicargas Project site, the neritic marine habitat adjacent to the northern boundary of the project corresponds to mud with no apparent biological presence, as indicated in Figure 167. Furthermore, the results of the sediment quality study in section 10.2.6.2, indicated a moderate to poor ecological potential, as the recorded concentrations of nitrogen and phosphorus exceeded the limits of the most favorable ecological potentials. Additionally, the presence of metals, with levels above the limit of quantification, of compounds derived from port activity, such as fats, oils, PAHs, TPHs, and PCBs and a redox potential that indicates that it is a poorly oxygenated area, limit the proliferation of more sensitive benthic organisms that require less polluted conditions, reducing the potential species diversity of the benthic community in the area.

- Regarding the Key Biodiversity Areas of Mussulo and Quiçama described in the baseline, as explained above for the protected areas, it is not considered that the actions of the project will affect the KBAs, given the great distance between them and the project area.
- The same applies to the Mussulo-Kwanza-Cabo Ledo Complex (Figure 129) which, as previously mentioned, is a significant seaward part of the existing Ramiros–Palmeirinhas Coastal Area EBSA. Although this is an EBSA that represents a very important role for a large number of species, the most relevant sites are sufficiently far from the area of influence of the Unicargas Project, located within the already anthropized and degraded port area of Luanda, so it is not expected that this EBSA will be affected by the project.

Finally, in relation to the flora species present in the project area, considering the information obtained from the Integrated Biodiversity Assessment Tool (IBAT) only the species *Inversodicraea cristata* and *Rotala smithii* were defined to be present in a 2 km area around the project, considered its zone of influence. However, on the one hand, according to the IUCN Red List of Threatened Species website, the habitat type of these species is inland wetlands, which clearly does not correspond to the area where the project is located. At this point it is important to note that the statistical data provided by IBAT give results within a buffer of 50 km around the area consulted, which may imply that, given that the area of influence of the selected project is much smaller (2 km buffer), many of the species that appear as present are not actually present. This applies to both flora and fauna species.

On the other hand, as already mentioned throughout this study and as can be seen in the Figure 236, the Unicargas Terminal project is located within the port of Luanda in a totally urbanized environment where most of the surface is paved, so the presence of vegetation, if any, would be scattered with species adapted

to anthropized environments that may appear sporadically. In conclusion, no impact on specimens of the two species present in the area of influence of the project is foreseen.

This fact has been confirmed through the ecological survey conducted within the scope of this project, precisely to determine the presence or absence of species of flora and fauna in the vicinity of the study area, in order to contrast the data from IBAT for the 50 km buffer with real data obtained in specific fieldwork, adapted to the reality of the environment and the port activities carried out therein.

In view of the above, the assessment of the impacts on the fauna species present in the study area will be carried out, but before proceeding with this evaluation, it should be noted that, according to the information received from IBAT, of the 27 species that have been defined as potentially present in the project's area of influence considering a buffer of 2 km (Figure 134), only 18 (all of them species present in neritic habitats) will be considered for the impact assessment as explained below. This is because, according to the IUCN Red List of Threatened Species website, the habitat types of some of the species are not found within the boundaries of the project. Thus, the following species will not be considered in the analysis of biodiversity impacts, which is included in the next sections:

- The two fish species Threespot Tilapia (*Oreochromis andersonii*) and Greenhead Tilapia (*Oreochromis macrochir*) only can be found in wetlands, while the last one can also be found in artificial marine water, which is not the case. For this reason, these 2 species will not be considered in the impact assessment.
- Of the 3 bird species potentially present in the study area, only the Atlantic Yellow-nosed Albatross (*Thalassarche chlororhynchos*) could be found in the area. The other two (*Terathopius ecaudatus* and *Polemaetus bellicosus*) correspond to species whose preferred habitats of distribution are mainly Forest, Savanna, Shrubland and Grassland. *Polemaetus bellicosus* also can be present in inland wetlands while only marine neritic habitats and urban areas are found in the area of influence of the project. Therefore, although these birds have a great capacity to move within their home ranges or dispersal areas, they are not considered to be potentially affected by the project, so these 2 species are not considered to be affected by the project.

  There are no records of nesting of the *Thalassarche chlororhynchos* in the area. Thus, no specific considerations regarding seasonal factors should be considered.

- Regarding the terrestrial mammal species potentially present in the area (*Acinonyx jubatus, Diceros bicornis, Phataginus tricuspis, Miopithecus talapoin* and *Cercopithecus mitis ssp. mitis*), none of them are considered to be affected by the project. On the one hand, the project area does not have any of the potential habitat types for the species mentioned, which are inland habitats such as forest or savannah, among others. On the other hand, the project is located within the enclosed area of the Port of Luanda, currently in operation and highly anthropized, so the possibility of any of these species using the area for any of their vital activities is negligible. Therefore, it is not considered that these species could be affected by the project, estimating a negligible or null impact on them.

- In relation to marine mammals, there is no potential impact on local species in the work area since all cetacean sightings are collected more than ten miles from the port, so the interior of the port of Luanda is not a transit area for marine cetaceans. It may be the case that one or more individuals of

a species may use the port area sporadically, but this is considered highly unlikely. Thus, no specific considerations regarding seasonal factors should be considered.

- Marine reptiles: the sea turtle breeding areas are far from the work area and would also be outside the Site. Thus, no specific considerations regarding seasonal factors should be considered.

- Finally, it is important to highlight that none of the species potentially present in the project area according to the most up to date bibliographic information available, have been detected during the *in-situ* identification study of both marine and terrestrial ecosystems, as well as the various species of fauna and flora that inhabit them, the ichthyofauna, and benthic habitats carried out by Typsa-ellitoral. The only exceptions have been *Rhinobatos* sp. and *Fontitrygon margarita* (*Dasyatis margarita*), which were both observed at the Mercado do Peixe Mundial.

  Other species classified as Vulnerable by the IUCN were identified in the fish markets, 2 of which (*Sardinella maderensis* and *Trachurus trachurus*) were not identified to be present in the area of influence of the project, but are recorded in Table 62 which shows the species classified as threatened (critically endangered, endangered, and vulnerable) in the 50 km buffer zone provided by IBAT. Finally, there are other species that are not even recorded in this table which are *Thunnus obesus, Pomatomus saltatrix, Decapterus punctatus* and *Chaceon maritae*. Interviews with fishermen during the surveys carried out as part of the study concluded that few fishing activities take place inside Luanda Bay, which could be the explanation for this.

12.7.2. Construction Phase

12.7.2.1. Impact-generating activities

The construction phase of the Development of Unicargas Terminal includes a wide range of construction activities necessary for the upgrading of the topside area and the rehabilitation and repair of the marine side elements. In terms of potential impacts, the main activities that could have effects on biodiversity are the following:

- Demolition of existing buildings, warehouses and workshops, removal of the surface pavement and subsequent leveling of the land, and the actual construction work will result in an increase in dust emissions, potentially affecting the vegetation and fauna present in the areas surrounding the works (if any).
- Movement and operation of vehicles and machinery: physical and chemical pollutants, such as dust particles, salt, heavy metals and other toxic agents are disturbances caused by construction machinery. The movement of vehicles and the operation of machinery can cause further degradation of vegetation units, is a source of potential contaminant leaks and spills to the soil and water and is also a source of light and noise emissions, as well as vibration. This, together with increased human presence, is expected to cause a disturbance effect on terrestrial and marine fauna, potentially causing displacement of wildlife or changes in their behavioral patterns, especially during the breeding and rearing of young, from areas close to the construction site. The movement of machinery and vehicles also increases collision risks with animals, with a consequent increase in the risk of fauna mortality.

- Works related to the rehabilitation and repair of the quay wall: the works to be carried out related to the replacement of the quay wall, including seabed cleaning, works to guarantee the concrete structure and recovery of metal guides, among others, will involve movement of sediments from the bottom with the consequent resuspension of fine particles in the water column. This may lead to an increase in pollution and degradation of water quality through higher levels of turbidity and sediment deposition, also considering the removal of potentially polluted marine sediments. Moreover, there is a potential risk of direct habitat destruction due to the direct loss of seabed, thus affecting the benthic communities inhabiting it.
- Increase in the presence of people: The presence of the workforce required for the construction work will lead to an increase in the generation of waste that could potentially affect the fauna and flora, especially important in the marine side.

These impacts are assessed in the following section.

12.7.2.2. Impact Assessment – Construction Phase

Impact: Effects on fauna and flora due to increased suspended solids

The increase of suspended solids in the water column due to the seabed cleaning activities necessary for the rehabilitation of the quay wall, as well as the consequent increase in turbidity, can affect the marine biota in various ways. increased turbidity reduces the penetration of light into the water column and, consequently, reduces the depth of the photic zone.

Resuspension of bottom materials can also result in the release of nutrients into the water column, which may benefit primary productivity, but can also release toxic compounds present in sediments. Usually, sediments located in ports with high volumes of commercial traffic present high levels of contamination. These cleaning activities have the potential to suspend and distribute these contaminated sediments, further stressing a possibly already compromised environment.

Foraging and predation are processes regulated by the quality and quantity of underwater light, as variations in water clarity can determine the balance between predator and prey.

In addition, the mechanical or abrasive action of sediments is harmful to organisms that feed by filtration. Very high concentrations can also suffocate the fish, clogging the gills. Larger particles can cause abrasion to the skin of the fish, removing the protective mucous membrane, thereby reducing its protection against parasites or disease.

Finally, sediment resuspension can lead to decreases in dissolved oxygen concentration, which can be critical for marine biota, especially in the warmer months when the oxygen level may already be relatively low due to high temperatures. Stress resulting from low oxygen concentrations can cause everything from reduced abundance of some species to episodes of mass mortality.

Given the potential presence of endangered species on the seaward side, the sensitivity is considered to be high, despite the relatively small area that will be affected by the quay wall works and the fact that the field survey noted that this area consisted of mud with no apparent biological presence.

The impact is temporary and reversible in the short term. Once work finishes the initial conditions will return. Although the seabed cleaning works related to the rehabilitation of the quay wall are located in a very specific

area, sediment dispersal may extend further afield, so the extent of the impact is partial as it partially affects the project area. The impact is likely to occur. The effect will appear immediately and will last for a brief time. Nature of the sediment's resuspension impact is negative but the magnitude is considered to be negligible, given the very localized cleaning works to be carried out and taking into account the fact that, as the results of the ecological survey carried out in the framework of this study reveal the project area where the restoration of the quay wall is to be carried out consists of a mud zone where no biological presence was detected.

The significance of the impact on the marine biota during the construction phase is, thus, assessed as minor.

Impact: Effects on fauna and flora due to sediment extraction

The extraction of sediments associated with seabed cleaning has a direct effect on the fauna present there, both those that live on the seabed and those that live inside the seabed, because together with the sediments, the organisms found in the affected area are removed. Furthermore, the effects of sedimentation of this material can have negative consequences on seabed biota. As an immediate effect, they can lead to the smothering of bottom biota.

During the field work of the study carried out by Typsa-ellitoral, only mud with no apparent marine biota was detected in the area where the cleaning is to be carried out. No protected species described in previous sections were observed in this area or at any of the sampling points on the seabed during the survey and mapping of the benthic habitat. However, the presence of fauna in the area cannot be discarded. Therefore, it is considered that, if marine fauna is present in this area, the sensitivity of the receptors will be low.

The impact is likely to occur, temporary and reversible in the short term; once work finishes, the initial conditions will return. The extent of the impact is localized as it only affects a specific area. The effect will appear immediately, will last for a brief time and will be reversible in a short period of time because both the bottom morphology and the benthic community in the area, if any, will stabilize in a short period of time. The nature of the sediment resuspension impact is negative, and the magnitude is minor, resulting in only a minor detrimental alteration of the marine seabed conditions.

The significance of the impact on the marine biota during the construction phase is, thus, assessed as negligible or minor.

Impact: Exclusion of fauna species due to increase of disturbance

All construction activities will result in increasing noise, movement and disturbance in general. This will result in disturbance of fauna species and consequent potential exclusion of fauna around the study area. This impact is especially relevant to more sensitive species and during breeding periods. However, as already mentioned, the project area is located within the Luanda port, currently in operation, where the movement of ships, trucks and other vehicles, loading and unloading activities and the continuous presence of people, constitute at present a source of disturbance to the fauna present in the study area.

As noise and vibrations are transmitted through water and air to areas further away from where the works are being carried out, it may potentially affect endangered species located further away, so the sensitivity of the impact is considered to be high. However, according to the ecological study included in section 10.3.4, there is no potential impact on the local endangered species considered in the assessment, as there are no records of nesting of the *Thalassarche chlororhynchos* in the area, all cetacean sightings are collected more

than ten miles from the port, so the interior of the port of Luanda is not a transit area for marine cetaceans and the sea turtle breeding areas are far from the work area.

In addition, it is important to highlight that none of the species potentially present in the project area according to the most up to date bibliographic information available, have been detected during the *in-situ* identification study carried out by Typsa-ellitoral. The only exceptions have been *Rhinobatos* sp. and *Fontitrygon margarita* (*Dasyatis margarita*), which were both observed, not during the marine campaigns, rather in visits made to the local markets, with specimens found at the Mercado do Peixe Mundial, indicating that it is a species commonly consumed in the country. Furthermore, during the surveys conducted as part of the study, it was concluded that few fishing activities take place inside Luanda Bay being most of them developed far from the project area.

The likelihood of impact is occasional, given that, although construction works will increase disturbance in the project area, the terminal is currently in operation and wildlife in the area is expected to be accustomed to disturbance from port activities. The impact is temporary and reversible in the short term. Once work is finished the initial conditions will return. The extent of the impact is total as it affects the entire project area. The effect will appear immediately and will last for a brief time. The nature of the impact is negative but considering that there is currently noise and disturbance to the wildlife present in the study area, the magnitude is considered to be negligible.

Therefore, the significance of this impact on the fauna is assessed as minor.

Impact: Possible introduction or spread of invasive species in the Project area

The construction works could lead to the unintentional introduction and spread of invasive aquatic species, a risk heightened by construction equipment transport between regions. Invasive species often impact local ecosystems by competing with native species for resources, altering habitats, and potentially disrupting local fisheries, which can harm biodiversity and local economies.

There are several points where invasive species introduction could occur, mainly through the movement of construction vessels, equipment, and materials that may carry non-native organisms. Ships, dredgers, and other construction-related equipment often accumulate biofouling organisms on their hulls, anchors, and submersible parts. These organisms may detach and establish themselves in the local waters, potentially disrupting native habitats. Excavating activities associated with seabed cleaning and sediment relocation can create opportunities for non-native organisms to spread. Organisms already present in the dredging equipment or relocated sediments might be introduced to new areas where they can become invasive, further altering local ecological balance.

Since this area is currently a highly degraded zone, serving as a berthing area for ships loading and unloading at the active terminal within an environment of maritime traffic and port activities, the impact is assessed as minor.

12.7.3. Operational Phase

During the operational phase of the project, the expanded Unicargas Terminal will provide additional capacity, leading to an increase in shipping activity, terminal throughput, and consequently, container transport via both sea and land. However, since the port is already active, with other terminals operating

within a similar time frame, no significant effects on fauna beyond existing conditions are anticipated. Therefore, this impact is considered to be of low magnitude and significance (negligible).

The permanent occupation of the seabed by the new quay wall structure will alter the characteristics of the seabed in the immediately adjacent area. However, based on the results of the ecological survey conducted, only mud without benthic biota was observed in the intervention area. As this area currently serves as a berthing zone for ships loading and unloading at the existing terminal, and is already highly degraded, the impact is assessed as low in magnitude and importance and is therefore considered negligible

In addition, once operational, the Unicargas Terminal will regularly interact with international shipping traffic, increasing the likelihood of invasive species introduction through continuous vessel movement and cargo handling activities. Ballast water discharge, shipping containers and other cargo components may introduce non-native organisms in the environment. Even terrestrial invasive species transported with cargo can enter local waterways and ecosystems.

In any case, it is important to note that all these activities are already ongoing, not only at the currently operational Unicargas Terminal but also across all terminals operating within the Port of Luanda. This constitutes a typical port activity environment. Therefore, as this does not represent a new situation impacting the environment, the impact is considered minor.

12.8. Landscape

12.8.1. Construction Phase

12.8.1.1. Impact-generating activities

The construction of the Unicargas terminal will involve several activities that will potentially affect the landscape of the project area. The works that are expected to have the greatest influence on the visual component during construction are related to the increase in the number of construction vehicles and machinery, the presence of cranes and auxiliary installations.

12.8.1.2. Impact Assessment – Construction Phase

Impact: Temporary degradation of landscape at worksites

As mentioned above, the increase in machinery, mobile vehicles and permanent elements during the construction phase will generate aesthetic impacts that will be limited to the construction areas. In any case, the area of the port that corresponds to the unloading terminal already has old buildings in a poor state of repair, surfaces with patched pavement, etc. Therefore, although the nature of the impact is negative, the magnitude is minor.

Given that only port personnel, both workers at the construction site itself and at neighboring terminals or ship personnel transiting through the area, will be able to observe these elements, it is considered that the receptors have a medium sensitivity.

The extent of the impact is total, as it affects the entire project area, and immediate. The duration of the impact, in global terms, is temporary, since it will be felt for a period equivalent to the construction phase. The impact is reversible in the short term, once construction is finalized, including the time for dismantling and removal of machinery and site installations, and is likely to occur.

The significance of the impact on the landscape during the construction phase is, thus, assessed as minor.

12.8.2. Operational Phase

12.8.2.1. Impact-generating activities

During the operational phase, the Project will generate visual impacts on the landscape due to the presence of new landscape elements, i.e. the new buildings and elements that conform the Unicargas terminal.

12.8.2.2. Impact Assessment – Operational Phase

Impact: Improved landscape appearance and distribution

The development of Unicargas terminal will consist of new buildings with a more contemporary profile than the existing ones. They will also be equipped with new technologies and a more modern and up-to-date layout. The surfaces will be paved in a regular way, which will give the space a cleaner view of the area. The new quay wall will have a renewed aspect and a more orderly appearance than at present.

The following figure includes a photograph depicting the appearance of most of the buildings and warehouses of the Unicargas Terminal in the current situation.

Figure 237. Current situation of buildings in the Unicargas Terminal. Source: Typsa's site visit (November 2023)

The figure below shows the final configuration of some of the offices according to the project to be developed.

Figure 238. Future design of buildings in the Unicargas Terminal. Source: Presentation of Development of Unicargas Terminal in Luanda Port (Indicative figures by DAR)

This, therefore, constitutes a positive impact of moderate magnitude, given the important change in the landscape that the new project represents in relation to the existing terminal. As mentioned above, only workers with access to the port will be able to observe these elements, so the impact is considered to be of medium sensitivity.

The impact is likely to occur, has a total extent, is immediate, the duration of the effect is permanent, and the effect is irreversible.

Therefore, the significance of the impact is defined as moderate.

12.9. Socioeconomic

The study area corresponds to the Unicargas terminal of the port of the municipality of Luanda, located in the district of Ingombota. In its immediate surroundings there are companies that carry out port activities, namely container, oil and food transport companies. In the immediate vicinity of the port there are two health units (Medline - Medical Assistance - 16 meters to the south and Clinica da Sagrada Esperança - 600 meters

to the east), an educational establishment associated with the port area (Academia Portuária de Luanda - 60 meters to the south-west). In addition, about 300 m from the Unicargas Terminal there are some housing areas belonging to the densely populated marginal area of Bairro da Boa Vista.

However, the Unicargas terminal is located within a closed port area with access control and strict security measures where only people and vehicles related to port activities have access. Therefore, the social impacts do not affect the population in general or the people living in the nearby neighborhood, as there is no free transit of people between the interior of the port and the surrounding area.

12.9.1. Construction Phase

12.9.1.1. Impact-generating activities

During construction works, as has already been highlighted in previous sections, main impacts to population are related to the increase of air pollution (including dust) and noise levels in terms of annoyances and detriment of air quality. However, given the circumstances previously explained, this section mainly refers to the possible environmental, health and safety risks that may affect the workers of the port of Luanda and, specifically, those responsible for carrying out the development of the Unicargas terminal project.

On the one hand, activities that will primarily affect workers include all activities involving the movement and operation of machinery, vehicles and equipment will imply the emission of pollutant gases, namely exhaust gases from the internal combustion engines, including CO, NOx, SO_2, volatile organic compounds (VOCs) and TSP, and fugitive dusts emissions (especially as roads are not paved in the area). In addition, these movements and operation will increase noise levels in the project area and adjacent zones.

On the other hand, in terms of Occupational EHS, all activities directly related to the construction process such as driving machinery and vehicles, the use of machinery/equipment for all uses, as well as the use of certain substances involve certain risks and can lead to accidents at work.

12.9.1.2. Impact Assessment – Construction Phase

Impact: annoyances originated by traffic diversions, traffic increase in local roads and disruption to utilities

Traffic in local roads will increment during construction phase since the transport of materials or workers movements will use the existing network.

In addition, disruption to utilities may be another annoyance for inhabitants. If any disruption of services is necessary, inhabitants will be properly advice, and services reestablished as soon as possible and in the same conditions.

Given the potential impact on people living in the surrounding areas, the sensitivity of the impact is considered to be high. However, since the port is currently operational, there is already vehicle traffic due to the economic activities carried out in the port, so no major variations are expected during the construction period of the Unicargas Terminal, so the magnitude of the impact is considered negligible.

Given that the residential area is quite far from the port and that other routes can be used for access to the work zone, the magnitude of the impact is minor but of a negative nature. The impact is temporary and reversible in the short term as, once the works are completed, the initial conditions will be restored. The effect

will be immediate, brief and likely to occur. Given that the impact affects a large area of the project, it is considered extensive.

The significance of this impact during the construction phase is, thus, assessed as minor or moderate.

Impact: environmental, health and safety risk for workers during construction phase

It should be noted that there is a potential impact on the health of employees and workers as a result of the risk of occupational accidents due to work performed, including general construction activities as well as the potential risk of fallings from height and into the sea water from the topside. International guidelines[41] should be the reference values against which compare and evaluate project's data.

Noise levels, gaseous emissions, vibrations, working at height, corrosive, oxidizing and reactive chemicals exposure/management, etc. include potential hazards for workers that must be avoided/minimized and controlled, since the project should avoid/reduce the number of accidents among workers (both directly employed or subcontracted).

The sensitivity of the receptor is considered to be medium, and the magnitude of the impact is moderate negative, as its repercussions could be severe, even fatal. The impact is also considered immediate, brief, with total extent, as an accident could happen anywhere around the project area, and reversible in the medium term, given that this depends on the type of risk faced by the workers. The likelihood is considered occasional.

The significance of the impact is moderate, as it is not certain and preventive measures and good practices will be applied to avoid the risk, as well as training courses for workers.

Impact: local/provincial economic growth by hiring local/provincial business

The accomplishment of the Unicargas terminal project will require hiring companies to proceed with work. This will impact on the local/provincial economy as companies will benefit from working in the area, as well as local people which will be employed. In general terms, investments and job creation will improve economic dynamics and benefits for the whole local/provincial area.

The construction phase will generate direct employment opportunities. Estimates provided by ADPG indicate that between 100 and 250 workers/day will attend the site during construction works, including specialized and nonspecialized workers. It should be noted that ADPG will not hire these workers directly, but instead will retain construction contractors, which will mobilize the adequate workforce.

Regarding vulnerable groups, while the Angolan Civil Code offers relative protections for these groups, it remains essential to ensure they can equitably access and benefit from the social advantages the project aims to deliver.

[41] *International Finance Corporation (IFC). Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution. 2007. International Finance Corporation (IFC). Environmental, Health and Safety Guidelines for Occupational Health and Safety. 2007.*

Apart from this direct impact of executing the project, there will be an indirect one in terms of secondary business profit. People employed in works will demand services in the area such as restoration or accommodation ones, that will indirectly improve local/provincial economy.

The sensitivity of the receptors is considered to be medium. The nature of this impact is positive, and its magnitude moderate although it will be temporary and reversible in the short term. The impact will be immediate, likely, as it is reasonably expected to occur, and the extent is considered to be total. The significance of the impact is assessed as moderate.

Impact: Potential presence of social conflicts due to the influx of migrant workers

An influx of people seeking work may occur because of anticipated job opportunities. The potential contractors will be either local or international contractors with a local presence. Most probably, a big portion of labor will be sourced from Luanda local market, but the influx of people looking for employment may be relevant. The influx of outside people seeking employment tends to develop behavior often disapproved of by the receiving local communities. These perceived antisocial behaviors may lead to resentment and friction between established residents and the incoming people.

Additionally, social conflicts may arise among the workers, leading to situations of harassment based on ethnic, religious, or gender issues. Research shows that in-migration is frequently linked to adverse social impacts, which can erode the social dynamics of host communities around project sites. The arrival of influx populations, who are away from their home communities and often seek new social outlets, can accelerate the introduction or intensification of behaviors like prostitution, gambling, alcohol abuse, and drug use. These issues carry particularly severe consequences for women and children in the community.

Cultural and social conflicts may emerge as external workers interact with locals, who often have different cultural norms. These conflicts are often linked to the increased presence and use of alcohol and drugs, as well as incidents of gender-based violence (GBV) and child abuse and exploitation (CAE).

This potential for increased community conflicts is a negative impact, which is assessed as direct, of short-term duration (construction phase), of regional extent and high intensity (as the disruption of the social dynamics can lead to relevant social disturbance), resulting in a medium significance. The impact is assessed as moderate.

Impact: Potential impact on fishing activities

As previously indicated, the main source of information on small-scale fishing in Luanda Bay is the article based on the research findings from the Luanda waterfront project titled “Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola),” authored by Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio, and Vânia Baptista. This study documents the small-scale fishing activities in Luanda Bay, providing key insights into local fishing practices and their economic impact. It is the first study to document these small-scale fishing practices, offering valuable insights into resource exploitation and the contribution to the local economy. As indicated, the legislation only allows fishing in the bay for subsistence (Aquatic Biological Resources Law No. 6-A/04 of October 8 of Ministry of Fisheries, Angola, 2004; Presidential Decree No. 41/05 of June 13 of Ministry of Fisheries, Angola, 2005). Moreover, according to Presidential Decree No. 28/15 of January 13 of Ministry of Fisheries, Angola (2015), the capture of mollusk bivalves is prohibited in closed areas of Luanda Bay.

Despite the importance of these activities for local livelihoods, they are often informal and not fully regulated, contributing to a lack of official data on the exact number of fishermen or the spatial extent of their operations.

It should also be considered that these are port waters, where there are usually police controls that force fishermen to interrupt their activities, urging them to fish in other locations. As indicated before, the predominant species targeted by fishermen (e.g., *Pomadasys jubelini, Mugil cephalus, Dentex spp.*, and various bivalves) and the fishing methods (line/hooks, trawl nets, and manual harvesting of bivalves) are mainly confined to the shallower and more inner areas of the bay. These areas are less likely to overlap with the deeper channels where dredging would occur. Moreover, the artisanal methods described in the study are adaptable and can be relocated temporarily if necessary.

Given the existing situation, the impact on fishing activities is minor in magnitude, though negative in nature. This impact is expected to be temporary and reversible in the short term, as conditions will be restored once the construction work is complete. Additionally, it is worth noting that fishing activities could be temporarily shifted to other areas within the bay during the project, minimizing disruption for local fishers.

12.9.2. Operational Phase

12.9.2.1. Impact-generating activities

The construction phase of the development of Unicargas terminal will increase the capacity of the existing terminal, which will result in an increase in the transport of cargo containers and shipping activity. Given that the current ship traffic is already high, not only in the Unicargas terminal but also in the other terminals of the port of Luanda, no negative impacts have been defined. However, a positive impact is expected in relation to the enhancement of economic development on a regional scale with the increase in commercial capacity and improved competitiveness that the new terminal will entail.

12.9.2.2. Impact Assessment - Operational phase

Impact: Enhancing global competitiveness and foster socio-economic prosperity across the region

The Unicargas terminal rehabilitation project is of strategic importance to Angola's economic development and maritime trade landscape. Thus, its main objective is to achieve maximum utilization of its capacity, to effectively respond to transport and development expectations by prioritizing infrastructure modernization, operational efficiency and sustainable development expanding global trade access, and stimulating economic growth across Central-West Africa.

With its rehabilitation, the Unicargas terminal is positioned as a state-of-the-art maritime facility capable of meeting the evolving demands of global trade and commerce and representing a transformative opportunity to propel Angola's maritime industry forward, enhance global competitiveness, and foster socio-economic prosperity across the region.

Additionally, the project is fully aligned with international best practices and regulatory requirements, particularly in environmental and social aspects, with the implementation of mitigation measures to minimize ecological harm and enhance environmental sustainability. The rehabilitation plan includes the removal of waste from the marine side and the adoption of modern sustainability initiatives, such as energy and water efficiency measures, in compliance with IFC requirements. Moreover, the integration of social impact

assessments, stakeholder engagement, and community development programs demonstrates a commitment to addressing social concerns and fostering inclusive growth, as per IFC guidelines.

The nature of the impact is considered to be positive, and the magnitude is major, given the potential regional economic development that the Unicargas Terminal project could entail. This development may affect different types of receptors, including those with high sensitivity, so the sensitivity is considered high.

Considering the above, the impact has a total extent with a medium-term timing, as the changes will need time to materialize, being also reversible in the medium term. The impact will also be permanent and likely to occur.

The significance of the impact during the construction phase is, thus, assessed as major.

12.10. Summary of impact assessment

The following is a summary of the impact analysis conducted. The significance of effects is determined by the combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project's impact value (change). In other words, it is the product of the impact acting on the receptor that results in an environmental effect.

	Phase	Potential Impact	Potential Impact Magnitude and Nature	Receptor	Receptor Sensitivity	Extent	Timing	Duration	Reversibility	Likelihood	Potential Impact Significance
Air quality	Construction	Dust generation	Moderate Negative	Sensitive Receptors adjacent to Port's limits and workers and Luanda´s Port users	Medium	Total	Immediate	Brief	Short term	Likely	**Moderate**
		Gaseous emissions	Moderate Negative	Sensitive Receptors adjacent to Port's limits and workers and Luanda´s Port users	Medium	Total	Immediate	Brief	Short term	Likely	**Moderate**
	Operational	Dust generation and gaseous emissions from maintenance works	Negligible Negative	Sensitive Receptors adjacent to Port's limits and workers and Luanda´s Port users	Medium	Localized	Immediate	Brief	Short term	Likely	**Negligible or minor**
		Dust generation and gaseous emissions from diesel engines used for the propulsion of ships, ship-based auxiliary engines, use of vehicles, etc.	Moderate Negative	Sensitive Receptors adjacent to Port's limits and workers and Luanda´s Port users	Medium	Total	Medium term	Permanent	Medium term	Likely	**Moderate**
Noise and vibrations	Construction	Construction Site Noise	Moderate Negative	Sensitive Receptors adjacent to Port's limits and workers and Luanda´s Port users.	Medium	Total	Immediate	Brief	Short term	Likely	**Moderate**
			Minor Negative	Marine species	Low	Extensive	Immediate	Brief	Short term	Likely	**Negligible or Minor**
	Operational	Terrestrial side (Cargo handling, vehicular	Moderate Negative	Sensitive Receptors adjacent to Port's limits	Medium	Total	Immediate	Permanent	Short term	Likely	**Moderate**

	Phase	Potential Impact	Potential Impact Magnitude and Nature	Receptor	Receptor Sensitivity	Extent	Timing	Duration	Reversibility	Likelihood	Potential Impact Significance
		traffic, loading/unloading of containers, etc)		and workers and Luanda´s Port users							
		Marine side (Vessels will raise in number and dimensions)	Minor Negative	Marine species (no protected or threatened fauna species are locate at Luanda's Port)	Low	Partial	Immediate	Temporary	Medium term	Likely	**Negligible or Minor**
Marine water quality	Construction	Water pollution due to an increase in suspended solids	Minor Negative	Marine water and Sensitive Receptors located far from the project area	High	Partial	Immediate	Brief	Short term	Likely	**Minor or Moderate**
		Water pollution due to accidental spillages during the execution of the works	Negligible Negative	Marine water and Sensitive Receptors located far from the project area	High	Localized	Immediate	Brief	Short term	Seldom	**Minor**
	Operational*										**Negligible**
Marine Sediments	Construction	Effects on fauna and flora due to increased suspended solids	Negligible Negative	Marine water and benthic flora and fauna	High	Partial	Immediate	Temporary	Short term	Likely	**Minor**
		Direct loss of seabed, modifying its morphology	Minor Negative	Seabed and benthic flora and fauna	Low	Localized	Immediate	Brief	Short term	Likely	**Negligible or Minor**
	Operational*										**Negligible**
Soil	Construction	Increase risk of soil pollution	Moderate Negative	Soil (mainly at temporary construction camp)	Low	Extensive	Immediate	Temporary	Medium term	Occasional	**Minor**

	Phase	Potential Impact	Potential Impact Magnitude and Nature	Receptor	Receptor Sensitivity	Extent	Timing	Duration	Reversibility	Likelihood	Potential Impact Significance
		Potential contamination due to surface polluted soils appearance	Minor Negative	Soil	Low	Localized	Immediate	Temporary	Medium term	Seldom	**Negligible or Minor**
	Operational	Soil pollution from operational activities	Minor Negative	Soil	Low	Localized	Immediate	Temporary	Medium term	Occasional	**Negligible or Minor**
Biodiversity	Construction	Effects on fauna and flora due to increased suspended solids	Negligible Negative	Flora and fauna	High	Partial	Immediate	Temporary	Short term	Likely	**Minor**
		Effects on fauna and flora due to sediment extraction	Minor Negative	Flora and fauna	Low	Localized	Immediate	Brief	Short term	Likely	**Negligible or Minor**
		Exclusion of fauna species due to increase of disturbance	Negligible Negative	Fauna (mainly birds and mammals)	High	Total	Immediate	Temporary	Short term	Occasional	**Minor**
		Possible introduction / spread of invasive species	Moderate Negative	Flora and fauna	Low	Partial	Immediate	Temporary	Medium term	Occasional	**Minor**
	Operational*										**Negligible**
Socioeconomic	Construction	Annoyance to inhabitants (traffic diversions, traffic increase in local roads and disruption to utilities)	Minor Negative	Population	High	Extensive	Immediate	Brief	Short term	Likely	**Minor or Moderate**
		Environmental, health and safety risk for	Moderate Negative	Workers	Medium	Total	Immediate	Brief	Medium term	Occasional	**Moderate**

	Phase	Potential Impact	Potential Impact Magnitude and Nature	Receptor	Receptor Sensitivity	Extent	Timing	Duration	Reversibility	Likelihood	Potential Impact Significance
		workers during construction phase									
		Local/provincial economic growth by hiring local/provincial business	Moderate Positive	Population	Medium	Total	Immediate	Temporary	Short term	Likely	**Moderate**
		Potential presence of social conflicts due to the influx of migrant workers	Negative Moderate	Population Workers	Medium	Total	Immediate	Temporary	Short term	Occasional	**Moderate**
		Potential impact on fishing activities	Negative Minor	Fishing Community	Low	Partial	Immediate	Temporary	Short term	Occasional	**Negligible**
	Operational	Enhancing global competitiveness, and foster socio-economic prosperity across the region	Major Positive	Population Workers	Very high	Total	Medium term	Permanent	Medium term	Likely	**Major**
Landscape	Construction	Temporary degradation of landscape at worksites	Minor Negative	Landscape	Medium	Total	Immediate	Temporary	Short term	Likely	**Minor**
	Operational	Improved landscape appearance and distribution	Moderate Positive	Landscape	Medium	Total	Immediate	Permanent	Irreversible	Likely	**Moderate**

* As mentioned in the section on impacts during operation, no significant changes are expected in this parameter due to the development Unicargas Terminal with respect to those already existing in the terminal currently in operation, given that, although the planned capacity will be greater than the current one, with the implementation of the preventive and corrective measures foreseen in this study, the situation is expected to remain similar. However, in the management plans, monitoring measures have been established to determine whether during the operation phase there are variations in the results obtained from the analysis of the data on the quality parameters collected during the field campaigns carried out within the framework of the project and which establish the baseline situation.

Table 111. Summary of impact assessment.

13. MITIGATION MEASURES

The environmental mitigation measures section consists of a set of actions to be undertaken during the construction and operational phases of the project. The measures planned will determine the resources and actions needed to avoid, mitigate, or reduce to acceptable levels the adverse environmental impacts identified.

These environmental mitigation measures shall be developed when works start, as well as all other measures that relevant authorities could add when reviewing the document during the EIA process. These measures shall be performed and shall be audited to determine their effectiveness:

- Measures intrinsically linked to development design.
- Standard Construction Practices for avoiding and minimizing environmental effects.
- Measures to comply with the requirements of environmental legislation.
- Measures designed to specifically address the remaining negative (adverse) effects of the final development proposals.

Mitigation strategies shall be based on Best Available Management Practices and Technologies, that will eliminate or minimize adverse impacts on health, safety, amenity, traffic, or the environment in the surrounding area.

In all applicable cases, during operation, the provisions of the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao), nº17200623232 of 24 October 2023 and valid until 23 October 2028, of the project named "Empresa Portuária de Luanda-Administraçao e Infra-Estrutura- Município de Luanda, Provincia de Luanda", granted by the Ministry of Environment of the Republic of Angola and operated by Empresa Portuária de Luanda E.P., must be complied with. The provisions of the Environmental Installartion License (Licença Ambiental de Instalação), nº17695475244 of 17 December 2024 and valid until 17 December 2027, must also be complied with. These licenses are contained in Annex 4 and Annex 13 of Volume III, respectively.

The National Waste Agency, in accordance with the powers granted under subparagraph g) of paragraph 1 of Article 5 of Presidential Decree No. 181/14 of 28 July, which approves the Organic Statute of the National Waste Agency; Having complied with the provisions set forth in Article 7 of Presidential Decree No. 190/12 of 24 August, which approves the Waste Management Regulations; Certifies that the Certificate of Compliance with the Waste Management Plan has been approved for the project Redevelopment of the Unicargas Port of Luanda by ADPG LUANDA – TERMINAL OPERATOR, LDA, Taxpayer No. 5002047810, facility located in Bairro Luanda, Ingombotas District, Municipality, Luanda Province, in accordance with the provisions outlined in the aforementioned legal documents. Upon issuance of the Certificate of Compliance with the Waste Management Plan, the waste minimization measures mentioned in this certificate must be complied with during the implementation of the Redevelopment of the Unicargas Port of Luanda project – Certificate No. 179C/ANR/2024 (Volume III Annex 12). Both the Solid Waste Management Plan of the Unicargas Multipurpose Terminal (*Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas*) and the Solid Waste and Effluent Management Plan of Luanda Port Company E.P (*Plano de Gestão de Resíduos sólidos e efluentes*), included in Annexes 5 and 6 of Volume III respectively, will be taken into account.

Furthermore, the Environmental Management Plan of the Port of Luanda (Plano de Gestão Ambiental Porto de Luanda) (2019), shall be adhered to (Annex 2 included in Volume III). In particular, as far as possible, the

general recommendations set out in the Environmental Policy Proposal for the Port of Luanda shall be followed, which include, among others:

- Promoting the rational use of natural resources specifically, water and energy, with an emphasis on reducing consumption and the use of renewable energies;
- Motivate the employees to grow in environmental awareness and the search for continuous improvement in our environmental prevention performance. performance;
- Encourage the port community to constantly improve its environmental performance in all its activities, products and services;
- Prevent pollution and minimize the significant environmental impacts of the activities.

Likewise, compliance with the Environmental Management Plan of the Unicargas Terminal, outlined in Annex 3 of Volume III, must also be observed, with its main objectives related to the project summarized as follows:

- Improve the environmental performance of the company
- Enhance infrastructure and promote the reduction of waste generated on the company's premises
- Reduce electricity consumption
- Reduce the consumption of potable water
- Decrease CO_2 and particulate emissions
- Improve the infrastructure of the company's wastewater sanitation system
- Decrease the quantity of accumulated industrial and electronic waste
- Improve the infrastructure for hazardous waste storage (used lubricating oil/oil filters/used batteries)

Additionally, an Environmental and Social Management Plan (ESMP) will be developed, which will encompass all these measures, as well as the monitoring systems for them, in order to assess their effectiveness and evaluate the need for implementing new measures, as stated in IFC Performance Standards.

13.1. General construction requirements

Before detailing the preventive and mitigation measures for the identified impacts on different factors, this section focuses on general work prescriptions during the construction phase. It includes general prescriptions that avoid or minimize impacts or risks affecting multiple factors.

13.1.1. Environmental Operational License (Licença Ambiental de Operaçao) for the Port of Luanda

Luanda's Port facility is granted with the Environmental Operational License (Licença Ambiental de Operaçao), according to the *Decreto Presidencial nº 117/20 de 22 de Abril sobre Regulamento Geral de Avaliaçao de Impactes Ambientais e Procedimentos de Licenciamento Ambiental*. It was approved in October 2023 and lasts until October 2028.

The document includes mitigation measures that apply to the operation of the Port, including the Unicargas Terminal, related to different parameters and which are attached in their full extent in Annex 4 of Volume III. Although they are not project-specific measures, the project must comply with them.

Some of the main measures of each type are included below, as well as some of the most applicable ones are mentioned in the following sections (air quality, noise, ...).

Air and Noise Protection Measures for Emission Control

- Promotion of solar and photovoltaic solar technologies for electricity and heat production at the company's facilities;
- Proper maintenance of the vehicle fleet should be carried out, reducing excessive emissions of gases and particles from vehicles and mobile generators;
- Maintaining noise levels within acceptable limits, and construction activities should, whenever possible, be limited to normal working hours. Whenever it is considered that acceptable limits will be exceeded or have been exceeded, silencers for machines and equipment and soundproof barriers should be installed at noise-producing locations; and
- Planning communication and information actions for the population regarding the possibility of activities generating higher noise levels.

Soils and Land Use

- All surfaces where fuels and potential pollutants are handled must be smooth and impermeable;
- Establish internal procedures regarding accidental spills and routing of contaminated soils or potentially absorbent material for proper disposal;

Water Management Prevention and Control Measures

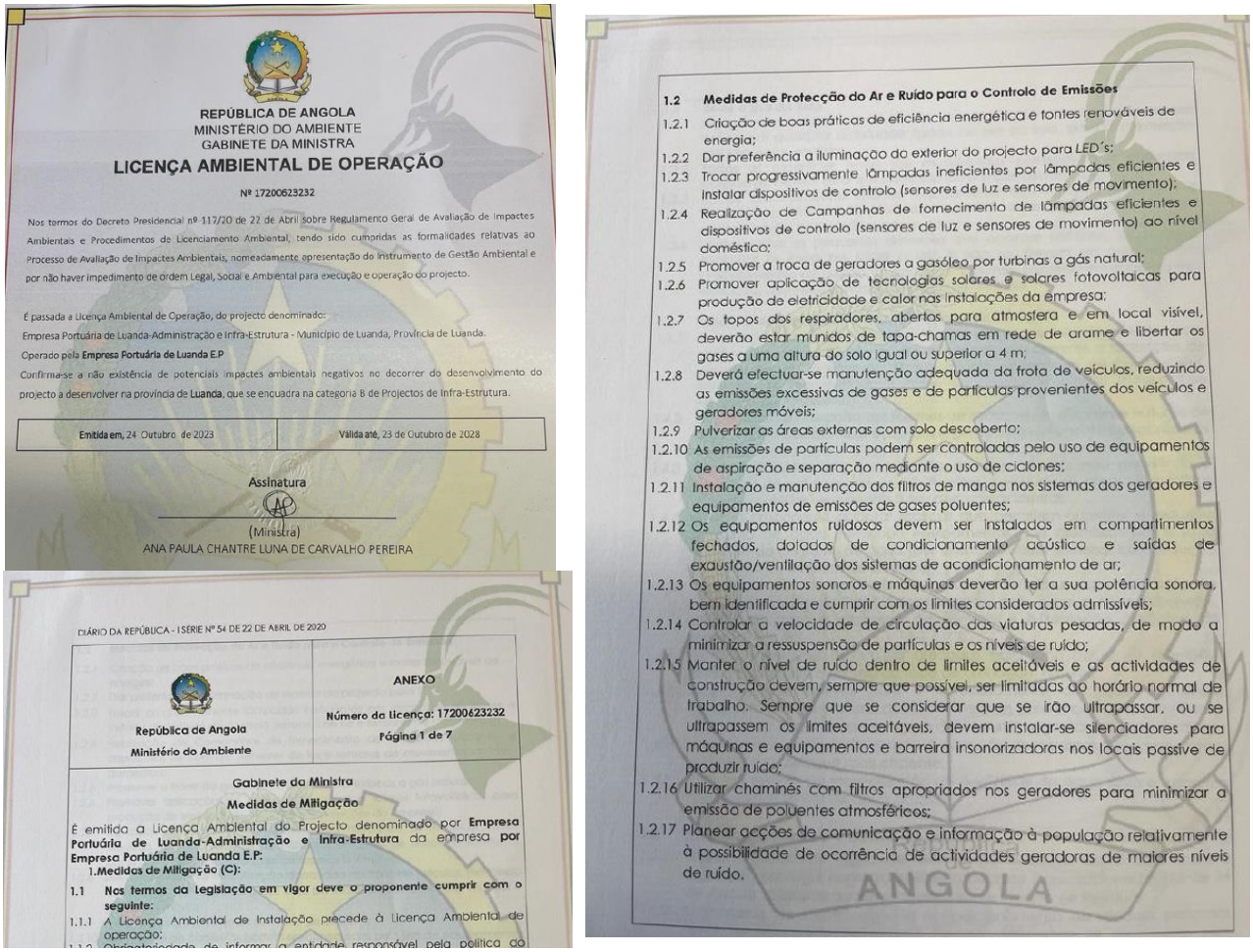
- Prevent potential water contamination by not allowing the discharge of pollutants (oils, lubricants, fuels, chemicals, and other materials) and avoiding their accidental spillage.

Waste Control and Management Measures

- Implementation of a Waste Management Plan, in accordance with current legislation, namely Presidential Decree No. 190/12 of August 24, regarding Waste Management Regulations;
- The identification and packaging of hazardous waste must be carried out in accordance with Decree 190/12 of August 24, without prejudice to the application of the National Health Regulations, Radiation Protection Regulations, to ensure their compliance and harmony with the principles and international standards assumed by the Country on hazardous waste management, as well as on the transportation of substances or hazardous products;
- Ensure that waste is placed in appropriate containers and directed to a suitable destination by licensed operators, not allowing this equipment to exceed 90% of their capacity;
- Ensure installation at all fuel, lubricant, or other chemical storage locations, whether handled or impermeable, and have drainage for adequately sized retention tanks.

Measures for Spill and Fire Protection

- Check the possibility of installing a lubricating oil pumping system, thus reducing the possibility of accidental spills, since mechanical systems are less prone to failure than human interaction;
- Implementation of a Fire Fighting Network composed of smoke detectors, fire hydrants, extinguishers, and others, with guidance from the National Civil Protection and Fire Service;
- It must be ensured that all locations where fuel, lubricants, or other chemical substances are stored or handled are impermeable and have drainage for adequately sized retention tanks to retain the maximum volume of liquid susceptible to being spilled.



REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE OPERAÇÃO

Nº 17200623232

Nos termos do Decreto Presidencial nº 117/20 de 22 de Abril sobre Regulamento Geral de Avaliação de Impactes Ambientais e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes Ambientais, nomeadamente apresentação do instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para execução e operação do projecto.

É passada a Licença Ambiental de Operação, do projecto denominado:
Empresa Portuária de Luanda-Administração e Infra-Estrutura - Município de Luanda, Província de Luanda.
Operado pela **Empresa Portuária de Luanda E.P**
Confirma-se a não existência de potenciais impactes ambientais negativos no decorrer do desenvolvimento do projecto a desenvolver na província de **Luanda**, que se encuadra na categoria B de Projectos de Infra-Estrutura.

Emitida em, 24 Outubro de 2023	Válida até, 23 de Outubro de 2028

Assinatura

(Ministra)
ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

DIÁRIO DA REPÚBLICA - I SÉRIE Nº 54 DE 22 DE ABRIL DE 2020

República de Angola
Ministério do Ambiente

ANEXO
Número da Licença: 17200623232
Página 1 de 7

Gabinete da Ministra
Medidas de Mitigação

É emitida a Licença Ambiental do Projecto denominado por **Empresa Portuária de Luanda-Administração e Infra-Estrutura** da empresa por **Empresa Portuária de Luanda E.P:**

1.**Medidas de Mitigação (C):**

1.1 **Nos termos da Legislação em vigor deve o proponente cumprir com o seguinte:**

1.1.1 A Licença Ambiental de Instalação precede à Licença Ambiental de operação;

1.2 Medidas de Protecção do Ar e Ruído para o Controlo de Emissões

1.2.1 Criação de boas práticas de eficiência energética e fontes renováveis de energia;
1.2.2 Dar preferência a iluminação do exterior do projecto para LED's;
1.2.3 Trocar progressivamente lâmpadas ineficientes por lâmpadas eficientes e instalar dispositivos de controlo (sensores de luz e sensores de movimento);
1.2.4 Realização de Campanhas de fornecimento de lâmpadas eficientes e dispositivos de controlo (sensores de luz e sensores de movimento) ao nível doméstico;
1.2.5 Promover a troca de geradores a gasóleo por turbinas a gás natural;
1.2.6 Promover aplicação de tecnologias solares e solares fotovoltaicas para produção de eletricidade e calor nas instalações da empresa;
1.2.7 Os topos dos respiradores, abertos para atmosfera e em local visível, deverão estar munidos de tapa-chamas em rede de arame e libertar os gases a uma altura do solo igual ou superior a 4 m;
1.2.8 Deverá efectuar-se manutenção adequada da frota de veículos, reduzindo as emissões excessivas de gases e de partículas provenientes dos veículos e geradores móveis;
1.2.9 Pulverizar as áreas externas com solo descoberto;
1.2.10 As emissões de partículas podem ser controladas pelo uso de equipamentos de aspiração e separação mediante o uso de ciclones;
1.2.11 Instalação e manutenção dos filtros de manga nos sistemas dos geradores e equipamentos de emissões de gases poluentes;
1.2.12 Os equipamentos ruidosos devem ser instalados em compartimentos fechados, dotados de condicionamento acústico e saídas de exaustão/ventilação dos sistemas de acondicionamento de ar;
1.2.13 Os equipamentos sonoros e máquinas deverão ter a sua potência sonora, bem identificada e cumprir com os limites considerados admissíveis;
1.2.14 Controlar a velocidade de circulação das viaturas pesadas, de modo a minimizar a ressuspensão de partículas e os níveis de ruído;
1.2.15 Manter o nível de ruído dentro de limites aceitáveis e as actividades de construção devem, sempre que possível, ser limitadas ao horário normal de trabalho. Sempre que se considerar que se irão ultrapassar, ou se ultrapassem os limites aceitáveis, devem instalar-se silenciadores para máquinas e equipamentos e barreira insonorizadoras nos locais passíve de produzir ruído;
1.2.16 Utilizar chaminés com filtros apropriados nos geradores para minimizar a emissão de poluentes atmosféricos;
1.2.17 Planear acções de comunicação e informação à população relativamente à possibilidade de ocorrência de actividades geradoras de maiores níveis de ruído.

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Figure 239. Views of Licença Ambiental de Operaçao of Luanda's Port.

13.1.2. Limit of works delimitation and site layout

Prior to the commencement of the works, it will be verified that the construction site conforms to the planned working space without exceeding the limits of each zone.

The work areas will be marked off, preventing access to non-operating personnel, and will be provided with warning and dissuasive signage. The sensitive or interesting elements or sites (utilities, infrastructures) will be marked on plans and identified with marks on the ground. All signaling on site will adhere to local regulations and specifications.

13.1.2.1.Temporary construction facilities

As mentioned previously, in the construction phase the footprint also includes ancillary infrastructure such as temporary facilities and workshops. Waste storage and other auxiliary facilities will be located in these zones. These ancillary infrastructures will be located south of the plot. The figure which shows the preliminary location is included in the Waste Management Plan included in the ESMP (Volume III).

13.2. Air quality

The measures outlined below are established based on the considerations included in the document "World Bank Environmental and Social Framework," World Bank, Washington, DC (2016), which mentions the

following regarding Environmental and Social Standard 3 - Resource Efficiency and Pollution Prevention and Management:

In addition to applying resource efficiency and pollution control measures as required in this ESS, when the project has the potential to constitute a significant source of emissions in an already degraded area, the Borrower will consider additional strategies and adopt measures that avoid or minimize negative effects.

In this sense, regardless of the pre-existing levels of pollution in the project area, which is a heavily anthropized area, measures are established to prevent any additional pollution related to the project and to observe good construction practices, making the construction phase a sustainable and environmentally respectful activity.

13.2.1. Construction phase

13.2.1.1. Reduction of air pollution/dust emissions

Connected to the use of equipment and machinery maintenance, several actions shall be implemented:

- To reduce air pollutant emissions from point and mobile sources, a preventive and regular maintenance program shall be undertaken to ensure that machinery and vehicles are in good condition throughout the duration of the project construction phase and meet both national and international emission standards[42].
- Use fuel-efficient equipment and vehicles, such as electric or hybrid-powered machinery and vehicles, to minimize emissions during construction and operation activities at the terminal.
- In addition, to ensure fuels will be burned more efficiently machinery and vehicles may be used according to manufacturer's specifications.
- All owners or operators of non-road engines equipment and vehicles must ensure that they undertake appropriate emission-related maintenance and keep the certificates on site for inspection.
- Furthermore, drivers should be instructed on practices that reduce fuel consumption (and risk of accidents) through speed limits and measured acceleration.

Additionally, the burning of waste is strictly forbidden as well as any kind of bonfire.

Referred to dust emissions, the following measures shall be implemented:

- Dust generating materials stockpiled and transported shall be covered with suitable sheets or dampens with water to prevent disposal of particulates.
- At worksites, internal pathways and or streets near worksite if needed, irrigation with water shall be done.
- Heavy trucks transporting construction materials (such as sand, soil and gravel, etc.) will not be loaded to full capacity. A free edge of approximately 0.2m will be kept avoiding spills during transport.
- Setting appropriate speed limits onsite during construction phase.

[42] *No Air Emissions Standards are legislated in Angola. IFC Environmental, Health and Safety Guidelines - Air Emissions and Ambient Air Quality, stablishes the WHO global air quality guidelines (Particulate matter-PM2.5 and PM10-, ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide), World Health Organization 2021 https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf#page=45&zoom=100,78,362 shall be used as reference standards / guideline values.*

- Working actions involving major earthmoving shall be carried out on days when wind strength does not pose a high risk of dispersion. Those activities, such as loading and unloading of powdery Material, must be interrupted during high wind conditions.
- To prevent the removed material dispersion due to the wind, stockpiling shall be made into covered piles or keep it constantly damp, thus avoiding the basting of the finer materials.
- The loading and unloading of powdery material must be carried out at a height of less than 1 meter from the point of unloading. The stockpiling of easily dispersed powdery material will be carried out in areas protected from the wind so that its dispersion is significantly prevented.
- All dust generating activities and all dust generating equipment shall be located as far as possible from potential receptors. The distance from receptors to dust emission sources (stockpiles etc.) shall be maximized, with consideration of prevailing wind direction.
- Dusty materials shall be removed from construction/dismantling sites as soon as possible.
- Tidy storage of materials and machinery. Site perimeter shall be kept clean.
- The circulation routes for construction vehicles will be adequately planned to minimize, as much as possible, crossing through, or passing nearby, residential areas. Loaded trucks to or from the working area will avoid heavily travelled or residential roads.

13.2.2. Operational phase

13.2.2.1. Reduction of air pollution/dust emissions

Several recommendations exposed briefly below, exceed project's dimension, having a wider scope (Luanda's Port and even International Regulation/Recommendations scope of action).

- Regarding Ship Operations while in port areas[43], management procedures (including GHG emissions) might be applied, as well as to avoid, minimize and control combustion emissions related to land-based activities. Among others, control measures such as validating ship engine performance documentation and certification to ensure compliance with combustion emissions specifications, and/or the decrease of ship propulsion power in port access areas might be considered.
- In addition, land vehicles and equipment might be upgraded, when necessary, with low emission vehicles, alternative energy sources and/or fuels/fuel mixtures. STS cranes considered for the project are electric, while RTGs are hybrid type.
- Existing cargo transfer equipment, (cranes, forklifts, trucks…) might have a correct maintenance, and encourage the reduction of engine idling during on and off-loading activities.
- During episodes of poor air quality conditions in the area/city of Luanda, loading/unloading activities might be reduced in order to not contribute to worse conditions.
- When handling dry bulk materials, managing fugitive dust, covering storage and handling areas, as well as transport vehicles, will be recommended. Also, cargo pile heights might be minimized, establish any kind of wind defense and remove the materials from the bottom of piles so dust re-suspension is minimized.

[43] *Environmental, Health, and Safety Guidelines Port, Harbors, and Terminals. IFC, February 2017. World Bank Group.*

- Luanda's Port Environmental License (included in Annex 4, Volume III) include several measures to control emissions which might also be adopted at Unicargas Terminal such as promote the replacement of diesel generators with natural gas turbines, or solar/photovoltaic technologies to produce energy.
- The Terminal layout has been considered, as a design preventive measure, the minimization of distances and transfer points, from ships off-loading and on-loading facilities to storage areas.
- Although monitoring will be detailed in a separate document, Air Quality and Noise Management Program, it must be highlighted that additional mitigation measures might be implemented if quality standards are constantly surpassed.

13.3. Noise & Vibrations

13.3.1. Construction phase

13.3.1.1. Reduction of noise and vibrations emissions

Although the works contemplated in this project are carried out in a port area, which constitute a noisy environment, the following preventive and mitigation measures are proposed which are focused on reduction of noise at point of generation, containment of noise generated and protection of surrounding noise-sensitive receptors.

- First, a correct equipment and vehicles maintenance program, which will include appropriate noise suppression equipment when needed (according to applicable noise standards[44]).
- During the construction phase, only approved vehicles and machinery will be employed.
- All the vehicles and machinery will work properly avoiding malfunctioning of the engine, transmission, bodywork and other components that could increase noise levels.
- Equipment will be serviced regularly and operated as per the manufacturer's specifications.
- Service and maintenance certificates as per manufacturers specifications to be maintained on site for inspection.
- Engines will be enclosed wherever possible.
- Temporary noise barriers to reduce the increase of levels that will pose a negative impact on adjacent residential areas. Mobile acoustic barriers can reduce values up to 15 dBA.
- The speed limit within the project site might be reasonable to reduce noise in the area.
- In addition, it must be highlighted that all construction activities causing noise will comply with EHS Guidelines. Noisy work will be avoided during night-time, limiting high generating noise works to daytime. Night-time noise values will be specifically controlled to comply with the standard values (70dB). However, planning activities in accordance with the local community might be beneficial in order to schedule the greatest potential generating noise activities during periods that will result in the least disturbances.

[44] *Set forth in Angolan legislation and at IFC Environmental, Health and Safety Guidelines - Noise Management, the Guidelines for Community Noise, World Health Organization (WHO) 1999 https://www.who.int/publications/i/item/a68672 shall be used as reference standards / guideline values.*

- Loading and unloading processes shall be carried out without direct impact on the ground, both vehicle and of the pavement, and the noise produced by the movement of the load during the journey shall be avoided. If necessary, simultaneous operation of the noisiest machinery shall be avoided.
- Adequate distance between source and noise-sensitive element. Position any stationary equipment that produces high noise levels as far as is practical from sensitive receptors. Generators will be located inside working area, away from worker facilities such as canteens, offices, ...
- Truck drivers and equipment operators will minimize the use of horns.
- Any noise complaint will be addressed and resolved through the Project's GRM, will be investigated and resolved through adequate mitigation, to be defined case by case, but following best practices in terms of noise mitigation, i.e., first acting on noise source (by stopping the activity or using less noisy technologies or methods), then on the noise propagation path (by installing temporary noise screens or similar action) and then, and only if no other option is available, on the noise receptor. Communication action which may inform about the noise generating activities to carry out might be foreseen and accomplished.

13.3.2. Operational phase

13.3.2.1. Reduction of noise and vibrations emissions

Regarding what is specified in the Environmental Operational License of Luanda's Port, the noisiest equipment might be in enclosed spaces. All equipment, machinery and vehicles used must comply with its threshold value references and be updated with their maintenance program.

The correct paving of the different areas, as well as machinery to use will also limit noise and vibration levels in the Terminal's area. Again, substituting diesel engines with electrical power, insulating machinery or reducing noise from warning bells, etc. will contribute too.

Referring to marine noise, mitigation measures are related to ship and propeller design. Main components of URN are generated from the ship design (i.e. hull form, propeller, interaction between both, and machinery configuration), operational adjustments and maintenance measures should be considered as ways of reducing noise for both new and existing ships. The establishment of low power propulsion zones near the Port might be established.

Finally, the following Noise Protection Measures for Emission Control contained in the Environmental License of the port of Luanda (refer to Annex 4 of Volume III) shall be applied:

- Noisy equipment should be installed in enclosed compartments, equipped with sound conditioning and exhaust/ventilation outlets from air conditioning systems.
- Sound equipment and machines should have their sound power properly identified and comply with acceptable limits.
- Controlling the speed of heavy vehicle circulation to minimize particle resuspension and noise levels.
- Maintaining noise levels within acceptable limits, and construction activities should, whenever possible, be limited to normal working hours. Whenever it is considered that acceptable limits will be exceeded or have been exceeded, silencers for machines and equipment and soundproof barriers should be installed at noise-producing locations.

As already said in air quality section, although monitoring will be detailed in a separate document, Air Quality and Noise Management Program, it must be highlighted that additional mitigation measures might be implemented if quality standards are surpassed.

13.4. Marine Water Quality

13.4.1. Construction phase

First, as outlined in the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017), several recommendations related to dredging techniques are provided to minimize the potential negative impacts of dredging on marine water quality. As noted in previous sections, seabed cleaning tasks necessary for the rehabilitation of the quay wall can have effects similar to dredging in certain respects. Therefore, the guidelines' recommendations are included here for reference:

- Several dredging methods (grab, backhoe, trailing suction hopper, cutter suction and water injection dredgers) are commonly used depending on the depth of the sediments, and to address site specific environmental concerns. Excavation and dredging methods should be selected to minimize suspension of sediments, minimize destruction of benthic habitat, increase the accuracy of the operation (to minimize impacts to areas adjacent to dredging zones), and maintain the density of the dredged material, especially if the dredge area includes contaminated materials.
- Consideration should be given to the rate of removal of material, as slower dredging speeds may reduce impacts; changing dredging schedules based on tide, wind, and background/natural turbidity to minimize effects due to increases in turbidity levels; avoiding “overflow” during the transport of dredged material.
- Additional techniques and equipment to minimize adverse impacts on aquatic life from dredging and the re-suspension of sediments, include (where practicable) barriers/sheet piles, silt or bubble curtains/screens, and contained sediment transport systems (e.g., pipeline placement).
- Inspection and monitoring (such as feedback or adaptive monitoring) of dredging activities should be conducted regularly to evaluate the impact of operations, the effectiveness of mitigation measures, and the need for technical adjustments to avoid and minimize impacts to identified sensitive aquatic receptors. The frequency of monitoring should be determined based on-site specific considerations.

Additionally, the following measures are proposed to avoid, as far as possible, the resuspension of particles in the water column and thus avoid an increase in turbidity, due to the works for the rehabilitation and repair of the existing quay wall.

- The works will be carried out under appropriate climatic conditions (mainly considering the wind), avoiding as far as possible an increase in fines dispersion and thus favoring the sedimentation of particulate matter and the recovery of pre-operational conditions in a shorter period.
- The dates on which the cleaning activities are to be carried out must be communicated in advance of the start of the operations to each of the bodies and administrations that may have competence in the matter. The duration of these operations will be planned to reduce, as far as possible, the intervention time of vessels and machinery on the environment.
- For added assurance, there will be continuous visual monitoring during the works, so that if an unusual plume of turbidity is detected, work can be halted, and necessary measures applied.

Furthermore, the following measures are proposed to avoid possible polluting discharges from both the machinery used during the works and from other sources present on the construction site.

- Temporary stockpiles of excavated materials and products used during the works will be located in areas where they cannot be washed away by water and where contamination of marine waters is avoided.
- Materials from concrete (concrete and substances from the washing of tanks) must not be dumped into the sea. Specific places will be defined for the washing of tanks outside the works area, in a space also set aside for this purpose, which will also have the necessary primary purification systems.
- Special care must be taken in the execution of pavements to avoid possible contamination of the water by accidental spillage of waste.
- Accidental spills of oils and fuels will be removed by the usual methods (suction pumps).
- The necessary means and facilities will be available for the cleaning of the water with the necessary equipment for the collection of solids, collection of hydrocarbons, oxygenation system and system for the application of dispersants. This will comply with the international regulations in force on marine pollution due to discharges of products or materials from port operations, as well as dirty water and waste from ships (Oslo and Paris Conventions, London and Marpol), as well as with the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao) nº17200623232.
- The direct discharge of wastewater from construction sites or other installations directly into the sea is strictly prohibited. Such discharges must be connected to the sewage system. If this is not possible, prefabricated and closed systems shall be installed.
- The use of vessels and auxiliary means for seabed cleaning operations must comply with the regulations in force regarding the discharge of hazardous substances from vessels into the sea.

13.4.2. Operational phase

Although the impact during the operational phase has been considered negligible, the measures outlined below are derived from reference documents applicable to the port of Luanda in general and the Unicargas terminal in particular. These measures aim to avoid, prevent, reduce, or rectify actions or situations that may contribute to an increase in pollutant concentration in marine water.

According to the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017), port operators should provide collection, storage, and transfer and/or treatment services, and facilities of sufficient capacity and type for all wastewater generated by vessels at the port in accordance with MARPOL and national regulations, including the following:

- Oily waste and wastewater should be collected in barges, vehicles, or central collection systems and storage tanks. The capacity of oily waste collection should be established based on applicable MARPOL provisions.
- Wastewater with noxious chemicals from bulk tank cleaning should be collected through appropriate on-site or off-site treatment prior to discharge. Incompatible substances should not be mixed in the collection system. Treatment methods should be established based on the effluent characteristics.
- Ports should provide ship operators with details on the pertaining ballast water management requirements, including the availability, location, and capacities of reception facilities, as well as with information on local areas and situations where ballast water uptake should be avoided.

- Port facilities that conduct cleaning or repair of ballast tanks should be equipped with adequate reception facilities able to prevent the introduction of invasive species. Treatment technologies may include those applied to other effluents accepted in port reception facilities or more specific methods such as filtration, sterilization (e.g., using ozone or ultraviolet light), or chemical treatment (e.g., biocides).
- Sewage from ships should be collected and treated on-site or off-site according to the recommendations provided in the General EHS Guidelines.

The recommendations of the IFC Environmental, Health, and Safety Guidelines for Shipping (2007), which include, among others, measures on environmental issues associated with maritime transport operations, will also be considered. In this regard, among other measures, the following should be implemented:

- Regarding petroleum and hazardous materials management,
  - Prepare and implement spill prevention procedures for bunkering activities in port and at sea,
  - Require Operational certification of the ship according to applicable requirements depending on the purpose and capacity of the vessel, etc.
- In relation to Wastewater and Other Effluents,
  - For vessels operating in coastal waters, all black water should be collected in holding tanks onboard and delivered to port reception facilities for further treatment at land-based wastewater treatment plants, in accordance with international regulations and guidance.
  - After unloading chemical tankers, water used to wash the cargo tanks should be discharged to reception facilities ashore.
  - All bilge water separated oily residues, and sludge should be discharged to port reception facilities, except where ships are equipped with certified oily water separators (OWS), which may discharge treated water to sea in accordance with MARPOL 73/78 provisions.

In addition, the applicable measures contained in the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao) will be considered, mainly those included below. The complete list of measures is contained in Annex 4, Volume III).

- Prevent the potential contamination of the water environment by not allowing the discharge of pollutants (oils, lubricants, fuels, chemicals and other materials) and avoiding their accidental spillage.
- Hydrocarbon separators will be implemented for the separation of the aqueous fraction from the fraction contaminated with oils and hydrocarbons thus allowing the discharge of the former and the periodic removal of the second fraction.
- Periodic inspection and maintenance of the sewage piping system to the hydrocarbon separator or to septic tanks.
- Check the possibility of installing a pumping system for lubricating oils, thus reducing the possibility of accidental spills.
- Measures should be taken for the containment/retention of potential spills, considering the amount of fuel stored on site, contingency kits should be made available in all areas susceptible to incidents, and a training plan should be implemented so that response and incident personnel are prepared in the event of a spill.

- Ensure that all locations where fuel, lubricant or other chemical tanks are installed, as well as all areas where they are handled, are waterproof and have a drain to adequately sized holding tanks to contain the maximum volume of liquid that can be spilled.

In the same way, the measures that apply contained in Annex VII of the Environmental Management Plan of the Port of Luanda (Plano de Gestão Ambiental Porto de Luanda) (2019) must be complied with, especially those related to the procedures for waste management on vessels, vessel refueling procedures and procedures for the management of dangerous goods, including:

- Ensure that during and after waste collection operations at the quayside and on berthed vessels, all waste unintentionally discharged during operations is removed/cleaned and collected without causing harm to public health and environmental quality.
- Guarantee the treatment and transportation of collected waste to its final destination.
- Before starting to refuel operations, which should always be carried out as quickly as possible, the tanker engine should be stopped and should not be restarted until the operation has been completed and it has been checked that all openings and pipes are properly closed.
- It is expressly forbidden to smoke or, in any way, to produce or use any flame or fire during refueling operations within a radius of 5 meters around the place where the operations are being carried out, as well as the use, for any purpose, of metallic tools susceptible to cause sparks;
- During refueling operations, there shall always be a fireman near the fuel outlet valve, equipped with a fire extinguisher, so that, in the event of a fire alarm, he can immediately activate and close said valve and that of the vehicle, and disconnect the hose;
- The bunkering of vessels is subject to the prior authorization of the Port Authority, which may recommend the adoption of special safety measures depending on the type and location of the bunkering.
- Conveying, pumping and transferring equipment, as well as flexible equipment and devices for cutting and measuring supply flows, must be duly certified by a competent body, recommending compliance with the respective national and international standards to avoid mechanical and structural failures;
- The supplying company is responsible for any spillage of products to soil or seawater and must be properly prepared, in terms of procedures and equipment, to contain a spill of reasonable size for its type of operation, product and capacity;
- In relation to dangerous goods, only those for which the terminal's facilities and resources are adequate and compatible with its port operations should be handled. In addition, fire and spill prevention equipment should be available at the terminal and/or on the ship.

Likewise, the measures contained in the Environmental Management Plan of the multipurpose Unicargas Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas) will be applicable, which include, among others, the following:

- Establishment of containment barriers to protect the marine environment.
- Establishment of periodic Maintenance Plan for the means.
- Develop an environmental risk prevention program.
- Creation of maintenance pits for oil containment

Finally, in relation to waste management, all the applicable provisions contained in the Solid Waste and Effluent Management Plan (Plano de Gestão de Resíduos sólidos e efluentes) for Luanda Port Company E.P., July 2022" and the one included in the project ESMP must be complied with.

13.5. Marine sediments

13.5.1. Construction phase

This section includes a series of measures to avoid or reduce the resuspension of particles in the water due to seabed cleaning activities during the construction phase, as well as to avoid dispersion of particulate matter:

- The work shall be carried out in suitable weather conditions (mainly considering the wind), avoiding as far as possible an increase in the dispersion of fines and thus favoring the sedimentation of particles and the recovery of pre-operational conditions in a shorter period. As soon as an increase in turbidity is detected in areas far from the immediate surroundings of the tailings, they shall be stopped until the situation returns to normal.
- Use the appropriate means (material extraction system) that cause the least possible re-suspension of sediments in the environment. The overloading of the deposits should be avoided to prevent the overflow of materials.
- The duration of these operations shall be planned to reduce, as far as possible, the time of intervention of vessels and machinery on the environment. The dates on which the cleaning work is to be carried out must be communicated in advance of the start of the operations to each of the bodies and administrations that may have responsibilities in this matter.
- Whenever possible, anti-dispersion barriers will be used to prevent the possible dispersion of fines and minimize or eliminate possible effects outside the immediate vicinity of the works.
- Given the direct relationship between the quality of water and marine sediments, all the measures applied to water in the previous section are equally applicable to sediments.

13.5.2. Operational phase

Despite the fact that during the operation phase it is not considered that there will be any significant impact on marine sediments, the application of the recommendations and measures contained in the IFC General EHS Guideline, the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017) Guidelines, the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao), Solid Waste and Effluent Management Plan (Plano de Gestão de Resíduos sólidos e efluentes) for Luanda Port Company E.P, the Environmental Management Plan of the Port of Luanda (Plano de Gestão Ambiental Porto de Luanda) and the Environmental Management Plan of the multipurpose Unicargas Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas) will have a positive repercussion on marine sediments. In particular, the same highlighted measures for water quality apply.

13.6. Soil

13.6.1. Construction phase

This section includes several measures to avoid or reduce the risk of soil pollution due to any leakage/spillage which could happen during construction phase. In addition, considerations regarding controlling and organizing waste management properly to minimize potential contamination are also included.

- Machinery must be properly maintained to keep potential leaks in check.
- A suitable area will be set aside for equipment and machinery maintenance operations. This area shall be waterproof, to avoid potential pollution due to fuels, oils, etc. spillages, and have a specific collection zone.
- To avoid the risk of accidental pollution around the area designated for storing and parking machinery, a network perimeter drainage for retaining the surface water runoff around shall be built before the start of work operation.
- The structures for cleaning and repairing machinery shall be dismantled as soon as possible, avoiding leaving materials related to the construction of repair of the installations out in the open.
- However, repair work, service and maintenance of machinery and vehicles shall be carried out in authorized garages whenever possible.
- Store oils, fuel and other hazardous and potentially pollutant products safely to prevent its spillage in soil. The storage of these materials will be made in impervious areas, with cover and containment structures.
- These materials will be stored in drums designed for this purpose, being collected and transported by authorized managers for subsequent treatment.
- If a spill occurs during the works, it must be immediately contained on land by constructing a sand bund around it to prevent spreading. The area should be secured by isolating the source or implementing controls around the site, and the cause of contamination must be identified.
- Any contaminated soil must be located and removed from site by a licensed, legal service provider for environmentally acceptable disposal.
- Spillage kits for accidental oil/chemical spills must be available at the worksite for containment and cleanup. Equipment such as oil spillage kits and drip trays should be provided to enable prompt response to oil spills. These suitable absorbent materials for spill cleanup must be located at the maintenance and fueling area.
- All waste generated or stored in the occasional warehouse will follow the guidelines specified in the Waste Management Plan.

13.6.2. Operational phase

Any project may face a wide range of emergencies resulting from different environmental risks, varying in their scope, complexity, and repercussions. These emergencies may have wide environmental, social, and public health impacts, with the possibility of long-term repercussions lasting years after the emergency.

The likelihood of an accident can be reduced through effective planning and development of a site pollution incident response. Appropriate incident response equipment must be maintained at appropriate locations on the site and project personnel should be appropriately trained in the use of such equipment and in responding to such emergencies. All the considerations/recommendations included in the Luanda's Port

Emergency Management Plan will also be considered as well as those encompassed in Unicarga's Environmental Emergency Prevention and the Prevention and Emergency Response (included in the Waste Management Plan of Unicargas Multipurpose Terminal).

However, the following measures might be implemented to avoid/minimize potential soil contamination due to spillage/leakages:

- Spills and cleaning supplies will be well located and visible in key areas of the site.
- Ensure the availability of emergency kits and create barriers for containment and absorption of the spilled product.
- Ensure personnel involved placed the spilled material in appropriate containers, which might be available, as well as the necessary equipment for its collection.
- Remediation actions for the contaminated area should be established after the inspection of the site by the Environmental team. Assess the cause and effect to adopt applicable corrective actions if there was a failure in the procedures. Define additional measures if needed.
- Effective waste management controls will be implemented through the site's waste management plan. The waste management plan will include measures to reduce the incidence of soil contamination, spills, etc.
- Hazardous and non-hazardous waste storage areas will be well constructed with impermeable soil barrier protection, separate drainage system and rain shelter to avoid any possible case of runoff, or runoff intrusion. These areas will be monitored.

13.7. Biodiversity

13.7.1. Construction phase

During the seabed cleaning activities and transport of the materials obtained, appropriate means (material extraction system), which cause the least possible re-suspension of sediments into the environment shall be used.

The duration of cleaning operations must be planned, and the capacity of the means used must be high to reduce as far as possible the intervention time of vessels and machinery on the marine and coastal environment. In this regard, the overloading of tanks will be avoided to prevent the overflow of materials. If turbidity values are exceeded, the use of an anti-pollution barrier to prevent suspended fines from reaching the bathing areas shall be assessed.

Although, as explained in the section 12.7.1 "Preliminary considerations", the breeding areas of the protected species of marine mammals, birds and chelonians are located far from the project area, whenever possible, efforts will be made to adjust the schedule of works to try to avoid the most critical periods for the fauna, especially for the species of interest. If the presence of any marine mammal, chelonian or elasmobranch is detected during the seabed cleaning activities, a temporary cessation or reduction in the performance of the work shall be established.

Care shall be taken not to dump rubbish in the vicinity of the area that could attract the attention of birds. The capture or killing of birdlife or any other animal present in the project area is prohibited.

Particularly applicable for biodiversity are the measures defined in this chapter for air and water quality, marine sediments, noise and vibration, as well as waste management.

During the construction phase, strict biosecurity protocols should be enforced to prevent the introduction and spread of invasive species. This includes thorough inspection and decontamination of all construction and dredging equipment before entering local waters, with particular attention to submerged parts like anchors and hulls that may carry biofouling organisms. Regular maintenance and cleaning during construction will also help minimize the risk of species transfer.

13.7.2. Operational phase

Although during the operation phase no impacts other than those already existing are expected to occur, not only due to the Unicargas terminal but also to the other terminals of the port, the operational phase measures established throughout the document to avoid, reduce or correct air, marine and noise pollution arising from the normal operation of the regular port activities and that may negatively affect the fauna and flora of the project area will be applicable.

To manage the risk of invasive species, the Terminal should include ballast water management protocols as per the IMO Ballast Water Management Convention, involving the treatment of ballast water prior to discharge to reduce invasive species spread. Rigorous biosecurity measures should also be established, including inspection and decontamination of vessels and equipment entering local waters, with regular cleaning to prevent biofouling. In the Biodiversity Management Plan included in the ESMP (Volume II), there is a specific section on compliance with international treaties regarding ballast water management during the operational phase, due to its relevance to the potential introduction of invasive species. It is important to note that these are not new criteria introduced for the rehabilitation project, as the terminal is currently operational, and these criteria should already be standard practice.

13.8. Landscape

13.8.1. Construction phase

The following is a set of measures aimed at preventing greater visual impacts during the construction work and during the period of removal of the construction elements once the work is completed:

- During the works, care will be taken of the environment with an adequate and orderly situation of the stockpiles and daily cleaning of the occupied and work areas.
- The construction machinery will transit through the itinerary adapted for this purpose and during periods of inactivity will be placed in the space destined for parking heavy machinery. In no case shall such machinery be dispersed throughout the site.
- No coastal areas will be affected by temporary or permanent occupation, except those specified in the project.
- The waste generated by the personnel assigned to the work will be deposited only in the containers installed for this purpose, and dumping, depositing or accumulation of waste in places other than those established is prohibited. In this sense, specific areas must be created for the segregation and deposit of waste and its correct storage. The drums for the deposit of waste must be correctly identified and labeled, especially those destined for hazardous waste. A program for the removal of waste to authorized landfills will be established with sufficient frequency

- The debris generated will be duly collected, as well as any waste of the asphalt, bitumen, etc. type, the latter being subject to the management of an authorized manager.
- Once the works have been completed, all surplus materials and auxiliary installations, remains of formwork and useless materials that have been used in the works must be removed.
- The areas originally intended for the accumulation and deposition of construction materials shall be restored to their original state after completion of the construction work
- Once the work has been completed, all beacons and signaling elements will be removed, as well as all ancillary elements associated with the work.
- The affected services will be replaced following the same style as the existing ones, in case any of them are affected during the works,
- The existing paved accesses that are deteriorated by the passage of heavy machinery and excessive loads, will be restored and resurfaced if necessary.

13.8.2. Operational phase

As mentioned in the corresponding section, the development of the Unicargas terminal will positively impact the current conditions at that terminal. To maintain this positive impact, it will be essential to carry out actions necessary for the proper maintenance of the buildings and various facilities within the terminal. To identify any potential flaws or issues that may arise, periodic inspections of both the exteriors and interiors of the buildings should be conducted to ensure that appropriate measures can be taken promptly.

13.9. Socioeconomic

13.9.1. Construction phase

13.9.1.1. Reduction of annoyances originated by construction works

To minimize potential disruptions to the population and economic sectors during the construction phase, the following measures will be considered. The sections related to air quality, dust and noise emissions have already been outlined. The following sections focus on addressing issues related to traffic and community nuisance as well as the protection and welfare of site workers.

- To minimize interference, work will be scheduled appropriately so that it does not take longer than planned.
- Install all necessary signs or employ flag personnel when required. Regularly monitor traffic conditions on access roads to prevent project vehicles from causing congestion. Implement manned traffic control at critical locations and crossings, especially in areas where people tend to gather.
- Schedule delivery of construction materials and equipment as well as transport of materials or equipment during non-peak hours.
- Comply with traffic regulations and avoid, when possible, roads with higher traffic volumes, sensitive receptors, or capacity constraints. Strictly impose speed limits on construction vehicles along residential areas and where other sensitive receptors are located. Educate drivers on safe driving practices to minimize accidents and to prevent spills of hazardous substances and other construction materials during transport.
- A Health and Safety Plan and a Community Health and Safety Management Plan, as well as an Emergency Response Plan and Local Recruitment and Working Conditions Plan must be drawn up and strictly implemented.

- An Environmental, Health and Safety Manager may be designated to look after the implementation of all mitigation measures and requirements to ensure health and safety precautions for the safety of workers and the public are implemented.
- Conduct suitable and effective staff training and awareness activities to ensure the project employees understand, appreciate and adhere to the suggested environmental and social management requirements.
- Ensure the provision and maintenance of sufficient welfare facilities and arrangements for the well-being of employees at work.
- Ensure security arrangements are in place to ensure the safety and protection of all personnel, assets, and sensitive information, mitigating risks from external threats and enabling a secure operating environment for the project activities.
- There must be sufficient lighting in construction areas to enable safe equipment operation. Provide emergency lighting system of adequate intensity that is automatically activated upon failure of the principal artificial light source to ensure safe equipment operation, safe shut-down, evacuation, etc.
- Provide first aid facilities so they are readily accessible for all workers. Provide firefighting equipment, where appropriate, at least, at occasional warehouses. Also, appropriate Personal Protective Equipment (PPE) shall be provided for the workforce.
- Establish clean canteen/rest area. Provide potable water, hygienic sanitation facilities/toilets with sufficient water supply.
- Desing a campaign to inform all citizens in the project area about it, solving their doubts, collecting and evaluating their opinions/considerations.

Additionally, it is important to consider the requirements included by ADPG in the documents that establish the criteria for the EPC Contractors:

Where the Contractor provides living accommodation for workers, the accommodation shall be appropriate for its location and be clean, safe and, at a minimum, meet the basic needs of workers. A Worker Accommodation Plan will be developed to this end. The accommodation shall comply with national legislation and follow international good practice as set out in the "IFC and EBRD Guidance Note, Workers Accommodation, Processes and Standards". It should be noted that the Employer is not allowing the labor accommodation within the development area.

13.9.1.2. Reduction of the likelihood of potential social conflicts and addressing GBVH

In all project phases, ADPG will demand compliance with its policies. Among other documents, ADPG has the Code of Conduct and Business Ethics, which addresses workplace harassment issues. In this regard, concerning matters related to potential discrimination or workplace harassment, including any issues related to gender, ADPG has included in the HSE Guidelines for contractors the compliance with ILO, mandated in section 1.4, which includes International Labor Organization (ILO) conventions 29 and 105 (forced labor), 87 (freedom of association), 98 (right to collective bargaining), 100 and 111 (discrimination), 138 (minimum age), 182 (worst forms of child labor), 155, and recommendation 164 (occupational health and safety).

The following measures will be applied:

- Create mechanisms to ensure that the recruitment and hiring procedures are conducted in a transparent and just manner, are coordinated with the District Administration, maximize local

employment including women and young workers and transfer technical skills to the local labor force.

- Give priority to hire local workers, provided applicants have the necessary skills
- Ensure respect for local labor laws and worker rights, and together with the labor policy, Health and Safety Management Plan, Code of Conduct and Worker's GRM, ensure safe and fair working conditions.
- Develop and implement a worker's Grievance Management System to ensure that any matter or concern raised by construction workers is solved satisfactorily and quickly.
- The contractor will be required to comply with laws in Angola, which include provisions and policies for GBV.

If a significant increase in the risk of gender-based violence (GBV) is identified during the worker recruitment phase, a dedicated GBV Action Plan will be developed. This plan will fully comply with the World Bank's Good Practice Note on addressing GBV in Investment Project Financing involving large civil works. The recruitment process will adhere to the key guidelines specified in Section 15 of the ESMP (Volume II) of this ESIA.

13.9.2. Operational phase

The implementation of the measures contained in the mandatory documents for both the port of Luanda and the Unicargas terminal will contribute positively to the improvement of the socioeconomic conditions of the project. The recommendations contained in the IFC General EHS Guideline and the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017) should also be followed.

In this sense, the recommendations of the IFC Environmental, Health, and Safety General Guidelines and the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017) will be considered. Chapter 2.0 of the IFC General Guideline, includes a range of measures regarding Occupational Health and Safety relative to different aspect, most of which apply to the project, namely: General Facility Design and Operation, Communication and Training, Physical Hazards, Chemical Hazards, Personal Protective Equipment, Special Hazard Environments and Monitoring.

The abovementioned guideline states that preventive and protective measures should be introduced according to the following order of priority:

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.;
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
- Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PP.

Likewise, the measures contained in section 1.7 "Socioeconomic" of the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao) will be considered. Some of these measures are described below:

- The employer must take the necessary measures in the field of occupational safety and hygiene, i.e. integrate occupational safety, hygiene and health activities into the company's management.
- Provide individual or group insurance for all apprentices and trainees against the risks of accidents at work and occupational diseases, safeguarding small and medium-sized companies.
- Organize and provide appropriate practical training in occupational safety and health to all workers.
- Implement an environmental policy in the project.
- Ensure medical assistance and medicines for all employees.
- Designate a person responsible for the Environment and Safety at work.

In the same way, the Environmental Management Plan of the multipurpose Unicargas Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas) compiles a series of measures aimed at mitigating the impact on the inconvenience to workers due to port activities at the terminal, as well as the potential loss of human lives. These measures, some of which are listed below, will be mandatory:

- Management of fire extinguishing and fire-fighting installations.
- Perform hazardous cargo inspection.
- Conduct audits of workplace conditions.
- Manage urban vectors and pests to prevent their proliferation.

In addition, within the Environmental Management Plan of the Port of Luanda (Plano de Gestão Ambiental Porto de Luanda) (2019) in the port community it is recommended that, in the port community, greater emphasis should be placed on environmental education and awareness, even suggesting the creation of a program.

Finally, AD Ports Group has an Integrated Management System certified by LRQA Limited -Lloyd's Register Quality Assurance Limited- in accordance with the ISO/IEC 27001:2013, ISO 14001:2015, ISO 45001:2018, ISO 9001:2015, ISO 55001:2014 and ISO 22301:2019 standards.

The HSE & BC objectives, as considered by AD Ports Group, include the following:

- Ultimately have zero harm to personnel and the environment
- Encourage and mentor Interested Parties to meet the same high HSE standards, objectives and targets as adopted by AD Ports Group.
- Establish HSE-based policies, procedures, standards and guidelines and implement them
- Act as a Port Authority to enforce the compliance for regulations set forth by the regulatory authorities.
- Be the interface between the regulatory authorities and the Interested Parties on HSE issues that will impact administered areas and water limits
- Ensure that equipment specifications, equipment operations and installations are run in a safe manner
- Facilitate development of personnel to enhance their HSE skills and experience
- Review and mange potential HSE risks/ impacts within the administered areas and water limits
- Define and plan critical tasks having HSE ramifications
- Monitor and measure HSE performance of AD Ports Group and Interested Parties
- Identify and correct deficiencies in AD Ports Group's IHSE MS
- Liaise in communicating AD Ports' (Port Authority) expectations on HSE matters to all Interested Parties
- Ensure that Interested Parties comply with AD Ports Group's IHSE & BC Policy

13.10. Summary of Impacts after mitigation

The impacts foreseen and identified in this ESIA Report will be addressed through the application of appropriate mitigation measures during both construction and operational phases. Following the application of these measures, a residual impact assessment will determine the remaining impact level. While there is no quantification factor introduced, the effectiveness of the mitigation measures will be evaluated to define the significance of the residual impact. This assessment will inform whether impacts decrease in magnitude classification level, for example, from Moderate to Minor or Minor to Negligible.

Since the sensitivity of receptors remains constant, the magnitude of the impact will solely determine the final result. However, it's important to note that not all mitigation measures will fully reduce the significance of the impacts. Some impacts inherent to the activity may be minimized but not entirely avoided, with mitigation measures aimed at diminishing their effects.

For instance, the anticipated increase in activity during the operational phase may lead to elevated air quality and noise pollution levels, which will only be marginally attenuated by the listed measures. Consequently, the significance of these impacts may remain unchanged.

Ultimately, the socio-economic benefits of the project will justify its implementation, taking into account the residual impacts and the effectiveness of the mitigation measures applied.

The following table presents the potential impacts on each variable, distinguishing between the construction and operational phases. It outlines the initial significance of the potential impacts before mitigation measures are applied, details the main mitigation measures implemented, and indicates the resulting significance of the potential impacts after mitigation.

It's important to note that only impacts categorized as "Minor" and "Moderate" in Table 112 have been considered. Impacts categorized in lower magnitude classes, such as "Neutral," "Negligible," or "Negligible or Minor," have not been included. Although mitigation may not be required for these impacts, preventive measures, as well as adherence to good practices and compliance with regulations, have also been listed.

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
Air quality	Construction	Dust generation	**Moderate**	▪ Irrigation with water of internal pathways/streets near worksite, if needed ▪ Heavy trucks will not be loaded to full capacity ▪ Setting appropriate speed limits onsite ▪ Dust generating materials stockpiled and transported shall be covered ▪ Dusty materials shall be removed as soon as possible	**Minor**
		Gaseous emissions	**Moderate**	▪ Fuel-efficient equipment and vehicles ▪ Preventive and regular maintenance program ▪ Machinery and equipment must be used according to manufacturer's specification ▪ Reduce fuel consumption practices instructed for drivers	**Minor**
	Operational	Dust generation and gaseous emissions from diesel engines used for the propulsion of ships, ship-based auxiliary engines, use of vehicles, etc.	**Moderate**	▪ Ship Operations in port areas: minimize and control combustion emissions related to land-based activities ▪ Cargo transfer equipment correct maintenance and reduction of engine idling during on/off-loading activities ▪ Reduce loading/unloading activities when episodes of poor air quality conditions in the area/Luanda city ▪ Low emission vehicles, alternative energy sources and/or fuels/fuel mixtures to consider	**Moderate***

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
Noise and vibrations	Construction	Construction Site Noise	**Moderate**	▪ Maintenance program to assure correct functioning equipment/vehicles ▪ Noise suppression equipment when needed ▪ Speed limits for construction heavy vehicles ▪ Only approved vehicles and machinery will be employed, and as per manufacturer's specifications ▪ Temporary noise barriers	**Minor**
	Operational	Terrestrial side (Cargo handling, vehicular traffic, loading/unloading of containers, etc.)	**Moderate**	▪ Noisy equipment should be installed in enclosed compartments ▪ Controlling the speed of heavy vehicle circulation ▪ Sound equipment/machines should have their sound power properly identified and comply with acceptable limits	**Moderate***
Soil	Construction	Increase risk of soil pollution	**Minor**	▪ The storage of oils, fuel and other hazardous and potentially materials will be made in impervious areas, with cover and containment structures. ▪ To avoid the risk of accidental pollution around the area designated for storing and parking machinery, a network perimeter drainage for retaining the surface water runoff shall be built ▪ Machinery must be properly maintained to keep potential leaks in check. Service and maintenance of machinery/vehicles shall be carried out in authorized garages, whenever possible ▪ Accidental spillage kits must be available. Any spill must be contained immediately, and any contaminated soil located and removed	**Negligible or Minor**

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
Marine water quality	Construction	Water pollution due to an increase in suspended solids	**Minor or Moderate**	▪ Excavation/dredging methods to be selected to minimize suspension of sediments ▪ Schedule consideration based on tide, wind, natural turbidity, etc. ▪ Additional techniques and equipment to minimize adverse impacts such as barriers/sheet piles, silt or bubble curtains/screens, …. ▪ Inspection and monitoring (such as feedback or adaptive monitoring) of dredging activities should be conducted regularly	**Minor**
		Water pollution due to accidental spillages during the execution of the works	**Minor**	▪ Accidental spills of oils and fuels will be removed by the usual methods (suction pumps). ▪ Facilities will be available for the cleaning of the water. ▪ Good practices and prevention measures during upside works to avoid spillages/accidental dumps, etc. to marine water	**Negligible****
Marine Sediments quality	Construction	Effects on fauna and flora due to increased suspended solids	**Minor**	▪ Use the appropriate means (material extraction system), and carry out in suitable weather conditions ▪ Whenever possible, anti-dispersion barriers will be used to prevent the possible dispersion of fines and minimize or eliminate possible effects outside the immediate vicinity of the works. ▪ The duration of these operations shall be planned to reduce, as far as possible, the time of intervention of vessels and machinery on the environment.	**Negligible****

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
Biodiversity	Construction	Effects on fauna and flora due to increased suspended solids	**Minor**	▪ Use the appropriate means (material extraction system) to reduce potential re-suspension of sediments ▪ The duration of cleaning operations must be planned and the capacity of the means used must be high to reduce as far as possible the intervention time of vessels and machinery on the marine and coastal environment. In this regard, the overloading of tanks will be avoided to prevent the overflow of materials.	**Negligible****
		Exclusion of fauna species due to increase of disturbance	**Minor**	▪ Care shall be taken not to dump rubbish in the vicinity of the area that could attract the attention of birds ▪ Whenever possible adjust the schedule of works to try to avoid the most critical periods for the fauna, especially for the species of interest	**Negligible****
		Possible introduction / spread of invasive species	**Minor**	▪ Enforcement of strict biosecurity protocols ▪ Inspections and decontamination of all construction and dredging materials equipment before entering local waters ▪ Regular maintenance and cleaning	**Minor**
Socioeconomic	Construction	Annoyance to inhabitants (traffic diversions, traffic increase in local roads and disruption to utilities)	**Minor or Moderate**	▪ Work will be scheduled appropriately so that it does not take longer than planned. ▪ Schedule delivery of construction materials and equipment as well as transport of materials or equipment during non-peak hours. ▪ Comply with traffic regulations and avoid, when possible, roads with higher traffic volumes, sensitive receptors, or capacity constraints.	**Minor**

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
		Environmental, health and safety risk for workers during construction phase	Moderate	▪ Conduct suitable and effective staff training and awareness activities to ensure the project employees understand, appreciate and adherence to the suggested environmental and social management requirements ▪ Ensure the provision and maintenance of sufficient welfare facilities and arrangements for the well-being of employees at work. ▪ Ensure security arrangements are in place to ensure the safety and protection of all personnel, assets, and sensitive information, mitigating risks from external threats and enabling a secure operating environment for the project activities.	Minor
		Potential presence of social conflicts due to influx of migrant workers	Moderate	▪ Ensure transparency and just manner on recruitment and hiring procedures ▪ Transfer technical skills to local labor force ▪ Priority to local workers (provided necessary skills), including women and young workers ▪ Ensure respect for local labor laws and workers' rights, as well as compliance with Safety Management Plan ▪ Develop and implement a worker's Grievance Management System ▪ Control possible GBV conflicts	Minor
Landscape	Construction	Temporary degradation of landscape at worksites	Minor	▪ Care will be taken of the environment with an adequate and orderly situation of the stockpiles	Negligible or Minor

	Phase	Potential Impact	Potential Impact Significance prior to Mitigation	Main Mitigation Measures applied	Potential Impact Significance after Mitigation
				and daily cleaning of the occupied and work areas. ▪ In no case shall machinery be dispersed throughout the site but will be placed in the space destined for it ▪ No coastal areas will be affected temporarily or permanently, except for the foreseen one ▪ Waste generated will be deposited only in the containers installed for that purpose, as well as all waste will be managed properly ▪ All areas shall be restored after completion of works	

* In both cases, residual impacts are maintained as Moderate Category since mitigation measures will not be able to achieve a substantial improvement on the effects of the impacts, which will be significant during the operational phase. However, the project strengthens Luanda Port's role as a key gateway for international trade and commerce. The increased handling capacity facilitates the efficient movement of goods, bolstering Angola's competitiveness in global markets and attracting new shipping routes and investment opportunities. Furthermore, the expansion of terminal facilities supports the government's economic diversification agenda, driving job creation, revenue growth, and sustainable development across various sectors of the Angolan economy. Thus, although the residual impact on air quality and noise pollution will be notable, the aim of the project and its considerable socio-economic benefits will contribute to balancing.

** By decreasing the impact magnitude from Negligible, and given the high sensitivity of the receptor, the resulting residual impact category will be Neutral. However, it is worth noting that applying this category may underestimate the resulting effect, as preventive measures will be implemented to achieve these impacts. Therefore, the category applied will remain Negligible.

Table 112.- Summary of Impacts after Mitigation

14. ASSOCIATED FACILITIES: DREDGING PROJECT

14.1. Preliminary considerations

As indicated in Section 7.4, there is a need for capital dredging operations to increase the depth of the turning basin and approach channel adjacent to the Unicargas Terminal, aiming to reach a depth of -16.0 meters. It is important to note that the responsibility for carrying out these capital dredging works lies outside ADPG's scope of activities and will instead be managed by external entities under the authority of the Luanda Port Authority (LPA).

As also explained in the aforementioned section, precise information on this matter is not available. Several meetings with representatives of the Port Authority, along with specific consultations conducted by ADPG, indicate that LPA is still in the decision-making process regarding the design and scope of the dredging project.

In any case, given that the dredging could be considered an associated facility in this context, ADPG's estimate of the area to be dredged has been used as a basis for assessing the potential impacts the dredging project may have on the environment and for developing recommendations for mitigation measures.

Currently, it is unknown whether the scope of the dredging to be executed is exclusive to the new ADPG Terminal at Unicargas or whether it includes requirements for other LPA terminals or a broader area. This is a key aspect for determining if it should be considered an associated facility of the project according to the IFC criteria outlined in Section 7.4.

Similarly, detailed information regarding the dredging geometry, footprint, estimated dredging volumes, and designated disposal location for dredged material is unavailable. The dredging methods and techniques to be used, as well as the type of machinery and other data, are also unknown.

It should also be noted that the dredging project involves preparing a specific Environmental and Social Impact Assessment (ESIA) report for the dredging and a specific Environmental Assessment process, which will conclude with the issuance of the corresponding Environmental License by MINAMB.

All phases of the project, from design through execution, including the preparation of the ESIA and its submission to MINAMB, are the responsibility of the Luanda Port Authority. Therefore, this section is only a general overview of the anticipated effects based on a hypothesis regarding the dredging dimensions and geometry (refer to Figure 8) to enable an analysis of what could be considered associated facilities of the project. Similarly, recommendations are made regarding applicable mitigation measures. Due to the lack of available information, these measures are merely recommendations and, in some cases, very general. The specific measures to be applied will be those derived from the specific ESIA for the dredging project and will eventually be supplemented by those included in the conditions of the corresponding Environmental License once issued.

In preparing this section, the considerations included in the IFC Environmental, Health and Safety Guidelines for ports, harbors, and terminals (2017) were considered:

> *Construction dredging (also known as "capital" dredging), maintenance dredging, and dredged material disposal may impact habitats and pose a significant hazard to human health and the environment, particularly from the re-suspension and/or deposition of sediments. Dredging and*

disposal of dredged material may lead to impacts on water quality from increased turbidity and from release of contaminants to the water column due to re-suspension of sediments and/or changes of certain chemical compounds in the dredged materials when exposed to different level of oxygenation. In addition, marine or freshwater disposal of dredged material may result in the smothering of benthic habitats, reduced light penetration impacting light sensitive organisms, and impacts on seagrass beds, algae and coral reefs from suspended sediment plumes. Careful consideration should also be given to sediments that have been contaminated by historical deposition and accumulation of hazardous substances, whether due to on-site or off-site activities.

14.2. Impact assessment and mitigation measures

Regular dredging of ports and other waterways is essential to maintain adequate water depth for maritime transport (OSPAR, 2017). This practice, which supports navigable channels, port expansion, and safe vessel passage, is critical to global trade and transportation.

While dredging is vital for these purposes, it also presents significant environmental challenges that require careful assessment and mitigation.

Generally, it can be determined that sediment in areas near human activity typically contains elevated levels of metals. Many of these metals, such as copper and zinc, are essential for normal biological functions. However, at very high concentrations, all metals can negatively affect biota. Due to their persistence, contaminated sites may require extended periods to recover. Additionally, once metals enter the food chain, they can have long-term effects on biota (Donazar-Aramendía et al., 2020).

Estimating the amount of contaminated sediment is challenging. However, data collected and summarized by the OSPAR monitoring program indicate that high concentrations of heavy metals (e.g., Cd, Pb, Hg) and other pollutants (e.g., PCB, PAH) are common in sediments across large portions of the North Sea and Atlantic coastline. Management options for dredged materials vary according to contamination levels and local regulations (Nina Svensson et al., 2022).

Each management strategy has different costs and environmental impacts. Furthermore, the short-term environmental impacts of these approaches may differ from their long-term consequences. The selection of management strategies for contaminated sediment is often driven by costs and regulatory thresholds, potentially overlooking environmental impacts (Sparrevik et al., 2011).

14.2.1. Baseline conditions in the dredging area

In this specific case, it should be noted that, as seen in section 10.2.6, the campaigns carried out for the Unicargas terminal project included sampling of water and marine sediments in the area considered as a potential dredging zone in the context of this analysis (see the figures corresponding to the sampling points in the mentioned section). Therefore, the baseline data obtained provide a solid reference for the contamination status of the area to be dredged.

Regarding this, a water quality survey was conducted on January 31, 2024. Water samples were collected from ten stations distributed across a broad area in front of Unicargas Terminal. Water quality directly impacts marine ecosystems, as species have adapted to the current state of the water and port sediments influenced by the long-standing infrastructure and port activities.

In terms of ecological status classification, the ecological potential of the waters in the Port of Luanda was classified as good, though it did not achieve an excellent rating because some measured parameters fell short of the highest criteria. The samples revealed significant alterations in certain parameters typical of heavily trafficked, industrial areas. Concentrations of hydrocarbons, oils, and fats were detected, which is expected due to the high volume of vessel traffic. Additionally, the presence of metals, such as iron and aluminum, poses potential risks to ecosystems, especially those formed by colonies of marine invertebrates. The low percentage of dissolved oxygen throughout the water column likely contributes to the scarcity of fish observed in the area. Moreover, this is a high-risk area for localized spills and contamination due to intense shipping activity.

In terms of sediment quality, sample analysis indicated that nearly all parameters fell within established guideline ranges. Only one station recorded zinc (Zn) levels that exceeded the recommended limits. Concentrations of PCBs, VOCs, and PAHs, as well as nutrient levels, remained within acceptable ranges at all stations. Based on the concentrations of total nitrogen and phosphorus, the area was classified as having moderate to deficient ecological potential, with values exceeding the thresholds for a more favorable rating.

Marine sediment quality is crucial for both sessile and mobile benthic species, as it serves as a bio accumulative matrix for various waterborne parameters and anthropogenic discharges from the surface. In alignment with port characteristics, the sediment samples showed signs typical of port areas: redox potential measurements indicated low oxygenation (consistent with water quality results), detectable levels of metals above the quantification limit, and compounds related to port activity, including fats, oils, PAHs, TPHs, and PCBs. These elements impact and limit the benthic ecosystem.

As a result, the affected habitats lack any degree of natural integrity. A survey to assess the fauna within and around the project site was conducted from January 28th to February 3rd, 2024. Avifauna represented the most abundant group of vertebrates, while no sightings of cetaceans or sea turtles were recorded. Luanda Port is not a transit route for marine mammals, and nearby sea turtle breeding grounds are located far from the project site.

The seabed in the area is notably anthropogenic, with large amounts of varied debris, limited visible biological diversity, and a high degree of homogeneity, characteristics typical of a port environment. The heavy influence of human activities has already had a marked impact on local fauna.

In any case, it should be noted that these analyses and sampling were not carried out to characterize the dredged material, but rather to establish a baseline reference for the Unicargas project. Therefore, they should be considered as such, and the possibility that additional sampling may be required for the characterization of the dredged material should be considered.

14.2.2. General recommendations

Mitigating the environmental problems associated with dredging requires a comprehensive approach that considers the specific characteristics of each project and its ecological context. Environmental impact assessments, stakeholder engagement, and adherence to relevant regulations are essential components of responsible dredging practices.

First, it is important to consider the baseline environmental conditions. In the marine water and sediment quality surveys, as well as in the corresponding ecological survey, carried out to determine the environmental

conditions of the project area and the situation prior to the commencement of construction works, sampling points within the area designated for the dredging project were included according to the zone estimated in this document. This was followed by the analysis of the parameters established according to IFC criteria.

For this reason, the results obtained in those campaigns and their interpretations are applicable to the dredging area defined in this study, as they include sampling points within the indicated zone and are indicative for this approach, in the absence of more precise data to be provided by LPA.

Based on all the hypotheses previously established regarding the available information and the specific environmental assessment procedure to be carried out, the following recommendations regarding certain activities to include in the project and considerations for measures to be established are outlined, although, as previously mentioned, this is a project that will undergo a specific environmental procedure, with LPA being responsible for all aspects of the project. Therefore, what follows are only recommendations aligned with the Unicargas project, the compliance of which is outside the scope and responsibilities of ADPG:

- Prior to initiation of dredging activities, materials should be sampled and characterized for their physical, chemical, and biological properties to inform the evaluation of dredged material behavior once re-suspended, and to guide decisions about reuse or final disposal.
- Considering that the baseline conditions established after the campaigns indicate biodiversity conditions typical of an anthropogenic system, it is recommended to conduct fine dispersion simulations only if the reclamation/disposal areas are located near sensitive receptors, once the dredging project data is defined. In any case, it will be the MINAMB that determines any possible measures regarding this during the specific environmental assessment procedure for the project.
- Excavation and dredging methods should be selected to minimize the suspension of sediments, reduce destruction of benthic habitat, increase the accuracy of the operation (minimizing impacts to areas adjacent to dredging zones), and maintain the density of dredged material, particularly if the dredge area includes contaminated materials.
- Installation of navigation signs and aids in the dredging and disposal sites to alert vessels passing through the area should be considered.
- Inspection and monitoring (such as feedback or adaptive monitoring) of dredging activities should be conducted regularly to evaluate the impact of operations, the effectiveness of mitigation measures, and the need for technical adjustments to avoid and minimize impacts on identified sensitive aquatic receptors.
- Development of a dredging management plan, including considerations related to local hydrology, sediment characteristics, timing of activities, and habitat/ecological sensitivities of potential disposal sites (e.g., tides, low flow periods).

Most of these aspects are covered under the criteria established in the *IFC Environmental, Health and Safety Guidelines for Ports, Harbors, and Terminals* (2017), with the necessary adjustments for this specific case:

> *Projects should conduct a risk assessment for dredging activities as part of the development of a Dredging Management Plan. The Dredging Management Plan should be tailored to the project and should define the dredging methodology; identify and assess dredged materials disposal options and sites; characterize the chemical and physical composition and behavior of the sediments to be dredged; characterize the environmental baseline where the port, harbor, and/or terminal (and disposal area) will be located; define the area of influence with identification, assessment and*

modeling of sensitive ecological receptors (usually through sediment plume propagation modeling); define mitigation measures to address adverse impacts (for example on aquatic habitat, biodiversity, and water quality), and relevant environmental monitoring parameters and indicators. The following recommendations should be adopted to avoid, minimize, or control impacts from dredged materials, as part of a Dredging Management Plan.

14.2.3. Potential impacts and recommended mitigation measures

More specifically, some of the most significant impacts that may occur directly as a result of the dredging project can be summarized as follows, along with the recommended mitigation measures for each case. As indicated in section 14.1, these assumptions must be revalidated against the project-specific ESIA of the dredging project. The implementation of required mitigation measures is the sole responsibility of LPA, with limited control by ADPG to enforce mitigation measures on LPA.

Sediment Disruption

- **Impact**: Dredging disturbs and suspends sediments from the seabed or riverbed, leading to increased turbidity and reduced light penetration in the water column.
- **Mitigation**: To address this issue, sediment curtains, also known as turbidity barriers, can be deployed around the dredging area to contain and settle suspended sediments. Additionally, scheduling dredging during non-spawning seasons for aquatic life can help reduce the impact. Performing dredging operations under appropriate tide and current conditions can help ameliorate sediment re-suspension.

Water Quality Degradation

- **Impact**: Increased turbidity, along with the release of contaminants from dredged materials, can negatively affect water quality. This includes the release of chemicals, heavy metals, or other contaminants trapped in sediments into the water, posing risks to aquatic life and human health.
- **Mitigation**: Use of appropriate modern dredging techniques and equipment, including measures to contain sediment plumes. Additionally, thorough testing and treatment of dredged materials, and proper disposal of contaminated materials, are necessary to mitigate contamination risks. Development of a dredge management plan, including considerations as to local hydrology, sediment characteristics, timing of activity, and habitat/ecological sensitivities of potential disposal sites (consider e.g. tides, low flow periods).

Air Quality and Noise Pollution

- **Impact**: The primary noise source at the dredging site is expected to be the continuous sound of the dredging machinery. While noise may decrease with distance, dredging operations can also generate underwater noise, disrupting marine life and communication between aquatic species. Additionally, the rise of particulate matter in the atmosphere is a short-term effect due to sediment handling and wind effects at the project site.
- **Mitigation**: Noise-reducing technologies, quieter equipment, and scheduling dredging activities to minimize their impact on sensitive species can help mitigate noise pollution. Limiting noisy dredging to daylight hours, inspecting and maintaining equipment in good working condition, and ensuring proper engine maintenance to reduce emissions are important steps. Noise levels should be

monitored during operations, and monitoring results should be assessed to ensure compliance with permissible limits, implementing additional mitigation measures if necessary.

Direct impacts on flora and fauna

- **Impact**: Dredging of the seabed and the potential dumping of dredged material, may lead to loss of plant and animal species.
- **Mitigation**: Careful planning of phasing and timing of dredging activities. Rigorous dredge disposal site selection within dredge management planning.

Fishing activities

- **Impact**: Possible interference with fishing activities in the area.
- **Mitigation**: As indicated in previous sections, fishing within the bay is not regulated, so there are no specific areas designated for this activity. In any case, any vessels that may be affected during the dredging construction phase can temporarily relocate to other areas until the works are completed.

Workforce community interactions

- **Impact**: Real or perceived disruption to normal community life, through the physical presence of a workforce. Differences in nationality, ethnicity, religion, etc. may lead to discrimination and harassment, and differences (perceived or real) in working conditions between workers may lead to resentments.
- **Mitigation**: Employment practices and working conditions should conform to International Labor Organization (ILO) Standards and national regulations. Clear and comprehensive health and safety reporting and grievance procedure system should be established and be freely available to all of the workforce. Adoption of a Stakeholder Engagement Plan, as a framework for early and ongoing community consultation.

Invasive Species Spread

- **Impact**: Dredging can inadvertently transport invasive species from one water body to another, leading to ecological imbalances. Dredging activities and sediment relocation can create opportunities for non-native organisms to spread. Organisms already present in the dredging equipment or relocated sediments might be introduced to new areas where they can become invasive, further altering local ecological balance.
- **Mitigation**: Implementing strict biosecurity measures and cleaning equipment to prevent the spread of invasive species is essential. This includes decontaminating dredgers and equipment before and after use.

Erosion and Shoreline Impact

- **Impact**: Dredging can alter sediment dynamics, leading to increased erosion in some areas and sediment deposition in others.
- **Mitigation**: Conduct numerical modelling regarding possible coast impacts. Carefully planning dredging projects to minimize unintended erosion and sediment transport can help mitigate these impacts

15. CUMULATIVE IMPACT ASSESSMENT

15.1. Introduction

As stated in the IFC *Guidance Note 1 Assessment and Management of Environmental and Social Risks and Impacts*, cumulative impacts are those that result from the incremental impact of the project when added to other existing, planned and reasonably predictable future projects and developments. According to the US Council on Environmental Quality, the definition of cumulative impact[45] is 'the impact on the environment which results from the incremental impact of the action when added to their past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action.' Another brief definition[46] would be "changes to the environment that are caused by an action in combination with other past, present and future actions".

Cumulative impacts occur when the effects of a project overlap with those of other projects and land-use activities, collectively impacting the same environmental and social components. Addressing cumulative impacts requires expanding the scale of analysis to the regional level, considering not only the footprint of the project under assessment but also its contributions and interactions with all other existing or planned activities in the area. Even developments located outside the immediate area may need to be included if they have potential effects on it. The standard Environmental Impact Assessment (EIA) procedure is often insufficient for understanding the full range of potential effects a project may have on a given area. A broader evaluation is necessary to truly gauge the impact of any project within a zone that has been, is being, and will continue to be affected by other developments.

Although the total cumulative impacts due to multiple projects typically should be identified in government-sponsored assessments and regional planning efforts, according to Performance Standard 1, IFC clients are expected to ensure that their own assessment determines the degree to which each project under review is contributing to the cumulative effects.

This section includes an analysis of potential cumulative impacts to assess their effects on environmental components. A rapid cumulative impact assessment, based on the *IFC – World Bank Group Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets. Good Practice Handbook*. (August 2013)[47] has been developed to support this evaluation.

15.2. Methodological framework for cumulative impact assessment

Cumulative Impact Assessment is, compared to Environmental Impact Assessment, recently developed. It is important that in the identifying process of environmental and social impacts and risks, the project developers recognize that their actions / activities / projects may contribute to cumulative impacts on certain components on which other existing or future developments may also have detrimental effects; and the necessity of avoiding and/or minimizing these impacts to the greatest extent possible.

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[45] *According to the U.S. Council on Environmental Quality (1997, Executive Summary page v)*
[46] *Hegmann et al. (1999, Section 2, page 3)*
[47] *IFC – World Bank Group. Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets. Good Practice Handbook. August 2013.*

Good practice requires including cumulative impact assessment during the ESIA process whether their development may contribute to any cumulative impact on components or may be at risk from cumulative effects on components they depend on.

As indicated in the IFC *Guidance Note 1 Assessment and Management of Environmental and Social Risks and Impacts,* paragraph 8 of Performance Standard 1 requires that, where the project to be financed involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the risks and impacts identification process by the client identifies and assesses cumulative impacts from further planned development of the project and other project-related developments, any existing project or condition whose impacts may be exacerbated by the project, and other developments of the same type that are realistically defined at the time of the risks and impacts identification process.

Cumulative impact assessment faces challenges primarily related to inconsistent baseline data, uncertainties regarding other developments, lack of regional, sectoral, and national strategies, and limited capacity.

The present analysis is based on the rapid cumulative impact assessment logical framework. This framework includes several steps: scoping (defining the spatial and temporal boundaries and identifying the main components affected); establishing a baseline for the components; assessing the project's contributions to these components; predicting cumulative impacts; evaluating their significance and assessing the project's viability and/or the sustainability of the affected components; and finally, designing and implementing mitigation measures to manage the project's contributions to cumulative impacts and risks.

The IFC – World Bank Group *Good Practice Handbook*, on which this framework is based, distinguishes three categories of impact significance:

- Significant risk for cumulative impact / significant leverage: the project represents a significant contributor to the expected cumulative impacts or will be the first of several future reasonably anticipated developments that will use the same resource and/or potentially affect the same component.
- Significant risk for cumulative impact / limited leverage: the project under consideration is immersed in an environment where the cumulative impacts are evident, but the issues are complex, many actors are already involved, and the solution is clearly beyond any individual project sponsor. In this case the assessment will help to determine the significance of the overall cumulative impacts and its contribution to these cumulative impacts, and design environmental and social management plans and procedures to appropriately mitigate those contributions.
- Limited to no contribution to cumulative impacts: even though there are clear cumulative impacts, the development's contribution to the cumulative impacts over the affected components are negligible or nil. In this case, no measures other than the ones resulting from the ESIA process would be necessary.

In any case, impacts are not assessed based on the intensity of the stress added by a given project or development, but rather on the response of the affected components and, ultimately, any significant changes in their condition. The impact should be evaluated as the difference between the estimated future condition of the components, accounting for stresses imposed by all sources (including other projects and natural environmental drivers), and the estimated condition of the components in the future baseline context with the addition of the project being evaluated. Therefore, it is necessary not only to estimate the project's specific impact but also the future condition of the components under all cumulative stresses. This cumulative impact

can be assessed in relation to an established threshold of acceptable condition, if available, or in reference to a past baseline.

In addition, it is important to consider that, as stated in IFC documents, potential impacts that would occur without the project or independently of the project should not be considered.

15.3. Baseline conditions in the project area

To analyze the potential cumulative impacts, it is essential to first assess the conditions of the area and its surroundings in order to establish a baseline from which to determine the effects of the Unicargas development project.

Luanda Bay underwent significant changes throughout the 20th and early 21st centuries. In the mid-20th century, the bay symbolized prosperity and modernity during the colonial period, serving as a hub for leisure and wealth, with Luanda Island connected to the waterfront via a bridge. However, after Angola's independence in 1975 and during the civil war, the bay's condition worsened, becoming heavily polluted due to a lack of public investment in infrastructure. By the end of the war in 2002, raw sewage continued to flow into the bay, and the area suffered from frequent flooding. In the post-civil war period, redevelopment plans were initiated, including dredging and cleaning the bay, expanding the waterfront, and reclaiming land using dredged sediment.

15.3.1. Air quality

Literature on Luanda city's air quality indicates that particulate matter (PM) pollution is a common issue across the African continent due to the burning of wood, charcoal, dung, crop waste, or coal to meet basic energy needs. Luanda is no exception and may also be impacted by industrial emissions from sectors related to oil and gas exploration and production. Furthermore, other factors affecting air quality include fire inductions to promote resprouting for livestock fodder (seasonal during the dry months), the increase in motor vehicles, and dust aerosols from the Namib Desert.

As part of the campaigns conducted in the context of defining the baseline of the Unicargas project area for this ESIA, an ambient air quality campaign was carried out. This survey, conducted from March 1st to 7th, 2024, measured several parameters (Inhalable Particles $PM_{2.5}$ and PM_{10}, Ozone O_3, Carbon Monoxide CO, Sulfur Dioxide SO_2, Nitrogen Monoxide NO and Nitrogen Dioxide NO_2) at three different locations within the Unicargas terminal boundary. The measurement values for Ozone O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) exceeded the maximum recommended limits at two of the stations, P02 and P03. Both stations are closer to the boundary, where the effects of heavy traffic and the presence of heavy vehicles on the adjacent Cacuaco Road may be more pronounced.

This indicates that the air quality within the project's footprint area is already polluted, and the baseline for comparison is far from representing an untouched environment. Rather, it reflects the industrial nature of the area, which is located within the Port's fenced perimeter, surrounded by other industrial activities, factories, transport infrastructure, and city traffic. In this regard, it should be noted that the Unicargas terminal is an operational terminal currently located in a predominantly port environment, surrounded by other terminals operating within the Port. Therefore, the Project does not involve the development of a new activity, but rather the improvement of existing port activities.

15.3.2. Noise

At the same locations where air quality measurements were taken, a noise survey was conducted to establish the baseline conditions of the area. During the evaluation, noise levels at certain points exceeded the recommended limits. The analysis identified several noise sources, with vehicle traffic, including heavy vehicles, being the primary contributor in the monitored areas. Industrial activities within the Port area also contribute to elevated noise levels, although the surrounding environment, an industrial area intersected by the Cacuaco Road (EN100), also influences the baseline noise levels.

Currently, based on the aerial acoustic modeling conducted, Unicargas Terminal's activities are not causing significant noise issues in the surrounding areas, with the EN-100 road identified as the main source of noise in the zone. The highest noise levels recorded at a residential area adjacent to the Port, caused by the road, reached 62.2 dBA during the day and 54.8 dBA at night. The World Health Organization (WHO), in the absence of specific Angolan legislation, establishes the maximum acceptable noise levels as 55 dBA during the day and 45 dBA at night, at residential areas.

15.3.3. Marine environment

In the present situation, Luanda Bay is affected by water quality degradation and frequent harmful algal bloom (HAB) events (Rangel et al., 2004, 2006, 2007; Blanco et al., 2010). The Luanda Waterfront Project, mentioned throughout the present document as a source of information, identified significant pollution in the upper shallows of Luanda Bay, linked to runoff from the watershed, primarily associated with intense rainfall events. Additionally, the bay has accumulated sediments and pollutants from the land.

As highlighted in previous chapters (refer to section 10.2.6), Luanda Bay faces serious challenges related to wastewater disposal. The ongoing discharge of untreated wastewater, stemming from insufficient treatment infrastructure, poses notable risks to both environmental and public health. This has led to a decline in water quality, which is harming marine life and disrupting the bay's ecosystem.

As part of the baseline surveys for the Unicargas project area in this ESIA, a water quality survey was conducted on January 31, 2024. Water samples were collected from ten stations distributed across a broad area in front of Unicargas Terminal. Water quality directly impacts marine ecosystems, as species have adapted to the current state of the water and port sediments influenced by the long-standing infrastructure and port activities.

In terms of ecological status classification, the ecological potential of the waters in the Port of Luanda was classified as good, though it did not achieve an excellent rating because some measured parameters fell short of the highest criteria. The samples revealed significant alterations in certain parameters typical of heavily trafficked, industrial areas. Concentrations of hydrocarbons, oils, and fats were detected, which is expected due to the high volume of vessel traffic. Additionally, the presence of metals, such as iron and aluminum, poses potential risks to ecosystems, especially those formed by colonies of marine invertebrates. The low percentage of dissolved oxygen throughout the water column likely contributes to the scarcity of fish observed in the area. Moreover, this is a high-risk area for localized spills and contamination due to intense shipping activity.

In terms of sediment quality, sample analysis indicated that nearly all parameters fell within established guideline ranges. Only one station recorded zinc (Zn) levels that exceeded the recommended limits.

Concentrations of PCBs, VOCs, and PAHs, as well as nutrient levels, remained within acceptable ranges at all stations. Based on the concentrations of total nitrogen and phosphorus, the area was classified as having moderate to deficient ecological potential, with values exceeding the thresholds for a more favorable rating.

Marine sediment quality is crucial for both sessile and mobile benthic species, as it serves as a bio accumulative matrix for various waterborne parameters and anthropogenic discharges from the surface. In alignment with port characteristics, the sediment samples showed signs typical of port areas: redox potential measurements indicated low oxygenation (consistent with water quality results), detectable levels of metals above the quantification limit, and compounds related to port activity, including fats, oils, PAHs, TPHs, and PCBs. These elements impact and limit the benthic ecosystem.

As a result, the affected habitats lack any degree of natural integrity. A survey to assess the fauna within and around the project site was conducted from January 28th to February 3rd, 2024. Avifauna represented the most abundant group of vertebrates, while no sightings of cetaceans or sea turtles were recorded. Luanda Port is not a transit route for marine mammals, and nearby sea turtle breeding grounds are located far from the project site.

The seabed in the area is notably anthropogenic, with large amounts of varied debris, limited visible biological diversity, and a high degree of homogeneity, characteristics typical of a port environment. The heavy influence of human activities has already had a marked impact on local fauna.

15.3.4. Socioeconomic situation

Port activity

The Port of Luanda is Angola's largest and most vital seaport, serving as the primary gateway for the nation's imports and exports and handling the vast majority of Angola's cargo. Its location allows the port to operate efficiently within the regional maritime routes of the western coast of Africa, giving it a strategic advantage as a transit and distribution hub.

The port operates under a Landlord Port model, with the public enterprise Empresa Portuária de Luanda (EPL) responsible for its management and regulatory oversight.

The social objectives of EPL include:

- Providing international trade and cabotage services in the country
- Managing the loading and unloading of goods, as well as their storage
- Offering ancillary services for cargo and navigation operations
- Controlling and supervising industries installed or to be installed within the port area, with a focus on the security and efficiency of port operations
- Protecting the environment

EPL oversees several terminals within the port, each specialized in handling distinct types of cargo and activities, which are operated under concession by both private and public entities. All terminals are operational 24 hours a day. These terminals include facilities for general cargo, containers, multipurpose use, cabotage, and oil and gas support:

- Passenger Terminal: Managed by Instituto Marítimo e Portuário de Angola (IMPA), with docking capacity for smaller vessels like catamarans.
- General Cargo Terminal (GCT): A 900-meter quay with depths of 5.5 to 10 meters, primarily used for liquid and solid bulk as well as cereals. Concessioned to Multiterminais, this terminal spans 80,000 square meters and is equipped with mobile cranes, reach stackers, and forklifts.
- Multivalent Terminal (MVT): Operates general and container cargo over a 536-meter quay at 10 meters depth, with a 178,641-square-meter embankment. Managed by Unicargas EP, this terminal is also equipped for refrigerated storage and has a car park with a 600-vehicle capacity.
- Container Terminal (CT): Operated by Sogester SA, this terminal exclusively handles containerized goods over a 550-meter quay with depths up to 12.5 meters. It has a capacity for 4,620 full TEUs, 5,000 empty TEUs, and 400 plugs for refrigerated containers.
- Multipurpose Terminal (MT): Spanning 229,100 square meters, the MT serves both general and container cargo across a 610-meter quay with a depth of 12.5 meters. With over 725 employees, the terminal has robust container handling and storage capabilities, including mobile cranes and reach stackers.
- Cabotage Terminal: Currently under development for future cabotage activities, featuring a 260-meter quay and an embankment of 27,650 square meters.
- Oil & Gas Terminal: This 2,064-meter quay supports Angola's oil industry with specialized facilities managed by Sonangol EP.

Operationally, the Port of Luanda has experienced fluctuations in cargo throughput and vessel traffic due to Angola's economic challenges, especially those stemming from the global oil price crisis. In 2018, the port handled approximately 7.1 million tons of cargo, with containerized goods constituting the majority. The port's infrastructure supports a steady traffic of vessels, though recent economic conditions have reduced vessel arrivals. Nevertheless, the port's technical capacity remains robust, with a range of equipment distributed across its terminals, including mobile cranes, reach stackers, forklifts, and other handling equipment to streamline operations. This modern equipment and infrastructure ensure high standards of cargo handling, contributing to efficient workflow and cargo tracking through advanced IT systems.

EPL's management ensures compliance with Angola's maritime regulations, as overseen by the Instituto Marítimo e Portuário de Angola. This regulatory framework enforces standards for safety, environmental responsibility, and maritime security, positioning the port within Angola's broader objectives of national development and economic diversification.

Fishing industry

Fishing in Luanda provides an important source of income for local communities, yet it is subject to strict regulations. According to the Aquatic Biological Resources Law (No. 6-A/04) and Presidential Decrees (No. 41/05 and No. 28/15), fishing in Luanda Bay is limited to subsistence purposes, and the capture of mollusk bivalves is prohibited in closed areas. However, enforcement of these regulations is lacking, leading to unreported landings and making resource management difficult. This has resulted in significant challenges for the fishing sector, including overfishing and contamination of resources

The primary source of information on small-scale fishing in Luanda Bay comes from a study conducted as part of the Luanda Waterfront Project, titled "Characterization of Small-Scale Fishing Activity in Luanda Bay." This research, authored by Faria et al., offers the first comprehensive analysis of small-scale fishing practices

in the area, highlighting their economic importance. The study surveyed 30 male fishermen from two communities, (Luanda Island and Luanda Commercial Harbor), gathering data on demographics, fishing practices, and income levels.

Fishing in Luanda Bay faces considerable challenges. The bay suffers from high levels of pollution due to nearby urban and industrial activities, which negatively impact water quality and the safety of fish. Furthermore, the lack of regulation enforcement, coupled with the presence of toxins in the water, creates health risks for both the fishermen and the consumers of their catch.

15.4. Future developments in the project area

The future developments planned in the main activities occurring in the study area include the project under review, the dredging project aimed at allowing the entry of larger vessels, and the wastewater discharge improvement project through the construction of a treatment plant on the Port Authority's land. The potential existence of other future developments has not been communicated or published in available media.

As indicated in previous sections, the project for the construction of a Wastewater Treatment Plant (WWTP) at Luanda Port was presented during the 1st edition of the Blue Economy Expo (Luanda, October 23-26, 2023). This initiative aimed to ensure the sustainability of marine ecosystem protection as part of the Port of Luanda's environmental best practices. The port authority emphasized the project's significant importance for the country's economy and development, highlighting its multiple impacts on the marine ecosystem, oceans, and coastal areas.

Among its various benefits, the WWTP is expected to contribute to environmental protection, reduce seawater pollution, prevent public health risks, improve water quality, and safeguard marine resources. Furthermore, the Wastewater Treatment Plant will enhance waste management efficiency, thereby reducing operational costs, including landfill fees and transportation expenses for waste disposal at distant locations. However, the details regarding the potential construction of a wastewater treatment plant are unknown, beyond the stated intention of the Luanda Port Authority to carry out the project.

As for the dredging project, there is a need for capital dredging operations to increase the depth of the turning basin and approach channel adjacent to the Unicargas Terminal, aiming to reach a depth of -16.0 meters. It is important to note that the responsibility for carrying out these capital dredging works lies outside ADPG's scope of activities and will instead be managed by external entities under the authority of the Luanda Port Authority (LPA). As also explained in previous sections, precise information on this matter is not available. Several meetings with representatives of the Port Authority, along with specific consultations conducted by ADPG, indicate that LPA is still in the decision-making process regarding the design and scope of the dredging project.

Regarding the Unicargas Terminal development project, which is the focus of this ESIA, the project data is described in Chapter 7 and the potential impacts resulting from this development have been analyzed throughout this document, along with the establishment of the corresponding mitigation measures.

15.5. Identification and assessment of cumulative impacts

15.5.1. Preliminary considerations

It is important to emphasize, as highlighted in various sections of this document, that the project involves the improvement of already existing facilities that are currently operational. Therefore, the potential cumulative impacts arising from the new development are only those resulting from possible modifications that the rehabilitation entails on the activities currently carried out at the terminal, particularly considering the impacts generated during the construction phase.

In addition, it is important to note that the project's footprint does not fully capture all potential cumulative impacts. In determining the project's area of influence (Section 9.3), the area was extended to include:

- An approximation of the dredging boundary (a project outside the scope of this ESIA, but considered as an associated facility), along with an 800-meter buffer zone around this contour.
- A 200-meter buffer area from the terminal boundary, ensuring that zones most impacted by air quality and dust emissions are accounted for. This buffer also extends to the marine side of the project area.
- The noise modeling study conducted estimated noise levels during the operational phase, including impacts from the EN-100 road. The area of influence on the terrestrial side overlaps the boundary defining the 55 dBA noise level during the operational phase.

The figures provided in the referenced section reflect the project's area of influence and the area considered for the cumulative impact assessment. This area of influence has been consistently used throughout the environmental impact assessment, as it was understood from the outset that the project is not isolated from its surrounding environment, and its effects will extend beyond the footprint area to adjacent zones

On the other hand, when assessing the potential contribution of the Unicargas Terminal project to cumulative impacts, it is important to consider the volume of activity generated by the terminal in relation to the overall port activities carried out by the various terminals operating in the Port of Luanda.

As shown in the following figure[48],, Unicargas Terminal (MVT) has a relatively limited contribution to the overall port activity. The number of vessels varies significantly across the years considered, likely due to national macroeconomic factors. Using data from 2018 (the last full year studied), Unicargas accounted for 2.7% of vessel traffic, with 99 vessels out of a total of 3,719. In 2015, the year with the highest number of vessels across four of the six terminals, Unicargas reached 3.02% with 198 vessels out of 6,562. The oil and gas terminal is the primary driver of vessel traffic in Luanda Port, contributing 85% of total traffic over the years studied.

[48] *Investment Memorandum. Multipurpose Terminal of the Port of Luanda. Concession of the Seaport Infrastructure (Decembre 2019)*

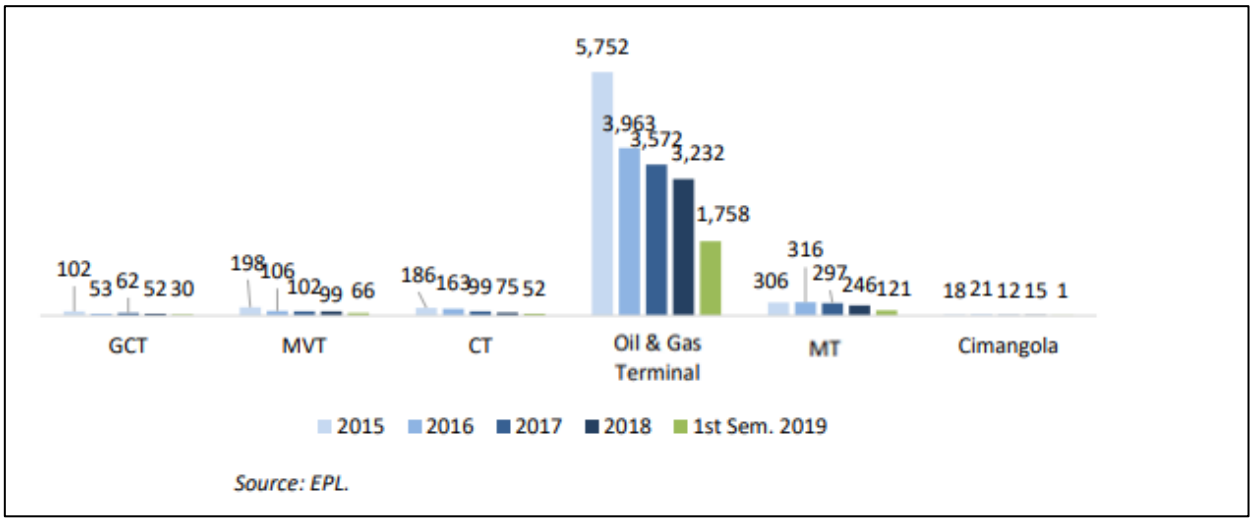


Figure 240. Vessel traffic per terminal (number of ships) 2015-1st semester 2019. Source: Empresa Portuária de Luanda -EPL-

The changes planned for the Unicargas Terminal following the implementation of improvements to the facilities, while increasing capacity and port traffic, will not result in a significant change in the overall view of the contribution percentages of the different terminals to the environment, compared to the total port activities, especially considering the variability observed in the figures from recent years. These data are confirmed by those presented in Table 94, related to the estimation of the type and quantity of vessels that will operate in the terminal after construction completion.

15.5.2. Air quality

Impact assessment for the Unicargas Terminal project

The construction phase of the Unicargas Terminal will lead to an increase in gaseous emissions in the area and its surroundings. On the "terrestrial side," this effect will primarily result from civil works, including the demolition of existing buildings, removal of pavement, leveling, and other construction activities. Additionally, there will be a significant rise in cargo transport operations due to the expansion of the Terminal's capacity. On the "marine side," the impact will stem from increased vessel emissions as they arrive at the Port and Terminal.

Aside from the effects during the construction phase, the other impacts are already ongoing, as the project involves the refurbishment of an operational terminal. An increase in gaseous emissions and a decline in air quality are anticipated, exacerbating existing pollution in the area caused by industrial activities, traffic, and other regional factors.

Cumulative impact during Construction phase

During this temporary phase, the increase in dust and exhaust gaseous emissions will be significant due to the necessary refurbishment of the Terminal. However, the preventive/mitigation measures and best practices outlined for the project are expected to partially address the impact, reducing it from moderate to minor after implementation.

Although a cumulative impact is anticipated, since the area's air quality is already compromised due to various factors mentioned previously, the impact is temporary. Not all activities will contribute to the impact to the same degree, nor will they affect the entire Terminal area.

Considering the activities that will take place during the development of the dredging project, as previously indicated and outlined in Chapter 14, the necessary details to conduct a precise evaluation are unknown. However, it is expected that during the dredging works, an additional source of gaseous emissions will be generated, which may lead to a depletion of air quality.

In any case, since the schedule for the works is also unknown, the potential accumulation of effects cannot be accurately assessed. However, it is anticipated that air quality parameters will be affected if the dredging works coincide with the marine side activities, potentially increasing the cumulative impact

From a broader perspective, given that this is a temporary impact affecting only the Port area and its immediate surroundings, and not expected to extend to the city, the cumulative impact is considered significant but limited in influence. It is not expected to increase the severity of the overall effect.

Cumulative impact during Operational phase

The increase in traffic, both on the terrestrial and marine sides, resulting from the enlargement of the Terminal's capacity is expected to lead to a cumulative impact. As mentioned previously, the estimated number of vessels per year is expected to at least double (depending on the year of reference), and the number of trucks for cargo operations will increase fivefold.

To assess the potential cumulative effect on the 'terrestrial side,' a network of air quality measurement stations across Luanda City would be necessary. The absence of pollution data that could reflect different types of contaminating activities, as well as the number of vehicles by type of road infrastructure, creates a gap. Additionally, further analysis of the goods being transported, their origin and destination, transport routes, etc., would be required.

Given the lack of sufficient information and considering the contribution percentage of the Unicargas Terminal to the total port activities, it is concluded that while a cumulative impact will occur, its significance will not exceed the magnitude assessed in the Environmental Impact Assessment section, which is categorized as moderate.

On the 'marine side,' pollution related to ships and their activities is considerable and noteworthy. Again, information on the Port area's pollution, its origins, characteristics, and regular measurements is unavailable. While some assumptions have been made, such as all terminal activities contributing equally to the Port's pollution or there being no significant differences in gaseous emissions among different types of vessels, the involvement of Unicargas Terminal in Port activities allows for an approximation of the cumulative impact. As shown in the preliminary considerations section, the contribution of Unicargas Terminal to Port activity ranged from 2.7% to 3.02% (2015-2018). While the number of vessels will double after the refurbishment, its contribution to the total Port pollution is expected to remain minimal, as is its cumulative impact. The oil and gas terminal is likely to continue being the largest contributor to pollution.

As with the construction phase analysis, the cumulative impact is considered significant but limited in its influence, as multiple actors and activities contribute to it.

Mitigation measures

Mitigation measures to address the cumulative impact on air quality are complex to design and implement, as they must be adopted by various stakeholders: ship and terminal operators, the Luanda Port Authority, the city council, regional and national administrations, transport companies, and others.

The adoption of international regulations and best practices is crucial for establishing new frameworks, such as the Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (IFC, February 2017). Additionally, regional and local urban planning, environmental awareness policies, and social behavioral changes will be required. However, these actions fall beyond the scope of the Unicargas Terminal project and must involve a broader group of actors.

Nevertheless, ADPG follows a strong environmental policy that includes numerous procedures and protocols applicable to its projects. The Health, Environment, and Safety System includes several plans and actions aimed at improving the construction and operational conditions of the Unicargas Terminal. Measures to reduce gaseous emissions, minimize the carbon footprint, and adopt international protocols are among the actions included, along with best practices to be implemented.

Furthermore, the project's Environmental and Social Management Plan establishes guidelines under which the project will proceed. This plan will outline all the mitigation measures and practices to be applied during the various phases of the project, including those related to air quality.

The Luanda Port Authority also follows its own protocols, and its Environmental Operational License includes mitigation measures to be applied during the Port's operations, including those for the Unicargas Terminal. These measures cover air quality protection, including emissions control. Other terminals may have their own procedures, policies, and plans, which could include measures for emissions control and mitigating air quality depletion.

If the dredging project coincides with the construction phase of the Unicargas Terminal development, additional air quality monitoring may be necessary in the area surrounding the intervention zone. Monitoring points could be spread across the area, particularly in zones where the two projects overlap.

15.5.3. Noise

Impact assessment for the Unicargas Terminal project

The construction phase of the Unicargas Terminal, will result in increased noise and vibration levels in the area and its surroundings. This effect will be felt throughout the Terminal, on the 'terrestrial side' during construction, and also in the surrounding vicinity outside the fenced area. Among the construction activities that have the potential to impact ambient noise, some will generate more noise and vibrations than others. It is important to note that while some activities will be short-term and localized, others will be more continuous.

Additionally, there will be a significant increase in cargo transport operations due to the enlargement of the Terminal's capacity, which will lead to increased traffic noise both within and outside the Terminal.

Construction activities will also affect the 'marine side,' as certain actions, such as those related to quay wall construction, will increase underwater noise and vibration levels. During the operational phase, the increase in the number of vessels will further elevate noise and vibration levels.

In both cases, since the Terminal is currently operational, impacts during the operational phase already exist, although an increase in magnitude is expected due to the expansion of the Terminal's capacity.

Cumulative impact during Construction phase

During this temporary phase, the increase in noise levels on both the terrestrial and marine sides will cause disturbances and potential annoyance to the community. The already noisy environment around the Unicargas Terminal, primarily due to industrial activity and the EN-100 road, will be further deteriorated as a result of the cumulative impact. However, the preventive and mitigation measures outlined, along with the temporary nature of the impact, will help reduce the effect. The magnitude of the cumulative impact is expected to be significant but temporary, with limited influence compared to the other actors and activities involved.

Regarding the marine side, underwater noise and vibrations caused by construction works will add to those generated by shipping activity. This may lead to a cumulative impact on wildlife, although the fauna in the area is limited, and no protected or endangered species have been identified in Luanda Bay, thus reducing its ecological value. The potential additional effect is assessed as minor.

As in the previous case, it should be noted that data on the dredging project is not available, making it impossible to conduct a precise analysis of potential cumulative impacts. In any case, it must again be considered that if the activities of both projects overlap in time, there will be an increase in noise in the surrounding area, with consequent effects on the environment.

Cumulative impact during Operational phase

The increase in the capacity of the Unicargas Terminal will result in a higher number of vessels arriving at the terminal, more trucks operating to supply and transport goods, and intensified cargo operations at the quay. This will undoubtedly lead to an increase in noise levels and based on the current situation in the immediate surroundings, a cumulative impact is anticipated. The main source of noise outside the terminal is the EN-100 road, which affects adjacent residential areas more significantly than the current or projected operating noise levels from the terminal (Acusttel 2024, 10.2.2.5 Aerial Acoustic Modelling).

Overall, while the cumulative impact will be significant, its influence remains limited compared to other contributing factors

Mitigation measures

Mitigation measures to address noise and vibration effects may involve various actors within and beyond the project's area of influence. However, the Unicargas Terminal project development includes several specific measures to avoid or mitigate negative effects, such as regular machinery maintenance and enclosing certain equipment. ADPG and the Luanda Port Authority also have procedures in place to manage noise impacts, which will be implemented as needed.

If the dredging project is ultimately carried out simultaneously, an additional noise monitoring campaign may be conducted during works to assess how noise levels are interacting and to identify any necessary actions for further mitigation.

15.5.4. Marine environment

Impact assessment for the Unicargas Terminal project

Instead of evaluating individual components affected on the marine side, such as water quality, sediments, and biodiversity, these elements are assessed as a whole due to their strong interconnection. Consequently, the marine environment is regarded as the primary receptor of cumulative impacts resulting from various project activities.

The potential effects and impacts during both construction and operational phases include changes in water quality from increased suspended solids, heightened pollution risks from accidental spills, alterations in the marine environment due to sediment displacement on the seabed, shifts in existing conditions that affect marine flora and fauna, increased disturbances to marine fauna, and the potential exclusion of certain species, among other impacts

Cumulative impact during Construction phase

All activities undertaken during the development of the Unicargas Terminal project will take place in a marine environment that has already been heavily impacted. As previously mentioned, the Port area, including the Terminal, is currently in operation, meaning its natural state is quite limited. Baseline surveys conducted revealed various types of pollution, debris, and a scarcity of marine species.

The necessary construction works will further intensify these adverse conditions, although the removal of a substantial amount of accumulated seabed debris will have a positive effect. The cumulative impact is assessed as significant but limited in influence, given the current complexity of the environment and the many actors involved.

The dredging project is the main development that may pose a cumulative impact on the marine environment in addition to the construction phase of the Unicargas Terminal development. As previously indicated, it is still in the design phase, so the necessary data to conduct a precise and detailed analysis of potential cumulative impacts, such as the geometry and dimensions of the area to be dredged, dredging mechanisms and machinery, dispersion plume modeling and possible affected areas, project timeline, and destination or uses of the dredged material, are not yet available. It should be noted that the dredging project will undergo an Environmental Impact Assessment process, during which a specific Environmental Impact Study will be developed to analyze the corresponding impacts and establish appropriate mitigation measures.

Cumulative impact during Operational phase

The increase in shipping activity due to the expansion of the Unicargas Terminal's capacity will likely lead to additional negative effects on marine water quality, heightened risk of spillages, and potential disturbances to marine fauna. The Port is already operational and currently experiences these negative effects from existing shipping activity, which will undoubtedly intensify once the Terminal refurbishment is complete and activity increases.

Once again, the cumulative impact is expected to be significant but limited in influence, given the number of stakeholders involved. It is also worth noting that the Unicargas Terminal's contribution to the annual number

of vessels remains relatively low (2.7–3.02% between 2015 and 2018), and although its capacity is set to increase, its overall impact on Port activity remains limited.

Mitigation measures

Mitigating cumulative impacts in cases where multiple actors and circumstances overlap can be challenging. However, ADPG is firmly committed to avoiding or minimizing potential environmental impacts from its Unicargas Terminal development project, addressing both cumulative and non-cumulative effects. Therefore, mitigation measures to reduce negative impacts on the marine environment are included.

In the section discussing potential impacts from dredging, a series of recommended mitigation measures are provided to be considered for the dredging project. In any case, as previously indicated, it is important to highlight that information about the dredging project and its characteristics is currently unavailable. As a result, specific measures should be evaluated and considered as part of the environmental assessment process conducted specifically for the dredging project when more details are known.

15.5.5. Socioeconomic environment

Impact assessment for the Unicargas Terminal project

The socioeconomic environment of the Unicargas Terminal project area is shaped by its critical role within the Port of Luanda, Angola's primary gateway for imports and exports. The port supports national and regional economic development, serving as a key hub for trade, logistics, and employment.

As indicated in previous chapters, the project will primarily impact workers, with concerns about air pollution, noise levels, and occupational health and safety risks. The emission of pollutants from machinery and vehicles, along with increased noise, could cause discomfort, while the risks associated with construction activities need to be carefully managed. In terms of community impact, the construction phase could result in temporary disruptions, such as traffic diversions and service interruptions, but the overall impact is considered minor, given the existing port operations and alternative routes.

The project is also expected to provide positive economic benefits, such as job creation for local workers and secondary business growth, though there may be potential social tensions due to the influx of migrant workers seeking employment. The potential impact on local fishing activities is considered minor.

Cumulative impact during Construction phase

The Unicargas terminal is surrounded by companies engaged in port activities, such as container, oil, and food transport. The terminal is situated within a closed port area with controlled access, ensuring that the surrounding population is not expected to be directly affected by the activities within the port. However, construction activities may cause temporary disruptions, affecting workers and stakeholders.

Given the existing industrial nature of the area, the additional disturbances from construction may not significantly alter the socioeconomic baseline but will contribute to the cumulative pressures experienced by local stakeholders. If other planned developments, such as dredging occur simultaneously, there could be compounded effects.

In this regard, although the project is unlikely to disrupt small-scale fishing activities significantly, disruptions to these activities could be exacerbated by the overlap with works related to the dredging project. In any

case, as previously mentioned, artisanal fishing methods are adaptable and can be temporarily relocated within the bay, making this a temporary situation.

Cumulative impact during Operational phase

The operational phase is expected to significantly enhance the terminal's economic contributions. By increasing cargo throughput capacity, the terminal will support national and regional trade, potentially boosting economic growth and creating long-term employment opportunities.

The expansion of the terminal's capacity will boost cargo transport and shipping activity, positioning the facility as a key hub in Angola's maritime trade. This modernization aligns with the country's strategic objectives to maximize trade potential, stimulate economic growth, and strengthen its standing in global markets. By fostering economic prosperity across Central-West Africa, the project is expected to generate far-reaching positive socioeconomic impacts.

However, this increased activity will likely intensify traffic congestion, both within the port and on adjacent road networks, particularly the EN-100 road.

Mitigation measures

Overall, the potential impacts on the socioeconomic environment are considered fundamentally positive, primarily due to the increase in maritime transport capacity, which supports economic development, and the improvements brought by ADPG's policies in managing terminal activities.

Regarding mitigation measures for risks associated with worker influx and other potential impacts, particularly during the construction phase, these are comprehensively outlined in the relevant sections, and the necessary monitoring will be conducted to ensure compliance.

15.5.6. Final considerations

The Unicargas terminal is currently an operational terminal within Luanda Port. The port area is a restricted, controlled-access zone, with entry limited to personnel involved in port activities or those specifically authorized. For this reason, Unicargas terminal's main social connection to the surrounding area lies in its role in maritime transport and its contribution to the country's economic development.

The project for the rehabilitation and improvement of the Unicargas Terminal is a strategic decision rooted in various compelling factors and informed by the recent developments surrounding the concession agreement and the endorsements from key stakeholders

In this sense, the endorsements and statements from prominent authorities involved in this decision, including Minister of Transport of Angola, highlight the strategic significance and broader implications of the Unicargas Terminal project for Angola's economic development and maritime trade landscape. Minister's acknowledgment of the transformative potential of the strategic partnership between AD Ports Group and the Angolan government reflects a shared vision for modernizing infrastructure, expanding global trade access, and stimulating economic growth across Central-West Africa.

Furthermore, this assessment concludes that the project does not significantly contribute to adversely affecting any ecosystem component or specific characteristic beyond an acceptable threshold (carrying

capacity). Therefore, the project's implementation does not result in a cumulative impact of such a magnitude that would render the project inadvisable or unacceptable to proceed with.

16. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

16.1. Objectives of the ESMP

Environmental and social management of a proposed activity is a crucial tool to ensure any project's environmental and social performance. The ESMP aims to establish the guidelines for best practice environmental and social management of the Project, through a clear definition of the environmental and social actions and management procedures to be implemented in each phase of project development, as defined in the ESIA. The objectives of the ESMP are to:

- Facilitate the implementation of relevant environmental and social mitigation actions. These will be practical, easy to implement and suited to the nature and scale of the proposed Project;
- Define the environmental and social management requirements throughout the life cycle of the Project, and the responsibilities of each of the key role players and establish the actions and deliverables required of each party to effectively implement these requirements;
- Identify management programs and a specific ESHS Action Plan (ESAP) setting forth the commitments to be carried out by each party to achieve the environmental, social, health and safety management requirements during all project Phases, as defined in the ESIA.
- Encourage and achieve the highest environmental and social performance and response from all employees and contractors;
- Ensure that management efforts are proactive and focused to prevent impacts from occurring;
- Supplement the proactive approach with reactive measures to minimize the severity or significance of any impacts that cannot be prevented at source.

Through the formal documentation of measures and commitments concerning environmental and social management, the ESMP plays a crucial role in ensuring that potential adverse impacts are minimized while positive effects are maximized. Acting as a guiding tool, the ESMP facilitates the management and monitoring of impacts. Should impacts surpass initial predictions, additional measures will be required to mitigate, control or prevent them. Consequently, the ESMP must undergo continuous updates and amendments as needed throughout the project's lifespan to mitigate or reduce negative impacts and enhance positive ones.

It's worth noting that the ESMP delineates environmental and social management measures and commitments stemming from the ESIA. However, it's important to acknowledge that during the development of the ESIA and the associated ESMP, detailed engineering design information was not yet available. Consequently, some mitigation measures and commitments outlined in the ESIA and incorporated into the ESMP will require further refinement to be more site-specific once detailed design information becomes available.

Given the above, ADP Group will need to:

- Update and finalize the ESMP based on the final detailed engineering design and ensure that measures to be undertaken during construction and environmental technical specifications are included in the bidding documents and contractual obligations with the winning bidder for each of the contracted elements of the Project.

- Ensure that its contractors abide by the ESMP, making it a part of the contractors' contractual obligations. To the effect, ADPG will require its Contractor to develop a Contractor ESMP (C-ESMP), in compliance with all requirements listed in this ESMP and including all management plans required in this ESMP.
- Further develop the ESMP into a Project Environmental and Social Management System (ESMS), compliant with PS1 and ISO 14001, so as to ensure that the Project is conducted and managed in a sustainable manner.
- If requested, carry out regular environmental audits of the Contractor's works in accordance with local authority regulations and IFC requirements. These audits may be conducted by the Employer or a third-party.

16.2. Responsibilities of the Proponent

Mitigation of the Project's induced impacts will require active management in all project phases. Given that these phases will be under the responsibility of different role players, it is crucial to clearly define the responsibilities of the main role players across the project's life cycle, to ensure that the environmental and social management procedures defined in the ESMP are fully implemented.

Construction Phase

The Project's Proponent will be responsible for ensuring that the Project is designed, built and operated according to the requirements set out in this ESMP.

In this case, the JV, as proponent, will assume supervision responsibilities for effective ESMP implementation for construction phase through the services of a PMCM (Project Management and Construction Management Consultant) who will perform the construction supervision services on behalf of ADPG.

The PMCM team will be properly constituted to oversee E&S compliance, consisting of at least a senior HSSE engineer and inspector, among others.

The PMCM will be responsible for ensuring the compliance of the Contractor with the requirements set out in the ESMP. The responsibilities include monitoring the compliance of the implementation of the ESMP to ensure high E&S standards, in compliance with international best practice and WB Group requirements. This will include the following main tasks:

- Ensure that the Project's detailed design complies with the requirements set out in the ESMP. The PMCM will carry out the peer review and approve the design on the Employer's behalf.
- Ensure that the Contractors are fully aware of, and contractually bound to, the environmental and social management requirements set out in the ESMP for the construction phase of the different Project components, through their inclusion in the tendering process and subsequent contracts. This task will be carried out by the PMCM in coordination with the ADPG Project Manager.
- Require from all Contractors the submission of a Contractor ESMP (C-ESMP), Worker's policy (including workers' Grievance Redress Mechanism - GRM), and Code of Conduct as part of the construction contract prior to mobilization, compliant with all requirements included in this ESMP. This task will be carried out by the PMCM in coordination with the ADPG Project Manager.
- Inform key on-site staff of their roles and responsibilities regarding the ESMP, through initial social and environmental awareness training.

- Supervise the Contractor's environmental and social performance to ensure that all management requirements in this ESMP are implemented.
- Implement a supervision and reporting framework to enforce and document the implementation of the ESMP during the construction phase.
- Monitor, review, and verify compliance with the ESMP by the Contractor and any sub-contractors, ensuring the Contractor's E&S performance is in accordance with national law and good international industry practice.
- Review and approve all Environmental, Social, and Health (ESH) documents produced by the Contractor (as requested in this ESMP) to ensure that they comply with the standards established in this ESMP, national laws, and international guidelines (such as the WB Safeguard Policies and applicable Environmental, Health, and Safety Guidelines, as well as Employer's HSE guidelines and procedure). The PMCM will submit performance reports of the Contractor's HSSE performance to the Employer. In the case of repeated major non-compliances or major concerns on HSSE performance of the Contractor, the Employer (Project Director/Project Manager) will call the Contractor's management for a meeting and request the enforcement of a corrective action plan.
- Undertake supervisions, and/or inspections of any sites where the Contractor is undertaking activities related to the Project, to verify the Contractor's compliance with the ESMP requirements, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month.
- Identify areas of non-compliance and define measures to rectify them in consultation with ADPG management, the Contractor, and/or Project Stakeholders, as required. Ensure that the Contractor remedies E&S problems in a timely manner and to the satisfaction of the affected people, ADPG, and authorities (when necessary).
- Approve E&S training programs and other awareness initiatives.
- Monitor and report on the effectiveness of the ESMP as a tool for managing design, construction, and post-construction impacts, and provide feedback for continual improvement in E&S performance.
- Undertake audits and inspections of the Contractor's accident logs, community liaison records, monitoring findings, and other ESH-related documentation, as necessary, to confirm the Contractor's compliance with the ESMP requirements.
- Respond to changes in project implementation or unanticipated site activities that are not addressed in the ESMP, and which could potentially have environmental or social impacts, and advise ADPG and the Contractor as required.
- Review, approve, and archive the Contractor's ESMP Performance Reports. Prepare consolidated E&S performance reports, including tracking of issues, non-conformities, and non-compliances, and their closure to the satisfaction of ADPG.

Operational Phase

Regarding the operational phase, the JV implementation team will include an HSSE Unit led by an HSSE manager who will oversee all E&S aspects. In this regard, the implementation of the measures contained in the mandatory documents for both the Port of Luanda and the Unicargas terminal will be followed. Additionally, the development of the health and safety plan for the operational phase will take into account the requirements established in the applicable documents of ADPG's integrated management plan. In

addition, in the context of IFC (International Finance Corporation) and World Bank standards and regulations, responsibilities would include the following:

- Implement Environmental and Social Management System (ESMS): Ensure an ESMS is in place to manage risks and impacts associated with terminal operations.
- Environmental Monitoring: Regularly monitor and report on environmental impacts, such as emissions, waste management, and water quality.
- Social Monitoring: Address social impacts, including stakeholders' engagement and grievance mechanisms.
- Health and Safety compliance: Maintain high standards of occupational health and safety for all workers, adhering to best practices and relevant standards.
- Emergency Preparedness: Develop and implement emergency response plans for potential incidents such as spills, fires, or other accidents.
- Hazardous Materials Management: Properly manage and dispose of hazardous materials in compliance with international regulations.
- Stakeholder Engagement: Continuously engage with stakeholders, ensuring transparent communication and addressing concerns promptly.
- Fair Labor Practices: Ensure compliance with IFC Performance Standard 2 on labor and working conditions, providing fair wages, safe working conditions, and respecting workers' rights, including those related to Gender-Based issues:
    - Anti-Harassment Policies: Establish and enforce strict policies against workplace harassment, including gender-based violence and sexual harassment. Ensure these policies are communicated clearly to all employees.
    - Reporting Mechanisms: Provide confidential and accessible mechanisms for reporting harassment and GBV, ensuring that all complaints are taken seriously and addressed promptly.
    - Support Systems: Offer support services for victims of harassment and GBV, including counseling and legal assistance.
- Non-Discrimination: Implement non-discriminatory practices in hiring, promotions, and workplace policies. Ensuring compliance with gender-based issues in worker recruitment and employment practices at the Unicargas Terminal, in alignment with IFC and World Bank standards, would involve several key responsibilities:
    - Equal Opportunity Employment: Ensure recruitment processes are free from discrimination based on gender. Job advertisements, selection criteria, and interviews should focus on skills and qualifications without bias.
    - Affirmative Action: Implement policies to actively encourage applications from underrepresented genders, promoting a diverse workforce.
    - Gender Equality Policy: Develop and enforce a comprehensive gender equality policy that promotes the inclusion of all genders in all aspects of employment, including hiring, training, promotion, and remuneration.
    - Compliance with ILO Conventions: Adhere to ILO conventions, particularly those related to non-discrimination (Conventions 100 and 111) and gender equality.
- Training and Development: Provide ongoing training and development opportunities for employees to enhance skills and career growth.

- Resource Efficiency: Implement measures to reduce resource consumption, such as energy, water, and materials.
- Sustainable Practices: Promote sustainable practices throughout terminal operations, including the use of renewable energy sources and eco-friendly technologies.
- Human Rights Compliance: Respect and promote human rights in all aspects of terminal operations, including the rights of workers, local communities, and other stakeholders.

16.3. Responsibilities of the EPC Contractors

All the Engineering, Procurement and Construction Contractors (EPC Contractors) shall be responsible and contractually bound for the development of all E&S management plans and implementation of all E&S management actions outlined in the ESMP for the detailed design and construction phase and shall abide by the Employer's instructions regarding the implementation of the ESMP.

Based on the requirements of this ESMP, the Contractor will develop a Construction ESMP including all E&S requirements, as well as other management plans to be agreed upon with the proponent (in addition to those already outlined in this ESMP).

The Contractors' teams shall be composed of qualified technicians, with experience in similar projects. and will also retain the services of other E&S experts as needed to fulfill its obligations.

Responsibilities of the EPC Contractors include the following:

- Develop E&S awareness training for all new site personnel (e.g. posters, toolbox talks, signage);
- Develop the C-ESMP and all other plans mentioned above and ensure that all activities on site are undertaken in accordance with the ESMP, and respective CESMP and Method Statements.
- Undertake visual inspections of the activities of employees with regard to implementation of the requirements outlined in the ESMP;
- Immediately notify the proponent or their representative (PMCM) of any non-compliance with the ESMP, or any other complaints or issues of environmental or social concern;
- Write-up and submit specific management plans, as requested on this ESMP, to the ADPG through the PMCM for approval;
- Review and submit Method Statements to the PMCM for approval;
- Keep site documentation related to E&S management on site (e.g. permits, ESMP, Environmental Method Statements, Environmental License, Codes of Conduct (signed by each employee), specific management plans, minutes of meetings, records of grievances and resolution, reports, audits, receipts for waste removal, etc.);
- Keep a regular photographic record of all environmental or social incidents;
- Monitor and record ESMP performance indicators;
- Keep any records as required in the Environmental or Social Management Programs;
- Compile and submit ESMP performance reports to the PMCM at a previously agreed-upon frequency;
- Keep a log on non-conformities and non-compliances and follow up on the resolution until closed;
- Engage regularly with community members and authorities and serve as focal point for the Contractor's grievance management.

- Get all necessary licenses and permits to perform the activities, including opening of access roads, temporary warehouses, etc.
- Get all the licenses and permits required for handling, treatment, transport and disposal of waste at final destination;
- Allocate human and financial resources to implement the ESMP. Ensure that all the necessary equipment (e.g., waste containers, safety equipment) and materials (e.g., spill kits) are available;
- Provide E&S training to the workers;
- Carry out their own inspections to ensure compliance with the ESMP;
- Facilitate and participate in periodic audits from ADPG and any party designated by them and provide necessary information to do so;
- Implement all necessary correctives measures. Keep record of the incidents, accidents and community complaints;

16.4. Environmental and Social Management Programs

Based on the impact assessment carried out, the following programs will be implemented in order to address potential impacts during construction and operational project phases (Refer to Volume II for additional information regarding these programs):

- Air Quality and Noise Management Program
- Marine Water Quality Management Program
- Marine Sediment Quality Management Program
- Biodiversity Management Program
- Waste Management Plan
- Communication and Community Awareness Program
- Community Health and Safety Management Plan
- Emergency Response Plan
- Grievance Redress Mechanism (GRM)

Additionally, general guidelines are established for the development of an Asbestos Management Plan in the event that its presence is detected in any of the facilities slated for demolition as part of the project.

The guidelines to be followed in the event that the development of a gender-based violence plan is deemed necessary are also included, as indicated in section 13.9.1.2.

Based on the requirements of the ESMP, the Contractor will develop a Construction ESMP including all E&S requirements, as well as other management plans to be agreed upon with the proponent (in addition to those already outlined in the ESMP) to comply with the Employer's HSE guidelines and requirements.

The Construction Environmental and Social Management Plan (CESMP) must comply with the requirements set out in the Environmental and Social Impact Assessment to ensure adherence to the prescribed mitigation measures. Accordingly, the CESMP should include the monitoring and control actions established in the ESIA's Environmental and Social Management Plan. Once the detailed construction project and activity schedule are defined, the necessary site inspections will be planned. To support these routine inspections, checklists will be developed and included in the CESMP along with the scheduled activity timeline. Once completed, these checklists will be integrated as part of the relevant periodic reports.

16.5. Stakeholder Engagement Plan

Stakeholders are persons or groups who are directly or indirectly affected by a project, as well as those who may have interest in a project and/or the ability to influence its outcome, either positively or negatively. Stakeholders may include locally affected communities or individuals and their formal and informal representatives, national or local government authorities, politicians, religious leaders, civil society organizations and groups with special interests, the academic community, or other businesses.

The Stakeholder Engagement Plan (SEP) provides an opportunity to work with the public and, as mentioned in the IFC's PS1 (2012) standards, is "the basis for building strong, constructive and responsive relationships that are essential for the successful management of a project's environmental and social impacts".

The Stakeholder Engagement Plan (SEP) seeks to define a technically and culturally appropriate approach to consultation and disclosure. The goal of the SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project-affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions.

The SEP is a useful tool for managing communications. The Key Objectives of the SEP can be summarized as follows:

- Understand the stakeholder engagement requirements of Angolan legislation;
- Provide guidance for stakeholder engagement such that it meets the standards of International Best Practice; Identify key stakeholders that are affected, and/or able to influence the Project and its activities;
- Identify the most effective methods, timing and structures through which to share project information, and to ensure regular, accessible, transparent and appropriate consultation;
- Develops a stakeholders engagement process that provides stakeholders with an opportunity to influence project planning and design;
- Establish formal grievance/resolution mechanisms;
- Define roles and responsibilities for the implementation of the SEP;
- Define reporting and monitoring measures to ensure the effectiveness of the SEP and periodical reviews of the SEP based on findings.

Stakeholder engagement is usually informed by a set of principles defining core values underpinning interactions with stakeholders. Common principles based on International Best Practice include the following:

- Commitment: is demonstrated when the need to understand, engage and identify the community is recognized and acted upon early in the process;
- Integrity: occurs when engagement is conducted in a manner that fosters mutual respect and trust;
- Respect: is created when the rights, cultural beliefs, values and interests of stakeholders and affected communities are recognized;
- Transparency: is demonstrated when community concerns are responded to in a timely, open and effective manner;
- Inclusiveness: is achieved when broad participation is encouraged and supported by appropriate participation opportunities;

- Trust: is achieved through open and meaningful dialogue that respects and upholds a community's beliefs, values and opinions.

The following considerations have been made in the planning of the stakeholder engagement:

Time and resources: It takes time to develop and build trust-based relationships with stakeholders. The consensus from practitioners is that from the outset relationships with stakeholders should develop and grow, and that these relationships should be nurtured and fostered not to fade. Additional stakeholders might be identified that also want to be engaged. No willing stakeholder should be excluded from the process of engagement. Some stakeholders will need to be educated about the concept of engagement itself, as well as on the complex issues requiring specialized and technical knowledge. These demands can increase the cost of consultation required to meet external expectations, and often this occurs at a time when a project lacks the internal capacity and resources to implement a broad engagement strategy.

It raises expectations: Stakeholders can have unrealistically high expectations of benefits that may accrue to them from a project.

Securing stakeholder participation: Cultural norms and values can prevent stakeholders from freely participating in meetings. Often there are conflicting demands within a community, and it can be challenging for a project to identify stakeholders who are representative of common interests. This might be avoided by employing local consultants who are sensitive to local power dynamics, which requires project proponents developing an awareness of the local context and implementing structures to support and foster effective stakeholder engagement.

Consultation fatigue: Moreover, there is evidence to suggest that stakeholders can easily tire of consultation processes especially when promises are unfulfilled, and their opinions and concerns are not taken into consideration. Often stakeholders feel their lives are not improving as a result of a project and this can lead to consultation meetings being used as an area to voice complaints and grievances about the lack of development. This might be avoided by coordinating stakeholder engagement during the ESIA process, and by ensuring practitioners do not make promises to stakeholders, but rather use the public consultation process as an opportunity to manage expectations, challenge misconceptions, disseminate accurate project information, and gather stakeholder opinions which are feedback to the client and other project specialists.

16.5.1. Stakeholder Identification

As stated in the Guidance note for IFC Performance Standard 1, stakeholder identification broadly involves the determination of the various individuals, groups or communities who may have an interest in the project or who may affect or be affected by the project. The process of stakeholder identification includes distinct steps, including:

(i) identifying individuals, groups, local communities and other stakeholders that may be affected by the project, positively or negatively, and directly or indirectly particularly those directly and adversely affected by project activities, including those who are disadvantaged or vulnerable;
(ii) identifying broader stakeholders who may be able to influence the outcome of the project because of their knowledge about the Affected Communities or political influence over them;

(iii) identifying legitimate stakeholder representatives, including elected officials, nonelected community leaders, leaders of informal or traditional community institutions, and elders within the Affected Community; and

(iv) mapping the impact zones by placing the Affected Communities within a geographic area, which should help the client define or refine the project's area of influence.

There may be norms, societal practices, or legal barriers that impede the full participation of persons of one gender (usually women, but potentially men) in consultation, decision-making, or sharing of project benefits. These legal and societal norms and practices may lead to gender discrimination or inequality. In projects with such issues the client may provide opportunities to enhance full participation and influence in decision-making through separate mechanisms for consultation and grievances and developing measures that allow both women and men equal access to project benefits (such as land titles, compensation, and employment). Where deemed useful, it may include a separate women's consultative process.

16.5.2. Information disclosure

As stated in the document *Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets*, published by IFC, disclosure is a formal-sounding term for making information accessible to interested and affected parties. Communicating such information in a manner that is understandable to all stakeholders is an important first (and ongoing) step in the process of stakeholder engagement. All other activities, from consultation and informed participation to negotiation and resolution of grievances, will be more constructive if stakeholders, including affected communities, have accurate and timely information about the project, its impacts, and any other aspects that may influence them.

Disclosure of relevant project information helps Affected Communities and other stakeholders understand the risks, impacts and opportunities of the project. Affected Communities should be provided with access to relevant information on the following issues:

- The purpose, nature, and scale of the project;
- The duration of proposed project activities;
- Any risks to and potential impacts on such communities and relevant mitigation measures;
- The envisaged stakeholder engagement process; and
- The grievance mechanism

The information should be in appropriate language(s), and accessible and understandable to the various segments of the Affected Communities. Disclosure and dissemination of information should be the basis of the consultation process. The timing and the method of disclosure may vary depending on national law requirements, the characteristics and needs of the Affected Communities, the type of assessment involved, and the stage of the project's development or operation but should be as early as possible.

16.5.3. Stakeholder engagement Plan for the Project

As already said, the aim of the Stakeholder Engagement Plan is to inform interested and affected parties about the purpose, nature, scale and duration of the project, but also to ensure that they understand the risks, impacts and opportunities related to it. The Plan also aims to provide stakeholders with sufficient opportunities to express their opinions, concerns or suggestions regarding the project and its impacts, and to address them in a timely manner, allowing these concerns to influence project decisions and the

necessary adjustments. The nature, frequency and level of effort of stakeholder engagement are proportionate to the risks and impacts of the project.

Stakeholder engagement is an inclusive process that should be conducted throughout the project lifecycle. It is most effective when it is started at an early stage in the project development process and is an integral part of the project's initial decisions to assess, manage and monitor the project's environmental and social risks and impacts.

This Stakeholder Engagement Plan aims to:

- Provide an overview of the involvement process;
- Identify relevant individuals, organizations and communities that may be interested in/or affected by the proposed project;
- Establish an effective program and mechanisms to provide information about the project and engage communities and stakeholders in the future;
- Establish an effective grievance mechanism process through which stakeholders can raise concerns and receive feedback.

The Plan should be designed using the following items:

- Activities - Present the activity/interaction that will be carried out with the stakeholder (Ex.: Inform, Present the project).
- Objective -. Define the objective of communication/involvement. It could be presenting specific points of the project, next steps, potential impacts.
- Proposed Method - Communication method chosen. It could be individual meetings, posters, media outlets, social networks.
- Target audience- Consider, within all identified stakeholders, which focus groups the information is directed to.
- Frequency - Objectively define the frequency and duration of planned activities.
- Indicative time and location - Indicate, considering the project schedule, when the activities and involvements should be carried out. An indicative location must also be proposed.
- Responsibility - Define, within all entities responsible for implementing the plan, which should be assigned to a specific activity.
- Monitoring and communication - The way in which, subsequently during the activities, all information obtained should be presented and monitored.

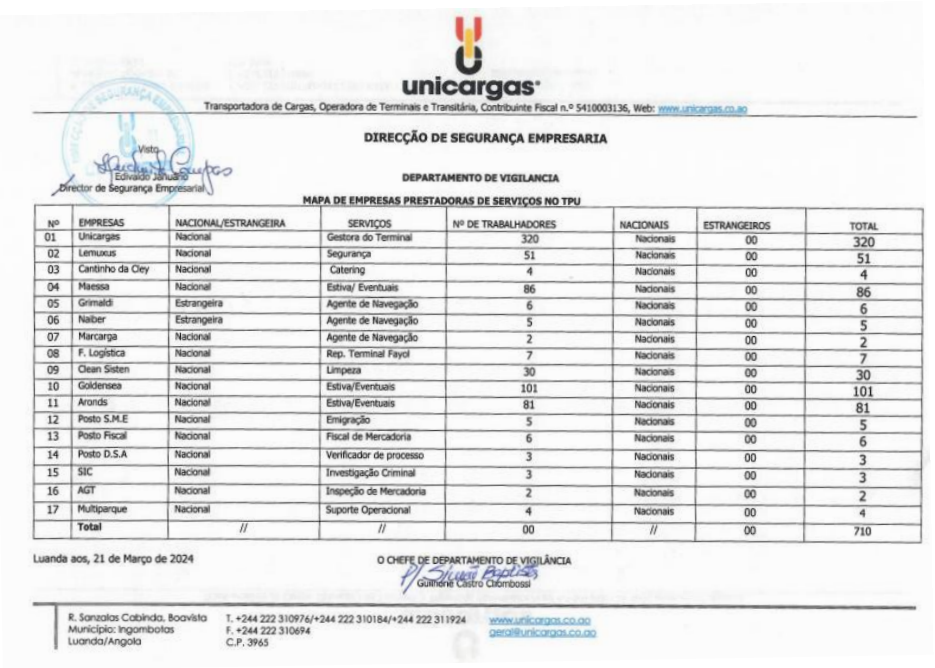
The Plan should be reviewed and updated throughout the life cycle of the Project. During this process, the focus and scope may change to reflect the various stages of Project implementation and cover any changes to the Project.

16.5.4. Identification of Stakeholders of the project

Considering the initial analysis of the project's reference documents and the research conducted as part of the preparation of this Plan, a preliminary list of stakeholders was defined, who will be involved throughout the project and in supporting the identification of opportunities for creating shared value.

It should be noted that the list presented is dynamic and evolving. As further work is conducted to gather local perceptions and carry out fieldwork, new stakeholders recognized as relevant may be integrated into the list.

In this regard, it is worth noting firstly that, in addition to governmental entities such as ministries, regional governments, or other public entities that may be involved during the development of the stakeholder engagement plan, there are some companies that, due to their proximity to the project development site and their involvement in port activities sharing spaces, are considered as key stakeholders and directly affected parties. These entities are previously listed in the tables included in Figure 241 and Figure 242.



unicargas

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Visto
Edivaldo Janbario
Director de Segurança Empresarial

DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILANCIA

MAPA DE EMPRESAS PRESTADORAS DE SERVIÇOS NO TPU

Nº	EMPRESAS	NACIONAL/ESTRANGEIRA	SERVIÇOS	Nº DE TRABALHADORES	NACIONAIS	ESTRANGEIROS	TOTAL
01	Unicargas	Nacional	Gestora do Terminal	320	Nacionais	00	320
02	Lemuxus	Nacional	Segurança	51	Nacionais	00	51
03	Cantinho da Cley	Nacional	Catering	4	Nacionais	00	4
04	Maessa	Nacional	Estiva/ Eventuais	86	Nacionais	00	86
05	Grimaldi	Estrangeira	Agente de Navegação	6	Nacionais	00	6
06	Naiber	Estrangeira	Agente de Navegação	5	Nacionais	00	5
07	Marcarga	Nacional	Agente de Navegação	2	Nacionais	00	2
08	F. Logística	Nacional	Rep. Terminal Fayol	7	Nacionais	00	7
09	Clean Sisten	Nacional	Limpeza	30	Nacionais	00	30
10	Goldensea	Nacional	Estiva/Eventuais	101	Nacionais	00	101
11	Aronds	Nacional	Estiva/Eventuais	81	Nacionais	00	81
12	Posto S.M.E	Nacional	Emigração	5	Nacionais	00	5
13	Posto Fiscal	Nacional	Fiscal de Mercadoria	6	Nacionais	00	6
14	Posto D.S.A	Nacional	Verificador de processo	3	Nacionais	00	3
15	SIC	Nacional	Investigação Criminal	3	Nacionais	00	3
16	AGT	Nacional	Inspeção de Mercadoria	2	Nacionais	00	2
17	Multiparque	Nacional	Suporte Operacional	4	Nacionais	00	4
	Total	//	//	00	//	00	710

Luanda aos, 21 de Março de 2024

O CHEFE DE DEPARTAMENTO DE VIGILÂNCIA
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Figure 241. Service providers at the Unicargas Port Terminal. Source: Unicargas

unicargas

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DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILÂNCIA

MAPA DE EMPRESAS ENVOLVENTE NO TERMINAL DA UNICARGAS

Nº	EMPRESAS
01	Edifício da Administração do Porto de Luanda
02	AGT
03	Terminal de Passageiro Catamará
04	Terminal da Multiparque
05	Terminal da Secil Marítima
06	Terminal da Sogester
07	Terminal da Sonils
08	Terminal da DP World
09	Terminal do Porto Pesqueiro

LUANDA, 21 DE MARÇO DE 2024.

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Figure 242. Surrounding companies at the Unicargas Terminal. Source: Unicargas

Classes of Stakeholders	Stakeholders (PT)	Stakeholders (EN)
Regional Institution	Gabinete Provincial de Luanda	Provincial Cabinet of Luanda
Regional Institution	Gabinete Provincial da Saúde	Provincial Health Office
Regional Institution	Gabinete Provincial das Infra-estruturas	Provincial Office of Infrastructure
Regional Institution	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos	Provincial Office of Environment and Solid Waste Management
Regional Institution	Gabinete Provincial da Educação	Provincial Office of Education
Local institution	Administração Municipal de Luanda	Municipal Administration of Luanda
Local institution	Administração do distrito Urbano de Sambizanga, Ingombota	Urban District Administration of Sambizanga, Ingombota
National Institution	Ministério do Ambiente	Ministry of Environment
National Institution	Ministério da Energia e Águas	Ministry of Energy and Water
National Institution	Direcção Nacional de Águas	National Water Directorate
National Institution	Ministério dos Transportes	Ministry of Transport
National Institution	Instituto Marítimo e Portuário de Angola	Angola Maritime and Port Institute
National Institution	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Ministry of Fisheries - Ministry of Fisheries and Marine Resources
National Institution	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	National Directorate of Fisheries and Fishery Resources Protection
National Institution	Instituto Nacional de Investigação Pesqueira	National Institute of Fisheries Research
Regional Institution	Porto de Luanda	Port of Luanda
Private sector	Empresas dentro da área portuária mais próximas das áreas de intervenção (See Figure 241 & Figure 242)	Companies within the port area closest to the intervention areas (See Figure 241 & Figure 242)
Communities	Colaboradores/trabalhadores do Porto	Port employees/workers
Communities	Residentes na envolvente - Comunidades envolventes à área portuária	Residents in the surrounding area - Communities surrounding the port area
Education and training	Academia Portuária de Luanda	Port Academy of Luanda
Private sector	NESR Art Foundation	NESR Art Foundation
Culture and Heritage	Fortaleza do Penedo - Museu	Fortaleza do Penedo - Museum
Private sector	Clínica da Sagrada Esperança - SONILS	Sagrada Esperança Clinic - SONILS
Private sector	Medline - Assistência médica	Medline - Medical assistance
Private sector	CEEIA - Comunidade de empresas exportadoras e internacionalizadas de Angola	CEEIA - Community of Exporting and Internationalized Companies of Angola

Table 113. Stakeholders identified

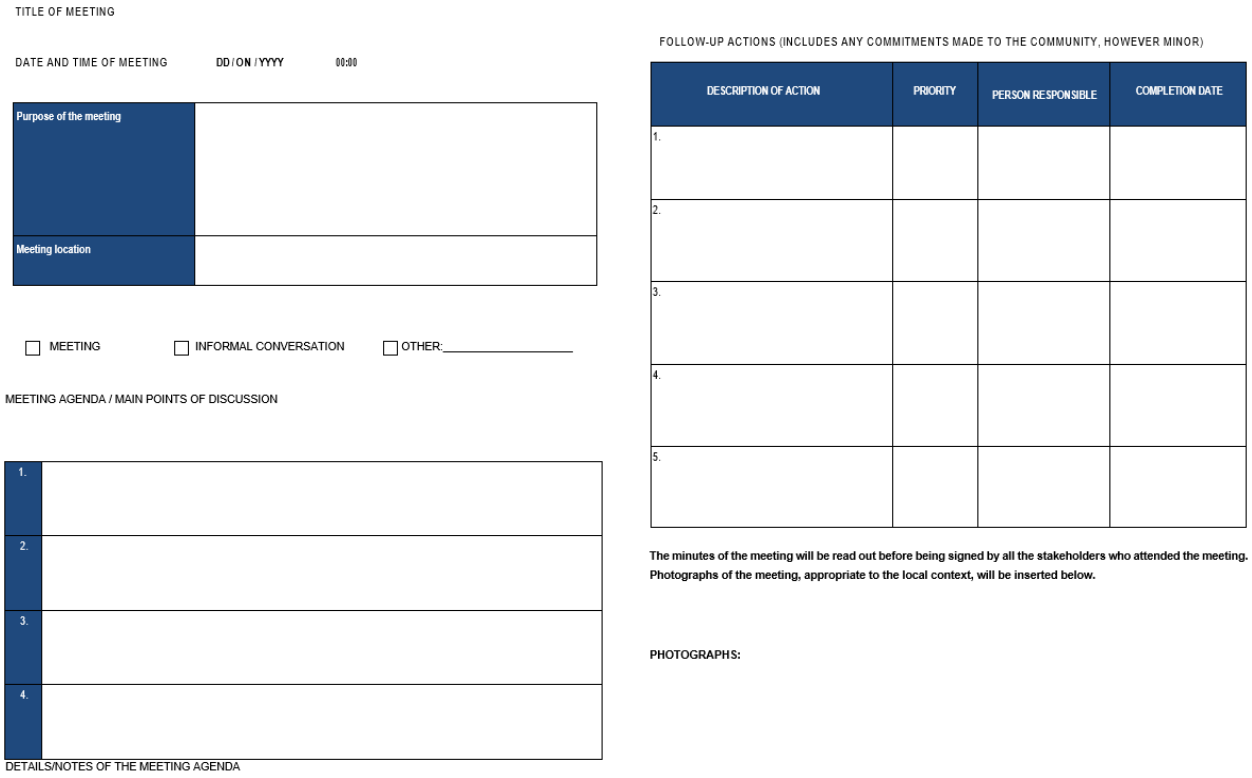
16.5.5. Stakeholders Engagement Performance

16.5.5.1. Communication and Consultation

Stakeholders form opinions about a project, whether positive or negative, based on the available information. When information is limited, they may rely on informal discussions or less credible sources. While managing expectations is crucial, delaying the provision of information to stakeholders can solidify opinions, even if more information becomes available later. This plan aims to outline when and how to communicate and engage stakeholders effectively. The communication strategy intends to deliver relevant information to stakeholders at the most suitable times, maximizing their involvement to raise awareness or incorporate their comments or suggestions.

In general, communication will employ a mix of written and oral methods/tools, using local languages and easily understandable formats. Meetings and public sessions will be held near the project area, addressing any hindrances to stakeholder participation, such as working hours or accessibility for people with reduced mobility. All stakeholder comments will be collected, reviewed, and summarized in meeting minutes or

reports, demonstrating how the comments were considered. All project documentation will be available in Portuguese, and attendance records and meeting minutes will be accessible to stakeholders. The following image illustrates an example of a Minutes of Meeting Report:



TITLE OF MEETING

DATE AND TIME OF MEETING DD / ON / YYYY 00:00

Purpose of the meeting	
Meeting location	

☐ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER:_____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	
2.	
3.	
4.	

DETAILS/NOTES OF THE MEETING AGENDA

FOLLOW-UP ACTIONS (INCLUDES ANY COMMITMENTS MADE TO THE COMMUNITY, HOWEVER MINOR)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1.			
2.			
3.			
4.			
5.			

The minutes of the meeting will be read out before being signed by all the stakeholders who attended the meeting. Photographs of the meeting, appropriate to the local context, will be inserted below.

PHOTOGRAPHS:

Figure 243.- Minutes of Meeting Report template

This Engagement Plan has two main objectives:

- To inform and update stakeholders about the Project, its status, timeframe, expected impacts, mitigation measures, and grievance mechanism in place; and
- To establish a process of consultation and collaboration with relevant stakeholders to discuss the future effects of the Project to explore ways forward and how local stakeholders can be included and benefit from it.

The first objective, information dissemination, will have a strong emphasis, as stakeholders need an up-to-date overview of the project, an explanation of the timetable, and an opportunity to understand the main impacts and mitigation measures envisaged. Additional activities will be carried out during the construction phase and upon completion of all the works.

This strategy will provide stakeholders with access to relevant information on:

1. The purpose, nature, and scale of the project;
2. The duration of proposed project activities;
3. Potential risks and impacts to communities and relevant mitigation measures; and

4. The grievance mechanism. Additionally, it will ensure a frequent flow of information between project management and key stakeholders, providing feedback through periodic communications and other activities. For example, increased traffic, particularly heavy vehicles, has a significant impact during the construction phase, so the project will provide specific informational and educational activities on traffic and pedestrian safety.

The selection of outreach methods for notification and information provision will be based on how the majority of people in the vicinity of the project regularly obtain information. A variety of communication methods will be used to reach the majority of stakeholders.

The second objective of the Plan is to consult with stakeholders to discuss concerns, opportunities, and benefits arising from the project, and how they can be managed and exploited. Despite recognizing the economic benefits of the Project, there are concerns about its impacts. To address these concerns, a consultation process will be developed to discuss ideas and solutions on how to integrate the project into the socio-economic dynamics of the area and promote cooperation between stakeholders. Starting this process at an early stage will reduce future conflicts and potential negative impacts during implementation.

Through individual and joint meetings, as well as structured exercises, key stakeholders will be invited to participate and interact in working groups. These collaborative sessions will identify solutions to main problems and potential ways forward. The aim is to implement a transparent and participatory process, integrating various perceptions and creating a space for sharing experiences and knowledge. This process will allow for two flows of information: from stakeholders to technical teams and vice versa.

The consultation process will begin with an approach to main authorities and regulators, such as the Luanda Provincial Office; Luanda Municipal Administration; Sambizanga Urban District Administration; Ingombota, Maritime and Port Institute of Angola; or the Port of Luanda, for an institutional presentation and debate on the project's technical and socio-economic issues, challenges, and opportunities.

Relevant information about the project will then be disseminated to local stakeholders most directly affected, namely companies and local communities, to organize open public meetings for consultation and collaborative reflection with different stakeholders in the project, including local authorities, associations, or individuals. The complaints mechanism, available to all interested parties, will also be disseminated to encourage its use.

These public sessions will be complemented by focus group meetings to discuss specific project-related issues. All stakeholder information and consultation activities are intended to create a knowledge base, fostering the involvement process.

16.5.5.2. Methods of Involvement

Involvement and participation procedures are fundamental requirements for any sustainable and effective development process, as they enable the articulation of various types of knowledge and opinions, promoting more participatory decisions. Diverse methods of involvement are therefore proposed to integrate different stakeholder needs.

- **Meetings** - Formal meetings will be scheduled with the main authorities identified within the project scope, as well as with other private sector organizations and associations, to capture their perceptions, concerns, suggestions, and opportunities for the project.

- **Focus Group Meetings** - These aim to bring together stakeholders with similar interests or common characteristics to discuss specific topics, providing opportunities for input, different viewpoints, and opinions, allowing stakeholders to freely discuss sensitive issues.
- **Letters** - Since Angolan legislation did not mandate a public information phase for Category B projects, in the event that the attendance of certain organizations and entities at the informational meetings cannot be achieved because they do not consider their presence necessary, letters with the project information and details of the meetings will be sent to ensure that the informational procedure reaches all identified stakeholders.

In addition to these stakeholder-oriented methods, methods will be used to promote communication about the project. Communication should reconcile different methodologies for disseminating information, consistently covering all stakeholders and making it easier for the community at large to learn about the project. Structured communication is recommended, divided between written, visual, and social methodologies, including:

- Leaflets and brochures - Brief descriptions and information on the project to provide regular updates and information on site-specific actions, printed and distributed to stakeholders and posted at key points.
- Social media - Sharing information about the project's activity schedule and raising awareness among communities using images or videos.
- Media - Organizing radio/TV broadcasts to bring the project to the general public and allow for question/answer sessions (only if deemed necessary or at the request of MINAMB during the environmental processing procedure).

One objective of Stakeholder Engagement is to identify people, communities, associations, and institutions affected by the project's development, including potentially vulnerable or marginalized groups. Ensuring all stakeholders are involved equally and adequately is essential for constructive and integrated development.

Regarding equal and fair gender participation, women's involvement in specific groups should be ensured throughout the project development. Open discussions between women's focus groups should be encouraged, and meeting venues should guarantee universal access for all vulnerable groups, especially people with disabilities. The involvement project also aims to encourage all vulnerable stakeholders to submit suggestions, complaints, or grievances, providing timely responses and solutions when necessary.

16.5.5.3. Key Messages

The dissemination of information will carry two specific objectives:

Informing (information process): Keeping stakeholders informed about the project and the engagement to be implemented, while also creating interest and promoting more active local participation. The goal is not to provide overly technical information or discuss technical aspects of the project.

Listening and consultation (two-way process): Providing stakeholders with the opportunity to identify concerns, advantages, share opinions, and viewpoints about the project, as well as to share their experiences and contributions to the development of the local territory.

To achieve both informing and listening, it is necessary to develop a set of key messages for each component of the overall Project.

- Project in general:
    - What the Improvement Project entails (Informing stakeholders about the project);
    - Identifying the target municipality and district for the Project (Clearly presenting its location);
    - Describing the components of the project (Briefly presenting the project's components);
    - Discussing potential environmental and social impacts during the different phases of the project and the respective mitigation measures (Transparently presenting the expected impacts during the various improvement phases).
- Community involvement:
    - How stakeholders can participate in project development;
    - Where stakeholders can access project details;
    - Highlighting the importance of community and municipal support during project implementation.

16.5.5.4. Responsibility Matrix

The Stakeholder Engagement Plan will encompass a comprehensive set of activities to be carried out and will include a grievance mechanism for comments, complaints, and suggestions, which need to be managed and provide feedback in a timely manner. AD Ports Group, as the owner of the project, and the consulting company responsible for the EIAS, are both responsible for implementing the Plan.

A Project Stakeholder Committee (PSC) will be established to serve as a platform for regular contact and involvement of local authorities and the community. The Committee will serve as an open channel to keep stakeholders informed about the project and facilitate the implementation and feedback of the grievance mechanism.

The composition of the PSC will include at least the following members:

- A representative of the Project Owner;
- A representative of the environmental consulting company;
- A representative of the Project Management (Focal Point);
- A representative of the Municipality;
- A representative of a local community group or association.

The local community representative will be selected through a transparent and inclusive process to ensure legitimacy and respect from all stakeholders. The Project Management representative should serve as the "focal point" of the Plan, primarily responsible for information and consultation activities, as well as for implementing the complaints mechanism.

The entities responsible for carrying out stakeholder engagement activities are:

Entities	Responsibilities regarding stakeholder involvement
Project owner's representative	Appointment of the focal point for complaints management and socialization of complaints channels among stakeholders; Budgeting and making financial resources available in good time for the planned activities;
Representative of the environmental consulting company	Coordination of the plan and timetable for implementing the stakeholder engagement plan; Consultation with stakeholders; Communication to stakeholders
Project Management Representative - Focal Point	Promotion of the Plan's activities; Registration and management of the complaints mechanism; Monitoring the stakeholder engagement and reporting;
Municipality or Urban District	Stakeholder mobilization; Communication to stakeholders Socializing reports and information about the project;
Representative of a local community group or association	Mobilization of stakeholders, especially the most vulnerable groups Socialization of reports and information about the project; Communication to stakeholders

Table 114.- entities responsible for carrying out stakeholder engagement activities

16.5.5.5. Engagement activities

In this ESIA phase, numerous activities related to the development of the Stakeholder Engagement Plan have been carried out. Annex 9 includes the *Stakeholder engagement findings report*, in which stakeholder engagement activities and findings are reported, based on the process conducted.

It is important to note that, according to the procedure established in Angolan legislation, it is the responsibility of the Ministerial Department in charge of the Environment Sector to conduct public consultations if deemed necessary for a project (article 8.1g of *Presidential Decree 117/20*). If the responsible Ministry official decides that a public consultation should be conducted, it is the Ministerial Department in charge of the Environment Sector itself that promotes and carries out the corresponding activities. Once the public consultation period has ended, the Ministry prepares, within the following eight days, a brief report specifying the steps taken, the participation recorded, and the conclusions to be drawn.

Since neither the project owner nor the consultancy accredited for the preparation of the ESIA is authorized to conduct this public consultation and given that, according to the environmental evaluation procedure carried out by MINAMB, this public consultation has not been considered necessary, a public consultation has not been included in this report. In this regard, and in order to ensure that all official entities related to the project were informed, letters were sent informing them about the project, including an informational brochure and offering the possibility of scheduling a meeting or providing any additional contact if further information was needed.

The following table provides a summary of the various activities carried out in the context of developing the project's stakeholder engagement plan. It has to be considered that since neither the project owner nor the consultancy accredited for the preparation of the ESIA is authorized to conduct a public consultation and given that the results of the environmental evaluation carried out by MINAMB have been issued as favorable for the issuance of the license without the need to carry out this public consultation, the outcomes of such consultation have not been included within these activities.

Activities	Objective	Proposed method	Target audience	Frequency	Indicative time and location	Responsibility	Monitoring and communication
Preliminary contact with Port entities	Present the project and gather information for the ESIA	Written communication and scheduled meetings	Luanda Port Authority and Unicargas	Single activity	28-30 November 2023	Environmental Consulting Company	Final report presenting key findings
Engagement with Authorities and Regulators	Present the project and gather technical insights and recommendations	Written communication and scheduled meetings when required	Stakeholders identified as National, Regional or Local Institutions.	Not applicable	Letters sent between 10/05/2024 and 24/06/2024 Meeting with: Luanda Provincial Health Office (08/07/2024) Ingombota District (15/07/2024) Sambizanga District (15/07/2024)	Environmental Consulting Company	Minutes of meeting Final report summarizing the contributions made
Engagement with stakeholders in and around the project area	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Written communication and previously scheduled meetings, including the sending of meeting agendas, project summaries,	Companies, associations and users of the Terminal	Single activity	Letters sent between 02/07/2024 and 11/07/2024 Meeting with companies - between the period (18/06/2024 and 19/07/2024)	Environmental consulting company / Focal Point responsible	Minutes of meeting Final report summarizing the contributions made

Activities	Objective	Proposed method	Target audience	Frequency	Indicative time and location	Responsibility	Monitoring and communication
		and the distribution of leaflets					
Engagement with local communities in the neighborhoods surrounding the Project	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Meeting scheduled in advance, including the sending of meeting agendas, project summaries, and the distribution of leaflets	Local community leaders	One meeting with each leader	Meeting with the Communities: Mata Gato Neighborhood (17/07/2024) Boavista Neighborhood (17/07/2024)	Environmental consulting Company	Minutes of Meeting Final report summarizing the contributions made

Table 115.- Strategic plan for stakeholder consultation

17. BUDGET FOR THE IMPLEMENTATION OF MITIGATION MEASURES

This section includes a table defining the necessary monitoring activities to ensure the effective implementation and ongoing compliance with the mitigation measures identified in the various plans and actions included in the ESMP included in Volume II of the ESIA. This table also defines the corresponding monitoring activities required to ensure effective implementation and ongoing compliance with these measures. Furthermore, it establishes the minimum reporting requirements necessary to document and systematically monitor all relevant environmental and social events and actions that occur both during the construction phase and throughout the operational life of the project.

The successful execution of an ESMP and other associated plans requires a structured and adequately resourced monitoring framework during the construction and operation phases. This ensures that all environmental and social mitigation measures are not only implemented as planned but also monitored and reported.

To this end, there will be a Monitoring Team, both for construction and operation phase, consisting of:

- Senior **Environmental and Social Specialist (ESS).** This senior specialist will be responsible for overseeing the entire development and execution of the ESMP, ensuring the effective implementation of monitoring campaigns, supervising sampling methods, analyzing results, and recommending additional measures if necessary. The ESS will play a key role in stakeholder engagement, ensuring the continued function of the grievance mechanism and maintaining good relationships with stakeholders throughout the project. This individual will oversee worker training in key ESMP areas. The Senior Specialist will also have the responsibility of preparing and/or controlling various reports aligned with the ESIA and ESMP requirements, ensuring that all monitoring and compliance documentation is accurate, timely, and comprehensive.
    - During construction: the ESS will be part of the contractor technical staff among other HSE team members tasked with monitoring compliance with the C-ESMP and verifying that the construction contractor adheres to all specified environmental obligations.
    - During the Operations: the ESS will be part of the terminal operations team as part of the HSSE team tasked with monitoring compliance with ESIA/ESMP as well as the authority requirements and verifying the terminal operations adheres to all specified environmental obligations.
- **Data Collection Team (DCT)** consisting of one or more sampling specialists, responsible for conducting the field-based sampling campaigns required to obtain data on the various environmental and social parameters specified in the ESMP. The sampling technician will work closely with the Environmental and Social Specialist to ensure that all sampling is done in accordance with the ESMP requirements and that the data collected is accurate and reliable. Sampling and data collection may be undertaken by the contractor's team during construction or by the operations team during the operational phase. Alternatively, these activities can be carried out by external service providers, such as accredited laboratories.

The cost assessment of the implementation of the various management plans defined in the ESMP will focus mainly on evaluating the roles and responsibilities of the ESS and DCT in the different thematic areas.

During the **construction phase**, the presence of the monitoring team is required with greater frequency due to the dynamic nature of construction activities and the resulting need to document and report continuous

changes that may affect environmental and social conditions. However, **costs arising from compliance with the measures included in the environmental and social management plans during the construction phase is integrated within the lump sum price of the project construction contractor**. Therefore, no breakdown is included (although a definition and summary of the measures to be considered is provided in section 17.1).

During the **operational phase**, The Environmental and Social Specialist will be assigned as a key member (full time employee) part of the HSSE operations team. This presence of such a role is considered required to ensure effective oversight of the implementation and performance monitoring of all management plans outlined in the Environmental and Social Management Plan (ESMP), as well as any additional plans or mitigation actions required during the operational period.
The extent of involvement and time commitment required from the environmental sampling (team and equipment) will be a key factor in determining the operational monitoring budget. These aspects will directly influence the logistical, technical, and analytical resources needed to ensure compliance with environmental quality standards and project-specific performance indicators.
Therefore, **budget for the implementation of measures during the operational phase** (included in section 17.2) is divided into two categories:

1. Management, Control and reporting measures, which do not require sampling or analysis, are included under the supervision costs of the ESS.
   The environmental and social function (part of HSSE unit) will have a Senior Specialist and additional supporting staff as needed. Estimated annual E&S employees' cost is $50,000, subject to change based on market and pay scale in Angola.
2. Periodic controls for the monitoring of environmental parameters (including DCT, necessary equipment and laboratory)

    - Air quality: $3,500/campaign
    - Noise: $3,500/campaign
    - Marine water and sediment quality (to be done simultaneously): $7,600/per campaign

In addition to the above, the estimated specific costs for implementing other plans are as follows:

- Communication and Community Awareness Program (CCAP) & Stakeholder Engagement Plan (SEP) implementation, including meetings and the development of materials (brochures, leaflets, posters, other items) may reach an annual total of $4,000
- Community Health and Safety Management Plan: Materials development (brochures, leaflets, posters, other items) could amount to an annual cost of $2,000.
- Training and Capacity Building. The annual cost of training will be covered as part of:
    - HSSE team and ESS who will undertake periodic training to the terminal operation teams
    - ADPG Corporate online training
    - External training service providers, when necessary. A placeholder value of $ 5,000 /year
    - Necessary material ($1,000)
- Annual Audits to comply with lenders' requirements, including IFC Performance Standards, 5-day site visit and 2 specialists, could reach a total of $20,000.

17.1. Construction phase

ESMP PLANS

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	ESTIMATED COST
AIR QUALITY AND NOISE MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Minimize dust emissions - Reduce air pollutant emissions - Reduce noise emissions	**Monitoring** Air quality and noise monitoring actions at 3 points where the baseline air quality/noise campaign was carried out ✓ Daily visual inspection (twice a day during intense construction periods) ✓ Periodic monitoring actions: - Quarterly - Weekly during removal of pavement and demolitions ✓ Air quality and noise monitoring in response to complaints (when necessary) **Material and equipment** ✓ Air Quality: HAZ SCANNER monitoring equipment model EPAS. ✓ Noise: General model DSM0403SD sound level meter with Type 1 class, as specified in the Terms of Reference (TDR) and in accordance with the BS 61672-1:2003 standard for the specifications of Electroacoustic Sound Level Meters **Reports** ✓ Daily Report to record the results of the visual inspection ✓ Weekly reports during intense construction periods ✓ Quarterly Performance Report	**Covered by the Contractor's lump sum price**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	ESTIMATED COST
MARINE WATER QUALITY MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Minimize the increase in suspended solids - Control/avoid possible pollutant discharges	**Monitoring** Marine water quality monitoring actions at 3 points where the baseline marine water quality survey campaign was carried out. Extra control point to be monitored in case the sediment plume propagation extends further the area of the three main control points. ✓ Daily visual inspection (twice a day during intense construction periods) ✓ Periodic monitoring actions: - Weekly during marine works - Quarterly during terrestrial works. ✓ Marine water quality monitoring in response to complaints (when necessary) **Material and equipment** ✓ Collection of marine water samples by means of a vessel and using a Van Dorn Oceanographic bottle. ✓ On-site analysis: - Physical parameters with an EXO multiparametric probe. - Depth measurements in each sampling point using a Hondex PS-7 digital system. ✓ Laboratory analysis of the rest of parameters. **Reports** ✓ Daily Report to record the results of the visual monitoring for sediment plumes. ✓ Weekly Performance Reports. Where more frequent monitoring is required due to intense construction periods, reports will also be made at the same frequency	**Covered by the Contractor's lump sum price**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	ESTIMATED COST
MARINE SEDIMENT QUALITY MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Minimize the increase in suspended solids - Control/avoid possible pollutant discharges	**Monitoring** Marine sediments quality monitoring at 2 points where the marine sediment quality baseline survey campaign was carried out. ✓ Periodic monitoring actions: - Weekly during marine works together with the water quality monitoring. - In periods of high activity, inspection shall be increased. ✓ Unexpected spillage: If not promptly addressed, it may be necessary to conduct additional analyses. Parameters may vary depending on the substances spilled, as well as the required frequency and schedule. ✓ Marine sediment quality monitoring in response to complaints (when necessary) **Material and equipment** ✓ Collection of marine water samples using a Van Veen-type dredge. ✓ On-site analysis of color, odor, and redox potential ✓ Laboratory analysis of the rest of parameters. **Reports** ✓ Weekly Performance Reports. Where more frequent monitoring is required due to intense construction periods, reports will also be made at the same frequency.	**Covered by the Contractor's lump sum price**
BIODIVERSITY CONTROL MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Control of effects on fauna and flora due to increased suspended solids and sediment extraction - Control the exclusion of wildlife species due to disturbances. - Control of possible introduction/ spread of invasive species	**Monitoring** Monitoring will be limited to sightings of protected or unusual species that may occur during the works Specific ballast water control must be carried out for each ship by implementing a ballast water management plan and maintaining a ballast water record book to document each ballast water operation. Ballast water management systems must be rigorously maintained to function effectively. Ships must be prepared for inspections by port state authorities. **Reports** ✓ The detection of a protected or sensitive species will be reported to the Environmental Responsible, including the data of the sighting: time, place, species (if known) and state in which the animal is found. ✓ The presence of any alien species should be documented and mitigation strategies should be in place to address it.	**Covered by the Contractor's lump sum price**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	ESTIMATED COST
SOIL QUALITY AND CONTAMINATION DESKTOP AND VISUAL ASSESSMENT (no associated management plan)	Supervision of the implementation of mitigation measures to: - Control of increased risk of soil contamination - Control of potential contamination due to surface polluted soils appearance	**Monitoring** Although no specific management plan has been developed to monitor soil conditions, during construction work, daily visual inspections will be carried out in areas where excavations are taking place to determine the presence of contaminated soil. In addition, hazardous material storage areas will be checked to ensure they are properly waterproofed to prevent accidental leaks. Only detected anomalies will be reported. Accidental spills or leaks will also be reported when they occur. **Reports** Quarterly reports must be submitted, compiling all incidents recorded during that period.	**Covered by the Contractor's lump sum price**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	ESTIMATED COST
WASTE MANAGEMENT PLAN	Supervision of the implementation of mitigation measures to: - Control of the implementation of measures for the correct generation, classification, and temporary storage of waste. - Control of the implementation of measures for the correct waste collection, transportation and disposal	**Monitoring** Following the Luanda Port Waste Management Plan, monitoring consists of comprehensive and periodic assessments and follow-ups of all procedures inherent to the company's waste management system, as well as guiding its employees to adopt environmentally appropriate attitudes, behaviors, and decisions when performing their work activities. The main aspects to be monitored are: ✓ Waste Storage Facilities (monthly): Periodic checking of waste bins, their state of repair and need for replacement, as well as their signage ✓ Management process (weekly): Verify full compliance with the waste segregation, conditioning, transportation and destination process. ✓ Effluent management (Whenever necessary). ✓ Generators area (Whenever generators are serviced): Check that the area is compliant, such as: contaminated area deposit, signage, as well as a deposit for contaminants. ✓ Cleaning operator (weekly): Checking the waste transportation process, as well as the delivery of a collection manifest and depositing the waste at the destination where it is sent. ✓ Safety and Energy (monthly): Check the installation of fire extinguishers and the first aid kit so that the most used medicines are not missing ✓ Storage area (quarterly): Check that the facilities are adequate for the waste storage area, as well as the upkeep of the waste tanks and their signage. **Reports** All records and receipts related to waste management will be kept by contractors, and a monthly report will be prepared to track the project's recycling rate. An annual report will be submitted on the waste collected and transported on site.	**Covered by the Contractor's lump sum price**

Table 116. ESS duties, monitoring and reporting actions, and estimated cost of ESMP plans during construction.

OTHER PLANS AND ACTIONS – cost associated with below plans is covered by contractor's lump sum price

COMMUNICATION AND COMMUNITY AWARENESS PROGRAM & STAKEHOLDER ENGAGEMENT PLAN	**CCAP** **Description** The primary objective of the Communication Plan is to guarantee that local communities are thoroughly briefed on both the scheduled and ongoing operations, which encompasses mitigation strategies. The preliminary stakeholders list prepared for the Stakeholder Engagement Plan should be seen as dynamic and evolving, so it is possible that new stakeholders recognized as relevant will be integrated. The plan includes the following actions: Engage with Service Providers at the Unicargas Terminal and surrounding companies, engage with National Institutions, engage with Local Authorities and Regional Institutions, inform and engage with local communities, establish and implement Project GRM and to develop a program for Stakeholder information and consultation process. **Monitoring** The indicators to be monitored in this program are the following: Events planned / held, number of participants, complaints received / resolved within 30 days, incident reports (number) and incident reports (follow-up). Records of all communication actions undertaken will be kept, as well as any grievance or complaint received, namely: ▪ Meetings held with Service Providers at the Unicargas Terminal and surrounding companies ▪ Meetings held or letters sent to National Institutions ▪ Meetings held or letters sent to Local Authorities and Regional Institutions ▪ Meetings held or letters sent to Local Communities ▪ Complaints or grievances from Local Communities, and grievance resolution ▪ Incident reports (any incident involving communities). Performance Reports will be prepared quarterly during construction, reporting on the recorded events and communication results. **SEP** Engagement during construction is mainly about involving stakeholders in assessing whether mitigation measures are working as intended, to establish possible additional measures if deviations are detected from what was expected. Key actions include: ▪ Stakeholder Identification: Review the initial list of stakeholders and identify any new ones, such as those affected by truck routes, material stockpiles, or staff convening points. Finalizing the project design will clarify which groups are impacted by specific construction activities. ▪ Proactive Communication: Inform local stakeholders of the construction schedule, especially regarding activities that may affect them, such as noise, dust, or vessel scheduling. Providing advance notice fosters dialogue and understanding. For key stakeholders, a periodic communication schedule may be necessary. ▪ Complaint Resolution: Diligently track and resolve complaints submitted through the grievance mechanism, prioritizing those that require immediate attention. Contractor-Stakeholder Relations: Ensure that contractor and subcontractor teams, who have the most frequent contact with local stakeholders, maintain cordial relationships to mitigate potential risks.

EMERGENCY RESPONSE PLAN	**Description** Development of a Project Specific Emergency Preparedness & Response Plan (EPRP) to mitigate consequences arising from potential emergency situations and to familiarize employees with the response procedures in the event of an emergency that can occur on the project site. This document is considered an essential prevention tool, having in mind the following objectives: ▪ The identification of potential emergency situations that may arise from the Project's construction and operation activities ▪ The communication process of the emergency in case of occurrence ▪ Action procedures in case of accidents or emergencies ▪ Reporting on emergencies: causal analysis, actions taken and lessons and preventive measures taken as follow up including dissemination. ▪ The creation of Risk Scenarios An emergency can be detected by any Project worker or community member. Workers will receive basic and mandatory training in the inspection and supervision of the systems they operate, to be able to detect any anomalies. Communities will also be informed, through the Communication Plan, about potential emergency risks and what actions to take, as well as how to communicate with the contractor and the Project Management Consultant (PMC). **Accident report** After analyzing the accident, an Accident Report should be prepared, which should include at least: ▪ Day, time, and exact location of the work where the accident occurred; ▪ Complete identification of the injured party (s); ▪ A brief description of how the accident occurred; ▪ The region of the body affected; ▪ Measures taken to rescue the injured party; ▪ Whether the work was proceeding under normal conditions; ▪ The probable cause of the accident; ▪ Witnesses who witnessed the accident; ▪ Photo (s) or sketch (s) of the accident. ▪ Actions to be implemented (measures) to prevent the occurrence of accidents of the same nature, if necessary.
GRIEVANCE REDRESS MECHANISM	**Description** The construction phase will potentially cause disturbances to communities and general population. Mitigation measures include a Grievance Redress Mechanism -GRM- is foreseen. The GRM will provide guidance for the management of suggestions and complaints of the community and stakeholders throughout all Project phases. This protocol will allow to: ▪ Understand the stakeholder's perception of Project risks and impacts to adjust its measures and actions to address their concerns ▪ Inform affected stakeholders about the process which will be followed in response to grievances ▪ Address and redress stakeholder complaints

	▪ Make available to the affected stakeholders an effective complaints mechanism ▪ Map stakeholder suggestions as an opportunity for continuous improvement; creating or changing an existing system and learning process **Monitoring** Grievance Redress Mechanism shall be monitored since it is necessary to check if the protocol is working effectively or any issue shall be modified to improve its effectiveness. It will last from the design phase until the end of the project's life. Monitoring the GRM must consist in checking the effectiveness of the procedure, assuring communities grievance/complaints/suggestions are being addresses. The following parameters will be recorded: ▪ Number of grievance/complains/suggestions received, of which the total might be solved; ▪ Adjustment to the fixed times to manage the grievance/complains/suggestion; ▪ Number of times the Arbitration Committee has to analyze any case and decide; ▪ The number of times appropriate judicial channel or similar must be escalated. When monitoring the compliance with the GRM procedure, time to solve the procedures and the number of procedures itself are the issues to check. ✓ Periodic monitoring: Monthly during construction phase. ✓ GRM monitoring in response to repetitive complaints: When necessary.
COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN	**Description** The construction of the Project could increase the presence of health and safety hazards within the community. Key actions are: ▪ Protect communities from Project traffic: The Contractor will develop a Traffic Management Plan and ensure that Traffic control measures are implemented. ▪ Ensure good practices in labor management and minimize risks of social conflicts with workforce: the Contractor will develop and implement a Local Recruitment and Working Conditions Plan. ▪ Minimize potential disruption to the community and economic activities caused by construction activities, focusing on managing issues related to traffic, community nuisance, and ensuring the safety and well-being of construction workers. ▪ Minimize noise nuisance on communities ▪ Property security on the site in accordance with the requirements of the scope of work: The Contractor is responsible for effectively managing security on the site in accordance with the requirements of the scope of work. The Contractor shall ensure that all site offices, storage areas and other structures on site are adequately secured when not in use to prevent unauthorized use or theft.

TRAINING AND CAPACITY BUILDING	From before the start of construction works, training and capacity building are essential for workers and constitute a fundamental investment in both human capital and project outcomes. They improve safety, efficiency, quality, and regulatory compliance, which ultimately contributes to the timely and successful completion of construction projects. Key actions to be performed are: ▪ Suitable and effective staff training and awareness activities will be conducted to ensure the project employees understand, appreciate and adhere to the suggested environmental and social management requirements. ▪ In addition, Appropriate training in the field of Health and Safety will be provided to reduce or prevent the occurrence of work-related accidents and to learn how to respond to any incident. ▪ Finally, ongoing training and development opportunities for employees to enhance skills and career growth will also be given.

Table 117. ESS duties, monitoring and reporting actions, and estimated cost of other plans during construction.

17.2. Operational phase

ESMP PLANS

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	Annual Estimated Monitoring and Reporting cost
AIR QUALITY AND NOISE MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Minimize dust emissions - Reduce air pollutant emissions - Reduce noise emissions	**Monitoring** Air quality and noise monitoring actions at 3 points where the baseline air quality/noise campaign was carried out ✓ Monitoring frequency will follow the conditions established in the terminal operating license once obtained, as well as to the conditions established in the port's operational license ✓ At least semiannual monitoring will be carried out during the first three years of the project and annually thereafter. **Material and equipment** ✓ Air Quality: HAZ SCANNER monitoring equipment model EPAS. ✓ Noise: General model DSM0403SD sound level meter with Type 1 class, as specified in the Terms of Reference (TDR) and in accordance with the BS 61672-1:2003 standard for the specifications of Electroacoustic Sound Level Meters **Reports** ✓ Frequency agreed with the Luanda's Port Authority ✓ However, at least every 6 months during the first three years, and annually thereafter.	**Air Quality: $ 7,000 /year (two campaigns first 3 years) and $3500 /year afterwards** **Noise: $ 7,000 /year (two campaign first 3 years) and 3500 /year afterwards**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	Annual Estimated Monitoring and Reporting cost
MARINE WATER QUALITY MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Control/avoid possible pollutant discharges	**Monitoring** Marine water quality monitoring actions at 3 points where the baseline marine water quality survey campaign was carried out. ✓ At least semestrial monitoring to control the compliance with international legislation and environmental operating license. ✓ Marine water quality monitoring in response to complaints (when necessary) **Material and equipment** ✓ Collection of marine water samples by means of a vessel and using a Van Dorn Oceanographic bottle. ✓ On-site analysis: - Physical parameters with an EXO multiparametric probe. - Depth measurements in each sampling point using a Hondex PS-7 digital system. ✓ Laboratory analysis of the rest of parameters. **Reports** ✓ Frequency agreed with the Luanda's Port Authority ✓ However, at least every 6 months during the first three years, and annually thereafter.	**Please note that data on marine water quality and sediments will be collected at the same time in order to optimize costs. The estimated cost is $15,200 per year (two campaigns during the first three years) and $7,600 per year thereafter for the implementation of both management plans.** **Includes all the equipment and reagents necessary for sampling and proper preservation of samples, as well as delivery to the laboratory for analysis and performance report.**
MARINE SEDIMENT QUALITY MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Control/avoid possible pollutant discharges	**Monitoring** Marine sediments quality monitoring at 2 points where the marine sediment quality baseline survey campaign was carried out. ✓ At least semestrial monitoring to control the compliance with international legislation and environmental operating license. ✓ Marine sediment quality monitoring in response to complaints (when necessary) **Material and equipment** ✓ Collection of marine water samples using a Van Veen-type dredge. ✓ On-site analysis of color, odor, and redox potential ✓ Laboratory analysis of the rest of parameters. **Reports** ✓ Frequency agreed with the Luanda's Port Authority ✓ However, at least every 6 months during the first three years, and annually thereafter.	**Please refer to the previous point for information on the cost of implementing this plan.**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	Annual Estimated Monitoring and Reporting cost
BIODIVERSITY CONTROL MANAGEMENT PROGRAM	Supervision of the implementation of mitigation measures established in the ESMP to: - Control of possible introduction/ spread of invasive species	**Monitoring** Monitoring will be limited to sightings of protected or unusual species that may occur during the operation phase. Specific ballast water control must be carried out for each ship by implementing a ballast water management plan and maintaining a ballast water record book to document each ballast water operation. Ballast water management systems must be rigorously maintained to function effectively. Ships must be prepared for inspections by port state authorities. **Reports** ✓ The detection of a protected or sensitive species will be reported to the Environmental Responsible, including the data of the sighting: time, place, species (if known) and state in which the animal is found. ✓ The presence of any alien species should be documented and mitigation strategies should be in place to address it.	**Covered under the operations staffing cost**
SOIL QUALITY AND CONTAMINATION DESKTOP AND VISUAL ASSESSMENT (no associated management plan)	Supervision of the implementation of mitigation measures to: - Control of soil pollution from operational activities	**Monitoring** Although no specific management plan has been developed to monitor soil conditions, only detected anomalies will be reported. Accidental spills or leaks will also be reported when they occur. **Reports** ✓ Frequency agreed with the Luanda's Port Authority ✓ However, at least every 6 months during the first three years, and annually thereafter.	**Estimated cost per kit: $150–US$250 (depending on quality and quantity of consumables).** **For an annual program with 5–10 sampling interventions, the annual budget for kits would be $750–$2,500**

ESMP PLANS	ESS DUTIES	MONITORING ACTIONS AND REPORTS	Annual Estimated Monitoring and Reporting cost
WASTE MANAGEMENT PLAN	Supervision of the implementation of mitigation measures to: - Control of the implementation of measures for the correct generation, classification, and temporary storage of waste. - Control of the implementation of measures for the correct waste collection, transportation and disposal.	**Monitoring and reports** Following the Luanda Port Waste Management Plan, monitoring consists of comprehensive and periodic assessments and follow-ups of all procedures inherent to the company's waste management system, as well as guiding its employees to adopt environmentally appropriate attitudes, behaviors, and decisions when performing their work activities. The main aspects to be monitored are: ✓ Waste Storage Facilities (monthly): Periodic checking of waste bins, their state of repair and need for replacement, as well as their signage ✓ Management process (weekly): Verify full compliance with the waste segregation, conditioning, transportation and destination process. ✓ Effluent management (Whenever necessary). ✓ Generators area (Whenever generators are serviced): Check that the area is compliant, such as: contaminated area deposit, signage, as well as a deposit for contaminants. ✓ Cleaning operator (weekly): Checking the waste transportation process, as well as the delivery of a collection manifest and depositing the waste at the destination where it is sent. ✓ Safety and Energy (monthly): Check the installation of fire extinguishers and the first aid kit so that the most used medicines are not missing ✓ Storage area (quarterly): Check that the facilities are adequate for the waste storage area, as well as the upkeep of the waste tanks and their signage. An annual report will be submitted on the waste collected and transported on site.	**Waste collection and disposal is covered under the waste service contracts with licensed service providers** **Monitoring and reporting cost is covered in the ESS staff cost**

Table 118. ESS duties, monitoring and reporting actions, and estimated cost of ESMP plans during operation

OTHER PLANS

PLAN	DESCRIPTION AND MONITORING	ANNUAL ESTIMATED COST
COMMUNICATION AND COMMUNITY AWARENESS PROGRAM & STAKEHOLDER ENGAGEMENT PLAN	**COMMUNICATION AND COMMUNITY AWARENESS PROGRAM** **Description** The primary objective of the Communication and Community Awareness Program (CCAP) is to guarantee that local communities are thoroughly briefed on both the scheduled and ongoing operations, which encompasses mitigation strategies. The preliminary stakeholders list prepared for the Stakeholder Engagement Plan should be seen as dynamic and evolving, so it is possible that new stakeholders recognized as relevant will be integrated. The plan includes the following actions: Engage with Service Providers at the Unicargas Terminal and surrounding companies, engage with National Institutions, engage with Local Authorities and Regional Institutions, inform and engage with local communities, establish and implement Project GRM and to develop a program for Stakeholder information and consultation process. **Monitoring** The indicators to be monitored in this program are the following: Events planned / held, number of participants, complaints received / resolved within 30 days, incident reports (number) and incident reports (follow-up). Records of all communication actions undertaken will be kept, as well as and any grievance or complaint received, namely: ▪ Meetings held with Service Providers at the Unicargas Terminal and surrounding companies ▪ Meetings held or letters sent to National Institutions ▪ Meetings held or letters sent to Local Authorities and Regional Institutions ▪ Meetings held or letters sent to with Local Communities ▪ Complaints or grievances from Local Communities, and grievance resolution ▪ Incident reports (any incident involving communities). Performance Reports will be prepared annually after the first year of operations, reporting on the recorded events and communication results **STAKEHOLDER ENGAGEMENT PLAN** While the phase with the highest risks and potential complaints or issues to address with stakeholders is the construction phase, it is important to maintain contact with stakeholders during the operation phase. Key actions include: ▪ Properly manage the transition from construction to operation. ▪ Ensure the integration of ongoing stakeholder commitments into operations management systems. ▪ Regularly communicate emergency preparedness and response plans, as stakeholder engagement during operations should be designed to maintain levels of awareness.	**CCAP & SEP implementation, including meetings, workshops, campaigns, media engagement and the development of materials (brochures, leaflets, posters, other items) may reach an annual total of $4,000** **Reporting cost for both plans is covered by the ESS**

	▪ Once the construction period is over, the project is likely to experience a decrease in the number of complaints, but the grievance mechanism must be kept operational. This may be because the issues previously raised have now been resolved, or because the moment of maximum impact has passed, but it is important to keep the grievance mechanism active for receiving and addressing public concerns whenever they may arise throughout the life of the project. ▪ Evaluate the need to assess stakeholder perceptions, including through the establishment of a monitoring program. ▪ Continue to disclose, consult, and report to stakeholders as needed, considering that ongoing disclosure of project information to stakeholders, as well as the nature and frequency of consultation activities and reporting during normal operations, should be commensurate with the extent of impacts and stakeholder concerns	
EMERGENCY RESPONSE PLAN	**Description** Development of a Project Specific Emergency Preparedness & Response Plan (EPRP) to mitigate consequences arising from potential emergency situations and to familiarize employees with the response procedures in the event of an emergencies that can occur on the project site. This document is considered an essential prevention tool, having in mind the following objectives: ▪ The identification of potential emergency situations that may arise from the Project's construction and operation activities ▪ The communication process of the emergency in case of occurrence ▪ Action procedures in case of accidents or emergencies ▪ Reporting on emergencies: causal analysis, actions taken and lessons and preventive measures taken as follow up including dissemination. ▪ The creation of Risk Scenarios During Operations Phase, terminal specific Emergency Response Plan will be developed as part of the port HSE operating procedures which will comply with local requirements and existing LPA Emergency Response Plan. **Accident report** After analyzing the accident, an Accident Report should be prepared, which should include at least: ▪ Day, time, and exact location of the work where the accident occurred; ▪ Complete identification of the injured party (s); ▪ A brief description of how the accident occurred; ▪ The region of the body affected; ▪ Measures taken to rescue the injured party; ▪ Whether the work was proceeding under normal conditions; ▪ The probable cause of the accident;	**Covered in the terminal operations annual budget**

	▪ Witnesses who witnessed the accident; ▪ Photo (s) or sketch (s) of the accident. ▪ Actions to be implemented (measures) to prevent the occurrence of accidents of the same nature, if necessary.	
GRIEVANCE REDRESS MECHANISM	**Description** The operation phase will potentially cause disturbances to communities and general population. Mitigation measures include a GRM. The GRM will provide guidance for the management of suggestions and complaints of the community and stakeholders throughout all Project phases. This protocol will allow to: ▪ Understand the stakeholder's perception of Project risks and impacts to adjust its measures and actions to address their concerns ▪ Inform affected stakeholders about the process which will be followed in response to grievances ▪ Address and redress stakeholder complaints ▪ Make available to the affected stakeholders an effective complaints mechanism ▪ Map stakeholder suggestions as an opportunity for continuous improvement; creating or changing an existing system and learning process **Monitoring and reports** Grievance Redress Mechanism shall be monitored since it is necessary to check if the protocol is working effectively or any issue shall be modified to improve its effectiveness. It will last from the design phase until the end of the project's life. Monitoring the GRM must consist in checking the effectiveness of the procedure, assuring communities grievance/complaints/suggestions are being addresses. The following parameters will be recorded: ▪ Number of grievance/complains/suggestions received, of which the total might be solved; ▪ Adjustment to the fixed times to manage the grievance/complains/suggestion; ▪ Number of times the Arbitration Committee has to analyze any case and decide; ▪ The number of times appropriate judicial channel or similar must be escalated. When monitoring the compliance with the GRM procedure, time to solve the procedures and the number of procedures itself are the issues to check. ▪ Biannual reports will be prepared during the first five years, and annual ones thereafter ▪ GRM monitoring and reports in response to repetitive complaints: When necessary.	**No additional cost, since it is part of the responsibilities of terminal staff such as the ESS and HR team**

COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN	**Description** The operation of the Project could increase the presence of health and safety hazards within the community. Key actions are: ▪ Protect communities from Project traffic: The operations team will develop a Traffic Management Plan and ensure that Traffic control measures are implemented. ▪ Ensure good practices in labor management and minimize risks of social conflicts with workforce: the operator will develop and implement a Local Recruitment and Working Conditions Plan. ▪ Minimize potential disruption to the community and economic activities caused by operation activities. ▪ Minimize operation noise nuisance on communities.	**Materials development (brochures, leaflets, posters, other items) could amount to an annual cost of $2,000.**
TRAINING AND CAPACITY BUILDING	Training and capacity building are essential for workers and constitute a fundamental investment in both human capital and project outcomes. They improve safety, efficiency, quality, and regulatory compliance, which ultimately contributes to the timely and successful completion of construction projects. Key actions to be performed are: ▪ Suitable and effective staff training and awareness activities will be conducted to ensure the project employees understand, appreciate and adhere to the suggested environmental and social management requirements. ▪ In addition, Appropriate training in the field of Health and Safety will be provided to reduce or prevent the occurrence of work-related accidents and to learn how to respond to any incident. ▪ Finally, ongoing training and development opportunities for employees to enhance skills and career growth will also be given.	**The annual cost of training will be covered as part of:** ▪ **HSSE team and ESS who will undertake periodic training to the terminal operation teams** ▪ **ADPG Corporate online training** ▪ **External training service providers, when necessary. A placeholder value of $ 5,000 /year** ▪ **Necessary material ($1,000)**
E&S annual performance audit	An Environmental & Social (E&S) Annual Performance Audit is a systematic, independent assessment conducted to evaluate whether a project or facility — such as a port terminal — is complying with its environmental and social obligations, including: national laws and regulations, environmental and social commitments made to lenders, environmental and Social Action Plans, environmental permits and licenses and internal policies, standards, and management systems. To perform an Environmental and Social Annual Performance Audit satisfactorily, a structured and comprehensive approach that assesses the implementation of environmental and social safeguards, compliance with regulations, and continuous improvement must be followed. Key actions are: ▪ Define the Audit Scope and Objectives ▪ Prepare the Audit Plan ▪ Document Review	**Annual Audits to comply with lenders requirements, including IFC Performance Standards, 5-day site visit and 2 specialists, could reach a total of $20,000**

	▪ Site Inspection ▪ Stakeholder Engagement ▪ Evaluate Compliance and Performance ▪ Prepare the Audit Report ▪ Present Findings to Management ▪ Follow-Up and Monitoring	

Table 119. ESS duties, monitoring and reporting actions, and estimated cost of other plans during operation.

18. REFERENCES

- Air Quality Index (2023). https://aqicn.org/
- Brian J. Huntley, Vladimir Russo, Fernanda Lages, Nuno Ferrand -editors- (2019). "*Biodiversity of Angola. Science & Conservation: A Modern Synthesis*". https://doi.org/10.1007/978-3-030-03083-4_2
- Dar Al Handasah Consultant (October 2023). "*Environmental Conditions Assessment Document*" Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Desing & Surveys, Doc number 2800-107-V3-0000-02001.
- Dar Al Handasah Consultant (December 2023). "*Preliminary Geotechnical Interpretative Report*" Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Desing & Surveys, Doc number 2800-107-V3-1510-00003.
- European Digital Archive of Soil Maps -EuDASM- (no date referred). *Angola Erosion Hazard Map* 1/2,000,000. https://esdac.jrc.ec.europa.eu/public_path/shared_folder/eudasm/africa/lists/cao.htm
- FAO/UNESCO (1973). *Soil Map of the World -Africa-* 1/5,000,000 approx. https://www.fao.org/fileadmin/user_upload/soils/docs/Soil_map_FAOUNESCO/new_maps/VI_3_petit.jpg
- Food and Agricultural Organization (FAO) - AQUASTAT (2023). https://data.apps.fao.org/aquastat/?lang=en
- Food and Agricultural Organization (FAO) / United Nations (UN) - Hand-in-Hand (2023). https://data.apps.fao.org/?source=https%3A%2F%2Fio.apps.f...&lang=en
- Geosurveys (2021). "*Bathymetry survey*". Development of Unicargas Port in Luanda. Doc number 20210730_Unicargas_MBES_SBP_rep (20210730).
- Index mundi (2023). https://www.indexmundi.com/
- Instituto Nacional de Geologia - Ministério da Indústria, República Popular de Angola (1988). Geological Map of Angola 1/1,000,000 Hoja 1. http://info.igme.es/FONDOCARTOGRAFICOIMG/GEO_DETALLE/ANGOLA2.JPG
- Instituto Nacional de Meterologia e Geofísica -INAMET- (2023). http://inamet.gov.ao/ao/monitoramento-climatologico/
- José-León García Rodríguez, Francisco J. García Rodríguez and Carlos Castilla Gutiérrez (2014). "*Oil, Poverty and Environment in Angola*". Boletín de la Asociación de Geógrafos Españoles nº 64, 2014. Available at: https://bage.age-geografia.es/ojs/index.php/bage/article/view/1708/1625
- José Novais and José Antonio Díaz Duque (2019). "*La contaminación de las zonas costeras de Luanda: soluciones para su mitigación*". Ingeniería Hidráulica y Ambiental, Vol. XL, nº 3, Sep-Dic 2019. Available at: https://www.researchgate.net/publication/336921981_La_contaminacion_de_las_zonas_costeras_de_Luanda_soluciones_para_su_mitigacion_Contamination_of_Luanda_coastal_areas_solutions_for_its_mitigation
- Juliana M. Paca, Francisca M. Santos, José C.M. Pires, Anabela A. Leitão and Rui A.R. Boaventura (2019). "*Quality assessment of water intended for human consumption from Kwanza, Dande and Bengo rivers (Angola)*". Environmental Pollution, Vol. 254, November 2019.
- L. Ferreira-Baptista and E. de Miguel (2002). "*Geochemistry and risk assessment of street dust in Luanda, Angola: A tropical urban environment*". Atmospheric Environment Vol. 39, Issue 25, August 2005.
- Missão de Pedologia de Angola (no referred). Versão Simplificada dos conjuntos de solos de Angola. 1/3,000,000. https://storage.googleapis.com/fao-maps-catalog-data/uuid/ee591590-88fd-11da-a88f-

000d939bc5d8/resources/angola-270-versao_simplificada_dos_conjuntos_de_solos_de_angola-soils-1-3,000,000.jpg

- Orlando Pinheiro (2010). Instituto Geológico de Angola; Ministry of Geology, Mines and Industry. "*Mineral Resources of Angola, its importance for the socio-economic and sustainable development of the country*". International Workshop on United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009), June 2010, Warsaw (Poland). https://unece.org/fileadmin/DAM/energy/se/pp/unfc/UNFC_iw_June10_WarsawPl/13_Pinheiro.pdf
- Pascoal M. D. Campos, José C.M. Pires, Anabela A. Leitão. "*Assessment of aerosols over five cities of Angola based on MERRA-2 reanalysis data*". Atmospheric Pollution Research 13 (2022). https://www.sciencedirect.com/science/article/abs/pii/S1309104222002501
- Rasha El Gohary and Tamer El Gohary (2017). "*Environmental Impact Assessment (EIA). Guidelines for Development of Ports, Harbours and Marines along Egyptian Mediterranean Coast - A Case Study.*" International Journal of Current Engineering and Technology, Vol. 7, No. 3, June 2017.
- Sandra Sorte, Vera Rodrigues, Carlos Borrego and Alexandra Monteiro (2020). "*Impact of harbour activities on local air quality: a review".* Environmental Pollution Vol. 257, 2020. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0269749119326922
- Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio and Vânia Baptista (2021). "*Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola*)". Journal of Spatial and Organizational Dynamics, Vol. IX, Issue 3, 2021. Available at: https://www.researchgate.net/publication/355820081_Characterization_of_Small-Scale_Fishing_Activity_in_Luanda_Bay_Angola
- Thomas Schlüter (2006). Geological Atlas of Africa with notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country. https://link.springer.com/book/10.1007/978-3-540-76373-4
- UN Environment Programme. Air Quality Policies in Angola (2015). https://www.unep.org/resources/policy-and-strategy/air-quality-policies-angola
- Weather Spark - Cedar Lake Ventures (2024). Available at: https://weatherspark.com/
- Wilma Fernandez e Júlio César Torres (2014). "*Ruído urbano na área central de Luanda*". Revista Angolana de Sociologia. Vol. 14, 2014.
- World Bank Group, Climate Change Knowledge Portal (2023). https://climateknowledgeportal.worldbank.org/
- World Health Organization (2021). WHO global air quality guidelines. Particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva. https://www.who.int/publications/i/item/9789240034228
- World Meteorological Organization (2023). https://worldweather.wmo.int/en/home.html

- IBAT (Integrated Biodiversity Assessment Tool) Alliance (BirdLife International, Conservation International, UN Environment Program World Conservation Monitoring Centre (UNEP-WCMC), and IUCN) (13/10/2023). https://www.ibat-alliance.org/
- IUCN Red List of Threatened Species. (IUCN 2023). Version 2022-2. https://www.iucnredlist.org/
- IUCN Red List of Threatened Species. (s.f.). IUCN Habitats Classification Scheme Version: 3.1. https://nc.iucnredlist.org/redlist/content/attachment_files/dec_2012_guidance_habitats_classification_scheme.pdf
- IUCN Red List of Threatened Species. (s.f.). IUCN Threats Classification Scheme Version 3.3. https://www.iucnredlist.org/resources/threat-classification-scheme

- UNEP WCMC-Website https://resources.unep-wcmc.org/
- Smith, Jeremy M.B. "Desert". Encyclopaedia Britannica, 10 Jan. 2024 https://www.britannica.com/science/desert
- UNEP WCMC-Website. The World Database on Protected Areas. https://data-gis.unep-wcmc.org/portal/home/item.html?id=1919c32890074ce5a589a1a99b48994b
- UNEP WCMC-Website. Global Critical Habitat Screening Layer-Basic. https://data-gis.unep-wcmc.org/portal/home/item.html?id=60c2f45412b4460ab17c2d8cd8bcc5f7
- UNEP WCMC-Website. Natural and Modified Habitat Screening Layer. https://data-gis.unep-wcmc.org/portal/home/item.html?id=4e2d929b580b40f48513906ca5097140
- UNEP WCMC-Website. Global Map of Terrestrial Habitat Types. https://data-gis.unep-wcmc.org/portal/home/item.html?id=79134b5187084c2499fc0b1b18e4c6d3
- International Finance Corporation (IFC) Performance Standard 6. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-6
- Population Projection 2014-250, 2016. INE. Angola. https://www.ine.gov.ao/Arquivos/arquivosCarregados/Carregados/Publicacao_637586861813829303.pdf
- Population Projection 2014-2050 province of Luanda, 2016 Edition. INE. Angola
- ILOSTAT (International Labour Organization). Final Results of the General Census of Population and Housing of Angola, 2016. Census 2014. https://www.ilo.org/surveyLib/index.php/catalog/7957/related-materials
- Investment Memorandum of the Multipurpose Terminal of the Port of Luanda, 2019. Concession of the Seaport Infrastructure.
- Tortosa G, 2021. ICEX (España Exportación e Inversiones) Oficina Económica y Comercial de la Embajada de España en Luanda. *Infraestructuras Portuarias de Angola*. https://www.icex.es/content/dam/es/icex/documentos/quienes-somos/donde-estamos/red-exterior/angola/DOC2021897202.pdf
- DAR "Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, 2023.
- Kirkman et al. 2016. *Spatial characterization of the Benguela ecosystem for ecosystem-based management* https://www.researchgate.net/figure/Map-of-Subsystem-1-north-of-the-Angola-Benguela-Front-showing-main-physical-and-chemical_fig1_296706273
- United Nations, Department of Economic and Social Affairs. Sustainable Development. *Paris Agreement*. https://sdgs.un.org/frameworks/parisagreement
- Angola Initial National Communication to the United Nations Framework Convention on Climate Change, n.d. https://unfccc.int/resource/docs/natc/agonc1.pdf
- BAITAI website. *Hydraulic breaker hammer parameter*. BAITAI. *Hydraulic breaker hammer parameter*. https://baitai.en.made-in-china.com/product/fJcrNzloJARy/China-Mr1400-Sb81-Box-Top-Side-Type-Mining-Machinery-and-Equipment-Hydraulic-Breaker-Hammer.html
- Climate Change Adaptation Plan for the Coastal Zone of Angola, November 2019
- Economic and Commercial Office of Spain in Luanda, 2024. *Economic Report and Commercial of Angola prepared by the economic and commercial office of Spain in Luanda* https://www.icex.es/content/dam/es/icex/oficinas/071/documentos/2023/12/anexos/iec-angola-2023.pdf

- EIB Project Carbon Footprint Methodologies. Methodologies for the assessment of project greenhouse gas emissions and emissions variations. Version 11.3. January 2023 https://www.eib.org/en/publications/20220215-eib-project-carbon-footprint-methodologies
- FANYATOP website. *Excavator Mounted Vibratory Hammer Pile Driver*. http://www.fanyatop.com/product/excavator-mounted-vibratory-hammer-pile-driver
- Food and Agricultural Organization (FAO) / United Nations (UN) - Hand-in-Hand (2023). https://data.apps.fao.org/?source=https%3A%2F%2Fio.apps.f...&lang=en
- Global Assessment Report on Disaster Risk Reduction-Risk data Platform (GAR) https://wesr.unepgrid.ch/?project=MX-XVK-HPH-OGN-HVE-GGN&language=en&theme=color_light
- https://info.undp.org/docs/pdc/Documents/AGO/Get2C_ProdutoIV.1%20-%20Final%20Draft.pdf
- https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC184675/
- hueCO2 TECNIBERIA, 2014. https://hueco2.tecniberia.es/
- InnoEnergy, Co-funded by the European Union. *Descarbonising ports catalogue of innovative solutions* https://eit.europa.eu/sites/default/files/decarbonising_ports-catalogue_of_innovative_solutions_f.pdf
- Intergovernmental Panel on Climate Change (IPCC), 2023: Climate Change 2023: Synthesis Report https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf
- International Maritime Organization, 2020. *Fourth IMO GHG Study. Full Report*. https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/Fourth%20IMO%20GHG%20Study%202020%20-%20Full%20report%20and%20annexes.pdf
- IPCC, 2014: Summary for Policymakers. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf
- Koppe, B. 2017. Article nº39 Conf. CM^2, Split, Croatie. *Climate change - Adaptation options for seaports*. https://www.paralia.fr/cmcm/e04-39.pdf
- Long-Term Development Strategy for Angola 2025
- MITECO, 2023. Emission Factors. Carbon Footprint Registration, Offsetting and carbon Dioxide Absorption Projects Carbon Dioxide Absorption Projects. https://www.miteco.gob.es/content/dam/miteco/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/factoresemision_tcm30-479095.pdf
- National Atmospheric Emissions Inventory (NAEI), UK. https://naei.beis.gov.uk/overview/ghg-overview
- National development Plan 2023-2027 for Angola. Government of Angola. https://www.mep.gov.ao/assets/indicadores/angola2050/20231030(3)_layout_Final_Angola_PDN%202023-2027-1.pdf
- National Strategy for Climate Disrupcion (Estratégia Nacional Para As AlteraçÕes Climáticas 2018-2030. República de Angola) (August, 2017)
- Nationally Determined Contribution of Angola, Republic of Angola May 2021
- One Click LCA. https://www.oneclicklca.com/product-carbon-tool/
- PIANC, 2019. *Carbon Management for Port and Navigation Infrastructure*. PIANC Report Nº188. Environmental Commission.
- RIB Spain, 2014. "*Tecniberia y Presto se hacen "hueCO2" en el medio ambiente*". https://www.rib-software.es/pdf/Art%C3%ADculos/Tecniberia-y-Presto.pdf
- State Ports of Spain, 2020. *Methodological guide for calculating the carbon footprint in ports. December 2020*. Document prepared with the support of: Government of Spain, Ministry of Transport,

Mobility and Urban Agenda, Fourth Vice Presidency of the Government, Ministry for the Ecological Transition and the Demographic Challenge, CEDEX and Agenda 2023. https://www.puertos.es/es-es/medioambiente/Documents/Guia%20Huella%20de%20Carbono%20-%20Puertos%20del%20Estado%20-%20Web.pdf

- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Improving energy efficiency and promoting the use of renewable energy*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2005%20-%20Eficiencia%20Energia.pdf
- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Promotion of alternative energies in transportation*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2004%20-%20Energia%20Alternativa%20V2.pdf
- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Optimize water management and use (Adaptation to drought)*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2012%20-%20Eficiencia%20Agua.pdf
- Technical Report on the status of coastal vulnerability in central African countries, 2020. ICAM dossier nº 10. Technical Series 152 https://unesdoc.unesco.org/ark:/48223/pf0000373623
- The World Association for Waterborne Transport Infrastructure (PIANC, 2020). *Climate Change Adaptation Planning for Ports and Inland Waterways*. PIANC Report Nº 178.
- The World Association for Waterborne Transport Infrastructure (PIANC, 2023). *Waterborne Transport, Ports and Waterways: a 2023 update of climate change drivers and impacts* (EnviCom Task Group Nº3-2023)
- United Nations Office for Disaster Risk Reduction (UNDRR), 2019. *Disaster Risk Profile of Angola for droughts and floods*. https://www.undrr.org/publication/disaster-risk-profile-angola
- Valenciaport, 2021. *Port of Valencia Sustainability Report* https://www.valenciaport.com/wp-content/uploads/APV-Memoria-Sostenibilidad-2021.pdf
- World Bank Group, 2017. Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals. https://www.ifc.org/content/dam/ifc/doc/2010/2017-ports-harbors-terminals-ehs-guidelines-en.pdf
- World Bank Group, Climate Change Knowledge Portal (2023). https://climateknowledgeportal.worldbank.org/
- IPCC, 2006. Guidelines for National Greenhouse Gas Inventories, Volume 1. General Guidance and Reporting. https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol1.html

AD PORTS GROUP

Environmental Consultancy Services for the Development of Unicargas Port in Luanda - Angola

ESIA

VOLUME II

ESMP

August 2025

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Quality control sheet

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1. INTRODUCTION

The present report corresponds to Volume II of deliverable 6 of contract 2800-302 related to project *Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola*. This document constitutes the ESMP, in which guidelines for best practice environmental and social management of the Project are established, through a clear definition of the environmental and social actions and management procedures to be implemented in each phase of project development.

This Environmental and Social Impact study is conducted in compliance with Presidential Decree 117/20 *Regulamento Geral de Avaliação de Impacte Ambiental e do Procedimento de Licenciamiento Ambiental*, which regulates the environmental procedure in Angola, as well as with the standards and guidelines of IFC and the World Bank.

The aim of the Unicargas Terminal rehabilitation project is to achieve maximum utilization of its capacity, which can effectively meet transportation and development expectations. This project for the rehabilitation and improvement of the Unicargas Terminal is a strategic decision rooted in various compelling factors and informed by the recent developments surrounding the concession agreement and the endorsements from key stakeholders.

2. PROJECT DESCRIPTION

The Project is located in the Port of Luanda, Province and Municipality of Luanda, Urban District of Ingombota, Angola (Lat: - 8.800274°; Long: 13.247499°).

Figure 1. Project location

Located in the heart of Luanda, the capital city of Angola, along the northern Atlantic coastline, the Port of Luanda serves as Angola's primary port and its major industrial, cultural, and urban center. Additionally, the Port of Luanda acts as a strategic gateway port, supporting key trade in the region.

The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Ro-Ro/General Cargo.

The Project involves the design of approximately 192,000 m^2 yard area and associated facilities/buildings/support infrastructure of the Container and General Cargo/Ro-Ro terminals, quay wall and the tie-ins with adjacent berths.

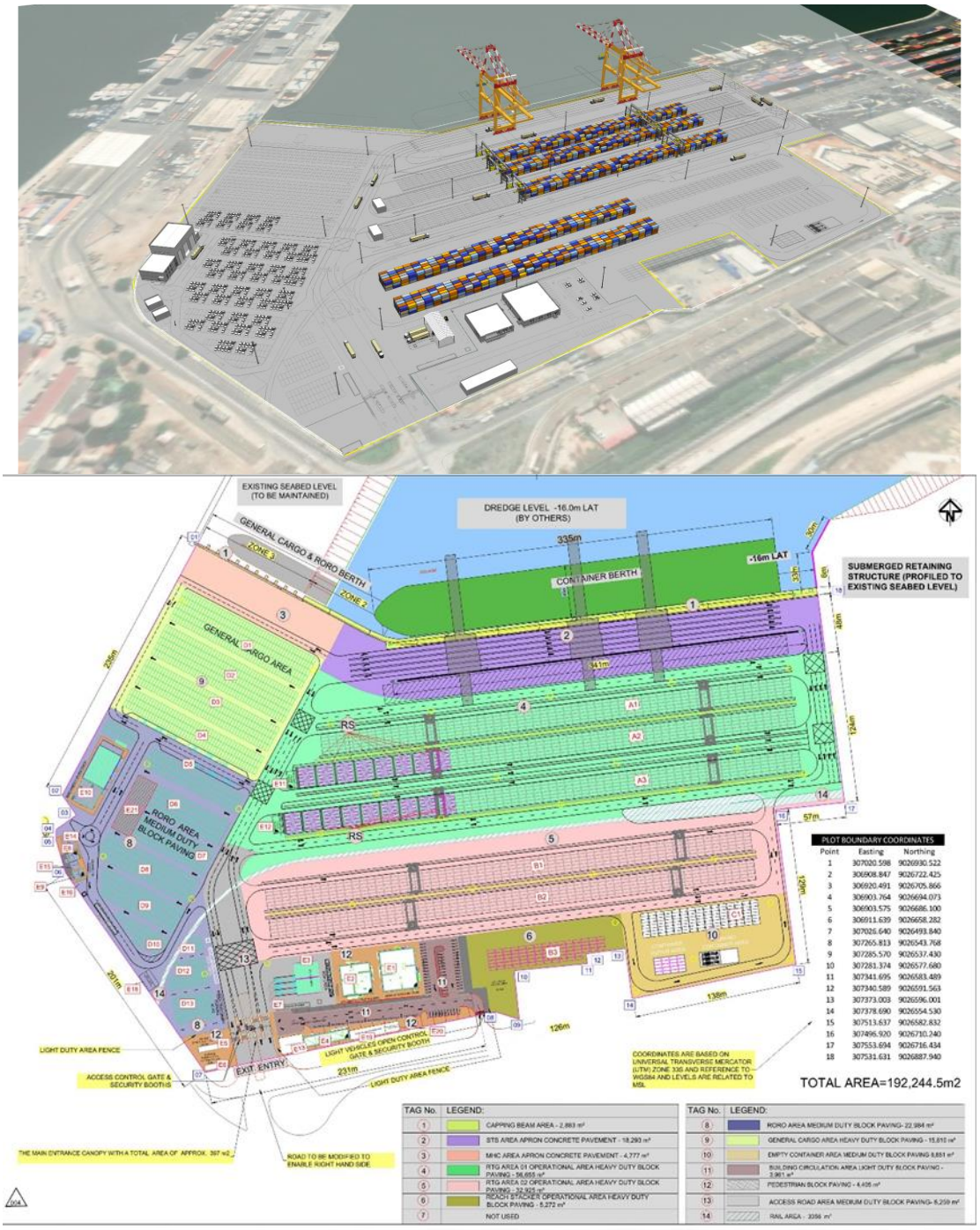

Figure 2. Preliminary Project layout (Master Plan)

The **marine side** of the project involves upgrading the existing berth at Unicargas Terminal of a total length of 536 meters. The upgraded berth will consist of two sections:

- Container Berth: This section will have a water depth of -16.0 meters LAT to accommodate container vessels up to 335 meters in length. It will be equipped with crane beams to support STS (Ship-to-Shore) cranes.

- General Cargo/Ro-Ro Berth: This section maintains a water depth of -9.0 meters LAT to accommodate general cargo vessels up to 133 meters in length.

The quay wall upgrade and rehabilitation will encompass all necessary elements required for proper functionality as well as the tie-in details to the existing adjacent berths.

The top side of the project develops:

- Terminal area preparation: remove current pavement from the Terminal area, level the surface, demolish and remove all buildings/workshops/warehouses.
- Foundation and crane excavation: excavate for building foundations and crane installation.
- Infrastructure installation: Install lighting, fencing, and other necessary infrastructure.
- Area delineation: delineate different working areas, to avoid exceeding boundaries and unnecessary disruptions.
- Construction tasks: execute building tasks including infrastructure and utilities work, installation of electrical network and substations and pavement removal and replacement.

3. PURPOSE OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Environmental and social management of a proposed activity is a crucial tool to ensure any project's environmental and social performance. The ESMP aims to establish the guidelines for best practice environmental and social management of the Project, through a clear definition of the environmental and social actions and management procedures to be implemented in each phase of project development, as defined in the ESIA. The objectives of the ESMP are to:

- Facilitate the implementation of relevant environmental and social mitigation actions. These will be practical, easy to implement and suited to the nature and scale of the proposed Project;
- Define the environmental and social management requirements throughout the life cycle of the Project, and the responsibilities of each of the key role players and establish the actions and deliverables required of each party to effectively implement these requirements;
- Identify management programs and a specific ESHS Action Plan (ESAP) setting forth the commitments to be carried out by each party to achieve the environmental, social, health and safety management requirements during all project Phases, as defined in the ESIA.
- Encourage and achieve the highest environmental and social performance and response from all employees and contractors;
- Ensure that management efforts are proactive and focused to prevent impacts from occurring;
- Supplement the proactive approach with reactive measures to minimize the severity or significance of any impacts that cannot be prevented at source.

Through the formal documentation of measures and commitments concerning environmental and social management, the ESMP plays a crucial role in ensuring that potential adverse impacts are minimized while positive effects are maximized. Acting as a guiding tool, the ESMP facilitates the management and monitoring of impacts. Should impacts surpass initial predictions, additional measures will be required to mitigate, control or prevent them. Consequently, the ESMP must undergo continuous updates and amendments as needed throughout the project's lifespan to mitigate or reduce negative impacts and enhance positive ones.

It's worth noting that the ESMP delineates environmental and social management measures and commitments stemming from the ESIA. However, it's important to acknowledge that during the development of the ESIA and the associated ESMP, detailed engineering design information was not yet available. Consequently, some mitigation measures and commitments outlined in the ESIA and incorporated into the ESMP will require further refinement to be more site-specific once detailed design information becomes available.

Given the above, ADP Group will need to:

- Update and finalize the ESMP based on the final detailed engineering design and ensure that measures to be undertaken during construction and environmental technical specifications are included in the bidding documents and contractual obligations with the winning bidder for each of the contracted elements of the Project.
- Ensure that its contractors abide by the ESMP, making it a part of the contractors' contractual obligations. To this effect, ADPG will require its Contractor to develop a Contractor ESMP (C-ESMP), in compliance with all requirements listed in this ESMP and including all management plans required in this ESMP.
- Further develop the ESMP into a Project Environmental and Social Management System (ESMS), compliant with PS1 and ISO 14001, so as to ensure that the Project is conducted and managed in a sustainable manner;
- If requested, carry out regular environmental audits of the Contractor's works in accordance with local authority regulations and IFC requirements. These audits may be conducted by the Employer or a third-party.

4. ROLES AND RESPONSIBILITIES

4.1. Institutional Arrangements for ESMP Implementation

The effective implementation of the ESMP requires a clear definition of institutional responsibilities to ensure that mitigation and monitoring measures are properly carried out across all project phases. The institutional arrangements established for this purpose include:

- The Proponent: holds overall responsibility for ensuring that the Project is designed, built and operated in accordance with the requirements of the ESMP.
- The PMCM: acting on behalf of the Proponent, is responsible for supervising and monitoring the Contractor's performance during the construction phase.
- The EPC Contractors: directly responsible and contractually bound to prepare their C-ESMPs and implement all environmental and social management actions outlined in the ESMP.
- The Ministry of Environment (MINAMB): mandated to conduct environmental licensing, assess ESIAs, carry out audits and monitoring, and, through the National Waste Agency (ANR), review and certify waste management plans.

4.2. Responsibilities of the Proponent

Mitigation of the Project's induced impacts will require active management in all project phases. Given that these phases will be under the responsibility of different role players, it is crucial to clearly define the

responsibilities of the main role players across the project's life cycle, to ensure that the environmental and social management procedures defined in the ESMP are fully implemented.

Construction Phase

The Project's Proponent will be responsible for ensuring that the Project is designed, built and operated according to the requirements set out in this ESMP.

In this case, the JV, as proponent, will assume supervision responsibilities for effective ESMP implementation for construction phase through the services of a PMCM (Project Management and Construction Management Consultant) who will perform the construction supervision services on behalf of ADPG.

The PMCM team will be properly constituted to oversee E&S compliance, consisting of at least a senior HSSE engineer and inspector, among others.

The PMCM will be responsible for ensuring the compliance of the Contractor with the requirements set out in the ESMP. The responsibilities include monitoring the compliance of the implementation of the ESMP to ensure high E&S standards, in compliance with international best practice and WB Group requirements. This will include the following main tasks:

- Ensure that the Project's detailed design complies with the requirements set out in the ESMP. The PMCM will carry out the peer review and approve the design on the Employer's behalf.
- Ensure that the Contractors are fully aware of, and contractually bound to, the environmental and social management requirements set out in the ESMP for the construction phase of the different Project components, through their inclusion in the tendering process and subsequent contracts. This task will be carried out by the PMCM in coordination with the ADPG Project Manager.
- Require from all Contractors the submission of a Contractor ESMP (C-ESMP), Worker's policy (including workers' Grievance Redress Mechanism - GRM), and Code of Conduct as part of the construction contract prior to mobilization, compliant with all requirements included in this ESMP. This task will be carried out by the PMCM in coordination with the ADPG Project Manager.
- Inform key on-site staff of their roles and responsibilities regarding the ESMP, through initial social and environmental awareness training.
- Supervise the Contractor's environmental and social performance to ensure that all management requirements in this ESMP are implemented.
- Implement a supervision and reporting framework to enforce and document the implementation of the ESMP during the construction phase.
- Monitor, review, and verify compliance with the ESMP by the Contractor and any sub-contractors, ensuring the Contractor's E&S performance is in accordance with national law and good international industry practice.
- Review and approve all Environmental, Social, and Health (ESH) documents produced by the Contractor (as requested in this ESMP) to ensure that they comply with the standards established in this ESMP, national laws, and international guidelines (such as the WB Safeguard Policies and applicable Environmental, Health, and Safety Guidelines as well as Employer's HSE guidelines and procedure).The PMCM will submit performance reports of the Contractor's HSSE performance to the Employer. In the case of repeated major non-compliances or major concerns on HSSE performance of the Contractor, the Employer (Project Director/Project Manager) will call the Contractor's management for a meeting and request the enforcement of a corrective action plan.

- Undertake supervisions, and/or inspections of any sites where the Contractor is undertaking activities related to the Project, to verify the Contractor's compliance with the ESMP requirements, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month.
- Identify areas of non-compliance and define measures to rectify them in consultation with ADPG management, the Contractor, and/or Project Stakeholders, as required. Ensure that the Contractor remedies E&S problems in a timely manner and to the satisfaction of the affected people, ADPG, and authorities (when necessary).
- Approve E&S training programs and other awareness initiatives.
- Monitor and report on the effectiveness of the ESMP as a tool for managing design, construction, and post-construction impacts, and provide feedback for continual improvement in E&S performance.
- Undertake audits and inspections of the Contractor's accident logs, community liaison records, monitoring findings, and other ESH-related documentation, as necessary, to confirm the Contractor's compliance with the ESMP requirements.
- Respond to changes in project implementation or unanticipated site activities that are not addressed in the ESMP, and which could potentially have environmental or social impacts, and advise ADPG and the Contractor as required.
- Review, approve, and archive the Contractor's ESMP Performance Reports. Prepare consolidated E&S performance reports, including tracking of issues, non-conformities, and non-compliances, and their closure to the satisfaction of ADPG.

Operational Phase

Regarding the operational phase, the JV implementation team will include an HSSE Unit led by an HSSE manager who will oversee all E&S aspects. In this regard, the implementation of the measures contained in the mandatory documents for both the Port of Luanda and the Unicargas terminal will be followed. Additionally, the development of the health and safety plan for the operational phase will consider the requirements established in the applicable documents of ADPG's integrated management plan. In addition, in the context of IFC (International Finance Corporation) and World Bank standards and regulations, responsibilities would include the following:

- Implement Environmental and Social Management System (ESMS): Ensure an ESMS is in place to manage risks and impacts associated with terminal operations.
- Environmental Monitoring: Regularly monitor and report on environmental impacts, such as emissions, waste management, and water quality.
- Social Monitoring: Address social impacts, including stakeholders' engagement and grievance mechanisms.
- Health and Safety compliance: Maintain high standards of occupational health and safety for all workers, adhering to best practices and relevant standards.
- Emergency Preparedness: Develop and implement emergency response plans for potential incidents such as spills, fires, or other accidents.
- Hazardous Materials Management: Properly manage and dispose of hazardous materials in compliance with international regulations.
- Stakeholder Engagement: Continuously engage with stakeholders, ensuring transparent communication and addressing concerns promptly.

- Fair Labor Practices: Ensure compliance with IFC Performance Standard 2 on labor and working conditions, providing fair wages, safe working conditions, and respecting workers' rights, including those related to Gender-Based issues:
    - Anti-Harassment Policies: Establish and enforce strict policies against workplace harassment, including gender-based violence and sexual harassment. Ensure these policies are communicated clearly to all employees.
    - Reporting Mechanisms: Provide confidential and accessible mechanisms for reporting harassment and GBV, ensuring that all complaints are taken seriously and addressed promptly.
    - Support Systems: Offer support services for victims of harassment and GBV, including counseling and legal assistance.
- Non-Discrimination: Implement non-discriminatory practices in hiring, promotions, and workplace policies. Ensuring compliance with gender-based issues in worker recruitment and employment practices at the Unicargas Terminal, in alignment with IFC and World Bank standards, would involve several key responsibilities:
    - Equal Opportunity Employment: Ensure recruitment processes are free from discrimination based on gender. Job advertisements, selection criteria, and interviews should focus on skills and qualifications without bias.
    - Affirmative Action: Implement policies to actively encourage applications from underrepresented genders, promoting a diverse workforce.
    - Gender Equality Policy: Develop and enforce a comprehensive gender equality policy that promotes the inclusion of all genders in all aspects of employment, including hiring, training, promotion, and remuneration.
    - Compliance with ILO Conventions: Adhere to ILO conventions, particularly those related to non-discrimination (Conventions 100 and 111) and gender equality.
- Training and Development: Provide ongoing training and development opportunities for employees to enhance skills and career growth.
- Resource Efficiency: Implement measures to reduce resource consumption, such as energy, water, and materials.
- Sustainable Practices: Promote sustainable practices throughout terminal operations, including the use of renewable energy sources and eco-friendly technologies.
- Human Rights Compliance: Respect and promote human rights in all aspects of terminal operations, including the rights of workers, local communities, and other stakeholders.

4.3. Responsibilities of the EPC Contractors

All the Engineering, Procurement and Construction Contractors (EPC Contractors) shall be responsible and contractually bound for the development of all E&S management plans and implementation of all E&S management actions outlined in the ESMP for the detailed design and construction phase and shall abide by the Employer's instructions regarding the implementation of the ESMP.

Based on the requirements of this ESMP, the Contractor will develop a Construction ESMP including all E&S requirements, as well as other management plans to be agreed upon with the proponent (in addition to those already outlined in this ESMP).

The Contractors' teams shall be composed of qualified technicians, with experience in similar projects. and will also retain the services of other E&S experts as needed to fulfill its obligations.

Responsibilities of the EPC Contractors include the following:

- Develop E&S awareness training for all new site personnel (e.g. posters, toolbox talks, signage);
- Develop the C-ESMP and all other plans mentioned above and ensure that all activities on site are undertaken in accordance with the ESMP, and respective CESMP and Method Statements.
- Undertake visual inspections of the activities of employees with regard to implementation of the requirements outlined in the ESMP;
- Immediately notify the proponent or their representative (PMCM) of any non-compliance with the ESMP, or any other complaints or issues of environmental or social concern;
- Write-up and submit specific management plans, as requested on this ESMP, to the ADPG through the PMCM for approval;
- Review and submit Method Statements to the PMCM for approval;
- Keep site documentation related to E&S management on site (e.g. permits, ESMP, Environmental Method Statements, Environmental License, Codes of Conduct (signed by each employee), specific management plans, minutes of meetings, records of grievances and resolution, reports, audits, receipts for waste removal, etc.);
- Keep a regular photographic record of all environmental or social incidents;
- Monitor and record ESMP performance indicators;
- Keep any records as required in the Environmental or Social Management Programs;
- Compile and submit ESMP performance reports to the PMCM at a previously agreed-upon frequency;
- Keep a log on non-conformities and non-compliances and follow up on the resolution until closed;
- Engage regularly with community members and authorities and serve as focal point for the Contractor's grievance management.
- Get all necessary licenses and permits to perform the activities, including opening of access roads, temporary warehouses, etc.
- Get all the licenses and permits required for handling, treatment, transport and disposal of waste at final destination;
- Allocate human and financial resources to implement the ESMP. Ensure that all the necessary equipment (e.g., waste containers, safety equipment) and materials (e.g., spill kits) are available;
- Provide E&S training to the workers;
- Carry out their own inspections to ensure compliance with the ESMP;
- Facilitate and participate in periodic audits from ADPG and any party designated by them and provide necessary information to do so;
- Implement all necessary correctives measures. Keep record of the incidents, accidents and community complaints.

4.4. Role of Competent Authorities

In the ESIA, under Section 5.1 Institutional and Administrative Structure in Angola, the roles of the competent authorities are described in detail. In particular, Subsection 5.1.1 Ministry of Environment outlines the attributions of MINAMB in the environmental field, including environmental licensing, the assessment of ESIAs, environmental audits, monitoring, and the review of waste management plans through the National

Waste Agency (ANR). In addition, Subsection 5.1.7 Maritime and Port Institute of Angola presents the specific attributions of the sectoral authority responsible for the port sector, which is directly relevant to this Project.

These institutional roles constitute the regulatory and technical framework that guides the actions of the Proponent, the PMCM, and the EPC Contractors, ensuring that the implementation and monitoring of the ESMP are carried out effectively and in full compliance with national legislation.

4.5. Other third parties and stakeholders

In addition to governmental entities such as ministries, regional governments, or other public bodies that may be involved during the development of the Stakeholder Engagement Plan, there are also companies that, due to their proximity to the project site and their involvement in port activities, are considered key stakeholders and directly affected parties. In this regard, the Port Authority and Unicargas have been identified as relevant stakeholders to be taken into account during ESMP implementation and monitoring.

These considerations are consistent with the findings presented in Annex 9 Stakeholder Engagement Findings Report, specifically in the Stakeholder Engagement Report – Volume I of the aforementioned Annex.

4.6. Measures to Strengthen E&S Management Capacity

4.6.1. General Training Measures

To ensure the effective implementation of the Environmental Monitoring Program, specific training and capacity building activities will be developed for all personnel involved. These actions will strengthen technical knowledge, promote best practices, and ensure compliance with national regulations and international standards. The proposed measures include:

1. **Introductory Workshops**

   Introductory sessions will be organized to present the objectives, scope, and methodology of the Environmental Monitoring Program. These workshops will familiarize staff with the environmental and social commitments of the project.

2. **Environmental Awareness and Good Practices**

   Awareness-raising sessions will focus on fostering a culture of environmental responsibility among workers. Topics will include energy and water conservation, pollution prevention, and safe handling of equipment and materials.

3. **Specialized Technical Training**

   Training modules will be provided on key monitoring topics such as:

   - Water and air quality sampling and analysis
   - Noise and vibration measurements
   - Biodiversity monitoring techniques
   - Waste and hazardous materials management

- Health, safety, and environmental emergency procedures

4. **On-the-Job Training**

   Field-based training will be delivered during monitoring campaigns, ensuring that staff acquire practical skills under the guidance of environmental specialists.

5. **Capacity Building for Reporting and Data Management**

   Training will be provided on data collection, record keeping, and preparation of environmental monitoring reports, ensuring transparency and accountability.

6. **Evaluation and Continuous Improvement**

   Post-training evaluations will be carried out to assess knowledge retention and identify additional training needs. The training program will be continuously updated to address emerging environmental challenge.

7. **Periodic Refresher Courses**

   Regular refresher sessions will be conducted to update personnel on new regulations, procedures, and lessons learned during program implementation.

4.6.2. Key Institutions and Stakeholders for Capacity Development

In addition, the ESMP identifies the key institutions and stakeholders involved in its implementation that require capacity development and training to effectively fulfill their responsibilities. Building on the institutional arrangements described in Section 5, the following actors have been identified as priority participants in the capacity development activities:

- Ministry of Environment (MINAMB): Responsible for environmental licensing, ESIA review, audits, and monitoring. Training will strengthen knowledge on environmental and social safeguard standards and ESMP monitoring practices.

- National Waste Agency (ANR): In charge of reviewing and certifying waste management plans. Capacity development will focus on waste management systems and compliance monitoring.

- EPC Contractors: Directly responsible for ESMP implementation during the construction phase. Training will address occupational health and safety, environmental and social management procedures, and reporting requirements.

- Proponent (JV/ADPG) and PMCM: With overall and supervisory responsibilities, training will focus on oversight of contractors' performance, reporting, and coordination with competent authorities.

- Maritime and Port Institute of Angola (IMPA): As the authority responsible for licensing, supervising, and ensuring compliance in maritime and port activities, capacity development will focus on environmental compliance monitoring, enforcement of environmental protection plans, and integration of international maritime environmental standards.

The training and institutional support measures will ensure that all responsible agencies and stakeholders have the knowledge, skills, and resources necessary to effectively support ESMP implementation throughout all phases of the Project.

4.6.3. Assessment of Capacity Gaps

As part of the capacity strengthening activities, the following institutional and stakeholder gaps have been identified:

- Ministry of Environment (MINAMB): While MINAMB holds the mandate for environmental licensing, ESIA review, audits, and monitoring, capacity gaps exist in the application of international environmental and social safeguard standards and in systematic monitoring practices aligned with IFC/World Bank requirements.
- National Waste Agency (ANR): Although ANR is responsible for reviewing and certifying waste management plans, it requires further technical capacity in modern waste management systems, hazardous waste handling, and compliance verification procedures.
- Proponent (JV/ADPG) and PMCM: The Proponent and PMCM oversee ESMP implementation, but capacity gaps include advanced training in the supervision of complex E&S requirements, reporting aligned with international lenders' standards, and coordination with multiple competent authorities.
- EPC Contractors: Contractors are directly responsible for ESMP implementation. Identified gaps include systematic training in occupational health and safety, detailed knowledge of environmental and social management procedures, and consistent documentation/reporting of ESMP performance.
- Maritime and Port Institute of Angola (IMPA): IMPA supervises and licenses maritime and port activities, but requires strengthened capacity in the enforcement of environmental protection plans, marine pollution prevention, and the integration of international maritime environmental standards into national practice.

5. LEGAL AND POLICY FRAMEWORK

The ESIA has been carried out in accordance with:

- National Laws & Regulations.
- Any International Conventions and Treaties relating to the environment to which the host country is a party.
- IFC Performance Standards 2012;
- IFC World Bank Group Environmental, Health and Safety General Guidelines (2007);
- World Bank EHS Guidelines for Ports, Harbors and Terminals;
- OECD Common Approaches;
- Equator Principles 4, 2020 and associated guidance on climate change risk assessment, human rights assessment, biodiversity best practice
- All relevant host country laws, regulations and permits that pertain to environmental and social issues

For the activities included in the ESIA, Angolan legislation is applicable. Therefore, the summary of this legislation is provided below, with other international standards and requirements deferred to subsequent reports.

All regulations, codes and standards would be analyzed regarding all the activities involved in the project. If national laws differ from the measures established in the IFC and EHS standards and guidelines or the Equator Principles, the most stringent regulations will be followed as a reference in the project.

5.1. National Regulations

For the development of this section, the 'Handbook on Environmental Assessment Legislation in the SADC Region' has been consulted (Walmsley, B and Hussleman, S, 2020. Handbook on environmental assessment legislation in selected countries in Sub-Saharan Africa. 4th edition. Pretoria: Development Bank of Southern Africa (DBSA) in collaboration with the Southern African Institute for Environmental Assessment (SAIEA)).

The fourth edition of the 'Handbook on Environmental Assessment Legislation in the SADC Region' is published by the Southern African Institute for Environmental Assessment (SAIEA) and the Development Bank of Southern Africa (DBSA). This edition follows on from earlier editions published in 2007, 2009 (second edition), and 2012 (third edition). Regular updates of the Handbook have been undertaken to keep pace with the rapidly evolving environmental legislation and landscape.

Referring to **National Regulation**, the following laws have to be considered:

Law No. 5/98 - Environmental Framework Law

Dated June 19th, this law provides legal support for Environmental Protection in Angola, and establishes, in its Article 16, the Environmental Impact Assessment (AIA) as one of the main instruments of Environmental Management. For this purpose, it defines the concepts and basic principles of environmental protection, preservation, and conservation, promotion of quality of life, and rational use of natural resources, in accordance with the constitutional Law of the Republic of Angola.

Presidential Decree No 117/20 - General Regulation of Environmental Impact Assessment and Environmental Licensing Procedure

The Presidential Decree No 117/20 of 22 April 2020 approves the General Regulation for Environmental Impact Assessment and the Environmental Licensing Procedure. This Regulation, consisting of 53 articles divided into five Chapters and five Annexes, establishes requirements to perform any environmental activity, rules and procedures that regulate the environmental impact assessment of public and private projects and the environmental licensing procedure for activities that, by their nature, location or size, are likely to cause significant environmental and social impact.

According to this legislative regulation, three types of environmental licenses are distinguished, each of which involves an individual procedure:

- Installation Environmental License, a document issued by the entity responsible for environmental policy with the purpose of authorizing the implementation and alteration of the project, in accordance with the specifications contained in the executive project;
- Operation Environmental License, a document issued by the entity responsible for environmental policy, with the purpose of initiating the operation of the enterprise or the units, facilities, and systems integral to the activity in the area of interest, after verifying compliance with all the requirements contained in the environmental impact assessment study;

- Deactivation Environmental License, a license required in case of the cessation of activities subject to the operation environmental license, to ensure that potential environmental liabilities are properly identified and addressed in accordance with current legislation.

It outlines:

- The mandatory project registration procedure using the Integrated Environment System (Sistema Integrado do Ambiente – SIA) - an online platform created by the Ministry of Environment (Article 6);
- The categorization of projects to be licensed (Article 7) and which are listed in annexes I, II, II, IV and V of the Decree;
- Decentralization from MINAMB to local administrations and provincial governments of competences, such as project evaluation, the issue of Environmental Licenses (Article 8), and project pre-evaluation for further categorization (Article 9);
- The inclusion of the mandatory Environmental Pre-Feasibility Study and Scope Definition (Estudo de Pré-Viabilidade Ambiental e Definição do Âmbito – EPDA), which is only required for Category A projects (Article 12);
- The minimum content required for the Simplified Environmental Study – SES (Estudo Ambiental Simplificado – EAS) is presented in Article 15 and the Terms of Reference for such documents must be submitted to the Provincial Environmental Department.
- The rules for public consultations are established in Article 16 and should be guided by the Public Consultation Regulations approved by Executive Decree No. 87/12 of 24 February.

Executive Decree No. 92/12 - Terms of Reference for Environmental Impact Studies

Executive Decree No. 92/12, dated March 1st, approves the Terms of Reference for the preparation of Environmental Impact Studies (EIA) and specifies their general content. This decree establishes that the EIA report must be prepared in accordance with the legislation on Environmental Impact Assessment (AIA) and includes three annexes providing guidelines on the information to be submitted to the Ministry.

Executive Decree No. 87/12 - Public Consultations for Projects Subject to Environmental Impact Assessment

Executive Decree No. 87/12, dated February 23rd, defines and establishes the objectives of public consultations for projects that require Environmental Impact Assessment (AIA). In cases where public consultation is required by the decision of the competent Ministry, before approving and issuing an Environmental License, Executive Decree No. 87/12 should be followed, which provides a detailed and comprehensive explanation of the objectives and requirements of public consultations.

Presidential Decree No. 83/22, dated April 12th

Establishes the fees to be charged for the issuance and renewal of environmental licenses for the Environmental Impact Assessment, as well as the registration and renewal of environmental consulting companies.

Decree No. 1/10, dated January 13th

Decrees environmental audits for public or private activities that are likely to cause significant environmental damage. The Decree explains the types of audits that may be conducted, and that such audits must be

conducted by authorized public or private bodies. It makes provision for the registration and accreditation of environmental auditors. The costs of the audits are carried by the entity being audited.

Dispatch No. 2746/13, dated December 6th

Determines that any Company submitting Environmental Impact Studies for assessment by the competent Directorate of the Ministry of the Environment must attach the identifying data and recognized qualifications of the Technicians, Specialists, or Consultants who prepared the respective Study, as well as proof of the Project's investment value for calculation purposes leading to the issuance of the Installation or Operation License, under the Regulation on the Technical Registration of Environmental Consultancy Companies, approved by Executive Decree No. 86/12, dated February 23rd.

Dispatch No. 2745/13, dated December 6th

Establishes the formation of a Commission for each case of Environmental Licensing Impact Study, coordinated by the National Director for Environmental Impact Assessment and Prevention, indicating the entities that comprise it.

Executive Decree No. 86/12, dated February 23rd

Regulates the technical registration of environmental consultancy firms.

Presidential Decree No. 194/11, dated July 7th

Establishes the responsibility regarding the risk and degradation of the environment based on the "polluter pays" principle to prevent and remedy environmental damage.

Presidential Decree No. 190/12 of August 24th

Establishes that all public and private entities that produce waste or carry out activities related to waste management shall prepare a Waste Management Plan (WMP) prior to the commencement of their activity, containing at least all information set out in Appendix I and II, respectively.

Executive Decree No. 17/13 of January 22nd

Establishes legal regulations relating to waste management resulting from the construction or demolition of buildings or landslides, briefly referred to as construction and demolition wastes, including its prevention and reuse and operations of collection, transport, storage, sorting, treatment, recovery, and disposal

Law No. 3/14 of February 10th

Aims to regulate a range of conduct, aiming to exercise the criminal laws of Angola to regarding the protection of certain fundamental legal rights, including crimes against the environment.

Law No. 6/17 of January 24th

Establishes the norms that aim to guarantee the conservation and sustainable use of the forests and the fauna within the national territory.

Presidential Decree No. 171/18 of July 23rd

Provides the regulation for sustainable use of forestry resources and its ecosystems and establishes norms and procedures for its conservation and sustainable use.

Presidential Decree No. 26/20 of February 6th

The National Strategy and the Biodiversity Action Plan aims to ensure the conservation and sustainable use of biodiversity components, considering the fair and equitable sharing of the benefits from the use of resources conservation, preservation, protection and restoration of biodiversity in Angola.

Decree No. 53/03 of July 11th

"Regulation of the Operation of Angolan Ports" in its article 39 of chapter III, imposes responsibility on port operators for the cleaning of facilities as well as the removal of garbage, waste, or other materials resulting from the movement of goods.

Law 25/2011 of July 24th

Provides regulation against Domestic Violence. It establishes the legal regime for the prevention of domestic violence, protection, and assistance to victims and aims to:

a) Prevent, combat, and punish the perpetrators of acts of domestic violence;
b) Inform victims of domestic violence crimes about their rights;
c) Ensure swift and effective police and judicial protection for victims of domestic violence;
d) Establish specialized services for assisting victims of domestic violence within the competent authorities;
e) Encourage associations and other civil society organizations dedicated to preventing domestic violence;
f) Promote awareness policies in the areas of education, information, health, and social support;
g) Hold perpetrators of acts of domestic violence accountable administratively, civilly, and criminally;
h) Create counseling and temporary shelter spaces for those involved;
i) Discourage any act that, based on customs and practices, undermines the dignity of the human person;
j) Remove the perpetrator from the victim's proximity when necessary, given the seriousness of the situation;
k) Respond quickly, effectively, and integratively to emergency social services supporting the victim. Published in the I Series of the Official Gazette No. 133 of July 14, 2011, Page 2 of 9, proximity, affection, natural relationships, and education, particularly in:
    a) Kindergartens;
    b) Nursing homes for the elderly;
    c) Hospitals;
    d) Schools;
    e) Boarding schools for girls or boys;
    f) Equivalent spaces of relevant community or social interest

Presidential Decree No. 124/13 of August 28th

This Presidential Decree aims to regulate Law No. 25/11 of July 14, Against Domestic Violence. In attending to the victims, administrative entities must adhere to the following principles:

a) Dignified treatment: understanding and respect: to prevent unnecessary questions being asked to the victim or the aggressor that may violate the modesty or morality of those involved;
b) Non-discrimination: to ensure that both aggressors and victims are treated equally, without discrimination based on age, culture, sexual orientation, religious belief, or political affiliation, and also prevent questions that may create a feeling of discrimination among the subjects involved;
c) Professional secrecy: to prevent the entities responsible for conducting the process from making unnecessary comments or disclosures to third parties about the private life issues of those involved in the process;
d) Promptness in treatment: to ensure that the instruction of domestic violence processes is completed in the shortest possible time, considering the deadlines established in this Regulation

Presidential Decree No. 222/13 of December 24th

Approves the National Policy for Gender Equality and Equity and the respective Advocacy and Resource Mobilization Strategy for the Implementation and Monitoring of the Policy.

In this law, it is considered that strengthening the institutional and operational capacity to integrate gender issues at central, local, and institutional levels, including legislative and administrative actions on equality of rights between men and women, reinforces and values the condition of women, ensuring their exercise of full citizenship and their social and economic inclusion.

Likewise, women's emancipation and gender equality are the result of a complex process of removing barriers that often requires a thoughtful practice of positive discrimination in favor of women. Hence the engagement in the struggle for the inclusion of gender issues at all levels of development, which promote changes in attitudes and behaviors aimed at the structured and organized participation of women throughout the country.

In a country with an estimated population of about 20 million inhabitants, more than 50% of the population is female, 45% are of childbearing age, and 51% of this population are young people under 15 years old, where the construction of an equitable society is projected, the issue of gender equality and equity becomes a fundamental assumption. These indicators demonstrate, in quantitative terms, the weight of women as a productive force, potentially active population of the country, and the largest population in terms of demand for social services, such as education, training, health, and social protection. The weight and significant importance of this segment in society demonstrate that all interventions to reduce poverty, promote growth, build and consolidate a governance model that respects human rights and promotes sustainable development are only achievable if gender equity issues are considered in relationships. This fact is now recognized by the various development actors in Angola. Promoting this equality implies intervention in four dimensions:

i. Eliminating gender disparity and discrimination;

ii. Ensuring that Programs, Policies, and Development Plans take into account the needs and interests of women and men;

iii. Bringing men, women, and society as a whole into the process of changing attitudes and behaviors;

iv. Eliminating factors that constrain women's access and control over resources and decision-making bodies.

5.2. Other relevant policies

Constitutional requirements for environmental protection

As stated in the Handbook on Environmental Assessment Legislation in the SADC Region, a key aspect to consider when seeking to understand environmental policy and legislation of a country is whether its Constitution addresses citizens' right to health and wellbeing and the protection of the environment and life it supports.

First signed into law in 1992, the Constitution of the Republic of Angola (Lei Constitucional da República de Angola) was replaced in 2010 and provides the basis for the Environment Framework Law through Article 39.

Article 39 (Environmental rights):

1. Everyone has the right to live in a healthy and unpolluted environment and the duty to defend and preserve it.
2. The state shall take the requisite measures to protect the environment and species of flora and fauna throughout the national territory, maintain the ecological balance, ensure the correct location of economic activities and the rational development and use of all natural resources, within the context of sustainable development, respect for the rights of future generations and the preservation of species.
3. Acts that endanger or damage conservation of the environment shall be punishable by law.

In addition, Article 90(e) reads that the state shall promote social development by "ensuring that all citizens enjoy the benefits resulting from collective efforts in terms of development, specifically with regard to quantitative and qualitative improvements to standards of living." Article 15 recognizes that local communities have access to, and the use of land without prejudicing the possibility of expropriation for public use based on fair compensation in terms of the law.

The constitutional provisions mentioned above play a crucial role in promoting sustainable development, which encompasses enhancing both the well-being of individuals and the state of the environment. These Articles specifically address the preservation and safeguarding of natural resources, biodiversity, and a favorable environment. The objective is to sustain the natural ecological equilibrium and fulfill fundamental human necessities.

National Development Plan

The National Development Plan (2018-2022) recognizes that environmental issues are cross-cutting as reflected in the Angolan 2025 Long-Term Strategy and proposed Environmental Sustainability Policy which is intended to guide the environmental sector. The Environmental Sustainability Policy part of the PDN 2018-2022 encompasses four programs, namely: 1) climate change; 2) biodiversity and conservation areas; 3) marine spatial planning and ecosystem health; and 4) risk prevention and environmental protection.

Angola 2025: Long-Term Strategy (Estratégia de Longo Prazo)

Examines the notable difficulties encountered in Angola, including but not limited to very low human development, a fragile economic situation, institutional instability, insufficient health and education services, regional inequality, among others. It formulates strategic alternatives for the period leading up to 2025. The strategy considers potential expansion in different sectors and outlines key actions to achieve this growth.

Climate change

Angola has recently acknowledged escalating risks and climate variations, such as a rising frequency of record-setting hottest days, desertification, and heightened semi-arid conditions along the southern and coastal regions. Elevated temperatures are adversely affecting agriculture due to increased evaporation. In the medium term, institutional hurdles in addressing climate risks include a shortage of reliable data to facilitate a precise estimation of anticipated climate changes in specific regions of the country, as well as a lack of adaptive capacity and resilience. There is a need to facilitate the incorporation of climate change adaptation into pertinent new and existing policies, programs, and activities to enhance resilience and adaptation in the upcoming years.

Although Angola is a Party to the United Nations Framework Convention on Climate Change, the country has been slow to develop policies, plans and programs to combat this threat. The National Adaptation Program of Action (NAPA) was developed in 2011, but the first training on the National Adaptation Plan (NAP) was only held in July 2015. The Government of Angola has identified food security, infrastructure development, promotion of green areas and growth of industrial sectors as key development priorities for the country, to be mainstreamed within the NAP process.

Environmental Regulation of the port area

Establishes a set of rules aimed at protecting the environment during port activities, ensuring its preservation, particularly regarding health, water, soil, air, ecosystems, and atmosphere.

Gender Based Policy

In the context of Gender-Based policies, Angola has developed the document Gender Equality Diagnosis Angola 2022. This document is an initiative framed within the implementation of the “Technical Assistance for the Implementation of the EU-Angola Dialogue Facility” Project, which aims to deepen political dialogue in priority areas identified in the EU-Angola Joint Way Forward Agreement. The coordination of the EU-Angola Dialogue Facility includes the Ministry of Economy and Planning (MEP), the Ministry of Foreign Affairs (MIREX), and the Delegation of the European Union in Angola (DUE).

This action was developed at the initiative of the Delegation of the European Union in the Republic of Angola, in collaboration with the Ministry of Social Action, Family, and Women's Promotion (MASFAMU).

The overall objective of the diagnosis is to contribute to the effectiveness of the Dialogue and Cooperation between the European Union and Angola in priority areas of the Joint Way Forward. More specifically, it aims to analyze the situation of gender equality in Angola, in all its dimensions, to support the European Union, its Member States, the Government of Angola, and national and international development actors in integrating gender issues into development programs and projects and to contribute to the achievement of the objectives of the EU Gender Action Plan III (GAP III).

The new EU Gender Action Plan (GAP III), approved in November 2020, guides the EU's external actions in favor of gender equality and women's empowerment. GAP III requires greater integration and transformation of the gender perspective in all sectors of European foreign policy, focusing on six priority intervention areas:

1. Ensuring the absence of all forms of gender-based violence
2. Promoting sexual and reproductive health and rights
3. Strengthening economic and social rights and empowering women and girls
4. Promoting equal participation and leadership
5. Integrating the women, peace, and security agenda
6. Responding to challenges and seizing opportunities offered by the green transition and digital transformation

5.3. Framework of International Legislative Reference

At the international level, Angola is a signatory to several multilateral environmental agreements (treaties, conventions, and regional and international protocols), with a focus on environmental matters.

Instruments indicated below are noteworthy in this regard:

Climate Change

- United Nations Framework Convention on Climate Change: Ratified by Angola in 1998 through Resolution No. 13/98 on August 28th, which entered into force in Angola on August 28th, 1998 (Resolution No. 13/98). Establishes the basis for international cooperation on technical and policy matters related to global warming.
- Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol: Ratified by Angola in 2000, committing to participating in the defense of the ozone layer.
- Kyoto Protocol: Ratified by Angola in 2007, committing to reducing greenhouse gas emissions.

Natural Risks

- United Nations Convention to Combat Desertification: Ratified by Angola in 2000 through Resolution No. 12/00 on May 5th, establishes the basis for international cooperation on policy matters related to combating the global problem of soil degradation.

Water Resources

- Revised SADC Protocol on Shared Watercourses: Signed by Angola on August 7th, 2000, with the objective of cooperation, coordination, and sustainable development of shared water resources in the SADC region and their utilization.

Ecology

- Convention on Biological Diversity (CBD): Ratified by Angola in 1997 through Resolution No. 23/97 on July 4th, subsequently developing its National Biodiversity Strategy and Action Plan (NBSAP). Establishes the basis for international cooperation on policy matters related to the need to reconcile

nature conservation with development concerns, based on principles of equality and shared responsibilities.

- SADC Protocol on Wildlife Conservation and Law Enforcement: Signed by Angola on August 18th, 1999, envisioning the conservation and sustainable use of wildlife, excluding forestry and fisheries resources, and the effective enforcement of related laws.
- Convention on the Conservation of Migratory Species of Wild Animals: Ratified by Angola in 2003 through Resolution No. 14/03 on April 15th, establishing the basis for international cooperation on policy matters related to endangered species.
- African Convention on the Conservation of Nature and Natural Resources: Signed by Angola (Resolution No. 5/2014 on January 20th), with the objective of protecting the environment, promoting the conservation and sustainable use of natural resources, harmonizing policy coordination in this domain, creating ecologically sustainable, economically sound, and socially acceptable development programs and strategies.
- Convention on Wetlands of International Importance (Ramsar Convention): In the process of proposed accession by the Angolan Government (approved for accession by the National Assembly in 2013), the Ramsar Convention declares the importance of designated national wetlands due to their biological and economic value and their role in maintaining ecosystems and biodiversity.

Human Development

- Millennium Declaration (MD): Adopted by Angola in September 2000, establishing the basis for countries to commit to ensuring global sustainability.

Cultural Heritage

- Convention Concerning the Protection of the World Cultural and Natural Heritage: Ratified on November 7th, 1991, by Angola, outlining the duties of member states regarding the identification of potential sites and their role in protecting and preserving World Cultural and Natural Heritage. By signing the Convention, each country commits to conserving not only classified World Heritage sites within its own territory but also protecting its national heritage.

Other Conventions

- Stockholm Convention on Persistent Organic Pollutants: Ratified by Angola in 2006, aiming to protect human health and the environment from persistent organic pollutants by promoting their elimination through the prohibition of the production and use of the set of POPs.
- MARPOL 73/78 Convention "Prevention of Pollution from Ships" focuses on preventing pollution of the marine environment from ships considering both routine and accidental operational scenarios.
- IMDG Code "Transport of Dangerous Goods" establishes all conditions for the conditioning and identification, labeling, documentation, stowage, and entire process up to the consignee related to dangerous goods to provide greater care and reduce risks of accidents to the cargo.

5.4. IFC and other relevant Codes and Standards to be considered

5.4.1. IFC performance Standards

Regarding the codes and standards of the **International Finance Corporation (IFC)**, Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to

help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced.

Several cross-cutting topics such as climate change, gender, human rights, and water, are addressed across different Performance Standards listed below:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

5.4.1.1. IFC Performance Standards to be considered for the Project

Taking as reference the fields of application outlined in the document "World Bank Environmental and Social Framework." World Bank, Washington, DC (2016), and considering the typology and location of the project, the environmental and social standards listed below will be applicable to it:

Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.

Sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESS). It applies to all projects supported by the Bank through Investment Project Financing.

Environmental and Social Standard 2: Labor and Working Conditions.

Recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. It promotes safety and health at work and fair treatment, nondiscrimination and equal opportunity for project workers.

Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management.

Recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective

resource use, pollution prevention and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. Its main objectives are:

- To promote the sustainable use of resources, including energy, water and raw materials.
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To avoid or minimize project-related emissions of short and long-lived climate pollutants.
- To avoid or minimize generation of hazardous and non-hazardous waste.
- To minimize and manage the risks and impacts associated with pesticide use

Environmental and Social Standard 4: Community Health and Safety.

Recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

This ESS addresses potential risks and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in ESS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESS3.

Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Biodiversity often underpins ecosystem services valued by humans. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem service.

Other IFC Environmental and Social Standards

In addition, taking as reference the fields of application outlined in the document 'World Bank Environmental and Social Framework,' World Bank, Washington, DC (2016), and considering the typology and location of the project, environmental and social standards 5, 7, and 8 are not applicable, as explained and justified below:

- Environmental and Social Standard 5 - Land Acquisition and Involuntary Resettlement: as stated in Performance Standard 5 (IFC, 2012), *Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and individuals who use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use*. It is also stated that this Performance Standard *does not apply to impacts on livelihoods where the project is not changing the land use of the affected groups or communities*. The project involves the renovation of an existing and currently operational terminal, to be carried out within the grounds of the port facility, under the terms of a concession agreement. Therefore, it does

not involve the use of land belonging to any groups or communities, nor the economic displacement of any stakeholder. Regarding the latter point, related to economic displacement, it is important to consider what is established in the following points:

- The project to upgrade and develop the Unicargas Terminal will involve the temporary relocation of port operations to an alternative facility. This ensures that economic activities related to the port, including shipping and logistics, will not be interrupted. Therefore, there is no expected economic displacement of businesses that rely on these operations. The temporary facility will maintain the operational flow, thus avoiding any loss of income or employment for those dependent on the port activities.
- Relevant communications have been made with the Ministry of Fisheries and Marine Resources, as well as the National Directorate of Fisheries and Fishery Resources. In particular, a response from the Ministry of Fisheries and Marine Resources indicated no objections to the project (refer to Annex 9 for additional information). This response suggests that the project, including its construction and operational phases, has been reviewed by relevant authorities without concerns being raised about adverse effects on local fisheries or fishing communities.
- A deeper analysis has been conducted about the potential affected fishing communities, considering not only the possible impact of the project but also the potential impact of the dredging project as an associated facility. In this regard, it is important to note that the fishing activities in Luanda Bay are officially recognized as only subsistence fishing according to Angolan law (Aquatic Biological Resources Law No. 6-A/04). Despite the importance of these activities for local livelihoods, they are often informal and not fully regulated, contributing to a lack of official data on the exact number of fishermen or the spatial extent of their operations.

  It should also be considered that these are port waters, where there are usually police controls that force fishermen to interrupt their activities, urging them to fish in other locations. As indicated in document *Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola)* (Faria et al. 2021), the predominant species targeted by fishermen (e.g., *Pomadasys jubelini, Mugil cephalus, Dentex spp.*, and various bivalves) and the fishing methods (line/hooks, trawl nets, and manual harvesting of bivalves) are mainly confined to the shallower and more inner areas of the bay. These areas are less likely to overlap with the deeper channels where dredging would occur. Moreover, the artisanal methods described in the study are adaptable and can be relocated temporarily if necessary. So, no economic displacement or significant disruption in fishing activities is considered to be caused by the project or it associated facilities.

- Environmental and Social Standard 7 - Indigenous Peoples: As stated in Performance Standard 7 (IFC, 2012), this ESS applies whenever Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities (as they may be referred to in the national context) are present in, or have collective attachment to a proposed project area, as determined during the environmental and social assessment. The project under this study is being developed in an area within the port of Luanda, which is a restricted access space with controlled entry where no indigenous peoples reside, thus this standard does not apply. Additionally, it has to be noted that it is a rehabilitation project for an existing and currently operational port terminal.
- Environmental and Social Standard 8 – Cultural Heritage: As stated in Performance Standard 8 (IFC, 2012), the requirements of this ESS8 will apply to all projects that are likely to have risks or impacts on cultural heritage. As previously explained, this is a rehabilitation project for an existing and

operational terminal, so it will not affect any potential cultural values in the area, which is within a restricted and controlled access space designated for port activities. There are no plans to occupy new spaces for the terminal's operation that could lead to new Cultural Heritage findings.

5.4.2. World Bank Operational Policies

The World Bank's Environmental and Social Safeguard Policies are considered a cornerstone of its support to sustainable poverty reduction projects. The policies require governments receiving funding from the World Bank to address certain environmental and social risks in order to receive Bank support for investment projects. As a rule, the WB policies include requirements that projects should include such as the need for environmental and social impact assessments, consulting with affected communities about the impacts that such projects would have, as well as the need for the livelihoods of affected people to be restored (i.e. either re-establish their pre-existing conditions or improve upon them). The effectiveness and overall positive impacts of projects and programs supported by the Bank has substantially increased as a result of the attention focused on these policies. Safeguard policies have often provided a useful platform for the participation of stakeholders in project design and have been an important instrument for building ownership among local populations.

The World Bank's key Operational Policies (OP) and associated Bank Procedures are critical to ensuring that potentially adverse environmental and social consequences are identified, minimized, and mitigated, and receive attention during the project preparation and approval processes.

The key objectives of the World Bank's environmental and social safeguard policies are the following:

- Environmental Protection: Ensure that Bank-financed projects avoid, minimize, and mitigate adverse environmental impacts on air, water, land, biodiversity, and cultural resources.
- Social Inclusion and Equity: Promote the inclusion of affected communities, including vulnerable and marginalized groups, in the decision-making process regarding project design, implementation, and benefits.
- Resettlement and Rehabilitation: Provide adequate compensation, assistance, and livelihood restoration for people displaced or adversely affected by Bank-supported projects.
- Indigenous Peoples: Recognize and protect the rights of indigenous peoples, respecting their cultures, traditions, and ancestral territories, and ensuring their free, prior, and informed consent in project planning and implementation.
- Labor and Working Conditions: Uphold labor standards and working conditions, ensuring fair treatment, safe working environments, and adequate remuneration for workers involved in Bank-funded projects.
- Community Health and Safety: Protect the health and safety of project-affected communities, minimizing risks associated with project activities and ensuring access to essential services and infrastructure.
- Stakeholder Engagement and Consultation: Facilitate meaningful consultation and engagement with stakeholders throughout the project cycle, fostering transparency, accountability, and active participation in decision-making processes.
- Biodiversity Conservation and Sustainable Resource Management: Conserve biodiversity, natural habitats, and ecosystems by integrating principles of sustainability and environmental management into project planning, implementation, and monitoring.

- Climate Change Resilience: Enhance the resilience of communities and ecosystems to climate change impacts, promoting adaptive measures, disaster risk reduction, and climate-smart development practices.
- Compliance and Accountability: Ensure compliance with environmental and social safeguard policies and standards, conducting regular monitoring, evaluation, and reporting to track project performance and address any non-compliance issues promptly.

5.4.2.1. World Bank Operational Policies to be considered for the Project

OP 4.01 Environmental Assessment

The specific OP triggered by activities under the Project is OP 4.01 (Environmental Assessment), in which point 1 states that "The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making".

The aim of OP 4.01 is to ensure that World Bank-financed projects are environmentally and socially sustainable and ensure better decision making through the integration of environmental and social impact considerations throughout the different phases of development project and actions (i.e. design, planning, and implementation). The main objectives of Environmental Assessment (EA) are to ensure the consideration of environmental aspects (air, water, and land), human health and safety, social aspects (involuntary resettlement, local communities and cultural heritage), as well as consideration of trans-boundary and global environmental effects such as climate change. OP 4.01 is applicable whenever a proposed project or actions have the potential to cause negative environmental effects to the surroundings.

OP 4.04 Natural habitats

Although considered in this project, it must be stated upfront that the impacts of the project on important natural habitats are considered highlight unlikely as development activities of the project will be on already existing sites that will likely already have been transformed/impacted upon and will not experience any relevant transformation because of the project.

OP 4.10 Indigenous People and OP 4.12 Involuntary Resettlement

The term Indigenous People is no longer in use in Angola since March 2020. The substitute term is Ethno-Linguistic Minorities.

In regard to these social aspects, OP4.10 Ethno-linguistic Minorities and OP 4.12 Involuntary Resettlement do not apply, as the project is located in a currently operational port terminal within the delimited area of Luanda port. Only individuals involved in port activities have access to this area, with no populations residing within the confines.

5.4.3. World Bank Group Environmental Health and Safety Guidelines

In addition, **the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines)** are technical reference documents with general and industry-specific examples of good international industry practice. IFC uses the EHS Guidelines as a technical source of information. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

Environmental, Health, and Safety Guidelines for Ports, Harbors and Terminals are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors, as mentioned before. These guidelines are applicable to marine and freshwater ports, harbors, and terminals for cargo and passengers.

5.4.4. Other International Policies

On the other hand, the **Equator Principles Financial Institutions (EPFIs)** have adopted the Equator Principles in order to ensure that the Projects to be financed and advised on are developed in a manner that is socially responsible and reflects sound environmental management practices. EPFIs acknowledge that the application of the Equator Principles can contribute to delivering on the objectives and outcomes of the United Nations Sustainable Development Goals (SDGs). The Equator Principles are intended to serve as a common baseline and framework for financial institutions to identify, assess and manage environmental and social risks when financing Projects.

Regarding the OECD Common Approaches, the current agreement is the OECD Recommendation of the Council on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence (the "Common Approaches"), which was adopted on 28 June 2012 and revised by the OECD Council on 6 April 2016 (OECD/LEGAL/0393). This agreement sets common approaches for undertaking environmental and social due diligence to identify, consider and address the potential environmental and social impacts and risks relating to applications for officially supported export credits as an integral part of Members' decision-making and risk management systems.

As stated in these Common Approaches, adherents should identify the potential positive and negative environmental and social impacts relating to the applications to be classified. In this context:

- Potential environmental impacts may include, but are not limited to, generation of significant air emissions, including greenhouse gas emissions, effluents, waste, hazardous waste, wastewater, noise and vibrations, significant use of natural resources, and impacts on endangered species.
- Potential social impacts may include, but are not limited to, labor and working conditions, community health, safety, and security, land acquisition and involuntary resettlement, indigenous peoples, cultural heritage, and project-related human rights impacts, including forced labor, child labor, and life-threatening occupational health and safety situations.

6. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

The following is a summary of the impact analysis conducted in the ESIA, together with the mitigation measures. The significance of effects is determined by the combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project's impact value (change). In other words, it is the product of the impact acting on the receptor that results in an environmental effect.

The Potential Impact Significance column's colors reflect the character of the impact. Those colored deep green indicate positive impacts, while the soft colored ones mean negative impacts. Among the negative ones, different colors are used to distinguish significance.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
Air quality	Construction	Dust generation	**Moderate**	▪ Irrigation with water of internal pathways/streets near worksite, if needed ▪ Heavy trucks will not be loaded to full capacity ▪ Setting appropriate speed limits onsite ▪ Dust generating materials stockpiled and transported shall be covered ▪ Dusty materials shall be removed as soon as possible
		Gaseous emissions	**Moderate**	▪ Fuel-efficient equipment and vehicles ▪ Preventive and regular maintenance program ▪ Machinery and equipment must be used according to manufacturer's specification ▪ Reduce fuel consumption practices instructed for drivers
	Operational	Dust generation and gaseous emissions from maintenance works	**Negligible or Minor**	-
		Dust generation and gaseous emissions from diesel engines used for the propulsion of ships, ship-based auxiliary engines, use of vehicles, etc.	**Moderate**	▪ Ship Operations in port areas: minimize and control combustion emissions related to land-based activities ▪ Cargo transfer equipment correct maintenance and reduction of engine idling during on/off-loading activities ▪ Reduce loading/unloading activities when episodes of poor air quality conditions in the area/Luanda city ▪ Low emission vehicles, alternative energy sources and/or fuels/fuel mixtures to promote

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
Noise and vibrations	Construction	Construction Site Noise	**Moderate**	▪ Maintenance program to assure correct functioning equipment/vehicles ▪ Noise suppression equipment when needed ▪ Speed limits for construction heavy vehicles ▪ Only approved vehicles and machinery will be employed, and as per manufacturer's specifications ▪ Temporary noise barriers
			Negligible or Minor (for marine species)	▪ Good practices during works
	Operational	Terrestrial side (Cargo handling, vehicular traffic, loading/unloading of containers, etc.)	**Moderate**	▪ Noisy equipment should be installed in enclosed compartments ▪ Controlling the speed of heavy vehicle circulation ▪ Sound equipment/machines should have their sound power properly identified and comply with acceptable limits
		Marine side (Vessels will raise in number and dimensions)	**Negligible or Minor**	▪ Maintaining noise levels within acceptable limits. ▪ Good practices as well as implement international regulations/recommendations (i.e. establishment of low power propulsion zones near the Port)
Marine water quality	Construction	Water pollution due to an increase in suspended solids	**Minor or Moderate**	▪ Excavation/dredging methods to be selected to minimize suspension of sediments ▪ Schedule consideration based on tide, wind, natural turbidity, etc. ▪ Additional techniques and equipment to minimize adverse impacts such as

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				barriers/sheet piles, silt or bubble curtains/screens, ... ▪ Inspection and monitoring (such as feedback or adaptive monitoring) of dredging activities should be conducted regularly
		Water pollution due to accidental spillages during the execution of the works	**Minor**	▪ Accidental spills of oils and fuels will be removed by the usual methods (suction pumps). ▪ Facilities will be available for the cleaning of the water ▪ Good practices and prevention measures during upside works to avoid spillages/accidental dumps, etc. to marine water
	Operational*		**Negligible**	▪ Oily waste and wastewater should be collected in barges, vehicles, or central collection systems and storage tanks. ▪ Port should provide ship operators with details on the pertaining ballast water management requirements ▪ Port facilities that conduct cleaning or repair of ballast tanks should be equipped with adequate reception facilities able to prevent the introduction of invasive species ▪ Sewage from ships should be collected and treated on-site or off-site.
Marine Sediments	Construction	Effects on fauna and flora due to increased suspended solids	**Minor**	▪ Use the appropriate means (material extraction system), and carry out in suitable weather conditions ▪ Whenever possible, anti-dispersion barriers will be used to prevent the possible dispersion of fines and minimize or eliminate possible

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				effects outside the immediate vicinity of the works. ▪ The duration of these operations shall be planned to reduce, as far as possible, the time of intervention of vessels and machinery on the environment.
		Direct loss of seabed, modifying its morphology	**Negligible or Minor**	▪ Good practices during works
	Operational*		**Negligible**	See Water Quality ones
Soil	Construction	Increase risk of soil pollution	**Minor**	▪ The storage of oils, fuel and other hazardous and potentially materials will be made in impervious areas, with cover and containment structures. ▪ To avoid the risk of accidental pollution around the area designated for storing and parking machinery, a network perimeter drainage for retaining the surface water runoff shall be built ▪ Machinery must be properly maintained to keep potential leaks in check. Service and maintenance of machinery/vehicles shall be carried out in authorized garages, whenever possible ▪ Accidental spillage kits must be available. Any spill must be contained immediately, and any contaminated soil located and removed
		Potential contamination due to surface polluted soils appearance	**Negligible or Minor**	▪ Any contaminated soil must be located and removed from site by a licensed, legal service provider for environmentally acceptable disposal.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
	Operational	Soil pollution from operational activities	**Negligible or Minor**	▪ Spills and cleaning supplies will be well located and visible in key areas of the site. ▪ Ensure the availability of emergency kits and create barriers for containment and absorption of the spilled product. ▪ Hazardous and non-hazardous waste storage areas will be well constructed with impermeable soil barrier protection, separate drainage system and rain shelter to avoid any possible runoff ▪ Effective waste management controls implementation through the site's waste management plan
Biodiversity	Construction	Effects on fauna and flora due to increased suspended solids	**Minor**	▪ Use the appropriate means (material extraction system) to reduce potential re-suspension of sediments ▪ The duration of cleaning operations must be planned and the capacity of the means used must be high to reduce as far as possible the intervention time of vessels and machinery on the marine and coastal environment. In this regard, the overloading of tanks will be avoided to prevent the overflow of materials. ▪ If the presence of any marine mammal, chelonian or elasmobranch is detected during seabed cleaning activities, a temporary cessation or reduction in performance of works will be established
		Effects on fauna and flora due to sediment extraction	**Negligible or Minor**	▪ Good practices during works

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
		Exclusion of fauna species due to increase of disturbance	**Minor**	▪ Care shall be taken not to dump rubbish in the vicinity of the area that could attract the attention of birds ▪ Whenever possible adjust the schedule of works to try to avoid the most critical periods for the fauna, especially for the species of interest
		Possible introduction/spread invasive species	**Minor**	▪ Enforcement of strict biosecurity protocols ▪ Inspections and decontamination of all construction and dredging materials equipment before entering local waters ▪ Regular maintenance and cleaning
	Operational*		**Negligible**	-
Socioeconomic	Construction	Annoyance to inhabitants (traffic diversions, traffic increase in local roads and disruption to utilities)	**Minor or Moderate**	▪ Work will be scheduled appropriately so that it does not take longer than planned. ▪ Schedule delivery of construction materials and equipment as well as transport of materials or equipment during non-peak hours. ▪ Comply with traffic regulations and avoid, when possible, roads with higher traffic volumes, sensitive receptors, or capacity constraints.
		Environmental, health and safety risk for workers during construction phase	**Moderate**	▪ Conduct suitable and effective staff training and awareness activities to ensure the project employees understand, appreciate and adherence to the suggested environmental and social management requirements ▪ Ensure the provision and maintenance of sufficient welfare facilities and

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
				arrangements for the well-being of employees at work. ▪ Ensure security arrangements are in place to ensure the safety and protection of all personnel, assets, and sensitive information, mitigating risks from external threats and enabling a secure operating environment for the project activities.
		Local/provincial economic growth by hiring local/provincial business	**Moderate**	-
		Potential presence of social conflicts due to influx of migrant workers	**Moderate**	▪ Ensure transparency and just manner on recruitment and hiring procedures ▪ Transfer technical skills to local labor force ▪ Priority to local workers (provided necessary skills), including women and young workers ▪ Ensure respect for local labor laws and workers' rights, as well as compliance with Health and Safety Management Plan ▪ Develop and implement a worker's Grievance Management System ▪ Control possible GBV conflicts
		Potential impact on fishing activities	**Negligible**	-
	Operational	Enhancing global competitiveness, and foster socio-economic prosperity across the region	**Major**	-
Landscape	Construction	Temporary degradation of	**Minor**	▪ Care will be taken of the environment with an adequate and orderly

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
		landscape at worksites		situation of the stockpiles and daily cleaning of the occupied and work areas. ▪ In no case shall such machinery be dispersed throughout the site but will be placed in the space destined for it ▪ No coastal areas will be affected temporarily or permanently, except for the foreseen one ▪ Waste generated will be deposited only in the containers installed for that purpose, as well as all waste will be managed properly ▪ All areas shall be restored after completion of works
	Operational	Improved landscape appearance and distribution	**Moderate**	-
* No significant changes are expected in this parameter due to the development of Unicargas Terminal with respect to those already existing in the terminal currently in operation, given that, although the planned capacity will be greater than the current one, with the implementation of the preventive and corrective measures foreseen in the study, the situation is expected to remain similar. However, in the management plans, monitoring measures have been established to determine whether during the operation phase there are variations in the results obtained from the analysis of the data on the quality parameters collected during the field campaigns carried out within the framework of the project and which establish the baseline situation				

Table 1. Summary of potential impacts and mitigation measures

According to IFC *Guidance Note 1 Assessment and Management of Environmental and Social Risks and Impacts*, and as referenced in Section 15 "Cumulative Impact Assessment" of the ESIA, cumulative impacts are defined as those resulting from the incremental effects of the project when added to other existing, planned and reasonably predictable future projects and developments. According to the US Council on Environmental Quality, the definition of cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to their past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action."

In line with section 15.5 "Identification and assessment of cumulative impacts" of the ESIA, the potential cumulative impacts arising from the new development are only those resulting from possible modifications that the rehabilitation entails on the activities currently carried out at the terminal, particularly considering the impacts generated during the construction phase. The following table summarizes the information contained in the mentioned section.

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
Air quality	Construction	Increase in dust and gaseous emissions from demolition, pavement removal, leveling, cargo transport, and vessel emissions	**Significant (but limited in influence).** **It is not expected to increase the severity of the overall effect.**	Construction: ▪ Additional air quality monitoring if dredging coincides with construction phase of the Unicargas Terminal development. Monitoring points in overlapping areas of both projects Operation: ▪ Luanda Port Authority environmental operational license (mitigation for air quality protection and emissions control) General mitigation measures: ▪ ADPG environmental policy and the Health, Environment, and Safety System to reduce gaseous emissions and minimize carbon footprint ▪ Adoption of international regulations and best practices ▪ The project's Environmental and Social Management Plan establishes guidelines under which the project will proceed. This plan will outline all the mitigation measures and practices to be applied during the various phases of the project
	Operational	Increase in dust and gaseous emissions from higher truck traffic, cargo operations, and increased vessel arrivals	**Significant (but limited in influence)** **It is not expected to increase the severity of the overall effect.**	
Noise and vibrations	Construction	Regarding the terrestrial side, already noisy environment (industry and EN-100); construction will increase noise and vibrations levels on terrestrial side due to construction works	**Significant but temporary; limited influence compared to other actors**	General mitigation measures: ▪ Regular maintenance of machinery and equipment ▪ Enclosing noisy equipment where feasible ▪ Additional monitoring campaign if dredging coincides ▪ ADPG and Luanda Port Authority procedures to manage noise ▪ Implementation of project-specific measures
		Regarding marine side, underwater noise and vibrations caused by construction works will add to those generated by shipping activity (in this case, the ecological value of wildlife is reduced)	**Minor**	

	Phase	Potential Impact	Potential Impact Significance	Mitigation Measures
	Operational	Increase in noise from vessels, trucks, and cargo operations, adding to that generated by the EN-100 road, which is the main external noise source	**Significant but with limited influence compared to other contributing factors**	
Marine environment	Construction	Further deterioration of already degraded marine environment (suspended solids, spills, sediment displacement, fauna disturbance).*	**Significant but limited in influence**	▪ Dredging-specific measures to be defined in the ESIA of the dredging project. However, the measures defined in the potential impact assessment are likely to be applicable. In addition, a series of recommended mitigation measures are provided in section 13 of the ESIA, in order to be considered in the dredging project.
	Operational	Increased shipping activity will likely lead to more spill risks, water pollution, disturbance to marine fauna	**Significant but limited in influence**	
Socioeconomic environment	Construction	Given the existing industrial nature of the area, construction activities may cause temporary disruptions, affecting workers and stakeholders including people involved in small-scale fishing activities	**Not significant alteration of the socioeconomic baseline but can contribute to cumulative pressures**	▪ Mitigation measures for risks associated with worker influx and other potential impacts, particularly during the construction phase, are comprehensively outlined in the relevant sections of the ESIA
	Operational	Increased cargo throughout and shipping --> economic growth, job creation, improved competitiveness	**Major positive**	
		Potential traffic congestion (EN-100 and port access roads)	**Likely to increase in significance**	
* As noted in the ESIA, the dredging project is the main additional source of cumulative marine impacts. It will undergo a specific Environmental Impact Assessment to define impacts and mitigation.				

Table 2. Summary of cumulative impacts and mitigation measures

Furthermore, the ESIA concludes that the cumulative impact assessment project does not significantly contribute to adversely affecting any ecosystem component or specific characteristic beyond an acceptable threshold (carrying capacity). Therefore, the project's implementation does not result in a cumulative impact of such a magnitude that would render the project inadvisable or unacceptable to proceed with.

To ensure that the established mitigation measures achieve their objectives and to apply additional ones if they prove insufficient or unexpected effects arise during the construction and/or operation of the project, the following management and control plans have been designed. Monitoring will establish the schedule and

procedures for control, as well as the reporting requirements necessary to assess the effectiveness of actions, ensure compliance with regulatory reference values, and identify the need for implementing further controls or actions if necessary.

7. AIR QUALITY AND NOISE MANAGEMENT PROGRAM

7.1. Justification and objectives

The development of the project may result in changes to ambient air and noise levels due to both construction activities and operational functioning. This Air Quality and Noise Management Program aims to control the atmospheric emissions during both project phases, to avoid/minimize nuisance and harmful effects when possible.

7.2. Legal Framework

Air quality and noise standards aim to safeguard public health and the protection of ecosystems. Since there are no Angolan legislation defining either ambient air quality or noise limits, values set forth in "Environmental, Health and Safety Guidelines: General EHS Guidelines – Environmental: Air Emissions and Ambient Quality & Noise" published by the IFC and WBG. As specified in IFC General EHS Guidelines, in the absence of national legislated standards, the WHO Air Quality Guidelines1 might be applied, as well as the WHO Noise Level Guidelines[2].

However, other international legislation, such as the International Convention for the Prevention of Pollution from ships (MARPOL 73/78 Convention[3] or WBG EHS Guidelines for Ports, Harbors and Terminals[4] might also be complied with. In addition, issues stated at Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao) and Environmental Management Plan (Plano de Gestão Ambiental) of the Port of Luanda, included in Annex 4 and Annex 2 respectively, might also be incorporated.

Additionally, ADPG has developed an exhaustive Integrated Management System Policy, with numerous procedures which will be followed in all aspects related to the following section. Health, Safety and Environment Guideline for Contractors[5] might be consulted by Contractors to comply with its requirements and procedures.

Furthermore, the measures adopted are established based on the considerations included in the document "World Bank Environmental and Social Framework," World Bank, Washington, DC (2016), which mentions the following regarding Environmental and Social Standard 3 - Resource Efficiency and Pollution Prevention and Management:

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[1] *Air Quality Guidelines -AQG- of the World Health Organization -WHO- 2021.*
[2] *Noise Level Guidelines of the World Health Organization -WHO- 1999.*
[3] *The International Convention for the Prevention of Pollution from Ships -MARPOL- Convention was adopted on 2 November 1973 at IMO-International Maritime Organization-. Annex VI.- Prevention on Air Pollution from Ships was added and entered into force on 19th May 2005.*
[4] *World Bank Group -WBG- Environmental, Health, and Safety Guidelines for Ports, Harbors and Terminals. February 2017.*
[5] *Document ID: 0000-000-PP-ADPORTS-00302-000. Date: March 2024.*

In addition to applying resource efficiency and pollution control measures as required in this ESS, when the project has the potential to constitute a significant source of emissions in an already degraded area, the Borrower will consider additional strategies and adopt measures that avoid or minimize negative effects.

In this sense, regardless of the pre-existing levels of pollution in the project area, which is a heavily anthropized area, measures are established to prevent any additional pollution related to the project and to observe good construction practices, making the construction phase a sustainable and environmentally respectful activity.

7.3. Actions and Implementation Schedule

As referred to in the ESIA, several actions will have an impact on air quality and noise levels, during both construction and operational phase. The main actions of the project that will cause those impacts are listed as follows:

- Buildings demolition.
- Pavement removal and land levelling.
- Rehabilitation and repair of the quay walls.
- Construction of all elements necessary for the Terminal operation/re-pavement.
- Movement and operation of vehicles and machinery associated with construction activities.
- Vessels/cargo transport operation.
- Operation of maintenance machinery and equipment works.

These actions will impact mainly on the increase of particulate matter emissions and the combustion of gases emissions as well as the increase of noise emissions. To minimize the effects, a set of mitigation measures has been designed and will be implemented. The following table shows them.

Type of mitigation actions	Description	Implementation schedule
Control and minimize emissions of dust		
Review and correct (if necessary) design and location measures	Dust generating activities and equipment will be located considering prevailing wind direction.	Planning phase
Material's transport	Heavy trucks transporting construction materials (such as sand, gravel, etc.) will not be loaded to full capacity. A free edge of approximately 0.2 m will be kept, avoiding spills during materials transport. In addition, trucks carrying dusty materials will have the load adequately covered.	During both construction and operational phase (depending on the materials transported)
Avoid mobilization / dispersion	Working actions involving removal of pavement and demolitions, or loading/unloading of powdery materials, shall be carried out on days when wind strength does not pose a high risk of dispersion.	Daily (especially in dry season and windy conditions days) during removal of pavement and demolition actions in construction phase.

	Water spread might be necessary at certain periods to prevent disposal of particulates. Loading and unloading of powdery materials must be carried out at a height of less than 1 m. Easily dispersed powdery materials will be stockpiled in areas protected from wind to avoid its dispersion. Dusty materials shall be removed from the construction site as soon as possible. Referred to vessels' operation, loading/unloading activities might be reduced not to contribute to worse conditions in poor condition days.	According to necessity and meteorological conditions During operational phase.
Construction site	Dusty materials shall be removed from the construction site as soon as possible. Tidy storage of materials and machinery.	During construction
Control activities	Speed limitation onsite for construction vehicles and trucks, following port conditions. No bonfires will be allowed.	During construction
Control and reduction of air pollution emissions		
Review and correct (if necessary) design and location measures	Designed layout has considered the minimization of distances and transfer points, from ships off-loading and on-loading facilities to storage areas.	Planning phase
Preventive and regular maintenance program	All equipment and vehicles will be well maintained, avoiding malfunctioning that could increase gaseous emissions. Only approved vehicles and machinery will be employed. In addition, all equipment will be serviced regularly and operated by manufactures' specifications. The maintenance certificates will be kept on site for inspection.	During both construction and operational phase
Avoid/minimize disturbances/effects	Consider substitute diesel engines with electrical power as well as substitute vehicles and equipment which might be upgraded by low emissions vehicles, alternative energy sources.	During both construction and operational phase

Control activities	Speed limitation onsite for construction vehicles and trucks following port conditions. Control management procedures applied related to combustion emissions referred to land-based activities[6]. Control vessels at Unicargas Terminal compliance with MARPOL Annex VI Prevention of Air Pollution from Ships[7] and any other potential regulations appliance.	During both construction and operational phase
Worker's awareness and training	Drivers shall be instructed on good practices to reduce fuel consumption	During early construction phase (and maintenance / operation works)
Control and reduction of noise emissions		
Review and correct (if necessary) design and location measures	The circulation routes of construction vehicles will be planned to minimize potential nuisances to neighbors. Time limitation for construction activities, especially noisiest ones.	Planning phase
Preventive and regular maintenance program	All equipment and vehicles will be well maintained and will be fitted with appropriate noise suppression equipment. Only approved vehicles and machinery will be employed. These vehicles and machinery will work properly avoiding malfunctioning that could increase noise levels. In addition, all equipment will be serviced regularly and operated as per manufacturers' specifications. The maintenance certificates will be kept on site for inspection.	During construction phase (also apply to operational phase in terms of maintenance vehicles, equipment and machinery)
Avoid/minimize disturbances	All stationary equipment that produces high noise levels will be positioned as far as possible from potential receptors and enclosed whenever possible. Generators will be located inside the working area, away from workers' facilities. Install temporary noise barrier.	During early construction phase (and maintained during works) and operational

[6] *Environmental, Health, and Safety Guidelines Port, Harbors, and Terminals. IFC, February 2017. World Bank Group.*
[7] *mmmm*

	Consider substituting diesel engines with electrical power. Reduce noise from warning bells, etc. Low power propulsion zone in the Port.	
Control activities	Speed limitation onsite for construction vehicles and trucks. Noisy Construction activities will comply anyhow with EHS Guidelines. Noisy works will be (if possible) avoided during night-time, limiting high generating noise works to daytime. If any night-time works are necessary, they will be especially controlled to comply with the standard values (70 dB).	During construction
Worker's awareness and training	Drivers shall be instructed on good practices to reduce noise levels such as the use of horns.	During early construction phase (and maintained during works)

7.4. Monitoring

Air quality and noise monitoring actions will be developed during construction and operational phases, at the same three points where the baseline air quality/noise campaign was carried out (see figure below):

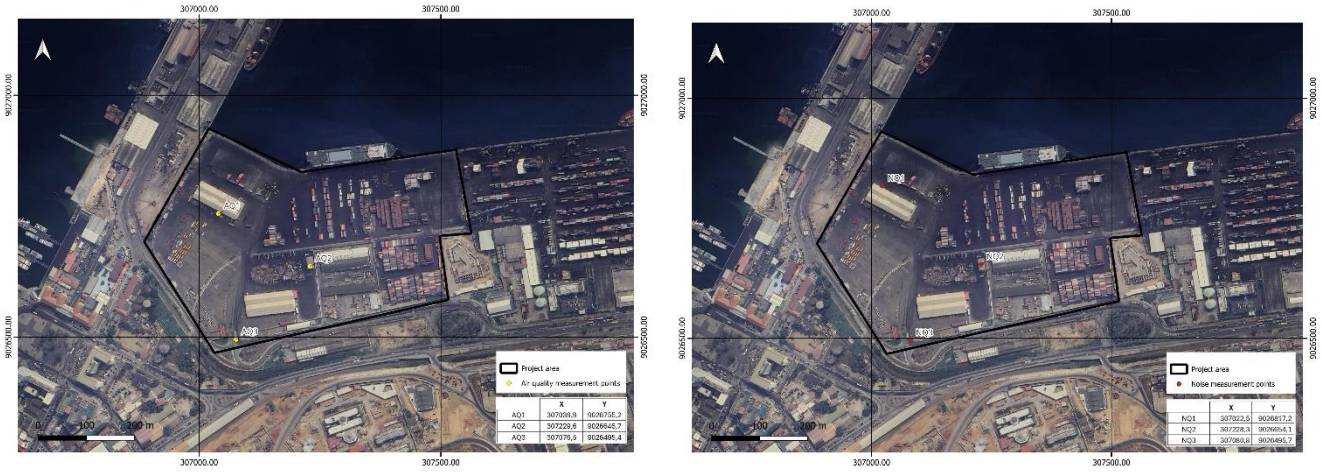


Figure 3. Location of air quality and noise sampling points

The following paragraphs define the criteria for the selection of the monitoring points and the air quality and noise monitoring procedures. Two types of monitoring actions are required: periodic monitoring, to verify the effectiveness of the controls and mitigation in place, and monitoring in response to local complaints or grievances. Monitoring will take place both in construction and operational phase.

7.4.1. Monitoring Locations

Monitoring air quality levels will be undertaken at shown three points, selected due to focusing pollutant-emitting activities and their location related to sensitive receptors, to check if they might be affected by the emissions generated by those activities.

Monitoring noise levels will also be undertaken at three points, locations where noise-emitting activities are primarily carried out and are close to the nearest sensitive receptors. In addition, visual checks of the marine side will be carried out when noisiest activities are undertaken.

7.4.2. Monitoring Parameters

At the locations mentioned above, air quality monitoring will be undertaken for the following parameters:

- Particulate Matter ($PM_{2.5}$ and PM_{10}) concentrations,
- Ozone (O_3) concentrations,
- Combustion gasses associated with fuel-based equipment operation and circulation of vehicles: NO_x, carbon monoxide (CO), Sulphur dioxide (SO_2) and carbon dioxide (CO_2),
- Visual identification of dust plumes resulting from the movement of construction machinery and equipment,

PM and gaseous pollutants concentrations must comply with legal standards. As specified in IFC General EHS Guidelines, in the absence of national legislated standards, the WHO Air Quality Guidelines[8] might be applied.

Regarding noise, at the locations mentioned above, noise monitoring will be undertaken for LAeq, Lmax, Lmin, L10 and L90. The WHO Noise Level Guidelines, already mentioned, state the standards to comply with, as no Angolan legislation is applicable. Values related to industrial activities are to be applied (70 dB during both day and night periods).

Weather conditions might also be measured, to analyze if there is any related effect with recorded registers.

7.4.3. Monitoring Frequency

Monitoring will be undertaken at least quarterly during the construction phase, although during intense construction periods (pavement removal and demolition), monitoring frequency will be increased to weekly. However, visual inspection will be taken daily. Along the limit of works, focused on the construction front, an inspection for visible dust emissions shall be conducted at least once on each working day. In periods of high activity and/or dry season and dusty conditions, the daily inspection shall be increased. When the noisiest activities occur, daily checks of remarkable aquatic presence shall be made.

Monitoring during operational phase will be undertaken semestrial, during the first three years of the project, and annually thereafter. In any case, the monitoring frequency during the operational phase will be adapted

[8] *Air Quality Guidelines -AQG- of the World Health Organization -WHO- 2021.*

to the conditions established in the terminal operating license once obtained, as well as to the conditions established in the port's operational license.

7.4.4. Monitoring responsible

Air quality and noise measurements shall be operated by a suitable technician.

In addition, a senior member must oversee surveys staff and will be responsible for the overall direction of the work. A minimum of 5 years of relevant experience in environmental surveys will be required.

The responsible person will be expected to promote and maintain the high standard required, regularly inform the client, including reporting agreed, and proposed any technique variation or complementary study required.

7.4.5. Sampling methods

The reference method to be applied in the monitoring campaigns for air quality will preferably be ASQ/ANSI/ISO 9001:2015 analysis method from the Air Quality Guidelines -AQG- of the World Health Organization (WHO 2021).

Other equivalent methods, such as USEPA 40 CFR part 50, see different appendix for the pollutants, i.e. Appendix J - "Sampling of Ambient Air for Total Suspended Particulate Matter", are also suitable. Alternative methods, equivalent to the listed above, may be used, as long as they are internationally recognized by recognized by relevant institutions, such as the International Organization for Standardization (ISO), national environmental protection agencies, etc.

However, since monitoring data collection must allow for a comparison with the baseline values, the same methodology (or a comparable one) followed during the baseline surveys should be employed. These methodologies, both for air quality and noise, are specified in the survey details, included in different sections of Volume I. Additionally, it must be highlighted that these methodologies comply with IFC criteria and are internationally recognized. (As stated in the IFC EHS Guidelines and followed in the baseline surveys, *Typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays*.)

The visual monitoring for dust shall encompass both dust deposition onto surfaces and dispersion on and off-site. The responsible shall indicate the observation conditions in order to minimize the subjective criteria. It involves observing both, the conditions likely to lead to dust release (weather, nature of construction activity, other human activities taking place ....) and if the effects occurring, if any.

Since there is no Angolan legislation, international practice will be applied: ISO Standard 1996-1:2016 (on environmental noise assessment procedures), BS Standard 61672-1:2003 on acoustic sound level meter specifications, and the noise management guidelines from IFC.

As stated in the IFC EHS Guidelines and followed in the baseline surveys, noise monitoring may be carried out for the purposes of establishing the existing ambient noise levels around the proposed or existing facility, or for verifying operational phase noise levels. Noise monitoring programs should be designed and conducted by trained specialists. Typical monitoring periods should be sufficient for statistical analysis and

may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and weekend workdays). The type of acoustic indices recorded depends on the type of noise being monitored, as established by a noise expert. Monitors should be located approximately 1.5 m above the ground and no closer than 3 m to any reflecting surface (e.g., wall). In general, the noise level limit is represented by the background or ambient noise levels that would be present in the absence of the facility or noise source(s) under investigation.

The following table summarizes the follow-up and monitoring actions and the implementation schedule.

Monitoring actions	Description	Implementation schedule
Periodic air quality and noise monitoring	Air quality /noise monitoring actions will be developed during construction phase at the identified measurement points.	Quarterly (weekly during removal of pavement and demolitions) In periods of high activity and/or dry season and dusty conditions, daily inspection shall be increased.
	Visual monitoring for dust emission will be taken during the construction phase over the limit of works.	Daily (twice a day during intense construction periods) Daily (when noisiest activities are accomplished)
	Air quality /noise monitoring during the operational phase to control the compliance with international legislation.	Frequency will be determined together with Luanda's Port Authority according to its Environmental Operating License. However, the reports will be developed at least every six months during the first three years, and annually thereafter.
Air quality and noise monitoring in response to complaints	If complaints from the population/other Port's Terminal users/workers are registered, (i) simple immediate measures (such as additional watering for dust control, temporary noise screens, etc.) will be implemented, and (ii) air quality and/or noise additional monitoring will be undertaken near the affected receptors to verify values and define extra mitigation measures if required.	When necessary

7.5. Corrective actions

If exceedances of the air quality and noise guidelines are recorded or if complaints from the local communities are lodged, the causes of such exceedances will be identified and corrected through the implementation of adequate mitigation and control measures, to be identified based on the nature of the specific conditions that led to the recorded exceedances.

7.6. Reports

Documental records will be kept, to control the execution of this specific environmental management program. These documents will be prepared, archived and maintained by the environmental management team, to document the results of the program implementation.

Records of relevant events will be made following the occurrence and a quarterly Performance Report will be prepared, reporting on the recorded events and performance indicators. When weekly monitoring due to intense construction periods could be required, reports will also be done with the same frequency.

Additionally, visual monitoring for dust emissions should be reported daily. If during intense construction periods the control must be done more times per day, the results would be noted in the daily report. The same will be made for visual monitoring of marine species during noisiest work activities.

During operational phase, frequency of the monitoring measurement controls will be agreed with the Luanda's Port Authority, and reports will be delivered according to it. However, as specified in the previous table, these reports will be accomplished at least every 6 months during the first three years, and annually thereafter.

8. MARINE WATER QUALITY MANAGEMENT PROGRAM

8.1. Justification and objectives

The development of the project may result in changes to marine water quality during both construction activities and operational functioning. However, it must be noted that during the operational phase no significant changes in water quality are expected with respect to those already existing (since the terminal operates currently), except for the related to its enlargement capacity.

This Marine Water Quality Management Program aims to control the potential pollution or discharges during both project phases, to avoid/minimize any adverse/harmful effect when possible.

8.2. Legal Framework

Marine Water Quality standards aim to safeguard public health and the protection of ecosystems. Since there is no Angolan Legislation in Marine Water Quality, recommendations and International Guidelines might be followed: IFC applicable Guidelines, -Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (WBG 2017), Canadian Council of Ministers of the Environment -Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME 1991-2015)-, as well as Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

In addition, other international legislation and good practices documents might be consulted: the 2000/60/EC Directive of the European Parliament and of the Council of October 23, 2000 -Water Framework Directive-, Maritime Works Recommendations -Puertos del Estado, Spain-, as well as Royal Decree 817/2015, of September 11, 2015, which establishes the criteria for monitoring and evaluating the state of surface waters and environmental quality standards -BOE A 2015 9806-.

Last Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao), the Solid Waste and Effluent Management Plan (Plano de Gestão de Resíduos sólidos e efluentes) for Luanda Port Company E.P., the Environmental Management Plan (Plano de Gestão Ambiental) of the Port of Luanda and the Environmental Management Plan of the multipurpose Unicargas Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas) might be considered.

Moreover, ADPG has developed an exhaustive Integrated Management System Policy, with numerous procedures which will be followed in all aspects related to the following section. Health, Safety and Environment Guideline for Contractors[9] might be consulted by Contractors to comply with its requirements and procedures.

8.3. Actions and Implementation Schedule

As referred to in the ESIA, several actions will have a potential impact on marine water quality, during both construction and operational phase. The main actions of the project that will cause those impacts are listed as follows:

- Seabed cleaning activities related to quay wall rehabilitation.
- Operation of machinery/equipment associated with construction activities, both at marine side and terrestrial terminal area.
- General construction activities during construction phase.

During the operational phase, no significant changes are expected in the quality of marine waters due to the development of Unicargas Terminal with respect to those already existing in the terminal currently in operation. The situation is expected to be similar thanks to the application of the preventive and corrective measures foreseen in this study. However, in the management plans, monitoring measures have been established to determine whether during the operational phase there are variations in the results obtained from the analysis of the data on the quality parameters collected during the field campaigns carried out within the framework of the project and which establish the baseline situation.

These actions will impact mainly in the increase in suspended solids, generating turbidity in the water column, and the growth of potential contamination of marine water, due to discharging of any pollutant liquids and/or dragging sediments or wastes from the topside. To minimize the effects, a set of mitigation measures has been designed and will be implemented. The following table shows them.

[9] *Document ID: 0000-000-PP-ADPORTS-00302-000. Date: March 2024.*

Type of mitigation actions	Description	Implementation schedule
Control and minimize increase in suspended solids		
Review and correct (if necessary) design and location measures	Avoid works for rehabilitation/repair of quay wall during inappropriate climate conditions (mainly due to wind).	Planning phase
Avoid mobilization / dispersion	Seabed cleaning and excavation methods selection to minimize suspension of sediments and increase accuracy of action. Plan properly seabed cleaning activities, minimizing the intervention time of vessels and machinery. Adjust seabed cleaning activities schedule based on tide, wind and background/natural turbidity. Avoid overflow of material during the transportation of dredged material. Implement additional techniques or equipment if needed, such as barriers, sheet piles, silt or bubble curtains/screens, and contained sediment transport systems.	During construction phase.
Control activities	Inspection and monitoring regularly, and continuously during works if increase of turbidity is observed.	During construction phase
Control/avoid potential pollution discharges		
Practice at construction site	Temporary stockpiles of excavated materials and products using works will be located in areas where cannot be washed away by water, avoiding any pollution reaching marine water. Dusty materials should be removed from the construction site as soon as possible. Tidy storage of materials and machinery. Define specific places for washing tanks outside the work area. Dimension the capacity of oily waste collection based on applicable MARPOL provisions.	During construction
Avoid/minimize pollution	Equipment/facilities to remove accidental spills of fuel/oils (suction pumps), collect solids, hydrocarbons, etc. Wastewater with chemicals from bulk tank cleaning should be collected prior	During both construction and operational phase

	to discharge, and treatment methods based on effluent characteristics applied.	
Control activities	Control correct discharge of wastewater, spillage of waste, etc.	During both construction and operational phase
Compliance with international regulations and/or recommendations, as well as Port's Environmental Management Plan and other documents	The port should provide ship operators information related to ballast water management requirements, spill prevention spillages, etc. Periodic inspection and maintenance of equipment, systems, etc. Comply with procedures stablished such as those for management of dangerous goods or refueling operations.	During operational phase

With regard to the cumulative impacts related to the increase in suspended solids derived mainly from the possibility that the Unicargas project and the dredging project will be carried out simultaneously, the ESIA indicates that the implementation of the measures described above will also favor the reduction of cumulative effects.

In addition, a series of recommended mitigation measures are provided in the ESIA to be considered for the dredging project:

- To address Sediment disruption and dispersion, sediment curtains, also known as turbidity barriers, can be deployed around the dredging area to contain and settle suspended sediments. Additionally, scheduling dredging during non-spawning seasons for aquatic life can help reduce the impact. Performing dredging operations under appropriate tide and current conditions can help ameliorate sediment re-suspension. These measures will also apply within the scope of the Marine Sediment Quality Management Plan.

- To address water quality degradation, it is recommended to Use of appropriate modern dredging techniques and equipment, including measures to contain sediment plumes. Additionally, thorough testing and treatment of dredged materials, and proper disposal of contaminated materials, are necessary to mitigate contamination risks. Development of a dredge management plan, including considerations as to local hydrology, sediment characteristics, timing of activity, and habitat/ecological sensitivities of potential disposal sites (consider e.g. tides, low flow periods).

In any case, it should be noted that the specific measures to be applied will be those derived from the specific ESIA for the dredging project and will eventually be supplemented by those included in the conditions of the corresponding Environmental License once issued.

8.4. Monitoring

Marine water quality monitoring actions will be conducted during the construction and operational phases at three points (WQC_1, WQC_2, and WQC_3). These points were selected as part of the baseline marine water quality survey (see figure below):

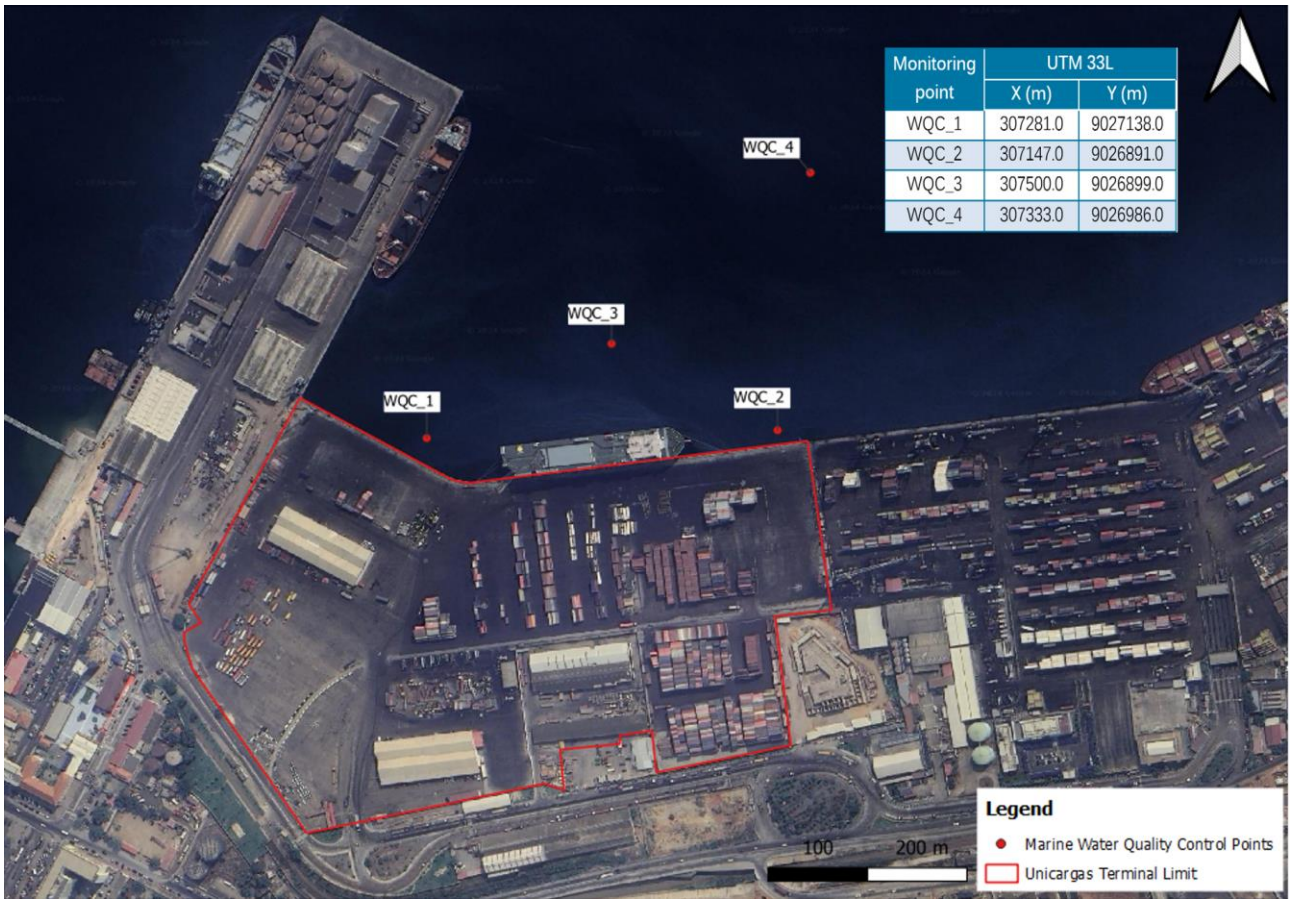


Figure 4. Location of the Marine Water Quality Control Points foreseen

The additional point represented, WQC_4, would be an extra control point to be monitored in case the sediment plume propagation extends further the area of the three main control points.

The following paragraphs define the criteria for the selection of the monitoring points and procedures. Two types of monitoring actions are required: periodic monitoring, to verify the effectiveness of the controls and mitigation in place, and monitoring in response to local complaints or grievances. Both monitoring will take place in the construction and operational phase.

However, the Marine Water Quality Management Program might be conceived as a dynamic document susceptible to changes which might occur and cannot be foreseen, modifying the conditions under which it was sketched.

8.4.1. Monitoring Locations

Monitoring marine water quality levels will be undertaken at the three selected points (the extra point just to be monitored in case sediments plume extends further). The monitoring stations are localized where

anomalies are more likely to occur and have been selected due to previous data (such as bathymetry, seabed characteristics and geophysical information) analysis.

During marine works, rehabilitation/repair of quay wall, the main impact is related to the increase of suspended solids. As mentioned in the ESIA, the associated facility consisting of the dredging of the marine area in front of Unicargas Terminal will pose a cumulative impact in terms of sediment mobilization. In case both projects are finally being accomplished at the same time, monitoring process might be reanalyzed and modified since it won't be possible to identify suspended solids from the rehabilitation/repair of the quay wall from the dredging ones. At this time there is no detailed information about the dredging project, thus no combined analysis can be made.

Furthermore, another significant impact on water quality is the potential pollution caused by spills, accidental discharges, or the dispersion of waste. In such cases, the monitoring procedure may require specific substance testing and/or a reconsideration of sampling locations to accurately identify the extent of the impact.

In both cases, systematic processes established might change in frequency, location or parameters to control to achieve correct monitoring objectives.

8.4.2. Monitoring Parameters

As mentioned before, there will be two types of monitoring analysis: during marine works, mainly implying seabed cleaning, and periodic water quality analytics.

Regarding the parameters to be analyzed, they will be those determined routinely in the various terminals operating in the Port of Luanda according to the requirements established in the Port's Environmental Operating License, as well as those established, if applicable, in the environmental operating license of the Unicargas terminal once obtained.

At the locations mentioned above, three points WQC_1, WQC_2 and WQC_3 -exceptionally WQC_4- the following parameters during marine works will be measured, all through on-site analysis:

- In-situ parameters: temperature, salinity, conductivity, pH, dH, turbidity and light penetration, dissolved oxygen, Chlorophyll a.
- For the analysis and reporting of control parameters, the references established in the Baseline Survey, which are detailed in Volume I, will be considered.
- In case of an unexpected spillage or leakage that is not dealt with promptly and/or as specified in the Emergency Response Management Plan, it may be necessary to conduct additional analysis. Parameters may vary depending on the substances spilled, as well as the required frequency and schedule.
- Additionally, as already mentioned, additional water quality analytics will be carried out to comply with the installation or operating licenses if required.
- Visual identification of sediment plume propagation resulting from the required seabed cleaning to accomplish rehabilitation/repair of quay wall.

Weather conditions might also be registered in order to potentially relate them with recorded data.

8.4.3. Monitoring Frequency

The following table summarizes the follow-up and monitoring actions and the implementation schedule.

Monitoring actions	Description	Implementation schedule
Periodic marine water quality monitoring	Marine water quality monitoring actions will be developed during construction phase.	Weekly during marine works and quarterly during terrestrial works. In periods of high activity, inspection shall be increased.
	Visual monitoring for sediment plumes will be taken during the marine construction phase over the bay.	Daily (twice a day during intense construction periods)
	Marine water quality monitoring during operational phase to control the compliance with international legislation and environmental operating license.	Frequency will be determined together with Luanda's Port Authority according to its Environmental Operating License. However, the reports will be developed at least every six months during the first three years, and annually thereafter.
Marine water quality monitoring in response to complaints	If complaints from the population/other Port's Terminal operators are registered, (i) simple immediate measures (such as sediment barriers, silt or bubble curtains/screens, etc.) will be implemented, and (ii) marine water quality additional monitoring will be undertaken near the affected areas to verify values and define extra mitigation measures if required.	When necessary

8.4.4. Monitoring responsible

Water quality monitoring shall be operated by a suitable technician.

In addition, a senior member must oversee surveys staff and will be responsible for the overall direction of the work. A minimum of 5 years of relevant experience in environmental surveys will be required.

The responsible person will be expected to promote and maintain the high standard required, regularly inform the client, including reporting agreed, and proposed any technique variation or complementary study required.

During the operational phase, the responsibility will be determined regarding the requirements, and actions established in the terminal's operating procedures will be applied.

8.4.5. Sampling methods

All sampling methods for the different types of monitoring parameters shall be accomplished with IFC Methodology, or any other recognized International Regulations. This shall also apply to laboratories, technicians, and general procedures.

However, since monitoring data collection must allow for comparison with the baseline values, the same methodology (or a comparable one) followed in the baseline survey should be employed. These methodologies are specified in the Baseline Survey methodology, detailed in Volume I. These methodologies comply with IFC criteria and are internationally recognized.

Regarding the physical or chemical parameters measured in situ, EXO is provided as an example that could be used, as in the baseline survey already conducted. However, as previously mentioned, methodologies outlined by the IFC or included in other international regulations will also be adhered to. The EXO multiparametric probe contains all the necessary sensors to fulfill the required measurements, with the analytical methodology used for measuring each parameter referenced in the following table.

Parameter	Correspondence with EHS table 1 and references	Methodology
Temperature ***(in situ)***	Temperature	YSI EXO II temperature thermistor
Salinity ***(in situ)***	Conductivity/Salinity	YSI EXO II automatic calculation based on conductivity electrodes
Conductivity ***(in situ)***	Conductivity/Salinity	YSI EXO II conductivity electrodes
pH ***(in situ)***	pH	YSI EXO II pH/ORP sensor
dH (alkalinity) ***(in situ)***	Other site-specific parameters	YSI EXO II automatic calculation based on pH/ORP sensor
Turbidity ***(in situ)*** **and light penetration** ***(in situ)***	Turbidity Secchi disk transparency	YSI EXO II turbidity near-infrared sensor
Dissolved oxygen ***(in situ)***	Dissolved Oxygen	YSI EXO II optical sensor
Chlorophyll a ***(in situ)***	Chlorophyll	YSI EXO II fluorescence sensor

Table 3. Parameters included for the characterization of marine water samples.

The EXO multiparametric probe measures conductivity, temperature, and pressure and provides high precision, resolution, reliability, and ease of use for various research, monitoring, and engineering applications. It also measures chlorophyll-*a*, Dissolved oxygen, turbidity, and alkalinity.

Regarding the methodology established for determining other parameters to be analyzed, when necessary, in the event of an accidental spillage/leakage or to comply with the installation or operating licenses, the criteria established by IFC standards will be followed, as outlined in the methodology detailed for Baseline Surveys in Volume I.

8.5. Corrective actions

If exceedances of turbidity or oil/fuel/wastes spillages are recorded, or if complaints from the local communities / other Luanda's Port Terminals are lodged, the causes of such exceedances will be identified and corrected.

8.6. Reports

Documental records will be kept, to control the execution of this specific environmental management program. These documents will be prepared, archived and maintained by the environmental management team, to document the results of the program implementation.

Weekly Performance Reports will be prepared, reporting on recorded events and performance indicators. Where more frequent monitoring is required due to intense construction periods, reports will also be made at the same frequency.

Additionally, visual monitoring for sediment plumes should be reported daily. If during intense construction periods the control must be done more times per day, the results would be noted in the daily report.

During operational phase, frequency of the monitoring measurement controls will be agreed with the Luanda's Port Authority, and reports will be delivered according to it. However, as specified in the previous table, these reports will be accomplished at least every 6 months during the first three years, and annually thereafter.

9. MARINE SEDIMENT QUALITY MANAGEMENT PROGRAM

9.1. Justification and objectives

The development of the project may result in changes to marine sediments quality during both construction activities and operational functioning. However, it must be noted that during the operational phase no significant changes in marine sediments are expected with respect to those already existing, given that the terminal is currently in operation.

This Marine Sediment Quality Management Program aims to control the potential pollution or discharges during both project phases, to avoid/minimize any adverse/harmful effect when possible.

9.2. Legal Framework

Marine sediment quality standards are intended to safeguard public health and ecosystem protection. Since there is no Angolan legislation on marine sediment quality, international recommendations and guidelines can be followed. As the quality of marine sediments is directly dependent on the quality of seawater, all the regulations for the latter will apply. Thus, IFC applicable Guidelines, -Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (WBG 2017), Canadian Council of Ministers of the Environment -Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME 1991-2015)-, as well as Australian and New Zealand Guidelines for Fresh and Marine Water Quality will be applicable.

There is other international legislation and best practices that should also be consulted, namely: the 2000/60/EC Directive of the European Parliament and of the Council of October 23, 2000 -Water Framework Directive-, Maritime Works Recommendations (Puertos del Estado, Spain), as well as Royal Decree 817/2015, of September 11, 2015.

In addition, the implementation of the measures contained in the mandatory documents for both the port of Luanda and the Unicargas Terminal will also be considered. These are the Luanda's Port Environmental Operating License (Licença Ambiental de Operaçao), the Solid Waste and Effluent Management Plan of

Luanda Port Company E.P. (Plano de Gestão de Resíduos sólidos e efluentes), the Environmental Management Plan (Plano de Gestão Ambiental) of the Port of Luanda and the Environmental Management Plan of the Multipurpose Unicargas Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas).

Finally, the ADPG has developed a comprehensive Integrated Management System Policy, along with numerous procedures that will be followed in points where criteria are not defined in the procedures and documents of the Port of Luanda or the Unicargas Terminal. Health, Safety and Environment Guideline for Contractors[10] might be consulted by Contractors to comply with its requirements and procedures.

9.3. Actions and Implementation Schedule

As referred to in the ESIA, several actions could have an impact on marine sediments quality, during both construction and operational phase. The main actions of the project that will cause those impacts are the seabed cleaning activities related to quay wall rehabilitation during the construction phase.

During the operational phase, no significant changes are expected in the quality of marine sediments due to the development of the Unicargas Terminal compared to those already existing in the terminal currently in operation. It is anticipated that the situation will remain similar, thanks to the application of the preventive and corrective measures outlined in this study. However, monitoring measures have been established in the management plans to determine whether there are any variations in the results obtained from the analysis of the data on the quality parameters collected during the field campaigns conducted as part of the project which established the baseline situation.

The accidental discharge of any pollutant into the water column may end up being deposited in the sediments, potentially increasing their contamination. To minimize the effects, a set of mitigation measures has been designed and will be implemented. Given the direct link between the quality of water and marine sediments, all the measures applied to water in the previous section are equally applicable to sediments, which are included in the following table:

Type of mitigation actions	Description	Implementation schedule
Control and minimize increase in suspended solids		
Review and correct (if necessary) design and location measures	Avoid works for rehabilitation/repair of quay wall during inappropriate climate conditions (mainly due to wind).	Planning phase
Avoid mobilization / dispersion	Seabed cleaning and excavation methods selection to minimize suspension of sediments and increase accuracy of action.	During construction phase.

[10] *Document ID: 0000-000-PP-ADPORTS-00302-000. Date: March 2024.*

	Plan properly seabed cleaning activities, minimizing the intervention time of vessels and machinery. Adjust seabed cleaning activities schedule based on tide, wind and background/natural turbidity. Avoid overflow of material during the transportation of dredged material. Implement additional techniques or equipment if needed, such as barriers, sheet piles, silt or bubble curtains/screens, and contained sediment transport systems.	
Control activities	Inspection and monitoring regularly, and continuously during works if increase of turbidity is observed.	During construction phase
Control/avoid potential pollution discharges		
Practice at construction site	Temporary stockpiles of excavated materials and products using works will be located in areas where cannot be washed away by water, avoiding any pollution reaching marine water. Dusty materials should be removed from the construction site as soon as possible. Tidy storage of materials and machinery. Define specific places for washing tanks outside the work area. Dimension the capacity of oily waste collection based on applicable MARPOL provisions.	During construction
Avoid/minimize pollution	Equipment/facilities to remove accidental spills of fuel/oils (suction pumps), collect solids, hydrocarbons, etc. Wastewater with chemicals from bulk tank cleaning should be collected prior to discharge, and treatment methods based on effluent characteristics applied.	During both construction and operational phase
Control activities	Control correct discharge of wastewater, spillage of waste, etc.	During both construction and operational phase

Compliance with international regulations and/or recommendations, as well as Port's Environmental Management Plan and other documents	The port should provide ship operators with information related to ballast water management requirements, spill prevention spillages, etc. Periodic inspection and maintenance of equipment, systems, etc. Comply with procedures stablished such as those for management of dangerous goods, or refueling operations.	During operational phase

9.4. Monitoring

The mobilization of sediments during seabed cleaning works related to the rehabilitation of the quay wall is directly associated with an increase in suspended solids and, consequently, turbidity in the water column. Therefore, the measures established to control these variations are outlined in the Marine Water Quality Management Program, as the effect is on the water column rather than directly on the sediments.

Regarding the potential contamination of marine sediments caused by an accidental spill or discharge, the control procedure could involve in these cases testing for specific substances and/or reconsideration of the location of the samples to properly identify the affection. Systematic processes established might change in frequency, location or parameters to control to achieve correct monitoring objectives.

9.4.1. Monitoring locations and parameters

Marine sediments quality monitoring actions will be carried out during the construction and operational phases at two points (SQC_1 and SQC_2), which were already established for the marine sediment quality baseline study. These control points are shown below:

Figure 5. Location of the Marine Sediments Quality Control Points foreseen.

Only these two points have been selected because they are the closest to the area where the works related to the rehabilitation of the quay wall will be carried out and where there is potentially more risk of contamination by actions related to the project.

The same as defined in the Marine Water Quality Management Program, two types of monitoring actions are required: periodic monitoring to verify the effectiveness of the controls and mitigation measures in place, and monitoring in response to local complaints or grievances. Both monitoring actions will take place during the construction and operational phases. Additionally, water and sediment quality monitoring will be conducted on the same days. This approach is convenient for planning and conducting monitoring activities and ensures data for both parameters are collected under similar environmental conditions.

During the construction phase, only the parameters monitored on-site will be those conducted according to the methodology outlined for establishing the baseline values (please refer to Baseline Survey details in Volume I), which include odor, color, and redox potential. The results obtained will be evaluated with reference to those found in the survey (and documented in the corresponding Baseline Survey details included in Volume I) that served to establish the current baseline for these parameters in the study area.

In the event of an unexpected spillage or leakage that is not promptly addressed or handled as specified in the Emergency Response Management Plan, it may be necessary to conduct additional analyses. Parameters may vary depending on the substances spilled, as well as the required frequency and schedule.

Regarding the parameters to be analyzed during operation, they will be those determined routinely in the various terminals operating in the Port of Luanda according to the requirements established in the Port's

Environmental Operating License, as well as those established, if applicable, in the environmental operating license of the Unicargas terminal once obtained.

9.4.2. Monitoring frequency

The monitoring periods for marine sediment quality will be the same as those established in the Marine Water Quality Management Program but only in relation to the occurrence of accidental discharges and spills. Thus, the following table summarizes the planned monitoring and control actions and the implementation schedule.

Monitoring actions	Description	Implementation schedule
Periodic marine sediment quality monitoring	Marine sediment quality monitoring actions will be developed during construction phase.	Weekly during marine works together with the water quality monitoring. In periods of high activity, inspection shall be increased.
	Marine sediment quality monitoring during operational phase to control the compliance with international legislation.	Frequency will be determined together with Luanda's Port Authority according to its Environmental Operating License. However, the reports will be prepared at least semi-annually during the first three years and annually thereafter.
Marine sediment quality monitoring in response to complaints	If complaints from the population/other Port's Terminal operators are registered, (i) simple immediate measures (such as sediment barriers, silt or bubble curtains/screens, etc.) will be implemented, and (ii) marine sediment quality additional monitoring will be undertaken near the affected areas to verify values and define extra mitigation measures if required.	When necessary

9.4.3. Monitoring responsible

During the construction phase, Sediment quality monitoring shall be operated by a suitable technician.

In addition, a senior member must oversee surveys staff and will be responsible of the overall direction of the work. A minimum of 5 years of relevant experience in environmental surveys will be required.

The responsible person will be expected to promote and maintain the high standard required, regularly inform the client, including reporting agreed, and proposed any technique variation or complementary study required.

During the operational phase, the responsibility will be determined in accordance to the requirements and regulations established in the terminal's operating procedures will be applied.

9.4.4. Sampling methods

To characterize sediment quality, a Van Veen type dredge will be used at depths less than 50 meters. This ordinary bucket (grab) for soft bottom sampling consists of two opposing valves, centrally hinged, resting on the bottom in the open position. Subsequently, with the pull of the support cable, the valves enclosing the material are closed, and the instrument immediately returns to the surface.

Regarding the methodology established for determining other parameters to be analyzed, when necessary, in the event of an accidental spillage/leakage or to comply with the installation or operating licenses, the criteria established by IFC standards will be followed, as outlined in the methodology included in the Baseline Survey details in Volume I.

9.5. Corrective actions

If exceedances of turbidity or oil/fuel/wastes spillages are recorded, or if complaints from the local communities / other Luanda's Port Terminals are lodged, the causes of such exceedances will be identified and corrected.

9.6. Reports

Documental records will be maintained to monitor the implementation of this specific environmental management program. These documents will be prepared, filed and maintained by the environmental management team to document the results of program implementation.

Weekly Performance Reports will be prepared, reporting on recorded events and performance indicators. Where more frequent monitoring is required due to intense construction periods, reports will also be made at the same frequency.

During the operational phase, the frequency of the monitoring measurement controls shall be agreed with the Luanda Port Authority, and the reports shall be delivered accordingly. However, as specified in the table above, these reports will be made at least every 6 months for the first three years, and annually thereafter.

10. BIODIVERSITY CONTROL MANAGEMENT PROGRAM

10.1. Justification and objectives

Even though no protected species were detected in the project area during the ecological surveys, and almost no biodiversity was observed in either the marine or top sides, the construction and operation of the project could potentially result in biodiversity impacts. Monitoring and management actions for the biodiversity components are required, to continuously evaluate the Project's impacts and the efficacy of the proposed mitigation measures. This Biodiversity Control Management Plan aims to control the potential affections to the biota of the project site and surroundings.

10.2. Legal Framework

2010 Angolan Constitution states on its article 39.2 "*The State shall adopt the necessary measures to protect the environment and species of flora and fauna throughout the national territory, to maintain the ecological balance, to exploit and make rational use of all natural resources within the framework of sustainable development and respect for the rights of future generations and the preservation of different species*".

On February 2020 Angola approved its National Biodiversity Strategy and its Action Plan for 2019-2025 through the *Presidential Decree nº26/20 of February 6, approving the National Biodiversity Strategy and Action Plan 2019-2025 - Revokes Resolution nº42/06, of July 26* (*Decreto Presidencial nº26/20 de 6 de Fevereiro, aprova a Estratégia Nacional e o Plano de Acção da Biodiversidade 2019-2025 – Revoga a Resolução nº42/06, de 26 de Julho*.) Within its aims, the recovery and protection of the endangered and threatened species is foreseen, and thus, must be considered.

The Action Plan is organized in 12 Strategic Goals, which are also divided into National Aims. Strategic Goal number 1 encompasses actions to reduce pression on biodiversity and promote its sustainable use. Among its National Aims, two must be highlighted: 1.1 create the proper conditions to implement Environmental Impact Assessment in the projects and that they will be monitored through environmental audits; and 1.3. develop actions and methods that promote species preservation and natural recovery of flora and fauna. Strategic Goal number 3 encourage scientist investigation and biodiversity information promotion and include in its aims to improve scientist knowledge to create a Red List on the threatened species, or the situation of non-native species.

In addition, the codes and standards of the International Finance Corporation -IFC- are required to be applied. The Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced include:

- IFC Performance Standard 1, Assessment and Management of Environmental and Social Risks and Impacts,
- IFC Performance Standard 6, Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Furthermore, although more general on good practices, sustainable development and social responsibility, other technical documents as the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines), the Equator Principles and OECD Recommendations of the Council are also considered.

On the other hand, as stated in Volume I of the ESIA, one of the greatest risks during the operational phase in projects related to maritime traffic is the potential introduction of invasive species into the environment. The introduction and spread of invasive alien species via ballast water discharge is one of the most significant environmental concerns in global maritime operations. To address this, the International Maritime Organization (IMO) established the Ballast Water Management (BWM) Convention, which mandates that ships manage ballast water to reduce the spread of harmful aquatic organisms.

The BWM Convention, which came into effect in September 2017, requires ships to comply with specific standards to minimize the environmental impact of ballast water, particularly concerning invasive species. The D-1 standard requires ballast water exchange in deep, open waters, away from coastal areas, while the D-2 standard mandates that ballast water undergo treatment to meet strict criteria, effectively removing or

rendering harmless harmful organisms and pathogens before discharge. As stated in *IFC Performance Standard 6* and in *IFC Environmental, Health, and Safety Guidelines for Shipping*, compliance with these standards is essential for any project operating in or near marine environments where ballast water is a concern. The implementation of the Ballast Water Management Convention helps achieve several United Nations Sustainable Development Goals (SDGs), particularly SDG 14, which focuses on life below water and promotes the sustainable use of oceans, and SDG 15, which includes objectives to preserve biodiversity and limit the spread of invasive species.

Although Angola is not yet a signatory to this treaty, according to national legislation, all vessels coming from outside Angola must comply with Angolan Executive Decree 12-05, Article 10, regarding ballast water management which mandates that vessels arriving from abroad must have an IMO-compliant ballast water management plan.

10.3. Actions and Implementation Schedule

As referred to in the ESIA, several actions could have an impact on biodiversity, both during construction and operational phases. These main actions are listed below:

- Demolition and removal of existing structures, such as buildings or pavement.
- Movement and operation of vehicles and machinery, associated with construction activities.
- Rehabilitation of the existing quay wall.
- Increase in the presence of people.
- Vessels/cargo transport operation.
- Operation of maintenance machinery and equipment works.

During construction, these actions could impact the fauna and flora due to increased suspended solids and to sediment extraction and in the exclusion of fauna species due to increase of disturbance.

Referred to the operational phase, given that the Unicargas Terminal is already operational, it is not expected that the increase in shipping activity, terminal capacity and, thus, in the transport of container cargo, both sea and land, will have any remarkable effects on biodiversity other than those already existing. It should also be noted that the Unicargas terminal, currently operational, coexists with other terminals operating at the Port of Luanda, making the surrounding area predominantly a port zone.

However, the implementation of the measures and criteria established in the environmental operating license of the Port of Luanda, as well as those corresponding to the environmental management plans of the Port of Luanda and the Unicargas Terminal, will have a positive impact on the conservation of the ecological environment and biodiversity of the area.

In this regard, it should be noted, as previously mentioned, that activities related to ballast water must be managed properly to avoid the introduction and spread of invasive alien species, following the criteria established by international organizations. Since the activities involved in the project are not new but rather port operations already taking place, ballast water management is not considered a newly implemented process. However, due to the potential link between ballast water management and the introduction of invasive species into the environment, a specific mention is included in each subsequent phase, highlighting key aspects to be addressed during the operational phase.

10.4. Monitoring

According to direct observations made during the biological survey carried out within the framework of the project, the area where the restoration of the quay wall is to be carried out consists of a mud area in which no biological presence was detected, so no protected species were observed within the perimeter of the port.

For this reason, it is not necessary to develop a specific Biodiversity Management Plan, but the implementation of the actions presented in this section will ensure that the situation for the species potentially in the area does not worsen compared to those currently existing and accustomed to port operations. Therefore, in this case, monitoring will be limited to sightings of protected or unusual species that may occur during the works. During the operational phase, the Port Authority must be kept informed if the presence of such species is detected.

10.4.1. Key Guidelines for Ballast Water Management (BWM) for Invasive Species Control

As mentioned above, effective Ballast Water Management (BWM) is essential to minimize the spread of invasive species across marine ecosystems. These key guidelines outline considerations for developing a BWM plan, focusing on invasive species control through systematic planning, monitoring, and adherence to international standards.

Comprehensive Management Plan

Each ship must implement a specific Ballast Water Management Plan (BWMP) tailored to its operations. This plan should detail procedures for ballast water treatment, handling, and disposal to minimize the transfer of harmful aquatic organisms. The plan also should include supplementary practices, such as ballast water exchange in specified locations (deep, open water, far from coastal zones), where applicable.

Record-Keeping and Monitoring

Ships must maintain a Ballast Water Record Book to document each ballast water operation, including uptake, treatment, discharge, and any accidental releases. Monitoring activities should be well-documented to verify compliance and facilitate audits by port State authorities. Accurate record-keeping aids in tracking compliance and enables the prompt identification of any deviations from the BWMP.

Regular Maintenance and System Approval

Ballast water management systems (BWMS) must be rigorously maintained to function effectively. Regular cleaning of ballast tanks and filters can prevent biofouling, ensuring the system's efficiency and compliance. BWMS must be approved by the relevant authority in accordance with IMO guidelines and must meet performance standards under the BWMS Code, which includes testing and monitoring requirements to confirm efficacy.

Risk Assessment and Preventive Measures

A pre-ballasting risk assessment can help identify high-risk areas for organism uptake, such as shallow or polluted waters. Preventive measures, such as avoiding ballast water uptake during times or in areas prone to high concentrations of organisms, can further reduce the risk of invasive species introduction. Where risk

is significant, inspection and washdown protocols should be implemented for tanks and ballast systems to mitigate potential contamination.

Coordination with Port States and Authorities

Ships must be prepared for inspections by port State authorities, including verification of certificates, BWMP, and ballast water sampling. Compliance with local ballast water regulations, in addition to international standards, is necessary to avoid penalties and delays. Coordination with port authorities ensures understanding of any additional local requirements for ballast water discharge and treatment.

10.5. Corrective actions

If the presence of a protected or unusual species is detected, work will be stopped so that the species is not affected.

If invasive species are detected, immediate action is required, including species-specific mitigation measures such as treatment, quarantine, or eradication procedures.

10.6. Reports

If any protected or sensitive animal is detected, it will be reported to the Environmental Responsible of Unicargas Terminal, including the data of the sighting: time, place, species (if known) and state in which the animal is found.

In addition, the introduction of any alien species, including accidental introductions, should be documented, and mitigation strategies should be in place to address this.

11. WASTE MANAGEMENT PLAN

Port operations, industrial activities, shipping, boating, related ancillary services have the potential to significantly contribute to the degradation of the environment through inappropriate disposal of the waste affecting land quality, water quality, air quality, habitats and coastal amenities.

To reduce the significance of the impacts associated with the implementation of projects, it is important to apply good waste management practices. This management must consider public health, environmental and economic criteria.

Based on the importance of sustainable development and within the context of clean energy technology, it is essential to implement a Waste Management Plan (WMP) to manage the waste generated. Public and environmental health must be considered, as well as the unnecessary consumption of natural resources and materials in the construction process.

11.1. Objectives and scope

The Waste Management Plan for the Development of Unicargas Port Project aims to meet the assumptions set out above and comply with the requirements of current legislation (Presidential Decree no. 190/12 of 24 August). This Plan is based on the principles of minimizing waste at source, outlining and describing the actions relating to management, including aspects relating to reducing waste production, reuse, segregation,

internal conditioning and waste identification, and undertakes to manage waste using a set of procedures to be carried out with a view to protecting the environment.

One of the objectives of this plan is also to comply with the requirements established by the IFC. As stated in the IFC General EHS Guidelines, facilities that generate and store wastes should practice the following:

- Establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences.
- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of waste.
- Avoiding or minimizing the generation of waste materials, as far as practicable.
- Where waste generation cannot be avoided but has been minimized, recovering and reusing waste.
- Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner.

This WMP will be applied to all activities carried out during the construction and operation phase of the development of Unicargas Port project. Employees such as senior project manager, work in-charge, subcontractors, service providers, suppliers and visitors should adhere with this plan

11.2. Reference documents

The development of the waste management plan is based on compliance with the criteria established in the IFC and World Bank Group guidelines, as well as compliance with national regulations, with the main reference document being Presidential Decree 190/12 of 24th *Regulamento sobre a Gestão de Resíduos*, which approves the Regulation on Waste Management and establishes general rules regarding the production, deposition in the soil and subsoil, release into water or the atmosphere, treatment, collection, storage, and transport of any waste, except those of a radioactive nature or subject to specific regulations, in order to prevent or minimize its negative impact on people's health and the environment.

Likewise, consideration has been given to the current waste management plan in force at the Unicargas Terminal, developed in accordance with the Waste Management Plan of the Port of Luanda. Both plans are included as Annexes in Volume III. Additionally, AD-Ports Group Integrated Management System and its procedures related to Waste Management (or other applicable ones) will also be taken into consideration.

11.2.1. IFC Guidelines

In accordance with Environmental, Health, and Safety (EHS) General Guidelines, facilities that generate waste should characterize their waste according to composition, source, types of wastes produced, generation rates, or according to local regulatory requirements. Effective planning and implementation of waste management strategies should include:

- Review of new waste sources during planning, siting, and design activities, including during equipment modifications and process alterations, to identify expected waste generation, pollution prevention opportunities, and necessary treatment, storage, and disposal infrastructure.
- Collection of data and information about the process and waste streams in existing facilities, including characterization of waste streams by type, quantities, and potential use/disposition.

- Establishment of priorities based on a risk analysis that considers the potential EHS risks during the waste cycle and the availability of infrastructure to manage the waste in an environmentally sound manner.
- Definition of opportunities for source reduction, as well as reuse and recycling.
- Definition of procedures and operational controls for onsite storage.
- Definition of options / procedures / operational controls for treatment and final disposal.

11.2.2. Solid Waste Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas)

Within the framework of Environmental Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão Ambiental do Terminal Polivante da Unicargas) and complying with legislation approved, the Solid Waste Management Plan of the Unicargas Multipurpose Terminal was developed in May 2022. Through the Corporate Security Department -DSE- the Unicargas Multipurpose Terminal is responsible for ensuring the fulfilment of the procedures to deal with waste produced at the facility and draw up the Waste Management Plan.

The waste generated at the Unicargas facility encompasses all waste produced during administrative activities, cargo handling operations, workshops, canteens, road and parking area sweeping, emergency responses, and gardening. The plan identifies, classifies, characterizes, and quantifies the waste, as well as specifies the locations where it is generated.

The document includes an analysis of the generated waste, covering its identification, origin, characterization, volume, storage, collection and transport, temporary storage, and final disposal. Furthermore, the procedures for managing different types of waste are detailed and described. Additionally, actions aimed at achieving waste reduction goals are outlined.

This Plan is included in Annex 5 of Volume III.

11.2.3. Waste and Effluent Management Plan of Luanda Port Company E.P (Plano de Gestão de Resíduos sólidos e efluentes)

The provisions of the Waste and Effluent Management Plan of Luanda Port Company E.P (Plano de Gestão de Resíduos sólidos e efluentes) shall be complied with in all cases. Through this Waste Management Plan, from which the company Empresa Portuária de Luanda E.P obtained a waste management certificate, guidelines are provided for handling, monitoring, storage, transport, and disposal of waste produced in the Port of Luanda, in compliance with the environmental legislation in force in the country. The specific objectives of this plan are listed below:

- Identify and classify all types of waste from the producing source, or sectors and services involved.
- Prevent and minimize waste production.
- Implement procedures for sorting, safely depositing and transporting waste inside.
- Ensure that the handling and collection of waste is carried out only by qualified personnel.
- Forward non-hazardous and specific waste for recovery (e.g. recycling or reuse) whenever possible.
- Hire companies properly authorized by the National Waste Agency (Agência Nacional de Resíduos, ANR), responsible for the collection, external transport, treatment and final disposal of hazardous waste.

This Plan is included in Annex 6 of Volume III.

11.2.4. AD-Ports Group Requirements

ADPG is committed to always minimizing the adverse impact of the construction activities on the environment by ensuring that appropriate environmental protection (no pollution, no spillage, etc.) controls are taken. Thus, during construction phase, Contractors must comply with measures established by AD-Ports Group in Health, Safety and Environment Guideline for Contractors.

In addition, and regarding as well the environmental protection, during operational phase measures included in the Integrated Management System Corporate policies of waste management will be integrated. According to the document Integrated Management System Policy, ADP are committed to enabling maritime trade businesses and achieving total customer satisfaction through an Integrated Management System (IMS) in line with ISO 9001:2015, 14001:2015, 45001:2018, 22301:2019, 27001:2013, 55001:2014, 31000:2018, 56002:2019, ISO 30401:2018, ISO 37301:2021 standards and AE/SCNS/NCEMA 7000:2021 specifications. The Integrated Management system ensures compliance with all pertinent regulations from applicable national and international regulators and Sector's Regulatory Authorities respecting ethical and sustainability aspects.

Some measures encompassed in both documents are listed below:

- The full set of spill kit shall be on board, and necessary photos / evidence shall be presented to ADPG by way of submission for each vessel.
- Vessels shall comply with national legislation relating to pollution prevention of respective country of operation, in addition to the IMO requirements adopted in MARPOL 73/78, and subsequent annexes or amendments.
- All projects performed shall conform to the environmental standards of the respective country of operation and ADPG requirements.
- Each supervisor and foreman will hold on to a regular basis a toolbox talk with his workforce to communicate the task instructions to the employee.
- Land Protection: All waste will be disposed-off using licensed waste handlers and who will dispose it off to approve disposal areas. Stockpiling will be at approved locations with suitable identification.
- Marine Protection: Vessels will meet Ports Authority requirement and shall not discharge any non-biodegradable garbage or pollutant into the sea.
- Oil record book and Garbage Record Books are maintained at vessels.
- Spill Prevention: Spills are best prevented using a proactive management approach. As mentioned previously, all aboveground fuel storage tanks will be surrounded by bund walls and placed on an impervious ground base, maintenance will be carried out over drip trays, and used oil will be stored and marked properly.

11.3. Waste Management Policy and Strategy

This WMP is designed for the construction and operational phases of the Unicargas Port Project Development, with a focus on environmental, social, and business sustainability. It also includes commitment to continuous implementation and improvement of the procedure, whereby all processes will be evaluated and verified whenever necessary.

Waste management on the site will be integrated, meaning it will encompass interlinked stages from non-production to final disposal. Management will focus on waste reduction, treatment, and enhancing the environmental awareness of all employees involved in the various activities on site. With compatible activities and guidance from site management, active participation of employees and potential visitors will be promoted. All waste expected on site will be deposited in specific containers scattered around the construction site and in the operation yards. This waste will then be removed by companies registered with the National Waste Agency or appointed by the Local Administration Bodies for waste management.

The main driver of this plan will be the application of the waste management hierarchy concept, where minimization and recovery will be achieved by following the sequence below, whenever possible or feasible:

- Redesign: introduce ecology into design, manufacture products with the environment in mind.
- Reduce: refuse to consume non-essential products. This reduces the amount of rubbish generated.
- Reuse: using products again in the same or different ways.
- Repair: before disposing of products, try to repair them so you can use them again.
- Renew: try to update all the old objects so that they can once again serve the purpose for which they were created.
- Recover: materials that have already been used to reintroduce them into the production process.
- Recycle: using already used products in production processes. Turning waste into raw materials for new products.

Figure 6 illustrates how the continuous improvement process advocated by the WMP will be implemented to ensure its practicality and feasibility. To ensure the plan's ongoing improvement, a series of subsequent steps for continuous improvement will be developed within the framework of the company's quality, health, safety, and environmental policy. These steps will address various environmental issues discussed in environmental forums.

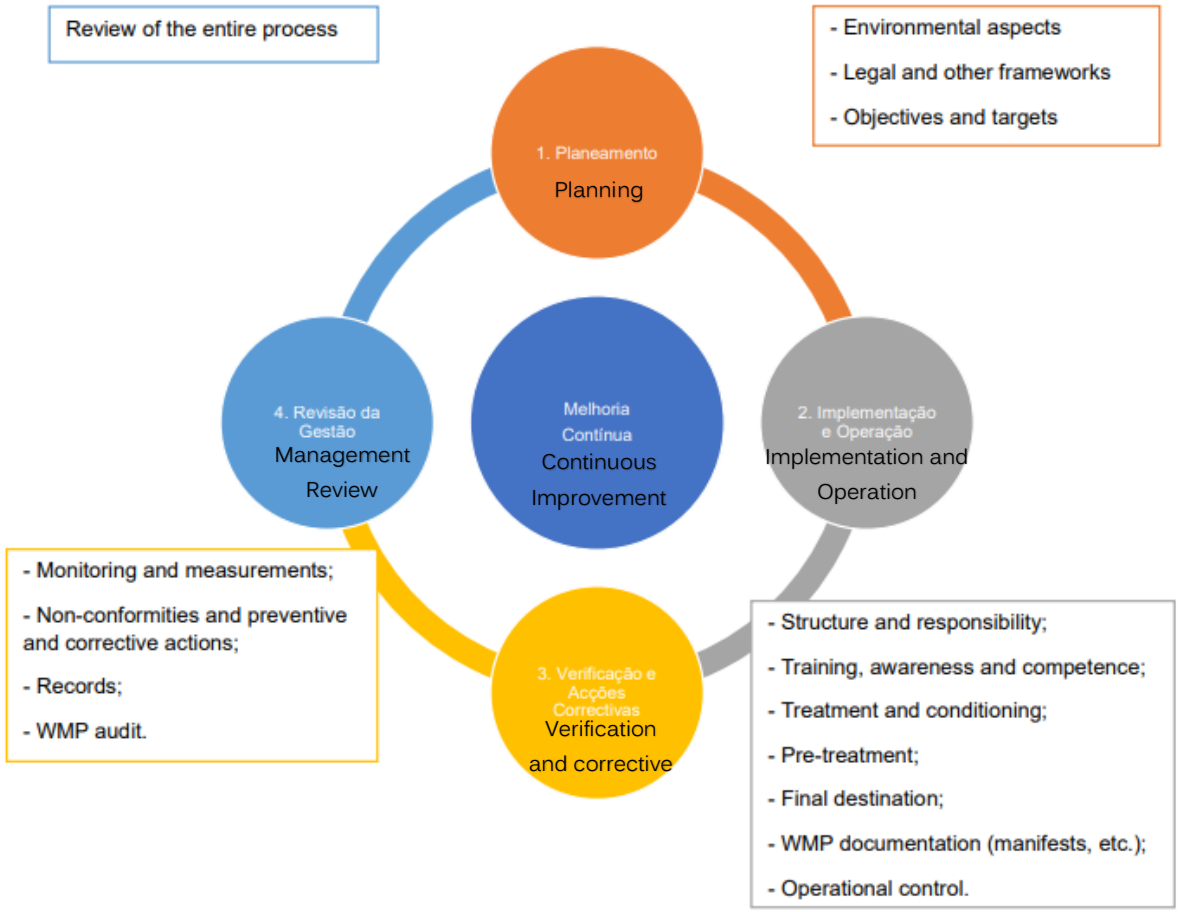


Figure 6. Process of continuous improvement of the Waste Management Plan.

However, these steps will be based on five pillars, namely:

- In-depth knowledge of the construction and operation waste from the development of Unicargas Port.
- Analysis of the waste expected (forms of segregation, conditioning and identification, treatment, recovery and destination).
- Planning (organizing activities).
- Environmental performance indicators (volume of waste produced monthly).
- Back to the beginning of the process.

11.4. Roles and responsibilities for the Waste Management Plan

During construction phase, the main responsible party for maintaining and reviewing the procedures of this Plan, whenever deemed necessary and in accordance with the deadlines established in the current applicable legislation, will be the Construction Manager (CM). All workers (AW) at the construction site will have responsibilities in waste management in accordance with the procedures defined in this Plan. The following table shows the distribution of responsibilities in carrying out waste management task, with the following acronyms used:

- R: responsible
- P: Participate

- I: Inform

TASK	CM	AW
Implement the Waste Management Plan.	R	P
Request approval of the WMP from the National Waste Agency.	R	
Identify and categorize the waste produced at the construction site.	R	P
Identify temporary storage locations for construction waste and different forms of valorization[11] at the site.	R	P
Collect the waste produced at the construction site and package it in compliance with applicable legislation at the construction support yard.	I	R
Select and manage contracts with companies responsible for collecting, transporting, and disposing of construction waste and associated infrastructure.	R	
Collect and transport project waste to a location indicated by the provincial government. Completion of the hazardous waste cargo manifest.	(*)	(*)
Raise awareness of waste management procedures among employees and potential visitors to the site.	R	P
Review and update the Waste Management Plan	R	P

(*) Responsibility of the contracted company for waste management.

Table 4. Responsibilities of construction phase activities in the WMP.

According to the integrated management system document "Health, Safety and Environment Guideline for Contractors" elaborated by ADPG as part of standard contracts documents, the Contractor shall develop a Construction Waste Management Plan to manage the waste generated from land and marine construction operations. Responsibilities of the EPC Contractors include the following:

- The Contractor will manage waste collection, handling, segregation, storage, transportation, and disposal in accordance with applicable legal requirements in the respective country of operation.
- The Contractor is responsible for providing an adequate number of color-coded waste skips for the segregation of different waste streams at construction sites. All waste, including domestic and other waste generated from activities and operations, shall be collected, segregated and properly stored as per the Environmental rules and regulations in a designated waste storage area at the construction site. The waste storage area will be marked and made identifiable with signs displayed.
- Hazardous waste will be stored separately and transported by a licensed service provider in accordance with legal requirements in the respective country of operation.
- The Contractor will ensure frequent removal and transportation of stored wastes to the waste recycling and landfill site to avoid unnecessary build-ups of waste and overloading of skips on the construction site.

[11] *Waste valorization is the process of reusing, recycling or composting waste materials and converting them into more useful products including materials, chemicals, fuels or other sources of energy. Source: AIChE The Global Home of Chemical Engineers https://www.aiche.org/topics/energy/waste-valorization#:~:text=Waste%20valorization%20is%20the%20process,or%20other%20sources%20of%20energy.*

- All waste management records and receipts will be maintained by the Contractors and monthly log to track the project's recycling rate will be reported to ADPG and/or PMC.
- The Contractor shall make necessary effort to reduce the waste and or recycle the waste at all times. The Contractor shall ensure that a minimum of 30% of the total generated waste is diverted from landfill through waste recycling and tracking procedures, where possible.
- It is prohibited to discharge any industrial wastewater, sanitary wastewater, dewatering water, oil, solvent, or other liquid waste into an on-site septic system, stormwater drainage system, discharge into surface water bodies including marine environments, injection underground into groundwater, or disposal onto the ground unless authorized explicitly by ADPG or PMC. The Contractor shall demonstrate its Wastewater recycling strategy within the project HSEMP.
- It is the Contractors' responsibility to keep the work site free of surplus and waste materials and maintain a clean and tidy site throughout the project. The Contractor shall ensure that all work locations, walkways, emergency exits, equipment, tools, firefighting, life-saving equipment, etc., are always clean and free of obstructions.

As already mentioned, all workers (including subcontracted companies) will ensure that the waste generated by their operations and activities is properly managed and that all activities related to the WMP are developed and implemented in accordance with its provisions. All workers have the responsibility to ensure that procedures are followed, and that waste is placed in the appropriate locations and containers provided. Employees (bricklayers, assistants, electricians, painters, drivers, etc.) should assist in the implementation of the plan by segregating waste and storing it in designated areas, following procedures for cleaning, collection, identification, transportation, and storage of all waste. It will be the responsibility of the Construction Management (CM) to train and inform each worker about their responsibilities regarding the management of construction and other waste.

The following table shows the different responsibilities of each of those involved in the development of the WMP.

RESPONSIBILITIES	TASKS
Responsibility of the waste producer	✓ Identify, quantify and separate all the waste produced; ✓ Develop and implement a WMP ✓ Have a system for collecting, handling and storing waste in such a way as to minimize the risk of accidents and environmental contamination; ✓ Hire waste collection operators who are previously licensed by the National Waste Agency (ANR) and/or authorized by the governments of the province of Luanda; ✓ Provide appropriate personal protective equipment for all employees involved in waste management; ✓ Obtain the opinion and approval of this Waste Management Plan from the ANR; ✓ Submit an annual report to ANR on the waste collected and transported on site;

Responsibility of the Receiver (Waste Collection Company)	✓ Ensure compliance with the legal requirements applicable to its activity; ✓ Remove and transport waste produced on site in appropriate tipper vehicles; ✓ Only waste approved by environmental organizations (ANR and the governments of the province of Luanda) is treated and finally disposed of; ✓ Report any accidents or incidents that occur during the transport of the waste, for example overflows on the public highway; ✓ Issue the cargo manifest associated with the transport, disposal and final destination of hazardous waste.
Responsibility of the National Waste Agency (ANR)	✓ To advise companies and the general public on the application of environmental protection norms and standards; ✓ Approve instructions, standards, guidelines and other acts necessary for the implementation of the waste management system; ✓ Ensure that all waste produced is identified, characterized and classified in accordance with current regulations; ✓ Ensure that waste is collected, handled and stored properly in order to minimize the risk of environmental accidents; ✓ Ensure that waste has an environmentally appropriate treatment, recovery or destination.

Table 5. Responsibilities of the institutions involved in the WMP

Regarding the operational phase, the JV implementation team will include an HSSE Unit led by an HSSE manager who will oversee all E&S aspects including WMP.

11.4.1. Waste Management Companies

As the Unicargas Terminal is currently in operation, the waste management companies will be the same as those currently carrying out waste management whenever possible during the construction and operation phase.

Other contracted waste management companies related to the construction works must be certified by the national authorities or appointed by local government bodies in the province of Luanda that are able to fulfil the appropriate standards and requirements established locally for waste management, including the transport and disposal of all waste streams including but not limited to general, liquid and hazardous waste. Contracted waste management companies must ensure that all environmental policies, procedures/regulations and treatment and disposal systems are being followed and applied in accordance with what is established locally. Waste management companies must:

- Submit a monthly waste report to ADPG; and
- Provide ADPG with documentation / manifests confirming receipt of the waste, the quantities involved and the type of treatment / destination.

11.5. Categorization of Waste

In terms of categorization, the expected waste both for the construction and operational phases is included in the Angolan Waste List (Lista Angolana de Resíduos - LAR), as illustrated in Table 6 and Table 7. The waste included in the operational phase is based on the activities currently carried out at the Unicargas Multipurpose Terminal, which consist mainly of administrative activities, cargo handling operations, workshops, cafeteria, road and park sweeping, emergency response, gardening, etc.

11.5.1. Construction phase

TYPE OF WASTE	LAR CODE
13. Used oils and liquid combustible waste (except edible oils 05, 12 e 19)	
Used oils and liquid fuel residues (except edible oils and Chapters 05, 12 and 19)	13 02
Other engine, gear and lubricating oils	13 02 08(*)
Water containing oil from separators, channels or cleaning after a spillage has occurred	13 05 07(*)
Liquid fuel waste: fuel oil and diesel	13 07 01(*)
15. Packaging waste, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	
Paper and cardboard packaging	15 01 01
Plastic packaging	15 01 02
Wooden packaging	15 01 03
Metal packaging	15 01 04
Glass packaging	15 01 07
Packing containing or contaminated by residues of dangerous substances	15 01 10(*)
Absorbents, filter materials, wiping cloths and protective clothing	15 02
Absorbents, filter materials (including oil filters not previously specified), cleaning cloths and protective cloths and protective clothing contaminated by dangerous substances	15 02 02(*)
Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	15 02 03
16. Wastes not elsewhere specified in this list	
Oil filters	16 01 07(*)
Ferrous metals	16 01 17
Waste electrical and electronic equipment	16 02
Transformers and capacitors containing PCBs	16 02 09(*)
Gases in pressure containers (including halons) containing dangerous substances	16 05 04(*)
Gases in pressure containers other than those mentioned in 16 05 04	16 05 05
Batteries and accumulators	16 06
Aqueous liquid wastes containing hazardous substances	16 10 01(*)
Aqueous liquid wastes other than those mentioned in 16 10 01	16 10 02
17. Construction and Demolition Waste (including soil excavated from contaminated sites)	
Concrete, bricks, tiles and ceramic materials	17 01
Concrete	17 01 01
Bricks	17 01 02
Bricks, tiles and ceramic materials	17 01 03
Wood, glass and plastics	17 02

TYPE OF WASTE	LAR CODE
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Glass, plastic and wood containing or contaminated with hazardous substances	17 02 04(*)
Bituminous mixtures, tar and tar products	17 03
Bituminous mixtures containing tar	17 03 01(*)
Bituminous mixtures other than those mentioned in 17 03 01	17 03 02
Tar and tar products	17 03 03(*)
Metals (including alloys)	17 04
Copper, bronze and brass	17 04 01
Aluminum	17 04 02
Cables other than those mentioned in 17 04 10(*)-cables containing hydrocarbons, tar or other dangerous substances	17 04 11
Soils (including excavated soils from contaminated sites), rocks and dredging spoils	17 05
Soils and rocks other than those mentioned in 17 05 03(*)-soils and rocks containing dangerous substances	17 05 04
Insulation and construction materials containing asbestos	17 06
Insulation materials containing asbestos	17 06 01(*)
Other insulating materials consisting of or containing dangerous substances	17 06 03(*)
Insulation materials other than those mentioned in 17 06 01(*) and 17 06 03(*)	17 06 04
Construction materials containing asbestos	17 06 05(*)
Mixtures of construction and demolition wastes other than those mentioned in 17 09 01(*), 17 09 02(*) and 17 09 03(*)	17 09 04
20. Municipal and similar waste (household, commercial, industrial and service waste), including selectively collected fractions	
Paper and cardboard	20 01 01
Glass	20 01 02
Fluorescent lamps and other mercury-containing waste	20 01 21(*)
Edible oils and fats	20 01 25
Batteries	20 02 33(*)
Discarded electrical and electronic equipment other than those mentioned in 20 01 21(*)-fluorescent lamps and other waste containing mercury or 20 01 23(*)-Discarded equipment containing chlorofluorocarbons- containing hazardous components	20 01 35(*)
Discarded electrical and electronic equipment other than those mentioned in: 20 01 21(*), 20 01 23(*) or 20 01 35(*)	20 01 36
Plastics	20 01 39
Metals	20 01 40

Table 6. Type of construction phase waste and its LAR code. Source: self-elaboration based on the Angolan Waste List (LAR) of the Presidential Decree no. 190/12 of 24th August "Waste Management Regulation"

It should be noted that, although asbestos has been included in the list of waste types, the presence of asbestos in current buildings is not confirmed.

In addition, the cleaning works required for the rehabilitation of the quay wall will generate a significant amount of waste. This waste will be properly classified and managed based on its characteristics, in line with the management procedures for other waste generated during the project's completion.

11.5.2. Operational phase

11.5.2.1. Wastes generated by activities at Unicargas Multipurpose Terminal

As mentioned before, the waste included in the operational phase is based on the activities currently carried out at the Unicargas Multipurpose Terminal, which consist mainly of administrative activities, cargo handling operations, workshops, cafeteria, road and park sweeping, emergency response, gardening, etc. The following figure shows the flowchart of the main and support activities contained in the different processes that take place at the Multipurpose Terminal (TPU), whose outputs in each activity result in the production of various types of waste.

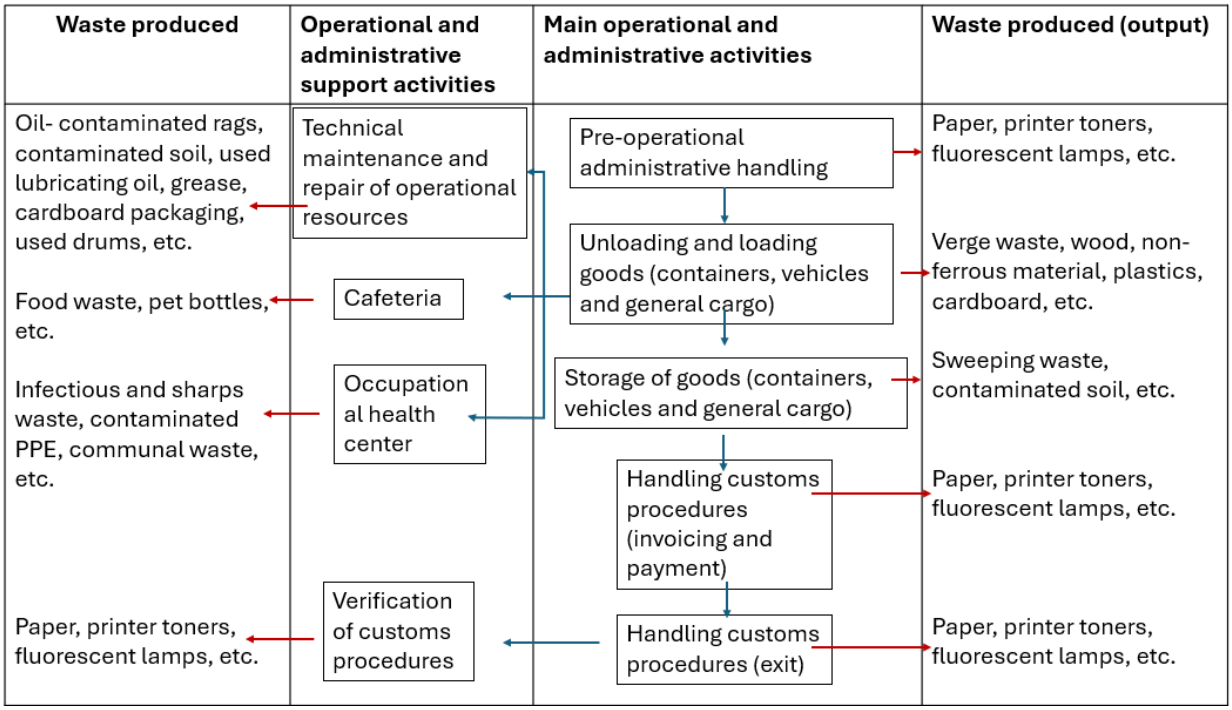


Figure 7. Flowchart of the activities of the Unicargas Multipurpose Terminal. Source: Solid Waste Management Plan for the Unicargas Multipurpose Terminal (SWMP/TPU) (Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU))

11.5.2.2. Characterization of wastes at Unicargas Multipurpose Terminal and storage

The entire list of waste included in the table has been obtained from the Solid Waste Management Plan of the Unicargas Multipurpose Terminal, which is included as an annex in Volume III.

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
01	Cardboard waste	20.01.01	Berth	Cardboard	Bulk; Dumpster	Internal dumpster; Temporary Waste Area
02	Sweeping waste	20.03.03	Berth	Soil	Dumpster	Internal dumpster; Temporary Waste Area

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
03	Wood waste (strips and pallets)	20.01.38	Berth	Broken slats, battens, and pallets	Bulk; Container	Temporary Waste Area
04	Non-ferrous metal waste	16.01.18	Berth	Aluminum tape scraps, leftover cables	Bulk; Container	Temporary Waste Area
05	Plastic waste (plastic films and packaging)	20.01.39	Berth	Plastic bag, plastic film, plastic sack	Bulk; Dumpster	Internal dumpster; Temporary Waste Area
06	Contaminated sweeping waste	16.03.05	Berth	Granulated fertilizer, contaminated soil	Bulk; Dumpster	Internal dumpster; Temporary Waste Area
07	Aluminum waste	20.01.40	Berth	Empty cans, disposable food packaging	Drum with garbage identification	Internal dumpster; Temporary Waste Area
08	Sweeping waste	20.03.03	Full container storage yard	Soil	Dumpster	Internal dumpster; Temporary Waste Area
09	Sweeping waste	20.03.03	Empty container storage yard	Soil	Dumpster	Internal dumpster; Temporary Waste Area
10	Sweeping waste	20.03.03	General cargo and equipment storge yard	Soil	Dumpster	Internal dumpster; Temporary Waste Area
11	Sweeping waste	20.03.03	Reefer container storage yard	Soil	Dumpster	Internal dumpster; Temporary Waste Area
12	Sweeping waste	20.03.03	Vehicle storage yard	Soil	Dumpster	Internal dumpster; Temporary Waste Area
13	Sweeping waste	20.03.03	Stowage area	Soil	Dumpster	Internal dumpster; Temporary Waste Area
14	Paper and cardboard waste	20.01.01	Administration (Empty container park)	Paper	Dumpster	Internal dumpster; Temporary Waste Area
15	Sweeping waste	20.03.03	Warehouse 16	Soil, Dust	Dumpster	Internal dumpster;

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
						Temporary Waste Area
16	Contaminated sweeping waste	16.03.05	Warehouse 16	Granulated fertilizer	Bulk; Dumpster	Internal dumpster; Temporary Waste Area
17	Toilet paper	20.01.01	Warehouse 16 restrooms	Sanitary waste	Sanitary buckets with plastic cover	Internal dumpster; Temporary Waste Area
18	Printer toner waste	08.03.17	Administrative areas of Warehouse 16	Used printer toner	Identified bin for used toners	Temporary storage in Warehouse 19
19	Paper and cardboard waste	20.01.01	Administrative areas of Warehouse 16	Office paper	Trash bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
20	Fluorescent lamps	20.01.21	Warehouse 16; Warehouse administrative areas 16	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
21	Energy accumulators (Ac batteries)	20.01.33	Administrative areas of Warehouse 16	Steel, Zinc, Manganese, Sodium, Potassium	Bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
22	Paper and cardboard waste	20.01.01	Administrative areas of Warehouse 19	Office paper, boxes	Bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
23	Fluorescent lamps	20.01.21	Warehouse 19; Warehouse administrative areas 19	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
24	Printer toner	08.03.17	Administrative areas of Warehouse 19	Used printer toners	Identified bin for used toners	Temporary storage in Warehouse 19
25	Energy accumulators (Ac batteries)	20.01.33	Administrative areas of Warehouse 19	Steel, Zinc, Manganese, Sodium, Potassium	Bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
26	Sweeping waste	20.03.03	Warehouse 19	Soil, Dust	Dumpster	Internal dumpster; Temporary Waste Area

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
27	Fluorescent lamps	20.01.21	Warehouse 19; Administrative areas of Warehouse 19	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
28	Toilet paper	20.01.01	Restrooms of the administrative areas of Warehouse 19	Sanitary waste	Sanitary buckets with plastic cover	Internal dumpster; Temporary Waste Area
29	Electronic and electrical waste	20.01.35	Administrative areas	Electronic and electrical component scraps	20-foot container for obsolete material	20-foot container (BASE)
30	Energy accumulators (batteries)	16.06.04	Equipment and machinery maintenance	Batteries	20-foot container	Equipment and machinery maintenance area
31	Contaminated textile waste (rags and wipes)	15.02.02	Equipment and machinery maintenance	Rags, cleaning cloths, gloves contaminated with oil and/or grease	Drum with garbage identification	Internal dumpster; Temporary Waste Area
32	Hazardous sweeping waste	16.03.05	Equipment and machinery maintenance	Soil, Dust	Dumpster	Internal dumpster; Temporary Waste Area
33	Filter waste	16.01.07	Equipment and machinery maintenance	Oil filters	Drum with garbage identification	Internal dumpster; Temporary Waste Area
34	Fluorescent lamps	20.01.21	Equipment and machinery maintenance	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
35	Used lubricating oil	13.02.04	Equipment and machinery maintenance	Contaminated used lubricating oil	Plastic drums and metal barrels	Equipment and machinery maintenance area
36	Used tire waste	16.01.03	Equipment and machinery maintenance	Used tires	Batteries on waterproofed floor	Equipment and machinery maintenance area
37	Contaminate empty packaging	15.01.11	Equipment and machinery maintenance	Contaminated metal cans, plastic packaging contaminated with oil	Drum with garbage identification	Internal dumpster; Temporary Waste Area

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
38	Ferrous metal waste	16.01.17	Equipment and machinery maintenance	Obsolete rims and rings	On waterproofed floor	Equipment and machinery maintenance area
39	Hazardous sweeping waste	16.03.05	Equipment and machinery maintenance	Soil contaminated with oil, grease	Drum with garbage identification	Internal dumpster; Temporary Waste Area
40	Contaminated textile waste (rags and wipes)	15.02.02	Lubricant storage	Rags, cleaning cloths, gloves contaminated with oil and/or grease	Drum with garbage identification	Internal dumpster; Temporary Waste Area
41	Oil-contaminated ferrous metal waste	17.04.09	Lubricant storage	Oil-contaminated drums	20-foot container	Equipment and machinery maintenance area
42	Contaminated paper and cardboard waste	15.01.10	Lubricant storage	Office paper and cardboard contaminated with oil	Drum with garbage identification	Internal dumpster; Temporary Waste Area
43	Plastic waste (contaminated empty packaging)	15.01.11	Lubricant storage	Plastic containers contaminated with oil	Drum with garbage identification	Internal dumpster; Temporary Waste Area
44	Personal protective equipment contaminated with oil	15.02.02	Metalwork shop	Protective equipment contaminated with oil	Drum with garbage identification	Internal dumpster; Temporary Waste Area
45	Electrode waste	12.01.13	Metalwork shop	Electrode scraps	Drum with garbage identification	Internal dumpster; Temporary Waste Area
46	Non-ferrous metal waste	16.01.18	Metalwork shop	Aluminum material scraps	Drum with garbage identification	Internal dumpster; Temporary Waste Area
47	Ferrous metal waste	16.01.17	Metalwork shop	Scrap metal scraps, damaged tools	Drum with garbage identification	Internal dumpster; Temporary Waste Area
48	Cutting discs	16.01.17	Metalwork shop	Sandpaper, cutting discs	Drum with garbage identification	Internal dumpster; Temporary Waste Area
49	Hazardous sweeping waste	16.03.05	Equipment washing	Contaminated mud	Drum with garbage identification	Internal dumpster;

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
						Temporary Waste Area
50	Contaminated textile waste (rags and wipes)	15.02.02	Equipment washing	Rags, cleaning cloths, gloves contaminated with oil and/or grease	Drum with garbage identification	Internal dumpster; Temporary Waste Area
51	Contaminated textile waste (rags and wipes)	15.02.02	Restricted area for generators	Rags, cleaning cloths, gloves contaminated with oil and/or grease	Drum with garbage identification	Internal dumpster; Temporary Waste Area
52	Hazardous sweeping waste	16.03.05	Restricted area for generators	Soil contaminated with oil	Drum with garbage identification	Internal dumpster; Temporary Waste Area
53	Oil filter waste	16.01.07	Restricted area for generators	Oil filters	Drum with garbage identification	Internal dumpster; Temporary Waste Area
54	Paper and cardboard waste	20.01.01	Administrative areas supporting the gatehouse	Boxes, Office paper	Trash bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
55	Printer toners	08.03.17	Administrative areas supporting the gatehouse	Used printer toners	Identified bin for used toners	Temporary storage in Warehouse 19
56	Energy accumulators (Used batteries)	16.06.04	Administrative areas supporting the gatehouse	Steel, Zinc, Manganese, Sodium, Potassium	Bins with plastic cover	Drum with cover; Internal dumpster; Temporary Waste Area
57	Fluorescent lamps	20.01.21	Administrative areas supporting the gatehouse	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
58	Plastic waste	20.01.39	Administrative areas	PET bottles, plastic containers of sanitizing solution (20 and 5 L)	Identified container for plastic bottles	20-foot container, Plastic bags in Warehouse 16 Area.
59	Plastic pens	20.01.39	Administrative areas	Plastic	Bins with plastic cover	Internal dumpster; Temporary Waste Area

Nº	Waste	LAR Code	Production area	Characterization	Forms of storage	Storage
60	Toilet paper	20.01.01	Toilets in the port area	Sanitary waste	Trash bins with plastic cover	Internal dumpster; External collection area.
61	Sweeping waste	20.03.06	Employees' vehicle parking lot	Soil, Dust	Dumpster	Internal dumpster; Temporary Waste Area
62	Food waste	20.01.08	Cafeteria	Organic waste	Plastic bags / Trash bins with covers	Internal dumpster; Temporary Waste Area
63	Plastic waste	20.01.39	Cafeteria	PET bottles, disposable cups, plastic gloves	Boxes, Plastic bags	Plastic bags; Warehouse 16 Area
64	Paper towels	20.01.01	Cafeteria	Paper napkins	Trash bins wrapped in plastic	Internal dumpster; Temporary Waste Area
65	Fluorescent lamps	20.01.21	Cafeteria	Glass, Mercury, Argon, Zinc	Drum with garbage identification	Internal dumpster; Temporary Waste Area
66	Healthcare waste	18.01.01	Health service	Infected material, sharp and piercing objects	Box wrapped in bag, identified as health waste	Plastic bags; Internal dumpster; Temporary Waste Area
67	Non-contaminated material (Gloves, masks, caps, syringes,)	18.02.03	Health service	Gloves, masks, caps	Special bucket identified as toxic waste	Internal dumpster; Temporary Waste Area
68	Paper and cardboard waste	20.01.39	Health service	Boxes, Office paper	Trash bins wrapped in plastic	Internal dumpster; Temporary Waste Area
69	Garden waste	20.02.01	TPU garden	Organic waste	Drum with garbage identification	Internal dumpster; Temporary Waste Area
70	Plastic waste (small packaging)	20.01.39	Administrative areas	Plastic bags	Drum with garbage identification	Internal dumpster

Table 7. Type of operational phase waste and its LAR code. Source: Solid Waste Management Plan of the Multipurpose Terminal of Unicargas

11.5.2.3.Current waste quantification and destination

According to the Waste Management Plan of the Multipurpose Unicargas Terminal, there is a daily average production of 0.91 m³ of waste, and 333.2 annually. Figure 8 illustrates the proportion of waste produced at the Unicargas Multipurpose Terminal, considering the typology classification.

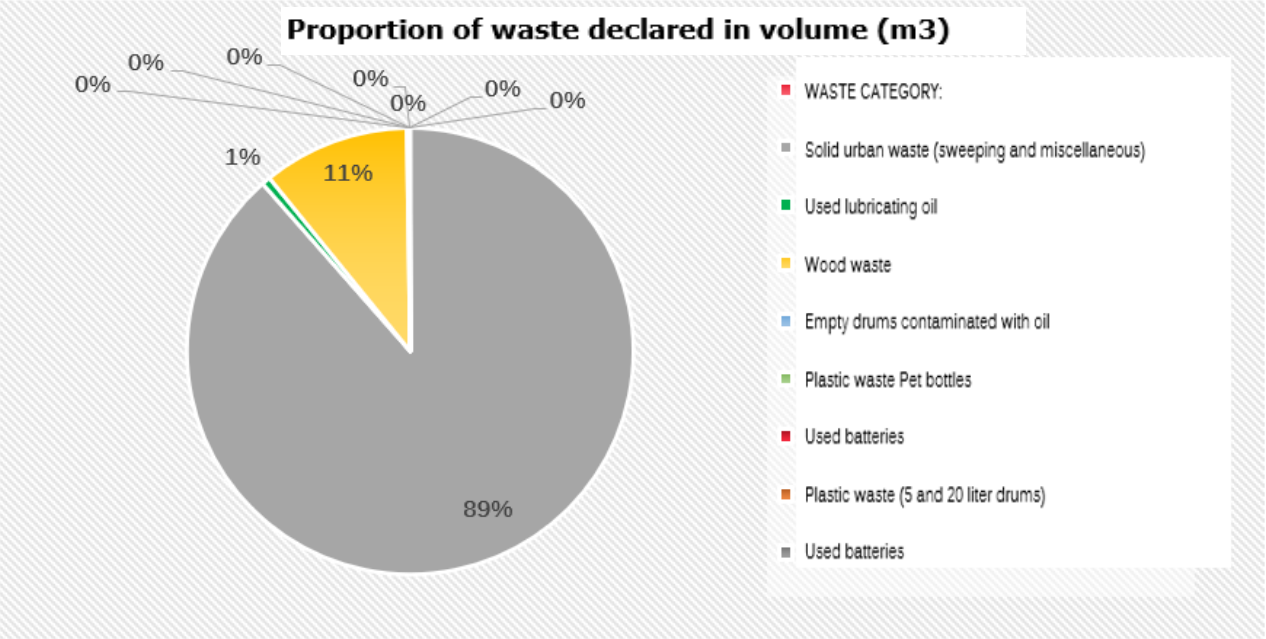


Figure 8. Proportion of waste generation declared by volume (cubic meters) in TPU. Source: Solid Waste Management Plan for the Unicargas Multipurpose Terminal (Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU))

According to the current solid waste management plan of the Unicargas terminal, the waste generated at the terminal is listed in the following table, along with its collection frequency, transportation, and destination.

DIAGNOSIS OF SOLID WASTE - QUANTITY AND FINAL DESTINATION					
Nº	**Waste**	**Quantity produced m³/Unit/Collection or day**	**Collection frequency**	**External transportation**	**Destination**
01	Common paper	0-0.2 m³/day	Weekly	Outsourced	Sanitary landfill
02	Cardboard boxes (office material)	0-0.0001 m³/day	Weekly	Outsourced	Internal reuse / Sanitary landfill
03	Batteries	0 - 5 units/collection	Semi-annually	Outsourced	Recycling / External recycling
04	Plastic pens	0 – 8 units/day	Weekly	Outsourced	Sanitary landfill
05	Food scraps	0 – 0.004 m³/day	Weekly	Outsourced	Sanitary landfill
06	Plastic packaging (PET bottles)	0-3 units/day	Upon reaching the pre-established limit	Outsourced	Recycling / External reuse
07	Plastic cups	0 – 3 units/day	Weekly	Outsourced	Sanitary landfill
08	Sweeping waste	0 – 0.58 m³/day	Weekly	Outsourced	Sanitary landfill
09	Hazardous sweeping waste	0 – 0.47 m³/day	Weekly	Outsourced	Sanitary landfill
10	Fluorescent lamps	0- 25 units/collection	Quarterly	Outsourced	Sanitary landfill

DIAGNOSIS OF SOLID WASTE - QUANTITY AND FINAL DESTINATION					
Nº	Waste	Quantity produced m³/Unit/Collection or day	Collection frequency	External transportation	Destination
11	Fertilizers	0 – 0.99 m³/collection (Depending on the type of ship operation)	Daily	Outsourced	Sanitary landfill
12	Wood waste (strips and pallets)	0-3.7 m³/collection (Depending on the type of ship operation)	Daily	Outsourced	External reuse / Sanitary landfill
13	Non-ferrous and ferrous metal waste	0 – 0.93 m³/collection (Depending on the type of ship operation)	Daily	Outsourced	External reuse / Sanitary landfill
14	Plastic waste (films and plastic packaging)	0-0.02 m³/collection (Depending on the type of ship operation)	Daily	Outsourced	Sanitary landfill
15	Oil filters (Engine, Generators)	0-4 units/collection	Monthly	Outsourced	Sanitary landfill
16	Oil filters (Hydraulic, Transmission)	0-10 units/collection	Annually	Outsourced	Sanitary landfill
17	Ferrous metal waste (Pumps, Rims)	0-4 units/collection	Annually	Outsourced	Internal reuse
18	Printer cartridges	0 – 45 units/collection	Quarterly	Outsourced	External recycling
19	Energy accumulators (Battery stacks)	0 – 15 units/collection	Quarterly	Outsourced	Sanitary landfill
21	Toilet paper	0-0.003 m³/collection	Weekly	Outsourced	Sanitary landfill
22	Electronic and electrical waste	0 – 10 units/collection	Annually	Outsourced	Base installation
23	Contaminated textile waste (rags and cloths)	0 – 0.00001 m³/collection	Weekly	Outsourced	Sanitary landfill
36	Healthcare waste (Non-contaminated material)	0-0.00001 m³/collection	Weekly	Outsourced	Sanitary landfill
37	Healthcare waste (sharp and puncture objects)	0-0.004 m³/collection	Upon reaching the pre-established limit of 4 liters in the container	Outsourced	
38	Garden trimmings	0-0.04 m³/collection	Variable	Outsourced	Sanitary landfill
39	Contaminated paper and cardboard waste	0-0.00001 m³/collection	Monthly	Outsourced	Sanitary landfill
40	Aluminum waste (empty cans, disposable food packaging)	0-0.00012 m³/collection	Weekly	Outsourced	Internal reuse / Sanitary landfill

Table 8. Diagnosis of solid waste production. Source: Solid Waste Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas)

11.6. Classification of wastes

According to the Waste Management Regulation (Presidential Decree no. 190/12 of 24th August, article 4), and IFC General EHS Guidelines, the waste expected from the construction and the operation phase of the Development of Unicargas Terminal is grouped into two categories to facilitate its identification and segregation, namely: non-hazardous waste and hazardous waste.

11.6.1. Non-hazardous waste

11.6.1.1. Construction and Operational phases

According to the definition provided in the IFC General EHS Guidelines, solid (non-hazardous) wastes generally include any garbage or refuse. Examples of such waste include domestic trash and garbage; inert construction/demolition materials; refuse such as metal scrap and empty containers (except those previously used to contain hazardous materials, which should, in principle, be managed as hazardous waste); and residual waste from industrial operations, such as boiler slag, clinker, and fly ash (not applicable in this project).

The non-hazardous waste that can be expected daily during the construction phase and the operational phase of the Development of Unicargas Port Project includes, among others, the following:

Construction waste:

Remnants of aggregates (gravel and sand), remnants of concrete or ceramic blocks, remnants of masonry, remnants of mortar, bricks, damaged PVC and various aggregates, concrete mixtures, plaster, and ceramic materials, cement, copper, leftover HDPE pipes, leftover PPR pressure pipes, leftover PVC pipes, land clearance waste such as leftover concrete, steel rebar, and steel frames from demolished buildings on the construction site, etc.

Operational waste:

Considering the Waste Management Plan of the Multipurpose Terminal of Unicargas, the waste produced at the facility includes all waste generated in administrative activities, cargo handling operations, workshops, cafeteria, road sweeping, parking lots, emergency response, and gardening. Among others:

- Office waste: paper, plastics, glass, various types of packaging, newspapers, magazines, office materials, etc.
- Kitchen and canteen waste: food waste in general[12], vegetable waste, fruit waste or peelings, wooden sticks, dirty paper or napkins, used cooking oil, PET or tetra pack packaging, glass shells, aluminum cans, etc.
- Cargo: lost, poorly conditioned or confiscated cargoes.
- Paper, cardboard, glass, plastics, cargo packaging and cleaning.
- Maintenance waste such as rags and cloths.

[12] *No meals will be allowed on the project site. All meals will be taken in the site canteen or at locations set up for this purpose.*

- Ferrous metal waste: aluminum or stainless-steel metals, coated wiring, etc.
- Solid waste contaminated with oil, aqueous waste, or water contaminated with oil.
- Waste with specific characteristics that needs to be collected and treated or given a specific destination, such as: used tires from motor vehicles, leftover copper cables and leftover steel cables, etc.

Moreover, it will be necessary to consider the onboard service waste, as mentioned in the Solid Waste and Effluent Management Plan of Luanda Port Company E.P during the operational phase.

11.6.1.2. Non-hazardous waste management

Waste Management Procedures in the Unicargas Terminal

As explained in previous sections, since the Unicargas terminal is an operational port terminal, it has a waste management plan approved by the National Port Authority (ANR) that is currently in force. Therefore, the waste management procedures included and described in it are applicable.

Below are described the different procedures included in the Waste Management Plan related to waste considered non-hazardous according to Article 5 of Presidential Decree 190/12 of August 24, which regulates waste management.

Urban Waste Management of the TPU Installation

The objective of this procedure is to provide an overview of the waste management process at the T.P.U installation, from its typology, conditioning, and storage to its collection from the facilities for landfill or reuse.

- The DSE inspector and internal waste management operator plan the internal waste collection service at production points.
- Identify the waste typology, segregate, condition, and/or store the waste in the designated location and appropriate container considering volume and identification.
- Request the landfill waste management operator for the need for external waste collection.
- Record the waste departure on the control map.
- Ensure waste transport is carried out according to defined conditions, including container coverage.
- Complete the control and transport map.
- Request proof of final waste disposal from the operator.
- Complete the waste shipment form produced at the installation.
- Ensure all parties sign the waste shipment form.
- Register the quantity of waste collected in the inventory map.

Waste Management Associated with Cargo

The objective of this procedure is to monitor the process of collection, conditioning, and/or storage of waste at the Pier until its collection from the facilities for landfill or reuse.

- Plan waste collection service at Pier based on ship docking plan received from Operations Directorate.
- Utilize necessary means and equipment for waste operation.
- Ensure storage availability at Pier to facilitate waste placement without hindering other operations.

- Identify waste typology and segregate reusable and non-reusable waste.
- Store waste in a designated location.
- Request landfill waste management operator for waste collection as needed.
- Monitor and ensure external waste transport follows defined conditions, including container coverage.
- Request proof of waste disposal from operator.
- Complete waste shipment form at installation.
- Ensure all parties sign the waste shipment form.
- Register quantity of waste collected in inventory map.

Storage and Collection of Used Wood

The objective of this procedure is to ensure the conditioning and control of used wood until its collection from the facilities for internal or external reuse.

- Identify production source of used wood waste.
- Ensure conditioning and/or storage according to defined conditions.
- Use containers with waste identification.
- Monitor maximum limit of stored used wood.
- Register maximum limit in inventory map.
- If internal reuse of used wood is needed, ensure treatment.
- Otherwise, request reusable waste management operator for used wood collection.
- Monitor collection process.
- Complete used wood waste collection form.
- Consider quantity and typology on the form.
- Ensure all parties sign the collection form.
- Register quantity of collected waste in inventory map.

Storage and Collection of Plastic Waste (PETs and Plastic Films)

The objective of this procedure is to ensure the conditioning and control of plastic waste (PETs and plastic films) until their collection from the facilities for reuse.

- Identify production source of plastic waste.
- Ensure conditioning and/or storage according to defined conditions.
- Use containers with waste type identification.
- Monitor maximum limit of stored plastic waste.
- Register maximum limit in inventory map.
- If internal reuse of used plastics is needed, ensure treatment.
- Ensure treatment aligns with defined conditions, including purpose registration.
- Otherwise, request reusable waste management operator for plastic waste collection.
- Monitor collection process.
- Complete plastic waste collection form.
- Consider quantity and typology on the form.
- Ensure all parties sign the collection form.
- Register quantity of collected waste in inventory map.

Storage and Collection of Used Tires

The objective of this procedure is to ensure the conditioning and control of used tires until their collection from the facilities for internal or external reuse.

- Identify production source of used tire waste.
- Ensure conditioning and/or storage according to defined conditions.
- Organize and identify specific areas for storage.
- Monitor maximum limit of stored used tires.
- Register maximum limit in inventory map.
- If internal reuse of used tires is necessary, ensure treatment.
- Ensure treatment complies with defined conditions, including purpose registration.
- Otherwise, request reusable waste management operator for used tire collection.
- Monitor collection process.
- Complete used tire waste collection form.
- Consider quantity and typology on the form.
- Ensure all parties sign the collection form.
- Register quantity of collected waste in inventory map.

Storage and Collection of Used Containers

The objective of this procedure is to ensure the proper storage and control of used containers until they are collected from the facilities for internal or external reuse.

- Identify production source of used containers.
- Ensure proper storage according to defined conditions.
- Organize used containers in appropriate and identified area.
- Control and monitor maximum storage limit.
- Record maximum limit in inventory map.
- If internal reuse of used containers is necessary, ensure treatment.
- Ensure treatment meets defined conditions, including purpose registration.
- Otherwise, request recyclable waste management operator for used container collection.
- Supervise collection process.
- Fill out collection guide for used containers.
- Consider quantity and type on collection guide.
- Ensure all participants sign the collection guide.
- Record quantity of collected waste in inventory map

Storage of Used Lamps

The objective of this procedure is to ensure the proper storage and control of used lamps until they are collected in the central waste storage area.

- Identify production source of used lamp waste.
- Ensure proper storage according to defined conditions.
- Store used lamps in sturdy boxes for protection against shocks.
- Label boxes with types of waste for identification.

- Control and monitor maximum storage limit of used lamps.
- Record maximum limit in inventory map.
- Request internal waste management operator to store used lamps in central waste container.

Storage and Collection of Ferrous and Non-Ferrous Waste

The objective of this procedure is to ensure the proper storage and control of ferrous and non-ferrous waste until they are collected from the facilities for internal or external reuse.

- Identify production sources of ferrous and non-ferrous waste.
- Ensure proper storage according to defined conditions.
- Organize in appropriate and identified area by waste type.
- Control maximum storage limit of waste.
- Record maximum limit in inventory map.
- If reuse is needed, ensure treatment according to defined conditions.
- Include purpose registration for reused items.
- Request metallic waste management operator for collection.
- Supervise collection process.
- Complete collection guide with quantity and type details.
- Ensure all participants sign the collection guide.
- Record collected waste quantity in inventory map.

Since this plan has been approved by the competent authorities and is currently in force these procedures might be maintained. Any necessary modifications according to the project's conditions once completed will be implemented promptly. However, the following figure shows the Waste Management Process at Unicargas Terminal.

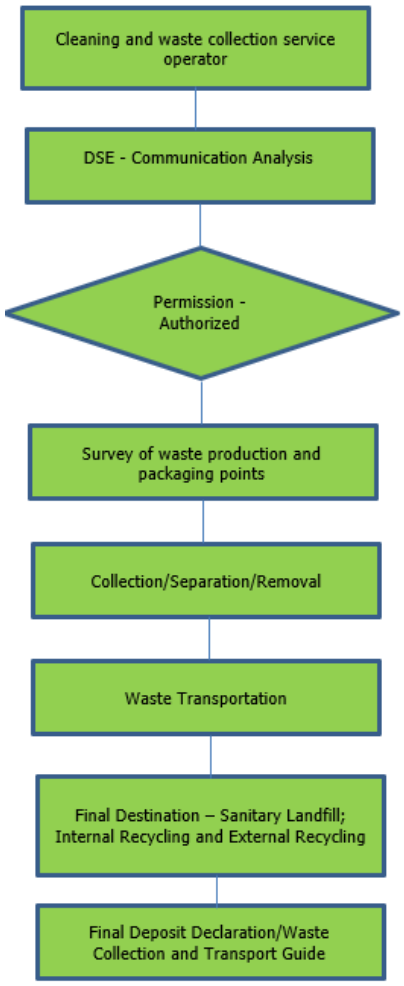


Figure 9. TPU Waste Management Process. Source: Environmental Management Plan for Unicargas Multipurpose Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas (PGA/TPU)

RESPONSIBLE: DSE- Directorate of Corporate Security.

Other procedures / requirements to be implemented

The requirements established in the IFC EHS General Guidelines will be followed whenever possible, especially during the construction phase.

In addition, AD-Ports Group Non-Hazardous Management Procedure, included in its Waste Management Plan, will also be considered. In this way, the final procedure will encompass the existing procedures, already implemented and functioning, as well as the ADPG specifications that currently work in their terminals. The main activities involved in non-hazardous waste management, i.e., categorization, recycling and disposal are shown as a flow chart in the following figure:

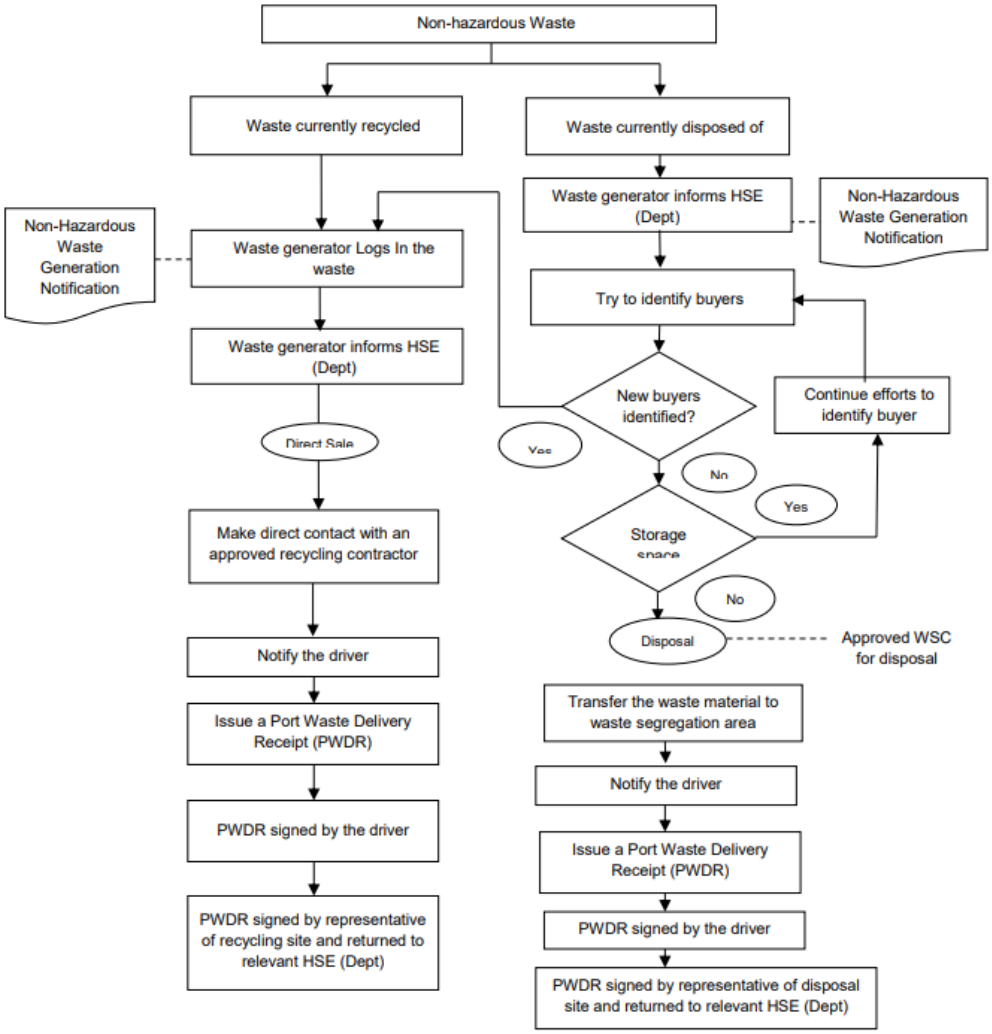


Figure 10. Non-hazardous Waste Recycle and Disposal. Source: AD-Ports non-hazardous Waste Management

11.6.2. Hazardous Waste

11.6.2.1. Construction and Operational phase

According to the definition provided in the IFC General EHS Guidelines, hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed. Waste may also be defined as "hazardous" by local regulations or international conventions, based on the origin of the waste and its inclusion on hazardous waste lists, or based on its characteristics. Therefore, the potentially hazardous waste to be expected on site includes the following classes:

- Batteries.
- Lubricating oils.
- Oil filters and spark plugs.
- Electronic wastes and their components (toner used in the office, electricity cables containing harmful substances, etc.).
- Fluorescent, sodium vapor and mixed mercury light bulbs.

- Packaging waste from detergents, degreasers, disinfectants, etc.
- Gases in pressure vessels containing dangerous substances.

As previously mentioned, the presence of asbestos in the current buildings has not been confirmed. If asbestos is discovered during building demolition, the IFC General EHS Guidelines will be taken into consideration. These guidelines stipulate that existing facilities with asbestos-containing materials (ACM) should develop an asbestos management plan. This plan should clearly identify the locations where ACM is present, assess its condition (e.g., whether it is in a friable state with the potential to release fibers), establish procedures for monitoring its condition, outline safe access protocols to avoid damage to ACM, and provide training for staff who may come into contact with the material to prevent both exposure and damage.

The plan should be made available to all personnel involved in operations and maintenance activities. Repair, removal, and disposal of existing ACM in buildings should only be carried out by specially trained personnel, following the requirements of the host country or, in their absence, internationally recognized procedures[13].

The following is a description of the characteristics hazardous waste may have, as described in Annex III of Presidential Decree no.190/12 of 24th August.

FEATURES
Substances consisting of compressed, liquefied or pressurized gases: Gases that are dangerous by virtue of being compressed, liquefied, dissolved under pressure or refrigerated. These gases can represent an additional hazard and can be asphyxiating, e.g. nitrogen; flammable, e.g. butane; or toxic, e.g. chlorides.
Flammable liquid: These are liquids, mixtures of liquids or liquids containing solids in solution or suspension (e.g. paints, varnishes, lacquers, etc., not including substances or wastes otherwise classified due to their hazardous characteristics) which give off flammable vapors at temperatures not exceeding 60.5° C in the case of open vessel tests, or not exceeding 65.6° C in closed vessel tests. Since the results of open and closed vessel tests are not strictly comparable and bearing in mind that the results obtained by the same method often vary from one another, regulations that deviate from the above values to take these differences into account are considered compatible with the spirit of this definition.
Flammable solids: Solid materials or waste, other than those classified as explosive, which under transport conditions are readily flammable and may, through friction, cause or contribute to a fire.
Spontaneously flammable substances or waste: Substances or waste that are susceptible to spontaneous heating under normal transport conditions, or to heating in contact with air, and can thus ignite.
Combustibles or Oxidizing Substances: Substances or waste that, without being oxidizing themselves, can generally cause or contribute to the combustion of other materials by giving off oxygen.

[13] *2356 - Standard Practice for Comprehensive Building Asbestos Surveys*

FEATURES
Corrosive: Substances or residues which, by their chemical action, cause serious injury when in contact with living tissue or which, in the event of a potential spillage, can seriously damage or destroy others or even the means of transport, and can also cause other dangers.
Substances that release flammable gases in contact with water: Substances or waste which, by reacting with water, are liable to ignite spontaneously or emit flammable gases in dangerous quantities.
Toxic substances (with delayed effects): Substances or residues which, by inhalation, ingestion or via the skin, can cause delayed or chronic effects, including carcinogenic effects.
Infectious substances Substances or waste containing live microorganisms or their toxins which are known or have good reason to believe to cause disease in humans or animals.
Substances which, after disposal, may in some way give rise to other substances, such as a leaching product, which have any of the above-mentioned characteristics.

Table 9. List of hazardous waste characteristics. Source: Presidential Decree no. 190/12 of 24th August "Waste Management Regulation"

11.6.2.2. Hazardous waste management

Waste Management Procedures in the Unicargas Terminal

The waste management plan of the Unicargas terminal also includes some procedures for hazardous waste management according to the classification included in Annex IV of Presidential Decree 190/12 of August 24, which regulates waste management. Below is the general procedure included in the plan, followed by the specific procedures included therein.

Storage and Collection of Hazardous Waste

The objective of this procedure is to ensure the proper storage and control of hazardous waste until it is collected for external incineration.

- Identify production source of hazardous waste.
- Ensure proper storage according to defined conditions.
- Use shock and drop-resistant containers.
- Store hazardous waste in covered, dry, ventilated areas.
- Properly label containers for waste identification.
- Control and monitor maximum storage limit of hazardous waste.
- Record maximum limit in inventory map.
- Request incineration waste management operator for hazardous waste collection.
- Supervise collection process.
- Complete hazardous waste collection guide with quantity and type details.
- Ensure all participants sign the collection guide.
- Request final disposal certificate from operator.
- Record collected waste quantity in inventory map.

Storage and Collection of Used Lubricating Oil

The objective of this procedure is to ensure the conditioning and control of the volume of used oil waste until its collection from the facilities for recycling.

- Identify production source of used lubricating oil waste.
- Ensure conditioning and/or storage according to defined conditions.
- Use appropriate leak-proof containers placed on containment pallets.
- Store in covered, dry, ventilated area and identify by waste type.
- Monitor stored used oil levels and record in inventory map.
- Request recycled waste management operator for used lubricating oil waste collection.
- Monitor collection at production point under defined conditions.
- Ensure no spills or leaks during transfer from barrel to vehicle's tank.
- Complete used lubricating oil waste collection form considering volume and typology.
- Ensure all parties sign the collection form.
- Forward collection form to Taxation Department for waste valuation.
- Inspector confirms billing based on waste type payment note and authorizes waste departure.
- Register quantity of collected waste in inventory map.

Storage and Collection of Used Printer Toners

The objective of this procedure is to ensure the conditioning and control of used printer toner waste at the eco-point until their removal from the facilities for reuse.

- Identify production source of used printer toner waste.
- Ensure conditioning and/or storage according to defined conditions, especially at toner eco-point.
- Monitor and register maximum limit in inventory map.
- Request reusable waste management operator for used printer toner collection.
- Monitor collection according to defined conditions.
- Ensure there are no spills or leaks during transport.
- Complete used toner waste collection form considering quantity and typology.
- Ensure all parties sign the collection form.
- Register quantity of collected waste in inventory map.

Storage and Collection of Used Batteries

The objective of this procedure is to ensure the conditioning and control of used batteries until their collection from the facilities for reuse.

- Identify production source of used battery waste.
- Ensure conditioning and/or storage according to defined conditions.
- Use leak-proof containers in covered, dry, ventilated areas.
- Identify containers by waste type.
- Monitor maximum limit of stored used batteries.
- Register maximum limit in inventory map.
- Request reusable waste management operator for battery collection.
- Monitor collection according to defined conditions.

- Ensure there are no spills or leaks during transport.
- Complete used battery waste collection form.
- Consider quantity and typology on the form.
- Ensure all parties sign the collection form.
- Register quantity of collected waste in inventory map

Apart from these waste management procedures, there is another one referring to hazardous goods handling process. Although this one does not imply waste management, if any accident, spillage, or unforeseen event happens, management of those hazardous items might match with it.

Other procedures / requirements to be implemented

As specified in a previous section 'Non-hazardous waste management', the requirements established in the IFC EHS General Guidelines will be followed whenever possible, especially during the construction phase.

According to the document "Hazardous Waste Management" elaborated by AD-Ports, effective management of hazardous waste, including its generation, storage, recycling, reuse, recovery, transport, treatment, and disposal, is crucial for health, environmental protection, natural resource management, and sustainable development.

The main steps for safe hazardous waste management at AD-Ports are outlined in the following Figure 11:

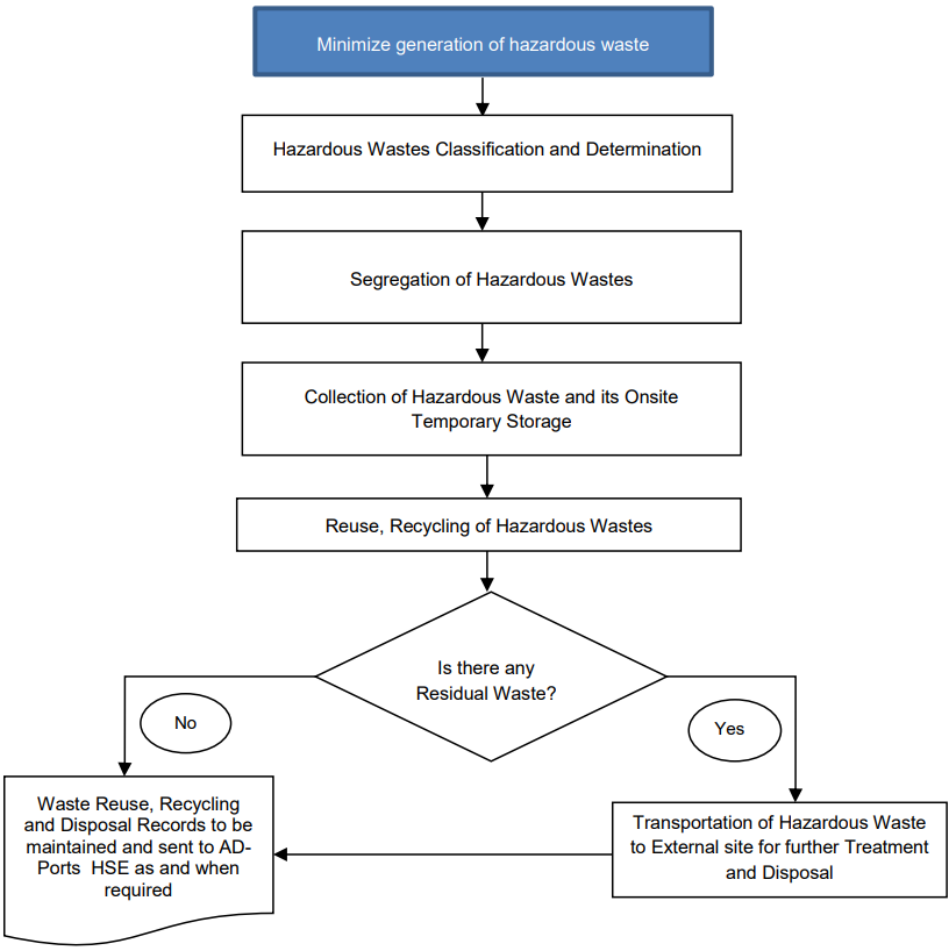


Figure 11. Hazardous Waste Management Process Flow Chart. Source: AD-Ports non-hazardous Waste Management

11.7. Internal Storage and Waste Identification

11.7.1. Procedures currently implemented at Unicargas Multipurpose Terminal

In accordance with what is stated in the Solid Waste Management Plan of the Unicargas Multipurpose Terminal (SWMP/TPU), the waste is stored in roll-on metal buckets, protected from the weather and kept in a well-ventilated area, on the waterproofed floor and marked as central and waste. In this document it is stated that the waste produced at each point of the installation is made available in containers with lids and appropriate to the volume and type of waste, to avoid dispersion in the installation.

No.	Forms of Storage
01	200 liter drums with lids
02	Drums of other sizes with lids
03	Plastic bags 124 liters
04	240 Liter Plastic Container
05	10 liter waste baskets

Table 10. Ways of conditioning TPU waste. Source: Solid Waste Management Plan for the Unicargas Multipurpose Terminal (Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU))

According to the Solid Waste Management Plan of the Unicargas Multipurpose Terminal, the environmental inspector, in collaboration with the internal waste management operator, must ensure that containers such as bins, dumpsters, boxes, drums, recycling bins, plastic bags, or others are identified and stored in well-ventilated areas protected against the weather, on waterproof flooring, and properly labeled. It is imperative to ensure that hazardous and non-hazardous waste is separated and directed for reuse, recycling, or final disposal. Temporary waste storage areas must be equipped with lighting, signage, isolation systems, and waterproof flooring.

The label to be placed on hazardous waste storage containers will always follow the rule shown in table below.

TYPE OF WASTE	IDENTIFICATION MODE	LABEL TYPE
Flammable liquids	Containers must be identified by a black label with a red background, placed on all sides as the international symbol for flammable liquid substances.	
Flammable solids	Containers must be clearly identified by a black label with a red and white striped background, placed on all sides as an international symbol for substances made up of flammable solids.	
Corrosive substances	Hazardous waste containers made up of corrosive substances (acids, bases) must be clearly labelled on all sides with the international symbol for corrosive substances.	

TYPE OF WASTE	IDENTIFICATION MODE	LABEL TYPE
Hazardous Waste of Toxic Substances (Acute)	Hazardous waste containers containing toxic substances must be clearly identified by a black label with a white background, placed on all sides as the International Symbol for Toxic Substances (Acute).	
Ecotoxic substances	The containers must be clearly identified by a label with a white background, a black tree and a white fish, placed on all sides as an international symbol for ecotoxic substances.	
Hazardous Waste Made up of substances in contact with water Release flammable gases	Hazardous waste containers made up of substances that release flammable gases in contact with water must be clearly identified with a black label with a blue background, placed on all sides as the international symbol for substances that release flammable gases in contact with water.	
Hazardous Waste from Infectious Substances	Containers for hazardous waste of infectious substances (including infected objects) must be clearly identified by a black label with a white background, placed on all sides as the international symbol for infectious substances.	

Table 11. Identification of hazardous waste. Source: Presidential Decree no. 190/12 of 24th August "Waste Management Regulation"

Procedure for Waste Segregation and Conditioning

The objective of this procedure is to implement actions to reduce or eliminate the amount of waste sent to the landfill.

- Identify the types of waste produced in all facility areas.
- Segregate and condition the waste for reuse or other treatment.
- Store the waste at a designated location until final disposal.
- Use containers appropriate for the volume and type of waste.
- Ensure clear identification of containers using colors or labels.
- Include a description of the waste on container identification

Procedure for Temporary Storage of Solid Waste

The objective of this procedure is to ensure waste is stored in a way that protects workers' health and the environment, according to the potential risks they pose.

- Ensure identification and storage of waste containers (dumpsters, boxes, drums, eco-points, etc.).
- Store containers in well-ventilated areas, protected from weather conditions.
- Place containers on impermeable floors with proper identification.
- Separate hazardous and non-hazardous waste.

- Direct waste for reuse, recycling, or final disposal as appropriate.
- Equip temporary waste storage locations with lighting, signage, isolation systems, and impermeable flooring

11.7.1.1. Temporary construction facilities

During construction phase, a designated area within the Unicargas Terminal plot will be set up for temporary facilities, as illustrated in Figure 12 below. This designated area will cover approximately 20,000 square meters and will include the following:

- Offices and amenities for staff and workers from the Employer, the supervision consultant, and Contractors.
- Laydown area for storing materials.
- Construction Waste Storage area.
- Other construction facilities / equipment for the works.

It should be noted that if the Contractor requires additional storage space outside the Unicargas Terminal limit, the Contractor will be responsible for obtaining the necessary approvals from the relevant authorities.

Figure 12. Temporary construction facilities within the project area

Waste storage and other auxiliary facilities will be located in this zone and will comply with all specifications stated above.

In addition, as included in Luanda's Port, requirements specified in the Environmental Operational License are applying. The following prescriptions might be applied:

- Surfaces where fuels and potential pollutants are handled must be smooth and impermeable,
- Internal procedures regarding accidental spills and routing of contaminated soils or potentially absorbent material for proper disposal shall be defined,
- Ensure waste is placed in appropriate containers and directed to a suitable destination by licensed operators,
- Not allowed waste containers exceed 90% of their capacity,
- Ensure installation at all fuel, lubricant, or other chemical storage locations, whether handled or impermeable, and have drainage for adequately sized retention tanks.

11.7.2. Provisions Currently Outlined in the Waste Management Plan of Luanda Port

According to the Solid Waste and Effluent Management Plan of Luanda Port Company E.P., at the port of Luanda, concerning hazardous wastes, metallic waste is separated from general waste, and it is recommended that this area be properly organized and clearly marked.

Figure 13. Solid waste deposit area. Source: Solid Waste and Effluent Management Plan of Luanda Port Company E.P (Plano de Gestão de Resíduos sólidos e efluentes).

Figure 14. Waste deposit area in the office area of Luanda Port. Source: TYPSA site visit (November, 2023).

11.7.3. Guidelines from AD-Ports Group Waste Management Procedure

All containers used for storage of hazardous and non-hazardous substances must be accurately labeled with their contents and any hazard warning information provided.

11.7.3.1. Non-hazardous wastes

As stated in the document "Non-hazardous Waste Management" elaborated by AD-Ports, with respect to the storage of non-hazardous waste, logistic constraints or administrative reasons may mean that non-hazardous waste shall have to be stored on site. The following environmental protection and human health and safety measures shall be followed for storing non-hazardous waste:

- Waste shall be stored so that it poses no threat to personnel health and safety; no protruding items, no uncovered containers, so liquid mixed with solid waste leading to leaks and slippery surfaces.
- Waste shall be stored in assigned and easily recognized and accessed areas; informative signage must be provided.
- Waste must not hinder traffic and pedestrian movements.
- Waste containers must be leak-proof and covered.
- Segregated waste containers must be clearly labeled and frequently emptied to avoid littering.

11.7.3.2. Hazardous wastes

Regarding the storage of hazardous waste, according to the document "Hazardous Waste Management" elaborated by AD-Ports, once all the sources of hazardous wastes are identified, designated locations for waste segregation and temporary shall be identified. These locations must be clearly identified, kept clean and in order, and not accessible to unauthorized people. The locations shall be shown on a site waste management plan, if available.

Once all the sources of hazardous wastes are identified, designated locations for waste segregation and temporary shall be identified. These locations must be clearly identified, kept clean and in order, and not accessible to unauthorized people.

Only trained personnel shall be allowed to handle hazardous waste and take it to the designated temporary storage area on site.

Hazardous wastes shall be stored in covered containers which must be compatible with the waste and stored at the designated hazardous waste collection areas away from direct sunlight, wind and rain and with suitable leachate collection along with suitable transfer/ disposable arrangements.

Whenever a chemical is transferred from its original container, the new container must be properly labeled with its new content's details. The disposal of "unknown wastes" must not be permitted.

All hazardous waste storage areas must be kept clean, neat and tidy. Spilled hazardous waste shall always be cleaned up and clean up material must be regarded as hazardous waste itself. The containers designated for hazardous waste storage shall conform to the following:

- Must be compatible with the waste and shall be in good condition (e.g. no cracks, leaks or pitting).
- Their lids/ caps must also be compatible with the waste.
- They are not filled to the top.
- They must have screw-type tops or caps capable of sealing the container so that spillage will not occur unless the container itself is broken.
- They are clean on the outside and show no sign of leakage. Remain closed, except when adding or removing waste.
- Marked with the words "Hazardous Waste".
- Any labels on conditioning and waste identification which are incorrect should be defaced or, preferably, removed.
- The noun name (not formula) of the waste must be written on the container.
- Date that the accumulation was started.
- The physical state must be indicated as either a gas, liquid, or solid. More than one physical state can be marked off on the container.
- The containers must be safe against corrosion and wear or accidental damage by inclement weather.

Secondary containment shall be used wherever liquid waste is stored. The available volume of secondary containment should be at least 110 percent of the largest storage container, or 25 percent of the total storage capacity (whichever is greater), in that specific location.

Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.

Stakeholders and waste service providers engaged in onsite storage of hazardous waste within AD-Ports administered areas shall have Hazardous Waste Exposure Emergency Plan.

11.8. Waste Collection and Transport

11.8.1. Procedures currently implemented at Unicargas Multipurpose Terminal

As said before, the procedures stated at Unicargas' waste management plan are currently approved and functioning. Therefore, the waste management procedures included and described in it are applicable.

Collection and internal transportation

The collection and internal transport of waste is carried out by technicians from the company CLEAN SYSTEM, responsible for the internal waste management of the facility licensed by the National Waste Agency, considering the following preventive actions:

- Use of appropriate Personal Protective Equipment (PPE) for the activity.
- Use of equipment/means compatible with the volume of the waste.

Internal transport at the production points is done by motorized means and wheeled trolleys to the bucket of the waste plant, twice a day during the week, except on complementary days and holidays.

Collection and external transportation

The collection and transport of waste outside the TPU facility is guaranteed by operators contracted and licensed by the environmental agency of the National Waste Agency, depending on the type of waste to be collected whenever the container exceeds the maximum safety capacity, and complying with the following preventive actions:

- Adequate transport equipment compatible with the volume of the waste.
- Use of appropriate PPE's for the activity.
- Protection of waste against the weather during exit from the plant.
- Signature of the solid waste collection delivery note by the carrier and the Environmental technician.
- Signature of the Waste Transport Control Form.
- Presentation of proof of final disposal of the waste.

Procedure for Waste Quantification Registration

The objective of this procedure is to control and record the quantity of stored waste.

- Conduct inspections in temporary waste storage areas.
- Record the quantity, volume, or maximum capacity of stored waste.
- Enter the inventory sheet with details of the type and quantity of registered waste.
- Request the waste management operator for collection if needed.
- Ensure proper storage according to defined conditions if collection is not immediately required.

The collection of solid waste equivalent to urban waste has been carried out by the company Envirobac, since 2020. Hydrocarbon or hydrocarbon-contaminated waste, reusable waste and hazardous waste are collected by licensed operators.

WASTE	Quantity (m^3/Un)		
	YEAR 2019	YEAR 2020	YEAR 2021
Municipal solid waste	371	182.36	256.38
Used lubricating oil	1.1	2.9	1.8
Wood Waste	0.00001	0.00001	97.17
Empty drums contaminated with oil	0.6	0.36	0.56
Used Tires	0	10	42
Used Toner Cartridges	0	971	307

WASTE	Quantity (m³/Un)		
	YEAR 2019	YEAR 2020	YEAR 2021
Waste Plastic Pet´s Bottles	0	0.00001	0.1
Used Batteries	41	0	15
Plastic waste (5 and 20 liter containers)	0	0.015	0.0046
Used Batteries	0.00059	0.0011	0.0023
Plastic Waste (Plastic Films)	0	0	0.2
Fluorescent Lamps	0.017	0.0028	0.0016

Table 12. Main waste transported. Source: Solid Waste Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas)

11.8.2. Provisions currently outlined at Waste Management Plan of Luanda Port

According to the Solid Waste and Effluent Management Plan of Luanda Port Company, household waste generated will be deposited in plastic containers and subsequently placed in containers; the port company has contracts with the company PortAmbiente for waste collection. Hazardous waste must be collected by drivers who know how to properly transport solid industrial waste.

11.8.3. Guidelines from AD-Ports Group Waste Management Procedure

Both documents “Non-Hazardous Waste Management” and “Hazardous Waste Management” elaborated by AD-Ports contain recommendations/prescriptions that should be implemented when applicable. However, the following general principles might be considered.

Vehicles transporting waste shall be clearly labeled with the nature of waste they contain and emergency contact number in Arabic as well as in English language. Labels shall be waterproof and indelible.

All personnel engaged in handling waste should have received training prior to commencing their waste handling activities. Personnel responsible for the handling of waste shall receive training on how to proceed safely, how to distinguish hazardous from non-hazardous, and what action to take in the event of spills or container overfilling.

Site personnel driving waste transport vehicles within ADPG administered areas must be trained and hold a valid driving license. All waste transport vehicles must be road worthy and serviced regularly as per the manufacturer’s specifications.

11.9. Waste valorization

The focus is on implementing good construction waste management practices to prioritize the reuse, recycling, and recovery of waste both during construction and operational phase. Whenever possible, the waste will be reused on-site or sent to recycling companies in the municipalities along the route, duly licensed by the National Waste Agency (ANR) or authorized by the local administrative bodies. One of the specific objectives of the Solid Waste and Effluent Management Plan of Luanda Port Company E.P is to identify non-hazardous and specific waste for recovery (e.g., recycling or reuse) whenever possible.

11.10. Destination of waste

11.10.1. Procedures currently implemented at Unicargas Multipurpose Terminal

The destination of common or urban waste management should be a landfill operated by an ANRS-certified company if it cannot be reused, as the company must find environmentally correct and acceptable solutions. Considering the significant consequences of improper disposal of hazardous waste and the potential for reuse of some materials, the waste management plan of the port of Luanda established that certain hazardous wastes, after consumption, must be returned to their factory of origin or the commercial sector for reuse. Redirect non-hazardous and specific waste for recovery (e.g., recycling or reuse) whenever possible.

According to the Solid Waste Management Plan for the Unicargas Multipurpose Terminal, solid waste produced at Unicargas' Multipurpose Terminal has various final destinations, including landfill, reuse, recycling, and incineration. The shipment of waste to its destination must be documented in the waste delivery note.

Procedure for Final Waste Disposal

The objective of this procedure is to ensure the correct disposal of waste produced at the Terminal Polivalente da Unicargas to protect public health and the environment.

- Waste at the Terminal Polivalente is allocated for various purposes: recycling, reuse, co-processing, incineration, landfill, or other approved methods.
- When dispatching waste to its destination, complete the waste shipment form with details: quantity, type of waste, date, time, location of operation, collection methods, final destination, and signatures of all involved parties.
- Ensure waste recipients are licensed by the environmental authority and authorized by the Coordinator of the Management Commission.

11.10.2. Guidelines from AD-Ports Group Waste Management Procedure

Where waste needs to be disposed of, waste disposal shall be carried out in a legally compliant and environmentally-safe manner. Waste disposal shall depend on waste properties.

The principal hierarchy in waste management is shown in the following figure:

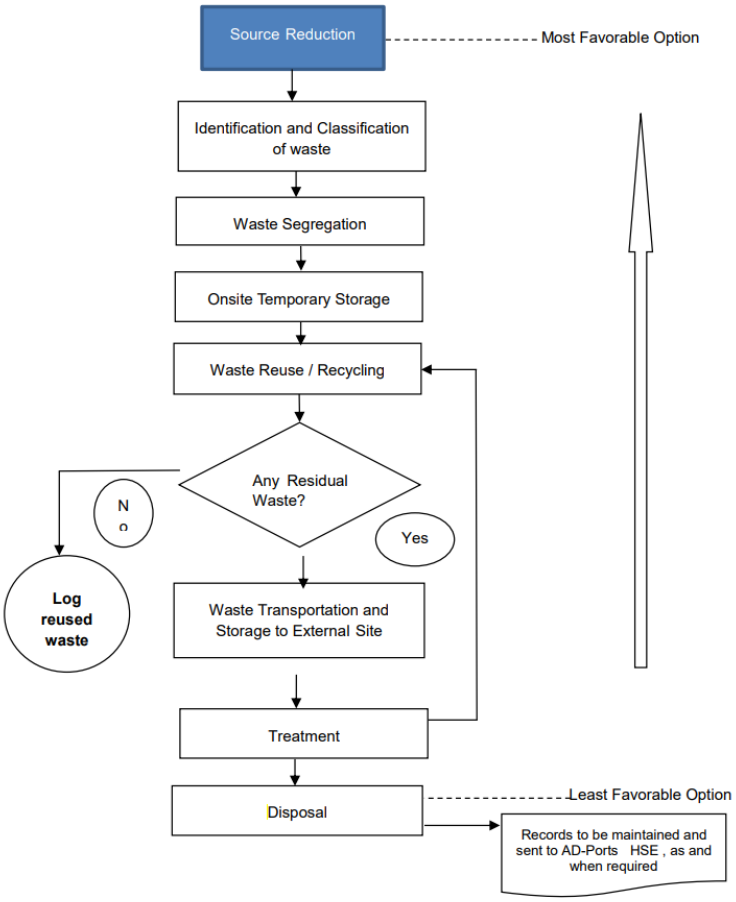


Figure 15. Principle Hierarchy. Source: AD-Ports Waste Management Plan

According to the Non-Hazardous Waste Management Plan elaborated by AD-Ports, regarding disposal of waste, although it may not be possible to recycle all waste, all efforts shall be made to maximize recycling. Disposal of waste shall be resorted to only when no buyer can be found for the waste for a reasonable period or when the waste cannot be stored for a long period while trying to find a buyer due to space constraints.

All disposal arrangements shall meet legal requirements regarding waste disposal. All waste producers shall ensure that waste is collected, treated, recycled or disposed of by a qualified licensed waste contractor, with a proven record of operating in accordance with the regulations on waste management. Disposal of waste shall be at a licensed disposal facility.

In relation to the destination of hazardous waste, it will comply with everything established in the Hazardous Waste Management Plan prepared by AD-Ports.

11.11. Wastewater management

In the management of wastewater, the requirements established in the reference documents will be considered.

11.11.1. Procedures currently stated at Unicargas Multipurpose Terminal

For liquid effluent/wastewater collection process, the following flow is established in the Environmental management Plan of the Unicargas Multipurpose Terminal:

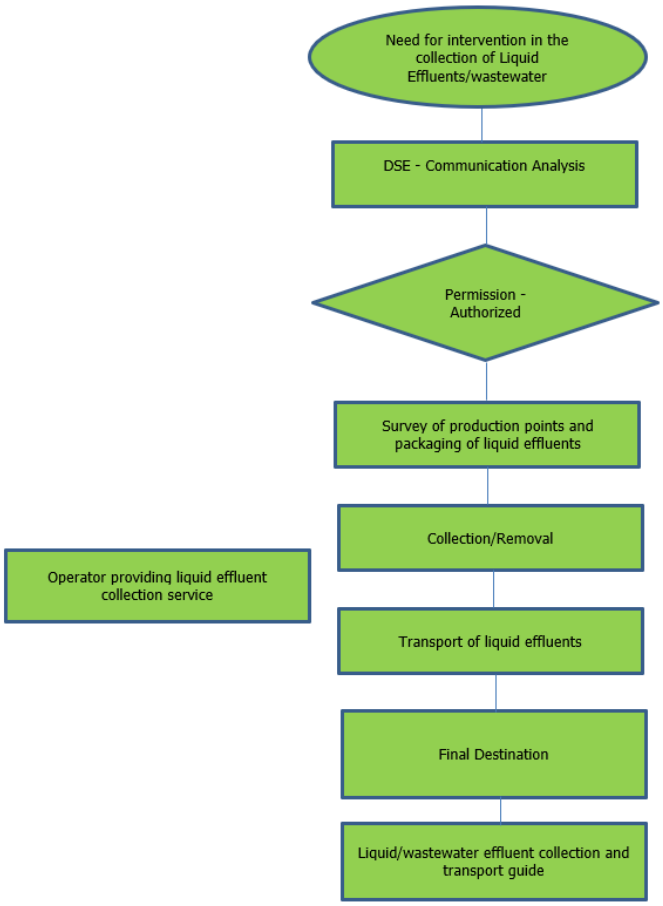


Figure 16. Liquid effluent/wastewater Collection Process. Source: Environmental Management Plan for Unicargas Multipurpose Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas (PGA/TPU)

(Responsible: DSE - Business Security Department; DSA- Directorate of Safety and Environment of the Port of Luanda).

11.11.2. Provisions currently outlined at Solid Waste and Effluent Management Plan of Luanda Port Company

Liquid and gaseous effluents generated by Portuária de Luanda Lda's activities will be managed appropriately. The company will be involved in assembling refrigeration systems and industrial fans. During these activities, gaseous effluent emissions will be negligible due to the equipment used. However, liquid effluents or wastewater will be generated during the cleaning and sanitization processes of the facility. This wastewater is directed into a dedicated drainage system, which channels it to septic tanks for temporary storage before being discharged into the public sewer system without prior treatment.

11.11.3. Wastewater system included in the design of the Development of the Unicargas Terminal Project

In addition to the previous sections that cover the aspects included in the existing and operational waste management plans at the terminal, the new wastewater system included as part of the Unicargas terminal rehabilitation project must be considered.

The design concept is mainly concerned with providing an efficient wastewater collection system that can meet the requirements and minimizes the adverse environmental impact of the wastewater to be generated on site.

Regarding this, the project foresees the following actions briefly described below.

Wastewater System

The proposed network will be based on a conventional gravity collection system consisting of building connections and gravity sewers conveying sewage to the holding tank.

The basic design criteria that will be adopted for the design of the wastewater collection and disposal system are based on internationally accepted engineering standards and practices and reconciled with applicable norms and practices in Angola.

The proposed wastewater collection network shall collect sewage flow from various facilities and to be drained into a holding tank then to evacuated by tanker every 3 days. The sewage generation rates will be taken as 85% of the water consumption rates for the different areas/land uses within the project area.

Storm Drainage System

The stormwater drainage system of the project area comprises runoff generated from the site shall be collected to oil separator tanks and then to be conveyed to the sea. The proposed stormwater drainage collection system must be in line with the applicable norms in Angola. It must be reconciled to meet the guidelines and best practices developed by international agencies endeavoring to advance the state of the art of engineering system.

11.12. Health and Safety at work

11.12.1. Construction phase

As established in the document "Health, Safety, and Environmental Guidelines for Contractors" prepared by the ADPG, the Contractor shall allocate sufficient and competent resources to ensure the effective management of HSE throughout their project's duration.

Any persons who disregard the environment, health and safety rules and arrangements detailed in this Guide are subject to a disciplinary action, in addition, financial penalties shall be issued to the Contractor by ADPG and/or Project management Consultant (PMC) as per the list of penalties stated in the contract agreement between ADPG and the Contractor.

Moreover, the Contractor shall give directions to all sub-contractor involved in the construction activities (regardless of contractual arrangements) for him to comply with the legal requirements of the respective country of operation and ADPG.

Prior to commencing any activity on site, the Contractor shall submit the HSE Organization chart with responsibilities to project Management Consultant (PMC) and/or ADPG for approval.

HSE personnel requirements for the Contractor are as below:

- Wherein the total number of employees is less than 50, the contractor shall employ one full-time HSE officer.

- Wherein a total number of employees exceeds 50, the contractor shall employ one full-time HSE Engineer.
- Wherein the total number of employees exceeds 100, the contractor shall employ one full-time HSE officer for every 50 Employees.

Medical Staff and First Aid Requirements

The Contractor shall provide a dedicated and appropriately equipped first aid room, on the construction site or nearby. The Contractor shall always have first aid-trained personnel available. First aiders shall address any accidents that occur during construction and provide treatment for minor injuries and illnesses.

The Contractor shall ensure that appropriately equipped first-aid boxes are easily accessible throughout the place of work. First aid boxes shall be protected from weather conditions such as dust or rain and shall be checked by the Contractor before being sent out to the site on a weekly basis to ensure that the expended items are replaced.

Eyewash stations and/or emergency showers should be provided close to all workstations where immediate flushing with water is the recommended first-aid response.

The number of first aiders and medical staff shall conform to the following minimum requirements:

- At least one first aider per worksite per shift less than 50 employees
- At least one first aider per 50 employees per worksite per shift with more than 50 employees

It is mandatory for all medical staff to have a valid license from their country of origin and a minimum of three years of experience in delivering medical care at construction sites.

Contractor's HSE Management System

The Contractor shall have a comprehensive and documented HSE Management system at minimum, that conforms to Applicable Laws and regulations and aligns with ISO 14001:2004 and ISO 45001:2018 standard requirements, or any other comparable internationally recognized HSE Management System Standard or Specification that is deemed acceptable by ADPG.

The Contractor's HSE Management System may be subject to review by PMC and/or ADPG prior to mobilization and until completion of the work.

The Contractor is required to develop and maintain, for the duration of the Contract, a comprehensive Project-Specific HSE Management Plan (HSEMP) that clearly outlines how they will meet the necessary requirements in compliance with the requirements of the Contract, all applicable local, state, and national occupational health & safety and environmental laws, regulations, and standards in their respective country of operation, and ADPG IMS as well as international best practices which shall be implemented throughout the Project. This Plan shall outline the responsibilities and processes for all aspects of the Works' HSE management and must be submitted to the PMC and/or ADPG for assessment and approval within twenty-eight days after the contract award.

The following requirements should be applied:

- The Contractor shall identify its employees training needs according to position and function and ensure that their workforce is properly trained, qualified, and authorized to perform their works in safe manner and in compliance with legal requirements.
- The Contractor shall conduct project-specific induction, pre-task briefings, toolbox talks, general awareness training, safety standoffs, and skill training suitable to the job function and associated hazards. The Contractor shall also plan for formal training, which will be conducted by training agencies as needed.
- The Contractor shall develop and submit an HSE Training Plan and Matrix to the PMC for approval. The Contractors are responsible for maintaining the training plan and associated training records throughout the project and making them available to PMC and/or ADPG upon request.
- The Contractor shall ensure that all personnel, including visitors, receive necessary HSE training in compliance with the regulatory requirements of Angola.

11.12.2. Operational phase

A project specific HSE plan will be developed before commencing the operations at the new terminal (under name of JV). That plan will include the requirements established in the ADPG Corporate HSE system as part of IMS (Document HSE Guidelines for International Business) that are applicable. It will also include requirements established by the Port of Luanda and Unicargas Terminal in their respective plans.

Additionally, the development of the health and safety plan for the operational phase will consider the requirements established in the applicable documents of ADPG's integrated management plan. The recommendations contained in the IFC General EHS Guideline and the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017) should also be followed. This involves establishing stringent requirements for occupational health and safety, adhering to best practices and relevant standards.

11.13. Prevention and emergency response

11.13.1. Procedures currently implemented at Unicargas Multipurpose Terminal

According to the Solid Waste Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU)), within the scope of prevention and response to emergencies, and the workers training and awareness, the following actions are adopted:

Prevention and response to emergencies

- The Business Security Department (DSE) Inspector shall ensure that the waste produced in the TPU facility shall be handled in a manner that minimizes the possibility of fire, explosion, spillage and leakage into the marine area, soil or air.
- The Environmental Inspector of the Business Security Department (DSE) shall carry out periodic inspections at the points of production, conditioning and storage of waste.
- The Business Security Department Environmental Inspector shall ensure that the waste produced at the TPU facility shall be segregated and kept in appropriate places.
- The Environmental Inspector of the Business Security Department shall ensure that all persons involved in the handling of waste from the TPU facility shall use the E.P.I. Personal Protective Equipment as defined in the Procedure Manual of the Corporate Safety Bureau.
- The Environmental Inspector of the Business Security Department should take action to contain emergencies;

- Actions to contain leaks and spills must be aligned with what is defined in the Environmental Safety Directorate's Manual of Procedures;
- The Business Security Department Environmental Inspector with the internal waste management operator should ensure that the personnel involved should place the spilled material in suitable containers.
- The Business Security Department Environmental Inspector with the internal waste management operator shall ensure the cleanliness of the spill site as well as ensure the availability of suitable containers and equipment for the collected material.
- The remediation actions of the contaminated area should be established after inspection of the site by the environmental team of the installation of the Unicargas Multipurpose Terminal.
- After the end of the emergency, the Environmental Inspector of the Business Security Department shall classify the waste for disposal.
- The Environmental Inspector of the Business Security Department should assess the cause and effect to establish the appropriate cooperating actions in the event of any failure in waste management.

Training and awareness

In the scope of minimizing waste produced in the facility as well as potential effects that may cause harm to the environment and worker health, the Multipurpose Terminal of Unicargas has adopted the following actions for the training of the PGRS/TPU collaborators:

- Method of use and completion of the Waste Collection Dispatch Guide of the TPU;
- Method of use and completion of the Waste Transport Control Map of the TPU;
- Operation method at waste storage points;
- Completion of the Waste Inventory Spreadsheet;
- Use of Personal Protective Equipment (PPE);
- Implementation of preventive and corrective actions to be taken in case of incorrect management situations or incidents.
- Conducting Health and Safety inductions

11.13.2. Provisions Currently Outlined in the Waste Management Plan of Luanda Port

Regarding emergency response, the procedures established in the corresponding emergency plan of the Luanda Port Authority will be followed. However, the main aspects included in the Luanda port's Waste Management Plan related to emergency response are outlined here.

Internal organization for fire and explosion risk

First Aid and Firefighting In terms of occupational medicine, the Port Company is covered by the ENSA insurance company. However, the facility has a medical center or first aid post for first aid in case of work accidents and is equipped with first aid kits. It is important to highlight that among the various departments that make up the facility, there is also the HSA department, which has the duty to keep employees and the company safe, as well as to be concerned with environmental issues. Therefore, it was found that the business unit has a training program for the implementation of a training plan for its 5 employees in matters related to Occupational Health and Safety (OHS), Environment, and firefighting.

Collective and Individual Protection - Protective equipment prevents possible accidents that may occur during work activities, which consequently makes their use and availability indispensable within the business unit. Therefore, the Luanda port company has the following equipment:

- Personal Protective Equipment - In the locksmithing area, it is necessary to use personal protective equipment to safeguard the physical integrity of employees. It was found that the company has equipment such as gloves, but it was also noted the absence of various protective equipment in employees such as noise mufflers, helmets, reflective vests, and much more in the locksmithing area during the execution of their work activities.
- Collective Protection Equipment - The business unit has various types of collective protection equipment such as signaling devices, ladders, transportation equipment for lifting heavy materials, and fire extinguishers.

11.13.3. Guidelines from AD-Ports Group Integrated Management System

As stated in the document Health, safety and Environment Guideline for contractors prepared by ADP Group, the Contractor shall develop a Project Specific Emergency Preparedness & Response Plan (EPRP) in line with ADPG's emergency and incident reporting procedures and related protocols, to mitigate consequences arising from potential emergency situations and to familiarize employees with the response procedures in the event of an emergencies that can occur on the project site, including:

- Medical emergencies
- Fire emergencies
- Environmental Emergencies - Spills and releases of chemicals or other hazardous materials to land and marine environment
- Vehicle/vessel collision
- Structural or equipment failure or collapse
- Adverse weather conditions, including high winds, flood etc.
- Earthquake
- Security threats
- Outbreaks of infectious diseases

The procedures shall be coordinated with local fire, rescue and emergency services as required.

Emergency instructions, evacuation routes, muster point locations and telephone numbers of emergency responders shall be posted at appropriate locations and in the languages in common usage on Site.

For underground works, trained rescue teams shall be designated for each working shift. These teams shall receive professional training in emergency response, rescue and first aid, particularly suited for the work at hand. Members of the rescue teams may be workers assigned to underground work or other duties.

11.14. Continuous improvement, monitoring and reporting

Given the project's location within the Port of Luanda and considering that it involves the rehabilitation of an already operational terminal, various sources have been considered for the development of the waste management plan, as seen throughout the preceding sections. Similarly, existing plans affecting the project will be adhered to in terms of monitoring and improvement.

11.14.1. Objectives currently implemented at Unicargas Multipurpose Terminal

Following the references established in the waste management plan of the Port of Luanda, the Multipurpose Terminal of Unicargas establishes in its own plan the following actions to be followed for the achievement of the established objectives and improvement goals:

No.	ENVIRONMENTAL OBJECTIVES	SHORT-TERM ENVIRONMENTAL GOALS	MEDIUM-TERM ENVIRONMENTAL GOALS	LONG-TERM ENVIRONMENTAL GOALS
01	Improve the company's environmental performance	Obtain approval from the National Environmental Agency for the PGRS of the TPU by June 2023.	-	Obtain approval from the National Environmental Agency for the SEDE/Branches' Waste Management Plan (PGRS) by June 2030.
		Obtain from the National Environmental Agency the Operating License for the activities of the TPU until Dec. 2023.	Implementation of Environmental Management Systems in all facilities by December 2026.	Obtain International Certification for ISO 14001:2015, Environmental Management System by June 2030
02	Implement consumption controls and promote the reduction of waste produced at the company's facilities	Reduce wastepaper production by 9% by the year 2023.	Implement waste production controls by June 2024.	-
		Reduce 10% of waste sent to landfill by the year 2023	Implement selective collection for hazardous waste by June 2024	Reduce 75% of waste sent to the landfill by the year 2030.
03	Reduce electricity consumption and the number of fluorescent lamps	Replacement of fluorescent lamps with LED lamps by 2023.	-	Installation of Solar Panels by 2030.
		Define measures to control the reduction of electricity consumption for the year 2023.	-	Reduce 30% of electricity consumption by December 2030.
04	Implement controls for waste from mobile sources	Reduce the number of trucks accessing the facility by 2024	Annually define measures for controlling the reduction of CO_2 and particulate	Install isolation systems for controlling atmospheric emissions at bulk cargo discharge locations by 2030.
		Reduce the number of		

No.	ENVIRONMENTAL OBJECTIVES	SHORT-TERM ENVIRONMENTAL GOALS	MEDIUM-TERM ENVIRONMENTAL GOALS	LONG-TERM ENVIRONMENTAL GOALS
		movements of machines and media within the plant	emissions into the atmosphere	
05	Improvement of the infrastructure of the company's wastewater sanitation system.	Annually execute mechanisms for the control and improper disposal of solid waste in the company's drainage networks by 2024	-	Develop by 2030, a study to evaluate and redefine the goals for the services and treatment of wastewater from the facilities.
06	Involve the community in sustainable practices and promote the sustainability of its processes and services.	Carry out awareness campaigns to reduce waste in the surrounding communities by 2025 Sensitize the surrounding community regarding the improper disposal of waste in garbage collectors by 2024	Produce 12 advertising campaigns about successful cases of sustainable practices in Unicargas' processes and services by 2025	-

Table 13. Definition of waste production reduction targets and programs. Source: Solid Waste Management Plan of Unicargas Multipurpose Terminal (Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas)

In the scope of waste production reduction, the Multipurpose Terminal of Unicargas has contemplated the following actions:

- Communication through digital means (use of digital emails and corporate communication platforms);
- Printing of relevant and necessary documents;
- Reuse and recycling of used tires, used turners, used wood, plastic containers, used batteries, ferrous and non-ferrous metals, used lubricating oil, used paper, and cardboard;
- Use of water coolers indoors and outdoors;
- Conducting cleaning campaigns in the perimeter of the port waterfront involving workers and the surrounding population;
- Adequate storage of powdery materials;
- Prohibition of access for trucks emitting smoke and particulates;
- Prohibition of access to containers with dirt and waste;
- Conducting periodic inspection visits at waste production, conditioning and identification, and storage points within the TPU;

- Implementation of sustainable environmental projects

11.14.2. Actions Currently Outlined in the Waste Management Plan of Luanda Port

As established in the Solid Waste and Effluent Management Plan of Luanda Port Company E.P., monitoring consists of exhaustive and periodic evaluations and follow-ups of all the procedures inherent in the company's waste management system, as well as guiding its employees to adopt an environmentally appropriate attitude, attitudes and decisions when carrying out their activities at work.

In order to ensure that the waste and effluent management plan is complied with and updated, it is recommended that:

a) The indication and appointment of a monitoring officer, responsible for enforcing the recommendations set forth in this Waste Management Plan (PGRS), and ensuring throughout the company the commitment of other employees to the segregation, handling, transportation, and correct disposal of waste;
b) Continuous updating of the responsible officer regarding waste collection, handling, storage, and final disposal services, aimed at improving the plan;
c) Conducting inspections at locations with the highest occurrence of pollution or waste production sources;
d) Monitoring and evaluating waste and effluent collection, transportation, and treatment programs in order to correct actions that may compromise the Waste Management Plan (PGRS);
e) Monthly preparation of a report assessing the waste and liquid effluent management system.

Aspects to monitor	Action	Period	Responsible
Waste Storage Facilities	Periodic checking of waste bins, their state of repair and need for replacement, as well as their signage	Monthly	Responsible for the maintenance or monitoring area
Management process	Verify full compliance with the waste segregation, conditioning, transportation and destination process	Weekly	Responsible for maintenance or monitoring
Effluent management	Define a septic tank cleaning plan	Whenever necessary	Maintenance or monitoring manager
Generators area	Check that the area is compliant, such as: contaminated area deposit, signage, as well as a deposit for contaminants.	Whenever generators are serviced	Responsible for the maintenance or monitoring area
Cleaning operator	Checking the waste transportation process, as well as the delivery of a collection manifest	Weekly	Responsible for the maintenance or monitoring area

Aspects to monitor	Action	Period	Responsible
	and depositing the waste at the destination where it is sent.		
Safety and Energy	Check the installation of fire extinguishers and the first aid kit so that the most used medicines are not missing.	Monthly	Responsible for the maintenance or monitoring area
Storage area	Check that the facilities are adequate for the waste storage area, as well as the upkeep of the waste tanks and their signage.	Quarterly	Responsible for the maintenance or monitoring area

Table 14. Monitoring of the Waste Management System. Source: Solid Waste and Effluent Management Plan of Luanda Port Company E.P. (Plano de Gestão de Resíduos sólidos e efluentes)

11.14.3. Guidelines from AD-Ports Group

According to the integrated management system document "Health, Safety and Environment Guideline for Contractors" elaborated by ADP, the Contractor HSE Manager shall incorporate in his report the Project HSE performances, highlight, action points, incidents and accident data and any other Health and Safety related information on a Project wide basis.

The HSE Report shall be prepared by the Contractor and submitted to the ADPG and Project Management Consultant monthly and shall comprehensively deal with all relevant aspects of safety and health issues. In particular, reports on all safety audits undertaken and all dangerous occurrences and accidents (regardless of severity) that occurred in the period must be covered in the report.

Contractor monthly HSE report will include relevant statistics related to waste management such as amount of generated waste, percentage of recycled/reused wastes, total consumption of natural resources (water, electricity, fuel), number of Environmental Audits performed, number of environmental nonconformities and CARs, etc.

11.15. Revision of the Waste Management Plan

The Waste Management Plan must be updated and submitted to the National Waste Agency no later than 90 (ninety) days before the expiry date, and whenever there are substantial changes to the submitted plan.

According to Presidential Decree no. 190/12 of 24th August in Article 7, points 3 and 4, the Waste Management Plan is valid for a period of 4 (four years) from the date of its approval.

12. COMMUNICATION AND COMMUNITY AWARENESS PROGRAM

12.1. Justification and objectives

The construction of the Project may lead to disturbances and effects on nearby communities, resulting from an increase in the workforce, noise and dust emissions, higher traffic volume, and disruptions to daily routines, among other factors. These elements can be adequately managed by implementing necessary

mitigation measures and by establishing efficient communication channels between the Contractor and the local residents. This will ensure that the community is well-informed about the project activities, provide a platform for consulting them on managing project-community interactions, and promptly identify and address any issues causing community dissatisfaction.

The primary objective of the Communication Plan is to guarantee that local communities are thoroughly briefed on both the scheduled and ongoing operations, which encompasses mitigation strategies. The plan seeks to avert any social conflicts that might disrupt the social fabric of the local residents and obstruct or impede the progress of the intended work. Moreover, the Plan has the potential to maximize the advantages that the project can offer to the community. The program will also inform the local communities close to Project areas of the risks associated with construction activities (and to a lesser extent operations), and the preventive measures and behaviors that will be adopted in daily interactions, and the mechanisms available to make improvements where needed, including the Local Recruitment and Working Conditions Plan, the Code of Conduct, Project and contractor's GRMs among others.

This Communication Plan is applicable to both the construction and operational phases. However, it is notably more robust and active during the construction phase, serving as the central directive for accomplishing the objectives. In line with this, a comprehensive Stakeholder Engagement Plan has been formulated, encompassing annual engagement strategies to meet the standards outlined in IFC's PS1 requirements.

Some of the activities mentioned in this plan have been carried out during this ESIA phase, and the results are included in the report provided in Annex 9 of Volume III.

12.2. Actions and implementation schedule

Considering the initial analysis of the project's reference documents and the research conducted as part of the preparation of the Stakeholder Engagement Plan, a preliminary list of stakeholders was defined, who will be involved throughout the project and in supporting the identification of opportunities for creating shared value.

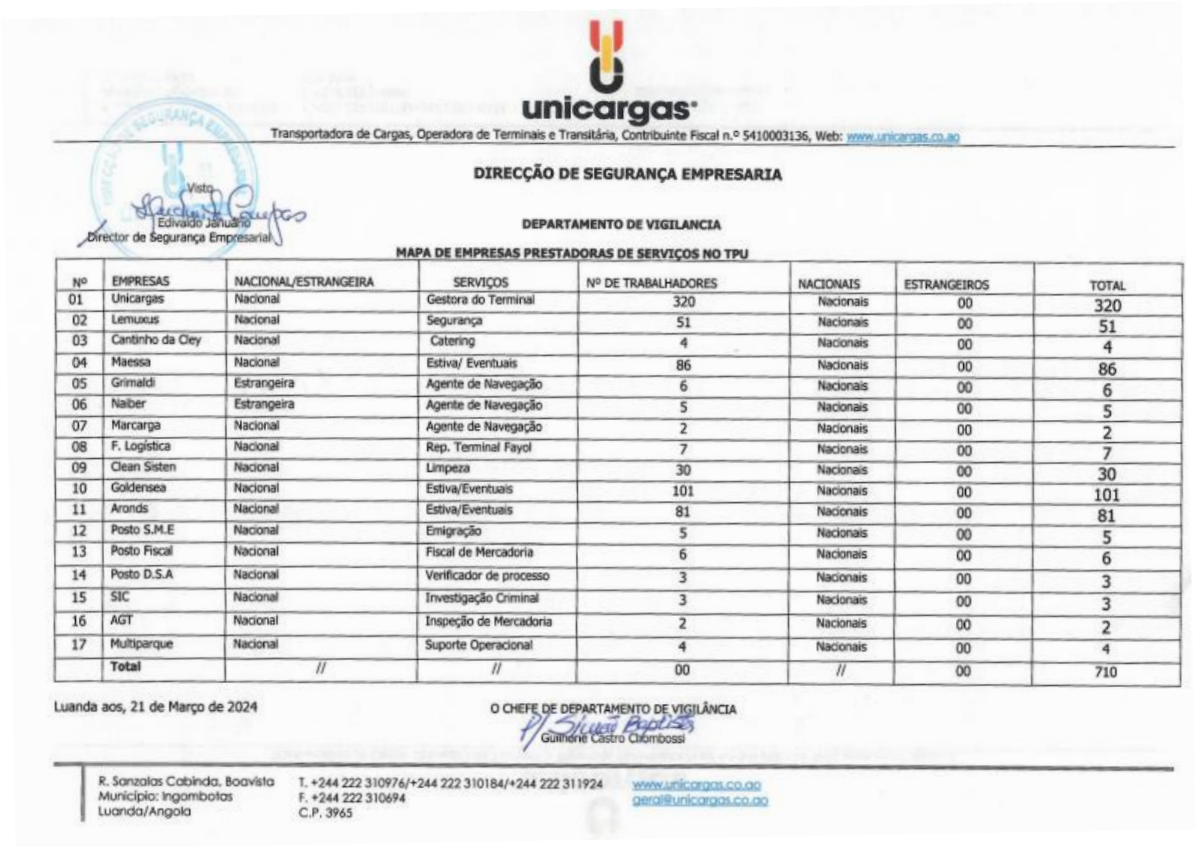
It should be noted that the list presented should be seen as dynamic and evolving, i.e. with the subsequent work of gathering local perceptions and fieldwork, it is possible that new stakeholders recognized as relevant will be integrated.

In this regard, it is worth noting firstly that, in addition to governmental entities such as ministries, regional governments, or other public entities that may have involvement during the development of the stakeholder engagement plan, there are some companies that, due to their proximity to the project development site and their involvement in port activities sharing spaces, are considered as key stakeholders and directly affected parties.

During the execution of works, the Contractor will establish and maintain contact with the local authorities. This will help identify any population grievance or complaint and timely flag any potential social disturbance or conflict. Any specific complaints and conflicts and their resolution will be reported and recorded as part of the Contractor GRM. This action should be carried out during the Construction phase.

Taking these premises into account, the following actions are considered as part of this plan.

Engage with Service Providers at the Unicargas Terminal and surrounding companies: Before the commencement of the works and concurrently with the ESIA development, informational meetings will be held with service providers and Terminal users to ensure they have all necessary information regarding the upcoming works and how they may be affected by them. This action should be carried out during the Planning phase (during the development of ESIA). The main list of participants in these informational meetings is as shown in the figures presented below.



unicargas

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Visto
Edivaldo Januário
Director de Segurança Empresarial

DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILANCIA

MAPA DE EMPRESAS PRESTADORAS DE SERVIÇOS NO TPU

Nº	EMPRESAS	NACIONAL/ESTRANGEIRA	SERVIÇOS	Nº DE TRABALHADORES	NACIONAIS	ESTRANGEIROS	TOTAL
01	Unicargas	Nacional	Gestora do Terminal	320	Nacionais	00	320
02	Lemuxus	Nacional	Segurança	51	Nacionais	00	51
03	Cantinho da Cley	Nacional	Catering	4	Nacionais	00	4
04	Maessa	Nacional	Estiva/ Eventuais	86	Nacionais	00	86
05	Grimaldi	Estrangeira	Agente de Navegação	6	Nacionais	00	6
06	Naiber	Estrangeira	Agente de Navegação	5	Nacionais	00	5
07	Marcarga	Nacional	Agente de Navegação	2	Nacionais	00	2
08	F. Logística	Nacional	Rep. Terminal Fayol	7	Nacionais	00	7
09	Clean Sisten	Nacional	Limpeza	30	Nacionais	00	30
10	Goldensea	Nacional	Estiva/Eventuais	101	Nacionais	00	101
11	Aronds	Nacional	Estiva/Eventuais	81	Nacionais	00	81
12	Posto S.M.E	Nacional	Emigração	5	Nacionais	00	5
13	Posto Fiscal	Nacional	Fiscal de Mercadoria	6	Nacionais	00	6
14	Posto D.S.A	Nacional	Verificador de processo	3	Nacionais	00	3
15	SIC	Nacional	Investigação Criminal	3	Nacionais	00	3
16	AGT	Nacional	Inspeção de Mercadoria	2	Nacionais	00	2
17	Multiparque	Nacional	Suporte Operacional	4	Nacionais	00	4
	Total	//	//	00	//	00	710

Luanda aos, 21 de Março de 2024

O CHEFE DE DEPARTAMENTO DE VIGILÂNCIA
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Figure 17. Service providers at the Unicargas Port Terminal. Source: Unicargas

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DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILÂNCIA

MAPA DE EMPRESAS ENVOLVENTE NO TERMINAL DA UNICARGAS

Nº	EMPRESAS
01	Edifício da Administração do Porto de Luanda
02	AGT
03	Terminal de Passageiro Catamará
04	Terminal da Multiparque
05	Terminal da Secil Marítima
06	Terminal da Sogester
07	Terminal da Sonils
08	Terminal da DP World
09	Terminal do Porto Pesqueiro

LUANDA, 21 DE MARÇO DE 2024.

O CHEFE DO DEPARTAMENTO DE VIGILÂNCIA
P/ Silvino Baptista
Guilhone Castro Chombossi

Figure 18. Surrounding companies at the Unicargas Terminal. Source: Unicargas

Engage with National Institutions: Before the start of the works, informational meetings will be held with National Institutions whose opinions, permits, or actions are in any way related to the development of the project activities. This action should be carried out during the Planning phase.

The Institutions that have been predetermined as stakeholders, given the characteristics, typology, and scope of the project, are those included in the following table.

National Institutions (PT)	Stakeholders (EN)
Ministério do Ambiente	Ministry of Environment
Ministério da Energia e Águas	Ministry of Energy and Water
Direcção Nacional de Águas	National Water Directorate
Ministério dos Transportes	Ministry of Transport
Instituto Marítimo e Portuário de Angola	Angola Maritime and Port Institute
Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Ministry of Fisheries - Ministry of Fisheries and Marine Resources
Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	National Directorate of Fisheries and Fishery Resources Protection
Instituto Nacional de Investigação Pesqueira	National Institute of Fisheries Research

Table 15. national Institutions to be Informed

Engage with Local Authorities and Regional Institutions: Before the commencement of the works and concurrently with the ESIA development, informational meetings will be held also with the Local Authorities and Regional Institutions identified as stakeholders for the project. This action should be carried out during the Planning phase (during the development of the ESIA).

The table below presents the main authorities and institutions to be informed.

Classes of Stakeholders	Stakeholders (PT)	Stakeholders (EN)
Regional Institution	Gabinete Provincial de Luanda	Provincial Cabinet of Luanda
Regional Institution	Gabinete Provincial da Saúde	Provincial Health Office
Regional Institution	Gabinete Provincial das Infra-estruturas	Provincial Office of Infrastructure
Regional Institution	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos	Provincial Office of Environment and Solid Waste Management
Regional Institution	Gabinete Provincial da Educação	Provincial Office of Education
Local institution	Administração Municipal de Luanda	Municipal Administration of Luanda
Local institution	Administração do distrito Urbano de Sambizanga, Ingombota	Urban District Administration of Sambizanga, Ingombota
Regional Institution	Porto de Luanda	Port of Luanda

Table 16. Local Authorities and Regional Institutions identified as Stakeholders for the project

Inform and engage with local communities: During the planning phase, local communities that may be affected by the project should also be informed. This includes workers performing tasks within the port premises and offices, as well as neighboring communities in the closest areas. Inhabitants of local communities near the construction fronts will be informed regarding the upcoming construction activities, including information on the planned start of activities, their nature, location and duration.

This communication will also include information regarding the project nature and goals, jobs available and hiring procedures, skills transfer programs, adopted code of conduct for workers, and non-discrimination policies and opportunities for women.

It will include information regarding the Emergency Response Plan, namely the potential emergency scenarios that may occur and what to do if a community member detects an emergency, including emergency communication protocols and contact number.

In addition, the Contractor will appoint a liaison officer to be the focal point of contact with the local communities, during the construction phase. Constant communication with the local population will be ensured, clarifying and keeping the public informed about the various actions and potential impacts related to construction works.

The table below presents the main local communities to be informed.

Local Communities (PT)	Local Communities (EN)
Colaboradores/trabalhadores do Porto	Port employees/workers
Residentes na envolvente - Comunidades envolventes à área portuária	Residents in the surrounding area - Communities surrounding the port area

Table 17. Local communities identified as stakeholders for the project

Establish and implement Project GRM: A grievance redress mechanism (GRM) will be established whereby individuals or groups can submit complaints or concerns related to any Project impact or activity and receive a response. This mechanism will be communicated to the local authorities and local communities prior to commencement of construction.

Program for Stakeholder information and consultation process

The program established is included in the table below:

Target audience	Objective	Indicative time and proposed method	Monitoring and communication
Stakeholders identified as National and Regional Institutions, Local Authorities and companies operating at Unicargas and surrounding companies	Present the project and gather technical insights and recommendations	Before the commencement of the works and during the planning phase. Individual meetings scheduled in advance, with meeting agenda and project summary sent out	Minutes of meetings should be registered. A final report summarizing the contributions made, which should be made public.
Companies, associations and surrounding communities	Inform stakeholders about: - Planned activities; - Potential disturbances; - Present the grievance mechanism;	Before the commencement of the works and during the planning phase Display of posters and distribution of leaflets/brochures	A record of where the physical materials were posted or distributed. A leaflet/brochure should be available online.

Target audience	Objective	Indicative time and proposed method	Monitoring and communication
	- Identify project Focal Point contacts.		
Authorities, companies and communities	Organize a discussion with a selected group of stakeholders with common interests on key issues identified in the individual meetings.	Before commencement of the construction works; after the first information meeting. Focus group meetings	Minutes of the meetings should be drawn up. A final report with a summary of the contributions collected, which should be made public.
Everyone	To raise awareness of the project and the ESIA, with an approach tailored to a non-technical audience.	Public consultation if required by the MINAMB	Public consultation report. Attendance list. Photographic record.
Undertake community awareness campaigns	Inform about: Community opportunities: jobs, training, opportunities for women, Community risks associated with Project road traffic and the adequate preventative behaviors and cautions that should be adopted by the community members when near Project accesses; Community risks associated with the influx of workers, informing them on the Code of Conduct that Project workers have signed and on the grievance mechanism available to them; Community risks and resources associated with sexual abuse and exploitation and gender based violence	Planning phase / During construction / During operation	A final report summarizing the contributions made, which should be made public

Table 18. Stakeholder consultation and information program

As detailed throughout each of the activities, most of them take place during the planning phase, during the development of the ESIA. However, as explained in the corresponding sections, stakeholder engagement must be maintained during the construction and operation phases. Therefore, the grievance mechanisms established must remain active. The construction manager's willingness to provide information must be

constant, and, if deemed necessary, additional meetings will be held to address concerns that may arise from any of the identified stakeholders.

12.3. Monitoring

The indicators to be monitored in this program are the following:

- Events planned / held
- Number of participants
- Complaints received / resolved within 30 days
- Incident reports (number)
- Incident reports (follow-up)

12.4. Reports

Records of all communication actions undertaken will be kept, as well as and any grievance or complaint received, namely:

- Meetings held with Service Providers at the Unicargas Terminal and surrounding companies
- Meetings held or letters sent to National Institutions
- Meetings held or letters sent to Local Authorities and Regional Institutions
- Meetings held or letters sent to with Local Communities
- Complaints or grievances from Local Communities, and grievance resolution
- Incident reports (any incident involving communities).

These reports will be prepared, archived and maintained, to document the results of the plan's implementation.

Records of relevant events following the occurrence and periodic Performance Reports will be prepared quarterly during construction and commissioning and annually after the first year of operations, reporting on the recorded events and communication results.

Any work stoppage or incident involving security forces will be reported, providing a full explanation of the reasons and how it was resolved, along with any follow-up actions.

13. EMERGENCY RESPONSE PLAN

The Contractor shall develop a Project Specific Emergency Preparedness & Response Plan (EPRP) in line with ADPG's emergency and incident reporting procedures and related protocols, to mitigate consequences arising from potential emergency situations and to familiarize employees with the response procedures in the event of an emergencies that can occur on the project site.

The emergency plan to be developed will comply with all the requirements and protocols established in the existing Emergency Plan of the Luanda Port Authority (Plano De Gestão De Emergências).

The security along the terrestrial jurisdiction zone of the Port of Luanda is ensured by port security. Security within the terminals is the responsibility of the concessionaires. The facilities of the Port of Luanda are certified according to ISPS code standards, which include a Port Facility Security Officer (PFSO) appointed by the National Maritime Authority.

In addition, the Port of Luanda has its own private fire department, trained by the National Fire Department of the Ministry of the Interior. It is equipped with personnel and equipment capable of responding to all adversities that may occur within the port area and beyond. It has fully equipped vehicles for extinguishing fires of any nature, as well as ambulances and other resources.

On the other hand, the plan developed by the contractor for the construction phase must also comply with the requirements of ADPG. Within the ADPG Integrated Management System document, the Emergency Preparedness and Response document (CA-HSSE-ICC-GEN-PRC-004) is included, which outlines the guidelines to be applied in case of emergency situations. This procedure provides guidelines to manage Incident, emergencies and crisis. In such events, ADPG may be exposed to a potential major event that threatens the ongoing business or reputation of ADPG or its´ partners.

Additionally, the document addresses both internal and external context events and directs the Incident Command Operation Centre (ICC) and Crisis Management Team (CMT) to address all necessary strategic issues expected during a crisis to ensure an efficient emergency and crisis response, business continuity activation and recovery procedure for all ADPG critical activities and services.

During Operations Phase, terminal specific Emergency Response Plan will be developed as part of the port HSE operating procedures which will comply with local requirements and existing LPA Emergency Response Plan.

13.1. Justification and objectives

The main objective of the Emergency Response Plan (ERP) is the systemization of the procedures to be adopted, to minimize the effects of possible accidents or incidents that could occur, thus managing available resources in the best manner. This document is considered an essential prevention tool, having in mind the following objectives:

- The identification of potential emergency situations that may arise from the Project's construction and operation activities
- The communication process of the emergency in case of occurrence
- Action procedures in case of accidents or emergencies
- Reporting on emergencies: causal analysis, actions taken and lessons and preventive measures taken as follow up including dissemination.
- The creation of Risk Scenarios

As stated in the Emergency Plan of the Luanda Port Authority (Plano De Gestão De Emergências), the purpose of this plan is to identify potential incidents and emergency situations, and to respond effectively to such situations to prevent and mitigate associated risks, aligning these aspects with the requirements of the Environmental, Health, and Safety Management System (EHSMS).

In addition, the purpose of the "Emergency Preparedness and Response" document from ADPG is to provide a simple, flexible, and robust process by which ADPG can take effective steps to mitigate the impacts of ADPG business strategy and reputational equity during a crisis event liaising with relevant internal and external parties.

Furthermore, the objectives of this procedures are:

- Ensure a systematic approach to emergency management planning and response.
- Facilitate harmonization of relevant Authorities´ requirements and provide a clear hierarchy of control in the event of significant emergencies.
- Minimize impacts of emergencies on People, AD Ports Group´ Assets, Environment, AD Ports Group Reputation, customers, society, interested parties, partners & suppliers.

Regarding the operations stage, as Unicargas Terminal will be running under the supervision of LPA and within the premises of LPA, the Emergency Response Plan and procedures of LP will be followed and applicable for the project, as mentioned before.

13.2. Emergency communication process

An emergency can be detected by any Project worker or community member. Workers will receive basic and mandatory training in the inspection and supervision of the systems they operate, to be able to detect any anomalies, such as possible spills, traces of fire, emergency prevention procedures, etc. Immediate notification of an emergency will be made by telephone and emergency radio of the enterprise.

Further to workers, the Emergency Response Plan (ERP) will also allow for the detection of emergencies by community members.

To this end, communities will be informed, through the Communication Plan, about potential emergency risks and what actions to take, as well as how to communicate with the contractor and the Project Management Consultant (PMC). They will be responsible for reporting any emergency situations to the Port Authority of Luanda, for the implementation of the established protocols. For this purpose, emergency contact numbers will be provided to the communities and other identified stakeholders.

The efficient management of an incident depends on good communications. Thus, the Project will ensure the VHF digital radios and cell phones. A list of cell phone numbers must be prepared, including relevant emergency contacts. These lists will be kept next to all telephones on the Project facilities, in order to assist in case of need.

According to Decree No. 53/05 of August 15, participation in accidents must occur as defined in Article No. 11:

"When an accident occurs, the victim or the legal beneficiaries of benefits must report it verbally or in writing within 72 hours to the employer or the person representing the employer in the service department, if applicable, unless they witness it or become aware of it within the aforementioned period."

"If the condition of the victim or other duly proven circumstances prevent compliance with the provisions of the preceding paragraph, the fixed period shall be counted from the cessation of the impediment."

"Co-workers who have witnessed the accident must immediately report it to the service department or its legal representative and to the insurance company."

"The employer must report to the insurance company within the deadline specified in the insurance policy and to the provincial directorate responsible for mandatory social protection in all accidents occurring within 7 days, using the appropriate form attached to this decree."

"The employer is responsible for the consequences of late reporting of the accident, and the insurer has the right to recover amounts paid improperly."

"The deadline referred to in paragraph 1 of this article is 24 hours if the accident is fatal and 7 days in other cases."

"Workers who are victims of a work accident or occupational disease not covered by the insurance specified in this decree or their family members must report the accident or occupational disease to the Labor Inspection within 8 days from the date of the incident or their knowledge."

All work that may alter or make disappear the elements necessary for the faithful reconstruction or clarification of the accident should be suspended. Access to the accident site by people, machines, and materials, except for rescue and assistance means, should be immediately prohibited until the necessary elements for the investigation are collected.

After analyzing the accident, an Accident Report should be prepared, which should include at least:

- Day, time, and exact location of the work where the accident occurred;
- Complete identification of the injured party (s);
- A brief description of how the accident occurred;
- The region of the body affected;
- Measures taken to rescue the injured party;
- Whether the work was proceeding under normal conditions;
- The probable cause of the accident;
- Witnesses who witnessed the accident;
- Photo (s) or sketch (s) of the accident.
- Actions to be implemented (measures) to prevent the occurrence of accidents of the same nature, if necessary.

In addition to the aforementioned, it is important to note that all actions to be undertaken will be carried out in accordance with the specifications outlined in the "Emergency Preparedness and Response" document provided by ADPG, which includes the following general procedure scheme:

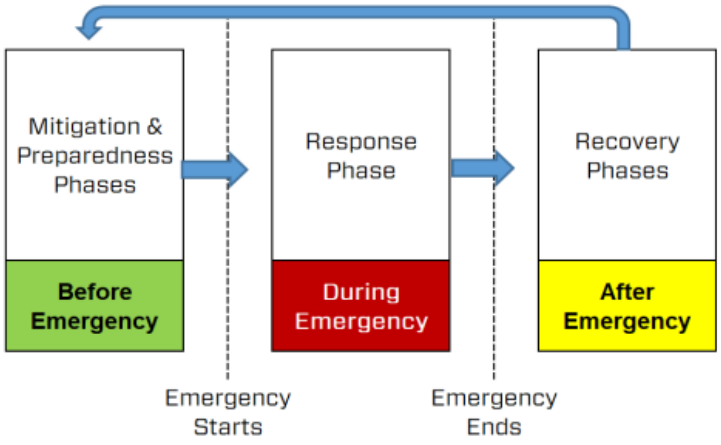

Figure 19. General scheme for emergency procedure. Source: Emergency Preparedness and Response document (CA-HSSE-ICC-GEN-PRC-004). ADPG Integrated Management System document

13.3. Emergency scenarios

Since the Unicargas terminal operates at the port of Luanda, the procedures to follow in case of emergency scenarios should be those established in the corresponding Emergency Plan of the Luanda Port Authority (Plano De Gestão De Emergências). Based on this premise, the different scenarios contemplated in the mentioned emergency plan and the procedures established in each case are summarized below, preceded by the classification of the different types of emergencies considered in the mentioned plan.

13.3.1. Types of emergencies

Emergency Plan of the Luanda Port Authority

The types of emergencies included in the Emergency Plan of the Luanda Port Authority are listed below.

Type 0 (Minor): The Emergency Incident Controller must take control of the area. Examples of emergencies of this type include:

- Initial stage fire.
- Release of hazardous materials (< 5 liters) infiltrating the soil.
- Minor injuries requiring first aid.
- Minor damages (< USD 2,722.11) to property.

Type 1 (Serious): The Emergency Incident Controller must take control of the area. Examples of emergencies of this type include:

- Fire spreading.
- Release of hazardous materials (5 to 50 liters) manageable with local resources.
- Irreversible health damage or long-term disabilities.
- Property damage costs between USD 2,722.11 and USD 27,221.1.
- Situations causing serious disruption, leading to partial or complete temporary closure.
- Situations with significant impact on personnel or activities.
- Local public awareness with some noticeable concern.
- No local media concern.

Type 2 (Critical): The Emergency Incident Controller must take control of the area, assess the situation, and contact relevant individuals as per the emergency response plan. Examples of emergencies of this type include:

- Fully developed fire.
- Release of hazardous materials (5 to 1,000 liters) requiring cleanup operations (less than 5 days); release source under control.
- Death or permanent total disability.
- Property damage costs exceeding USD 30,000 but less than USD 3,000,000.
- Partial or complete shutdown for up to 2 weeks.
- Situations requiring government/local emergency response resources.
- Situations potentially trigger regulatory actions affecting operations or licenses.
- Situations impacting institutional relations with governmental/local stakeholders.
- Situations critically impacting company reputation, potentially reaching significant proportions.

- National public concern.
- Broad national media attention and some international coverage.

Type 3 (Catastrophic): The Emergency Incident Controller must take control of the area, assess the situation, and contact relevant individuals as per the emergency response plan. Relevant external support services and personnel must be contacted immediately if necessary. The Incident Control Team will have the necessary number of members. Examples of emergencies of this type include:

- Sudden and/or sustained transition from spreading fire to fully developed fire and/or explosion (e.g., vapor explosion leading to fully developed fire).
- Release of hazardous materials (> 1,000 liters) requiring extensive cleanup operations lasting several days or weeks.
- Multiple deaths (e.g., due to fire or explosion) or mass casualties (e.g., due to pandemics).
- Property damage exceeded USD 2,722,110.
- Substantial or total loss of operations lasting several days or weeks.
- Situations with significant potential to affect national/international policies impacting new area access, licensing, and/or tax legislation.
- International public concern.
- Extensive international media attention

Emergency Preparedness and Response of the ADPG IMS

The following premises and phases are established in the Emergency Preparedness and Response document (CA-HSSE-ICC-GEN-PRC-004) of the ADPG Integrated Management System.

Mitigation: This phase focuses on preventing future emergencies or minimizing their effects. It includes the identification of potential emergency scenarios, and activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the loss/ damaging effects of unavoidable emergencies. This part relies on suitable and sufficient risk assessment and management.

Preparedness: This phase focuses on preparing to handle an emergency. It includes plans or preparations made to save lives, environment, and assets, and to help response and rescue operations. This involves the preparation of emergency plans & procedures, training, logistics, and evacuation plans & guidelines to deal with emergencies when they occur.

Response: This phase focuses on responding safely to an emergency. It includes actions taken to save lives, environment, and assets, and prevent further loss/ damage in an emergency. Response is putting your preparedness plans into action: the discovery and notification of incident, assessment of the emergency, containment actions, evacuation process, and actions of emergency teams and all personnel on site according to the assigned roles and responsibilities.

Recovery: This phase focuses on recovering from an emergency. It includes actions taken to return to a normal or an even safer situation following an emergency. Quick recovery allows quick re-establishment of operations. Recovery also includes review and update of relevant emergency & business continuity plans and procedures, this, in turn forms feedback for the mitigation and preparedness phases.

The different categories of emergency incidents depend on the severity and nature of incident on both land and marine side.

Land and marine incident categories:

- Category 0: minor. This type of incident is typically managed by on-site staff and requires no additional support.
- Category 1: serious. Events are typically localized significance and can be handled using resources immediately available.
- Category 2: critical. Events are typically of regional or Emirate significance and may require involvement of specialized emergency services.
- Category 3: catastrophic. Events are typically of international significance and may require access to national/international resources and emergency response services.

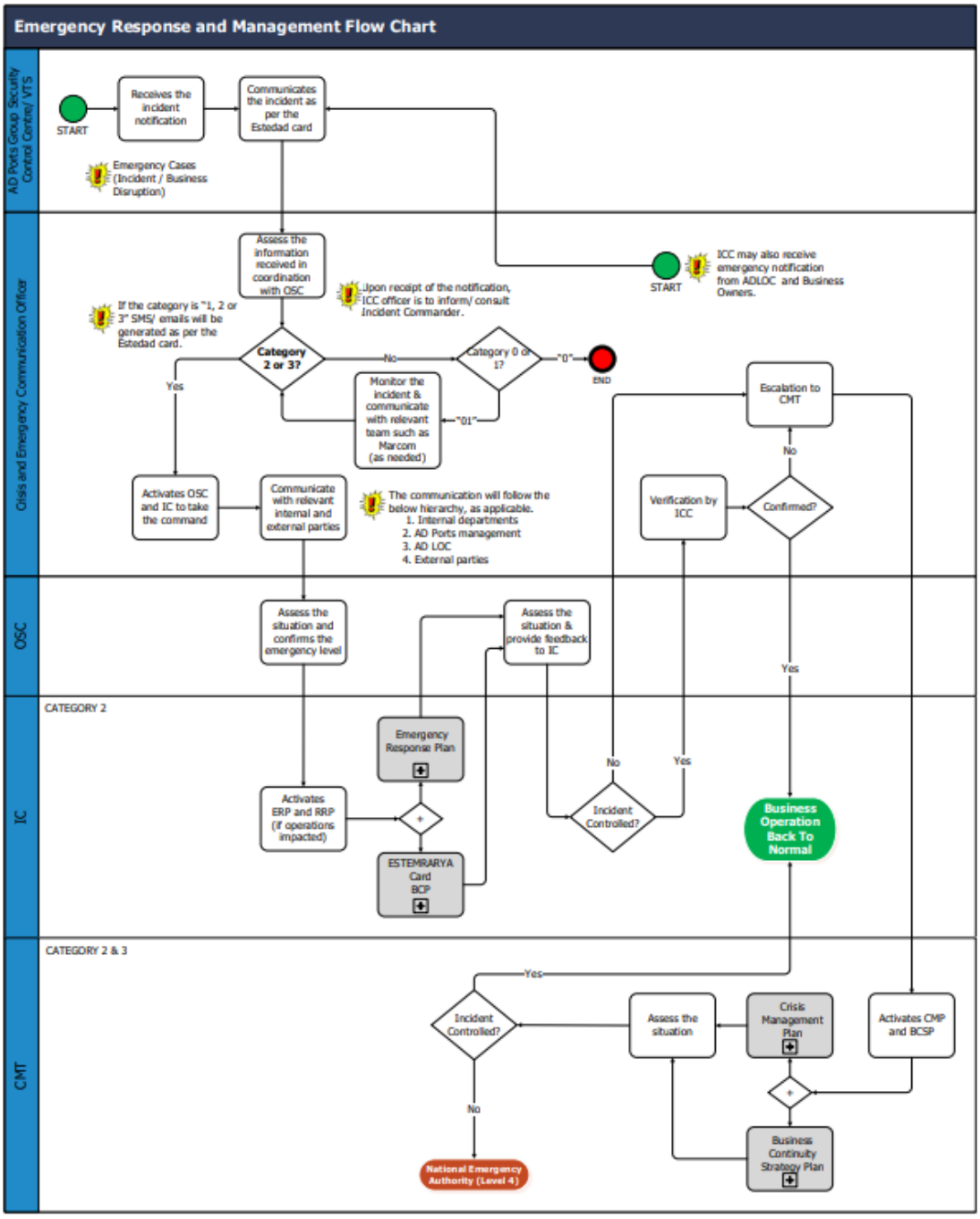

Figure 20. Emergency response and management flow chart. Source: ADPG Integrated Management System document, the Emergency Preparedness and Response document (CA-HSSE-ICC-GEN-PRC-004).

13.3.2. Scenarios and procedures

Firstly, as established in the Emergency Management Plan of the Port of Luanda, in the event of any emergency notification or alarm, the actions to be followed are as follows:

- Stop working immediately.
- Cut off the power supply to the equipment that was in use.
- Proceed to the nearest assembly point and report.
- Do not attempt to re-enter until everything is resolved.

The different scenarios and subsequent procedures included in the Emergency Plan of the Luanda Port Authority are listed below.

Fire

- Shout fire, fire, fire and activate/press the nearest fire alarm bell.
- Alert as per the emergency response plan and provide the exact location, building, floor, type of fire, your name, and contact number (refer to the emergency contact list).
- If the fire is small and you have been trained, attempt to extinguish it with a fire extinguisher or other available means without endangering your personal safety.
- If you have any doubt about your ability to fight the fire, EVACUATE IMMEDIATELY!
- Never let the fire come between you and an exit.
- Do not use the elevator.
- Do not break windows or doors.
- Proceed to the nearest assembly point and wait for the emergency team.

Explosion

- If you see, hear, or witness an explosion, be alert as per the emergency response plan and remain calm.
- Be prepared for possible further explosions.
- Stay away from windows, mirrors, hanging objects, filing cabinets, shelves, and electrical equipment.
- Follow the lead of the emergency team. If evacuation is ordered, proceed to designated exits.
- Do not move severely injured people unless they are in immediate obvious danger (from fire, building collapse, etc.).
- Open doors cautiously and watch out for falling objects.
- Do not use elevators.
- If requested, assist and accompany disabled individuals who may need guidance or assistance.
- Do not use matches or lighters.
- Keep calm and help others remain calm.

Accident and injury

- If someone is injured, seek help from the nearest first-aider, but do not move the injured person unnecessarily.
- All accidents requiring first aid, no matter how minor they may seem, and incidents not involving injuries (i.e., near misses), must be reported to the EHS Department.

- Each first aid kit is clearly labeled and contains information with the names, contact numbers, and locations of qualified first aiders. First aid kits should be placed in all Terminal buildings.

Earthquake

- Drop to the ground.
- Take cover under a desk, table, or other sturdy furniture, hold on to it, and be prepared to move with it; maintain your position until the shaking stops and it is safe to move.
- Do not run outside; move to an open area if safe to do so. Outdoor hazards may be greater than indoor hazards.
- Do not use the elevator.
- Expect aftershocks in the hours or days following.
- Follow instructions from the Emergency Incident Controller.

Storm

- Stay indoors and watch for falling objects.
- Keep away from windows, mirrors, glass, and loose objects such as filing cabinets or shelves.
- Move to a lower level or to the central hallway of the building if possible.
- Do not use elevators.
- Remain in the safe area until the storm passes.
- After the emergency, report all damage and/or injuries, no matter how minor, to the EHS department.

Hazardous substance spill

- Stay calm and immediately alert as per the emergency response plan.
- Use spill response kits if the substance is liquid. For all spills and leaks of hazardous materials, contact an appropriate hazardous materials cleanup company.
- Establish a perimeter around the spill according to the IMDG guide.
- Use the PPE provided with the spill kit. If toxic chemicals come into contact with your skin, immediately rinse the affected area with clean water.
- If time permits, try to ventilate the area. If you have access to windows, open them fully.
- Also remove any heat sources from the chemical spill area.
- If the area is in danger, evacuate the area and proceed to the nearest assembly point.
- Dispose of hazardous waste.

Water pollution

- Alert as per the emergency response plan.
- Contact the harbor master or the Port Facility Security Officer (PFSO) by the fastest means possible.
- Use containment booms to prevent spreading.
- If safe, attempt to identify the source of the leak (check drain valves).

Gas leak

- Alert as per the emergency response plan and activate the alarm.
- Rescue anyone in immediate danger, if it is safe to do so.
- Only trained personnel working in pairs should use self-contained breathing apparatus.

- If volatile hazardous materials are released, isolate the area by closing doors and windows.
- If flammable vapors are released, do not operate any electrical switches. Where available, activate emergency shutdown or isolate potential ignition sources in the electrical panel.
- Evacuate the area.
- The material safety data sheet will contain information on the toxicity and flammability of the gas and provide first aid procedures.
- Do not re-enter the area until instructed to do so by an emergency incident controller

14. COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN

14.1. Justification and objectives

The construction of the Project could increase the presence of health and safety hazards within the community. This may be attributed to factors like increased light, noise, and gaseous/dust emissions, increased vehicular traffic, or workforce mobilization. To effectively address and mitigate these risks, the measures delineated in the Environmental Impact Study will be applied, as consolidated within this Community Health and Safety Management Plan.

It is important to note that the management of community health risks will be further reinforced through the implementation of other strategies outlined in the Environmental and Social Management Plan (ESMP). These include the Communication and Community Awareness Program, the Project Grievance Redress Mechanism (GRM), and the Emergency Response Plan, among others.

ADPG has an Integrated Management System certified by LRQA Limited -Lloyd's Register Quality Assurance Limited- in accordance with the ISO/IEC 27001:2013, ISO 14001:2015, ISO 45001:2018, ISO 9001:2015, ISO 55001:2014 and ISO 22301:2019 standards.

The HSE & BC objectives, as considered by AD Ports, include the following:

- Ultimately have zero harm to personnel and the environment
- Encourage and mentor Interested Parties to meet the same high HSE standards, objectives and targets as adopted by AD Ports Group.
- Establish HSE-based policies, procedures, standards and guidelines and implement them
- Act as a Port Authority to enforce the compliance for regulations set forth by the regulatory authorities.
- Be the interface between the regulatory authorities and the Interested Parties on HSE issues that will impact administered areas and water limits
- Ensure that equipment specifications, equipment operations and installations are run in a safe manner
- Facilitate development of personnel to enhance their HSE skills and experience
- Review and mange potential HSE risks/ impacts within the administered areas and water limits
- Define and plan critical tasks having HSE ramifications
- Monitor and measure HSE performance of ?B Ports Epmsn and Interested Parties
- Identify and correct deficiencies in AD Ports Group's IHSE MS
- Liaise in communicating AD Ports Group's (Port Authority) expectations on HSE matters to all Interested Parties
- Ensure that Interested Parties comply with AD Ports Group's IHSE & BC Policy

It should be highlighted that although reference will be made to workers in certain sections below, it is the contractor's responsibility to develop the specific management plan for employees, with this plan focused on community health and safety.

14.2. Actions

14.2.1. Protect communities from Project traffic

In construction projects within the city, controls and precautions must be taken to prevent damage or injuries to third parties (people, property, etc.) at each stage of the project. This is crucial to avoid potential social issues with the inhabitants of adjacent neighborhoods as well as Terminal' users, and/or, in general terms, users of the same spaces which the project will occupied.

Nonetheless, the development of Unicargas at Luanda's Port is quite different since it is an intervention inside an already established terminal. The project site is a restricted access zone, with strict security measures and access control where no free vehicle and pedestrian traffic happen. In addition, the adjacent zone is a mainly industrial area, where administrative, residential and tourist buildings are scarce.

In terms of traffic, there will be an increase in the number of vehicles in the area to deliver materials, machinery and equipment, works, etc. Also, during operational phase traffic of goods to/from the Terminal will be larger due to being developed to enhance its capacity.

To deal with the potential nuisance/risk caused by increase of traffic and diversions, if necessary, maintaining good communication relations with the neighborhoods is essential. To prevent damage or harm to third parties, the following should always be observed during the execution of the work:

- Workers must adhere to the established codes of conduct.
- Workers will respect the property of individuals in the community.
- Neighborhoods will be informed about the upcoming work as well as the risks it poses to them, in order to prevent access to hazardous areas.
- Work areas must be delimited and marked, indicating "No entry for unauthorized persons".

The Contractor will develop a Traffic Management Plan, outlining required control measures and precautions for ensuring road safety and mitigating potential risks that might arise from increased traffic during the project's construction stage. The Plan shall include (several are contained in ADPG requirements referred to Traffic Management Plan), but not be limited to:

- The identification of transportation routes for the project materials and workforce to and from the project site, taking into consideration community impact. The circulation routes for construction vehicles will be adequately planned in order to minimize, as much as possible, crossing through, or passing nearby, residential areas. Loaded trucks to or from the working area will avoid heavily travelled or residential roads.
- Detailed information regarding resources allocated, responsibilities assigned, and communication procedures that need to be followed by the relevant personnel
- Description of the competency and training requirements for drivers and operators
- Explanation of the access roads
- Explanation of speed limits and any restrictions required traffic calming measures

- Site-specific mitigations to control traffic, labor safety, public safety, and impacts to environmentally sensitive areas
    - Security controls onsite-gateman, barrier access etc.
    - Communication arrangements
    - Detailed information regarding provisions for segregation of pedestrians and mobile plant and vehicles
    - Procedures for reversing activities. The site should be designed to minimize the need for vehicles to reverse.
    - Car parking arrangements for site-based staff and visitors, including safe pedestrian route to their work area
    - Signage to indicate the direction of traffic, stop, give way, etc.
    - Precautions to eliminate blind spots or sharp/tight bends on traffic routes.
    - Vehicle height, width and weight restrictions
    - Vehicle maintenance and inspection requirements
    - Flagman/signalman arrangements to assist slow-moving or large construction equipment and vehicles moving in or out of the work area.
- Site Specific Map which includes access roads to the site, site access/egress arrangements, site traffic routes, pedestrian walkways and crossing points, traffic management signage, traffic speed limits, emergency muster points, location of first-aid facility or site clinic and emergency exits

The Contractor shall ensure that Traffic control measures are implemented in accordance with the approved Traffic Management Plan.

As stated in the IFC General EHS Guidelines, road safety initiatives proportional to the scope and nature of the project activities should include:

- Adoption of best transport safety practices across all aspects of project operations with the goal of preventing traffic accidents and minimizing injuries suffered by the communities. Measures should include:
    - Emphasizing safety aspects among drivers
    - Improving driving skills and requiring licensing of drivers
    - Adopting limits for trip duration and arranging driver rosters to avoid overtiredness
    - Avoiding dangerous routes and times of day to reduce the risk of accidents
    - Use of speed control devices (governors) on trucks, and remote monitoring of driver actions
- Regular maintenance of vehicles and use of manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. Where the project may contribute to a significant increase in traffic along existing roads, or where road transport is a significant component of a project, recommended measures include:
    - Minimizing pedestrian interaction with construction vehicles
    - Collaboration with local communities and responsible authorities to improve signage, visibility and overall safety of roads. Collaborating with local communities on education about traffic and pedestrian safety (e.g. school education campaigns)
    - Coordination with emergency responders to ensure that appropriate first aid is provided in the event of accidents
    - Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions

14.2.2. Ensure good practices in labor management and minimize risks of social conflicts with workforce

As outlined in the mitigation measures section of the ESIA, a series of measures must be considered to reduce the likelihood of potential social conflicts and address GBVH related to the construction phase. The measures listed in the ESIA include compliance with IFC standards as well as ADPG policies. Complying with IFC Performance Standard 2 *Labor and Working Conditions*, as well as with the ADPG policies, the Contractor will develop and implement a Local Recruitment and Working Conditions Plan, which will consider the following principles:

- Create mechanisms to ensure that the recruitment and hiring procedures are conducted in a transparent and just manner, are coordinated with the community leaders and District Administration, maximize local employment including women and young workers and transfer technical skills to the local labor force;
- Inform workers of the restrictions in the induction sessions and enforce and monitor them appropriately, including through the Code of Conduct;
- Give priority to hire local workers, provided applicants have the necessary skills;
- Employment opportunities will be adequately advertised, so as not to limit application opportunities;
- Establish local and regional recruitment centers;
- Ensure respect for local labor laws and worker rights, and together with the labor policy, Health and Safety Management Plan, Code of Conduct and Worker's GRM, ensure safe and fair working conditions;
- Develop and implement a worker's grievance management system
- The Contractor will have a contractually binding policy and Code of Conduct for all workers that includes, among other things, zero tolerance to child and forced labor, non-discrimination provisions regarding women and other minorities, and environmental good practice requirements.
- The contractor will be required to comply with laws in Angola, which include provisions and policies for GBV.

Regarding the operational phase, the JV implementation team will include an HSSE Unit led by an HSSE manager who will oversee all E&S aspects. In this regard, the implementation of the measures contained in the mandatory documents for both the Port of Luanda and the Unicargas terminal will be followed. Additionally, the development of the health and safety plan for the operational phase will consider the requirements established in the applicable documents of ADPG's integrated management plan. The recommendations contained in the IFC General EHS Guideline and the IFC Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals (2017) should also be followed.

14.2.3. Construction activities

When, due to construction reasons, spaces intended for pedestrian circulation (sidewalks, walkways, etc.) are being occupied, alternative passage zones will be provided, properly signaled and protected.

At the end of the day, in busy areas, potential obstacles that could cause harm to third parties will be signaled and protected.

During construction, hazardous waste and machinery will never be left unprotected or without signaling.

The fence, as a rule, will be placed behind the debris. A sign prohibiting access to any unauthorized person will be installed at the entrance and exit of the work area.

The work area will be adequately protected to prevent unauthorized access, and if necessary, it will be fenced off with caution tape or guardrails, depending on the circumstances.

To minimize potential disruptions to the community and economic activities during the construction phase, the following measures will be implemented. While sections concerning air quality, dust, and noise emissions have been previously addressed, the subsequent sections will focus on managing issues pertaining to traffic, community disturbances, and ensuring the safety and well-being of site workers.

- In order to minimize interference, work will be scheduled appropriately so that it does not take longer than planned;
- Ensure security arrangements are in place to ensure the safety and protection of all personnel, assets, and sensitive information, mitigating risks from external threats and enabling a secure operating environment for the project activities;
- Conduct suitable and effective staff training and awareness activities to ensure the project employees understand, appreciate and adherence to the suggested environmental and social management requirements;
- Ensure the provision and maintenance of sufficient welfare facilities and arrangements for the well-being of employees at work;
- There must be sufficient lighting in construction areas to enable safe equipment operation. Provide emergency lighting system of adequate intensity that is automatically activated upon failure of the principal artificial light source to ensure safe equipment operation, safe shut-down, evacuation, etc.
- Provide first aid facilities so they are readily accessible for all workers. Provide firefighting equipment, where appropriate, at least, at occasional warehouses. Also, appropriate Personal Protective Equipment (PPE) shall be provided for the workforce;
- Desing a campaign to inform communities in the project area about it, solving their doubts, collecting and evaluating their opinions/considerations, and introducing changes in project design if needed;
- Develop and implement a worker's Grievance Management System to ensure that any matter or concern raised by residents, general public or construction workers is solved satisfactorily and quickly;
- Establish clean canteen/rest area. Provide potable water, hygienic sanitation facilities/toilets with sufficient water supply. Adequate drainage may be assured in workers camps to prevent water logging.

14.2.4. Minimize noise nuisance on communities

- Construction activities, particularly the noisier ones, will be limited to the daytime period (between 07:00 and 22:00) and to working weekdays, avoiding working during the night-time and on weekends. In case there is no other option than night-time work, it will be necessary to apply for a Noise control permit. Planning activities in accordance with the local community might be beneficial to schedule greatest potential generating noise activities during periods that will result in least disturbances.
- All the vehicles and machinery will work properly avoiding malfunctioning of the engine, transmission, bodywork and other components that could increase noise levels and consequently affect the communities.

- Temporary noise barriers to reduce the increase of levels that will pose a negative impact on adjacent residential areas. Mobile acoustic barriers can reduce values up to 15 dBA.
- The speed limit within the project site might be reasonable to reduce noise in the area.
- Loading and unloading processes shall be carried out without direct impact on the ground, both on vehicles and on the pavement. Additionally, noise produced by the movement of the load during transport shall be minimized. If necessary, the simultaneous operation of the noisiest machinery shall be avoided.
- Truck drivers and equipment operators will minimize the use of horns.
- Maintaining noise levels within acceptable limits. Whenever it is considered that acceptable limits will be exceeded or have been exceeded, silencers for machines and equipment and soundproof barriers should be installed at noise-producing locations.
- Sound equipment and machines should have their sound power properly identified and comply with acceptable limits.
- Noisy equipment should be installed in enclosed compartments, equipped with sound conditioning and exhaust/ventilation outlets from air conditioning systems.
- If noise complaints are received from local communities in the morning or evening periods, despite compliance with the previous measures, and if the following investigation confirms the noise impact, then further reduce the work schedule in those periods. In such cases, the work schedule will be defined in a participatory manner, through consultation with affected communities.
- Any noise complaint will be addressed and resolved through the Project's GRM. Any noise complaint will be investigated and resolved through adequate mitigation, to be defined case by case, but following best practices in terms of noise mitigation, i.e., first acting on noise source (by stopping the activity or using less noisy technologies or methods), then on the noise propagation path (by installing temporary noise screens or similar action) and then, and only if no other option is available, on the noise receptor (such as noise insulation of buildings or temporary lodging, in extreme cases).

Finally, an Environmental, Health and Safety Manager may be designated to look after the implementation of all mitigation measures and requirements to ensure health and safety precautions for the safety of workers and general public are implemented.

14.2.5. Property security

According to the integrated management system document "Health, Safety and Environment Guideline for Contractors" elaborated by ADPG, the Contractor shall develop, implement, and maintain a high-level Security Management Standard that meets all legal requirements in the country of operation and aligns with the ADPG Requirements.

The Contractor is responsible for effectively managing security on the site in accordance with the requirements of the scope of work. The Contractor shall ensure that all site offices, storage areas and other structures on site are adequately secured when not in use to prevent unauthorized use or theft.

The Contractor must ensure that the site is properly secured to control access and prevent unauthorized entry. There should be a system implemented to accurately document the arrival and departure of personnel at the Site.

15. GRIEVANCE REDRESS MECHANISM

15.1. Justification and objectives

Interactions with the communities will occur frequently during the different phases of the Project, and this includes several types such as those that may generate grievance (i.e. construction annoyance effects or maintenance labors during operations). A grievance is an issue, concern, problem, or claim (perceived or actual) that an individual or group or representative wants the company, or their contractors, to address and resolve.

Understanding and managing community and stakeholder issues and concerns is vital to the long-term successful relationship between the project owner and the communities. Unresolved community issues can affect the Project adversely. Therefore, it is important that a simple and effective grievance management process is established and implemented.

15.2. Legal Framework

Grievance Redress Mechanism is foreseen in IFC as a good practice to guide companies/organizations to deal with concerns and complaints from affected communities. Under the Performance Standard number 1*, Assessment and Management of Environmental and Social Risks and Impacts,* Grievance Mechanism is foreseen to receive and facilitate resolution of Affected Communities' concerns and grievances about environmental and social performances.

15.3. Actions and implementation schedule

As referred to in the ESIA, several actions will potentially cause disturbances to communities (and general population) both during construction phase and operational phase. The main actions are listed below:

- All working activities that involve movement and operation of machinery, vehicles and equipment since will imply the emission of pollutant gases, dust and the increase of noise levels in the area and adjacent zones;
- Necessary traffic diversions, traffic increase in local roads and disruption to utilities during construction works will potentially affect local population.

These actions will impact mainly in the increase of disturbance to population, mainly local communities. To minimize those effects a set of mitigation measures has been designed, among which a Grievance Redress Mechanism -GRM- is foreseen. It is described as follows.

15.4. Description of the GRM

15.4.1. Objectives and basis

Interactions with the communities will occur frequently during the different phases of the Project, and this includes several types of interactions, including construction annoyance effects, inspections during operations, etc. Interactions between the Contractors and responsible for the project and the communities and other stakeholders may generate grievances. A grievance is an issue, concern, problem, or claim (perceived or actual) that an individual or group or representative wants the company, or their contractors,

to address and resolve. The grievance mechanism designed for this project allows interested parties to submit complaints and comments free of charge.

Methodologies for resolving grievances are an effective means of addressing concerns and complaints to find solutions for communities, promoting constructive and healthy development that contributes to achieving a project's objectives.

Strong and reliable grievance mechanisms can help address problems proactively as they arise, thereby preventing damage to local community trust or the escalation of issues to irresolvable levels. Trust is essential for a grievance mechanism; individuals need assurance that their confidentiality will be protected and that they will not face retaliation for voicing their concerns and participating in the complaint resolution process. Furthermore, participation in a grievance mechanism is always voluntary, and community members must know that they can choose not to participate freely. It is also essential that all stakeholders, regardless of their size and influence, are informed that all complaints received, regardless of the project's stage, will be addressed through a single mechanism. This approach ensures legitimacy, reliability, transparency, and efficiency throughout the process.

Sometimes a simple complaint, if not addressed in a timely and proper manner, can escalate into a dispute. Understanding and managing community and stakeholder issues and concerns is vital to the long-term successful relationship between the project owner and the communities. Unresolved community issues can affect the Project adversely. Therefore, is important that a simple and effective grievance management process is established and implemented.

Grievance Mechanisms do not replace judicial or other non-judicial actions, however, when implemented effectively, these mechanisms offer an efficient, immediate and low-cost approach to resolving problems.

The GRM will provide guidance for the management of suggestions and complaints of the community and stakeholders throughout all Project phases. This protocol will allow to:

- Understand the stakeholder's perception of Project risks and impacts to adjust its measures and actions to address their concerns
- Inform affected stakeholders about the process which will be followed in response to grievances
- Address and redress stakeholder complaints
- Make available to the affected stakeholders an effective complaints mechanism
- Map stakeholder suggestions as an opportunity for continuous improvement; creating or changing an existing system and learning process

This protocol applies to any stakeholder (individuals, groups of individuals, communities, companies, institutions, NGOs, among others) affected by the activities of the Project or by the activities of contractors retained to undertake any work related to the Project. The GRM is thus a tool aimed at addressing grievances of stakeholders associated with the Project for its entire duration.

15.4.2. Principles

The grievance mechanism is governed by the following principles:

Safety: Any interested or affected stakeholder will feel safe and confident to raise a grievance or suggestion without fear of reprisal.

Accessibility and inclusive: The protocol will be readily available and easily accessed by any stakeholder.

ADPG will take all practicable steps to disseminate the mechanism and to remove potential constraints to access such as language, illiteracy and distance through, among other things, the utilization of local media and local languages to disseminate the mechanism. It will be accessible to all stakeholder groups in the project area, including disadvantaged or vulnerable groups, those less likely to have the means to express their concerns or opinions (e.g. women, the elderly, children, etc.).

Publicized: the mechanism will be publicized through engagement activities and information dissemination to ensure stakeholders are aware of and understand the process.

Timely: All grievances will be addressed promptly to prevent escalation into disputes and mitigate major risks to the project. Complaints will be received and resolved with feedback provided within an agreed timeframe to effectively manage expectations.

Respect: The grievance resolution process will be in compliance with internationally recognized human rights standards, such as the Covenants on Economic, Social and Cultural Rights, Civil and Political Rights, Convention on the Elimination of All forms of Discrimination against Women (CEDAW), Convention of the Rights of Persons with Disabilities (CRPD), Committee on the Elimination of Racial Discrimination (CERD), and Convention on the Rights of the Child (CRC).

Transparency and Accountability: The grievance redress process and outcomes will be sufficiently transparent to meet public interest concerns without compromising the privacy or identity of individuals. They will likewise be and be perceived to be fair, independent and legitimate. Complaints will remain confidential and anonymous.

Predictability: The process will be consistently applied with clear timeframes for each stage and provide clarity on the types of process and outcomes that can and cannot be offered.

Recorded: Complaints and issues will be recorded and tracked.

15.4.3. Complaints and Suggestions

There are three main types of complaints and suggestions, namely:

- Individual: refers to a grievance or suggestion raised by an individual community member or stakeholder.
- Group: refers to grievance or suggestion raised by a specific group of people or stakeholders such as gender group, disability, professional association, etc.
- Community: refers to grievance or suggestion involving a whole community. These complaints may be made in a community meeting or by the community leader on behalf of the community explaining in this case the reason why this is a community complaint.

15.4.3.1. Complaints

The management of a complaint is more complex than dealing with a suggestion, and will follow the steps summarized below:

The methodology presented below establishes a set of 8 steps to be taken to resolve reported complaints and deadlines for concluding the complaint (refer to Table 19).

Step	Step Description	Deadline after receipt of complaint
1	Receive and register the complaint	24 hours
2	Classify	3 days
3	Recognize	7 days
5	Investigate and consult	20 days
5	Communicate resolution	22 days
6	Use external experts	1 month
7	Implement the response to resolve the complaint	1 month
8	Close the complaint	1 month

Table 19.- Steps in the Complaint Mechanism

Step 1 - Receive and register the complaint (deadline 24 hours)

All project stakeholders can submit complaints by:

- Filling in a written complaint form, available free of charge at the Port of Luanda or at the construction site. The form will be accompanied by a blank envelope. Once completed, the form should be placed inside the envelope and returned to a complaint box located at the Port of Luanda.
- Verbally to the Project's Focal Point for Complaints Management, by telephone, to a number to be made publicly available and within a fixed daily period of hours, by email, or to the community leaders who will liaise with the Project's Focal Point.

Regardless of their format, all complaints and issues, whether received verbally or in writing, will be formally registered by the complainant or the Project Focal Point using the Project Complaint Form, as shown in Annex 7 (Volume III). The complainant's contact details are optional, and anonymous complaints are valid. In addition to complaints, requests, suggestions, and social issues can also be registered. A clear description of the incident or complaint and the problems is required.

Step 2 - Classify (within 3 days)

There must be an acknowledgement/confirmation that the complaint has been received, registered and elected for a response. Acknowledgment must take place no later than 3 days after receipt.

Complaints will be analyzed and assigned to different categories and according to 3 priority levels:

- Level 1 - Minimum Priority Complaint: a local, isolated and punctual complaint that can be dealt with limited effort. They are of a minor nature and do not threaten the prevailing situation in which the complaint is registered. They are usually generated and motivated by individual interests.
- Level 2 - Medium Priority Complaint: widespread and/or ongoing complaints, this could be an environmental issue, for example. It is widespread in nature, probably affecting more than one person, group or community. It has the potential, if not addressed, to turn into a serious social incident (e.g. noise, vibration and dust during construction).

- Level 3 - Critical Priority Complaint: potential for significant violation of applicable law, company policies and/or negative media attention, security of facility property, employees and stakeholders (e.g. abuse by security force).

Step 3 - Acknowledge (7-day deadline)

There should be an acknowledgement/confirmation that the complaint has been received, registered and elected to be responded to. Acknowledgment should take place no later than 7 days after receipt. This should be in written form and made available to the public in the same places where complaint forms are available to interested parties. Where possible, information will be provided on the next course of action, as well as an indicative timetable for resolution.

Step 4 - Investigate and consult (20 days)

The Focal Point must investigate the complaints and consult with the Project Coordinator and other relevant people in order to:

- Identify the actions required to resolve the complaint, as well as the person/party responsible. If unable to deal directly with the complaint, he or she will assign it to the appropriate employee, team or contractor for resolution. The identified individual or team will assist in the complaint resolution process.
- If necessary, support the identification of a suitable investigation team with the appropriate skills to investigate the issue raised and decide whether it is related to the project or more appropriately addressed by a third party (e.g. competent authority).
- Support the investigation, including (where appropriate) carrying out field visits, conducting consultations, checking files with the person concerned and company representatives.
- Investigate whether the incident that led to the complaint is a singular occurrence or likely to occur again.
- Identify activities, procedures, equipment and training to address and prevent recurrence.
- Make sure that any request made to a unit manager, who can help resolve the problem, is correctly delegated to him/her.
- Remain responsible for tracking complaints and problems, as well as ensuring that they are dealt with correctly.

Step 5 - Communicate the resolution (within 22 days)

The team responsible must communicate within no more than 22 days and in writing, using non-technical language whenever possible. If the solution is accepted, it is implemented. If the complainant does not agree, an appeal process can be initiated.

Step 6 - Recourse to external experts (1 month)

If the complainant is not satisfied with the outcome, they can request an appeal process, with the complaint being reviewed again by an autonomous secondary team. Ultimately, if the complainant is still dissatisfied, they can go to court or to the World Bank mechanism (https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service).

Step 7 - Implement the response to resolve the complaint (1 month deadline)

If there is an agreement between the complainant and the person responsible for managing the mechanism, the response should be implemented within one month.

Step 8 - Close the complaint (1 month deadline)

When the response is satisfactory, the team responsible should document it and its resolution. It will also be necessary to obtain a written document from the previous complainant indicating their satisfaction with the response obtained.

The Focal Point and the responsible person/party identified for resolution must ensure that the recommended corrective measures are effectively implemented in an efficient and timely manner. The Focal Point must inform the interested parties of the progress of the corrective measures applied.

15.4.3.2. Suggestions

Suggestions are normally easier to deal with than complaints. The procedure will follow the steps indicated below:

- Presentation: The suggestion is presented using one of the communication channels (face to-face interaction, complaints and suggestion book, email or voice call...).
- Receipt and acknowledgement: Suggestion must be receipt and recorded into complaints and suggestion book and an acknowledgement letter to the affected person should be delivered within 5 days.
- Answer: After due consideration of the suggestion, a letter indicating result/outcome should be prepared and delivered to the affected person.
- Closing: After delivery of the answer letter, the matter will be considered closed.

15.4.4. Procedures characteristics

A grievance within a 17-day period of the receipt of a complaint will be managed. Where an investigation takes longer than 17 days, the person responsible will notify (in writing) the stakeholder in advance, indicating the reasons for the delay. If the complainant does not agree with the resolution proposal, and it isn't possible to reach an agreement on the issue resolution, the complainant may request that the complaint be escalated to Directors, who will review the process and communicate their decision to the complainant within 7 days. Where the complainant is not satisfied with the proposed resolution, he has the right to appeal to a third party, here proposed to be the Arbitration Committee.

The Arbitration Committee will analyze the case and arrive at a decision. Decisions made by this forum will be considered final regarding the scope of this grievance management protocol. If the complainant does not agree with the decision of the Arbitration Committee, they can escalate the issue to the judicial system. Information about their right of escalation and the appropriate judicial channel, or available World Bank grievance redress mechanisms, to direct their complaint will be provided to the complainant. However, this level of escalation is outside the scope of this management protocol.

15.5. Monitoring

Grievance Redress Mechanism shall be monitored since it is necessary to check if the protocol is working effectively or any issue shall be modified to improve its effectiveness. However, its monitoring might be different from the ones referred to in other plans/programs as it will consist of the compliance with the procedures and measurement of solved/unsolved cases.

The GRM will last from the design phase, since several enquiries shall be agreed with communities, until the end of the project's life, as during the whole operational phase any complaint/suggestion might be posed.

A complaint form for the GRM is included in Annex 7 of Volume III.

15.5.1. Monitoring Locations

No location applies to the GRM.

15.5.2. Monitoring Parameters

Monitoring the GRM must consist in checking the effectiveness of the procedure, assuring communities grievance/complaints/suggestions are being addresses. The following parameters will be recorded:

- Number of grievance/complains/suggestions received, of which the total might be solved;
- Adjustment to the fixed times to manage the grievance/complains/suggestion;
- Number of times the Arbitration Committee has to analyze any case and decide;
- The number of times appropriate judicial channel or similar must be escalated.

15.5.3. Monitoring Frequency

Monitoring will be undertaken at least monthly during the construction phase. When the project is operating, frequency will reduce to twice a year in the first five years and annual thereafter.

If the number of grievance/complains/suggestions increase suddenly in any working/operating period, monitoring frequency and reporting will also increase.

15.5.4. Monitoring responsible

The responsible of the GRM will be the person in charge of the Environmental Management Program, at least a senior member with the overall direction of the work. A minimum of 5 years of relevant experience will be required. The responsible person will be expected to promote and maintain the high standard required, regularly inform the client, including reporting agreed, and proposed any technique variation or complementary study required.

15.5.5. Sampling methods

Instead of sampling methods, when monitoring the compliance with the GRM procedure, time to solve the procedures and the number of procedures itself are the issues to check. Also, the necessity of external arbitration needs might be considered.

Monitoring actions	Description	Implementation Schedule
Periodic GRM monitoring	GRM procedures monitoring actions will be developed during both project phases.	Construction phase: monthly. Operational phase: biannual first 5 years, annual thereafter.
GRM monitoring in response to repetitive complaints	If GRM is not being efficient and repetitive complaints from the local population about any issue are registered, (i) simple immediate measures (such as stop the action which is causing the disturbance until a deeper investigation is made) will be implemented; and (ii) check the reason why the GRM is delayed or not properly functioning, to verify the effectiveness and define additional measures, if required.	When necessary

15.6. Corrective actions

If exceedances of complaints from the local communities are lodged, or repetitive ones, the causes of such grievances will be identified and corrected. Exceedances may result from:

- Non-compliance with the Grievance Redress Mechanism;
- Delay on the appliance of the GRM.

In the event of non-compliances or delays, additional actions will be implemented, as required, to eliminate or minimize the negative effects. These additional actions will be defined case by case, depending on the assessment of the specific issues. The following are examples of possible ones and control actions that may be adopted:

- Analyze if GRM needs any modification on deadlines to attend properly the procedures once a grievance/complain/suggestion is received;
- Additional personnel to be dedicated to the GRM to avoid delays or unaddressed procedures.

After the implementation of the corrective actions, a monitoring campaign will be undertaken to verify the resolution of the non-compliances recorded.

Corrective actions	Description	Implementation Schedule
Act on non-compliances	If GRM non-compliances are recorded because of the proposed monitoring, the causes shall be identified and corrected, through the implementation of adequate modifications and actions to be identified based on the nature of the specific conditions that led to the recorded non-compliance. Following correction, monitoring will be undertaken to verify resolution.	Whenever necessary

Table 20. Corrective actions.

15.7. Reports

Documental records will be kept controlling the execution of this Grievance Redress Mechanism development. These documents will be prepared, archived and maintained by the environmental management team, to document the results of the program implementation.

Records of relevant events will be made following the occurrence and a monthly Performance Report will be prepared, reporting on the recorded events and performance indicators during the construction phase. Additionally, in the operational phase, biannual reports will be prepared during the first five years, and annual ones thereafter.

If frequency changes due to any larger episode of grievance/complaints/suggestions, reports might also vary its occurrence.

16. STEPS AND GUIDELINES TO MANAGE STAKEHOLDER ENGAGEMENT DURING THE CONSTRUCTION AND OPERATION PHASES

The Stakeholder Engagement Plan developed during the ESIA phase should serve as the foundation for engagement activities during the construction and operation phases. Thanks to the information gathered during the ESIA phase, most potential impacts can be identified in advance, allowing for the establishment of a series of mitigation measures to be implemented during subsequent phases, including those addressing concerns raised by various stakeholders consulted during early stages.

16.1. Stakeholder engagement during construction phase

Once construction begins, it is essential to involve affected stakeholders in monitoring the anticipated impacts throughout the construction period. Engagement during construction is mainly about involving stakeholders in assessing whether mitigation measures are working as intended, to establish possible additional measures if deviations are detected from what was expected.

For this reason, it is crucial to keep the grievance mechanism active, addressing any complaints or suggestions diligently throughout the construction process. Based on the stakeholders identified in the previous phase, their concerns, and following the structure and steps set out in the grievance mechanism, the stakeholder engagement plan during the construction phase should include at least the following activities:

- Consider the list of stakeholders identified during the ESIA phase and analyze the possible existence of additional stakeholders, derived from truck routes transporting construction materials, potential material stockpile locations, or places outside the port facility where staff may be convened. It's important to note that once the project design is finalized and the scope of construction work is agreed upon with contractors, it will become much clearer which specific stakeholder groups will be affected by the various construction activities and when.
- Inform local stakeholders of the specific schedule of activities that may affect them. There will be days when noise-generating activities are scheduled, days when dust-producing activities will occur, or specific dates when vessels may need to adapt their schedules to fit the mooring times at the temporary facility. If necessary, a periodic communication schedule may be established for key stakeholders regarding the progress of activities that directly affect them. Providing information in advance predisposes stakeholders to dialogue and understanding.
- Track the resolution of complaints received through the established grievance mechanism and respond diligently, especially concerning complaints that require immediate attention.
- Ensure the ability of the responsible parties within the contractor team to maintain cordial relationships with stakeholders to prevent risks arising from interactions between them. It is important to keep in mind that during construction, it is typically the contractors and subcontractors who have day-to-day contact with local stakeholders.

16.2. Stakeholder engagement during operation phase

While the phase with the highest risks and potential complaints or issues to address with stakeholders is the construction phase, it is important to maintain contact with stakeholders during the operation phase, even if less frequently, but in a way that ensures the continuity of relationships. Establishing a dynamic stakeholder engagement plan that can adapt to the potential emergence of new stakeholders, changes in concerns among existing ones, or new future interests is highly relevant. Taking these considerations into account, the main activities that should be included in the stakeholder engagement plan during the operation phase are the following:

- Properly manage the transition from construction to operation, ensuring the continuation of relationships established with various stakeholders during the construction phase. The transition to operations can be a time of uncertainty for local stakeholders, so it is important to communicate what changes are to be expected and what impacts, if any, this might have on local residents or Terminal users.
- Ensure the integration of ongoing stakeholder commitments into operations management systems, identifying, prior to the start of the transition, how the outstanding commitments for mitigation and project benefits will be integrated with the proposed or existing management and performance functions of the company during operations.
- Regularly communicate emergency preparedness and response plans, as stakeholder engagement during operations should be designed to maintain levels of awareness. This can be done by

periodically conducting practice drills and simulations involving communities, and jointly reviewing and updating existing emergency response procedures.

- Keep the grievance mechanism operational. Once the construction period is over, the project is likely to experience a decrease in the number of complaints. This may be because the issues previously raised have now been resolved, or because the moment of maximum impact has passed, but it is important to keep the grievance mechanism active for receiving and addressing public concerns whenever they may arise throughout the life of the project.
- Evaluate the need to assess stakeholder perceptions, including through the establishment of a monitoring program. The benefits of third-party monitoring include increased transparency and trust between the company and stakeholders, as well as an objective assessment of environmental and social performance.
- Continue to disclose, consult, and report to stakeholders as needed, considering that ongoing disclosure of project information to stakeholders, as well as the nature and frequency of consultation activities and reporting during normal operations, should be commensurate with the extent of impacts and stakeholder concerns.

17. KEY GUIDELINES AND RECOMMENDATIONS FOR DEVELOPING AN ASBESTOS MANAGEMENT PLAN

As noted in the project description, this project involves the demolition of all old warehouses, offices, and other structures that form part of the Unicargas Terminal, which might have asbestos Containing Materials (ACMs). Therefore, the following guidelines in this section are provided.

The Contractor will be required to carry out a pre-demolition survey to identity the presence of the Asbestos Containing Materials (ACMs) in the structures to be demolished.

17.1. Justification and objectives

An asbestos management plan is essential primarily because of the severe health risks posed by asbestos exposure. Asbestos, a once-popular construction material, is now known to be a significant health hazard. Prolonged exposure can lead to serious diseases such as mesothelioma, lung cancer, and asbestosis. These conditions not only compromise the health and well-being of individuals but also result in substantial medical expenses and emotional distress.

In addition to the health implications, there are stringent legal obligations for building owners and managers to manage asbestos responsibly. Regulatory agencies mandate the identification, assessment, and control of asbestos-containing materials (ACMs) in buildings. Failure to comply with these regulations can result in hefty fines and legal consequences, tarnishing the reputation of the responsible parties. By having a comprehensive asbestos management plan, building owners can ensure they meet all legal requirements and avoid these serious repercussions.

An asbestos management plan is a detailed framework that sets out procedures to manage asbestos-containing materials (ACMs) within buildings, focusing on safeguarding both occupants and workers from asbestos exposure. This plan management plan is crucial for protecting the health and safety of building occupants and workers.

By identifying and managing asbestos risks, building owners can create a safer environment, minimizing the chances of asbestos exposure. This commitment to safety fosters trust and reassurance among occupants and employees, enhancing overall satisfaction and productivity.

17.2. Legal Framework

Historically, asbestos was widely utilized in construction for its fire-resistant qualities, but its serious health risks have since necessitated careful management of any remaining ACMs in older structures. Implementing an asbestos management plan ensures safety and compliance with regulatory standards for identifying, handling, and safely disposing of asbestos.

A fundamental component of an asbestos management plan is adherence to the relevant regulations at local, state, and federal levels. While regulatory requirements for asbestos differ across jurisdictions, most mandate specific protocols for the detection, handling, and disposal of asbestos materials.

In Angola, however, there are no specific asbestos regulations as found in many other countries with strict controls over its use and disposal. Nevertheless, asbestos management in Angola is indirectly governed by broader hazardous waste management laws, often under the oversight of Angola's Ministry of Environment (MINAMB) and other health and safety regulatory bodies. In this context, companies operating in Angola frequently adopt international best practices for asbestos management to align with global safety standards and to mitigate risks effectively.

Referring to the requirements set forth in the IFC General Environmental, Health, and Safety (EHS) Guidelines, it is important to highlight the following regarding asbestos:

> *The use of asbestos containing materials (ACM) should be avoided in new buildings or as a new material in remodeling or renovation activities. Existing facilities with ACM should develop an asbestos management plan which clearly identifies the locations where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all people involved in operations and maintenance activities. Repair or removal and disposal of existing ACM in buildings should only be performed by specially trained personnel following host country requirements, or in their absence, internationally recognized procedures.*

The same referenced document mentions the following standards as recognized procedures that should be considered when establishing asbestos management activities in the corresponding plan:

- American National Standards Institute (ANSI)/American Society for Testing and Materials (ASTM)
  - ASTM E1368, Standard Practice for Visual Inspection of Asbestos Abatement Projects. Establishes accepted practices for evaluating asbestos abatement projects.
  - ASTM E2356, Standard Practice for Comprehensive Building Asbestos Surveys. This practice describes procedures for conducting comprehensive surveys of buildings and facilities for the purpose of locating, identifying, quantifying, and assessing asbestos-containing materials.

- ASTM E2394, Standard Practice for Maintenance, Renovation and Repair of Installed Asbestos Cement Products. This practice describes work practices for asbestos-cement products when maintenance, renovation, and repair are required. This includes common tasks such as drilling and cutting holes in roofing, siding, pipes, etc. that can result in exposure to asbestos fibers if not done carefully.

All the elements discussed in this part, as well as the recommendations detailed in the subsequent sections, should be considered when developing the asbestos management plan, once the presence and type of asbestos in the existing terminal facilities have been confirmed.

17.3. Guidelines for Selecting Contractors for Asbestos-Containing Material Management

The selection of contractors for managing asbestos-containing materials (ACMs) is a critical step in ensuring the safety of workers and the surrounding community, as well as compliance with applicable environmental and health regulations. Proper contractor selection minimizes risks associated with asbestos exposure and ensures the successful completion of ACM-related tasks, whether surveying, removal, or encapsulation. This section outlines the essential considerations for contractor selection, emphasizing safety, regulatory compliance, and quality assurance.

Understanding the nature and Scope of Work

Contractor selection begins with a clear and precise definition of the project's objectives and requirements. The scope of work must detail the type of ACM to be managed, its location, the estimated quantity, and the condition of the materials. This understanding enables the development of tailored methodologies.

For instance, in cases where the ACM is friable or poses a high risk of airborne fiber release, specialized techniques like wet methods may be necessary to suppress dust and minimize exposure. Phased removal or specific scheduling (e.g., considering other construction works to be conducted at the same time) should be considered to minimize disruption and risk. These specific details allow potential contractors to assess their capability to meet the project's demands.

Evaluating contractor accreditation and compliance

To ensure that the work is carried out to the highest safety and regulatory standards, contractors must demonstrate appropriate licensing and accreditation. This includes compliance with asbestos regulations, such as possession of an asbestos-handling license or certification under international standards like ISO 45001 for Occupational Health and Safety Management.

Additionally, the contractor's history of compliance with statutory bodies, absence of fines or citations, and implementation of robust safety, health, and environmental policies should be reviewed. These policies must include documented risk assessments, incident reporting mechanisms, and signed commitments from senior management.

Ensuring individual competency and training

While company-level accreditation ensures an organization has overarching safety systems in place, the competency of individual workers and supervisors is equally important. Contractors must provide evidence

of task-specific training for their personnel, including knowledge of asbestos health risks, safe handling practices, and the use of specialized equipment.

Personnel should be proficient in constructing and maintaining airtight enclosures, operating negative pressure units, and implementing appropriate waste handling protocols. Respiratory protective equipment (RPE) must be properly fitted and tested for each worker, with procedures in place to ensure compliance with fit-testing requirements. This focus on individual competency ensures that work is carried out effectively and safely.

Continuous monitoring and revalidation

Ongoing monitoring of contractor performance is essential to maintain safety and quality throughout the project construction works. Regular inspections of work areas, enclosures, and decontamination units should be conducted to ensure sustained compliance with project standards and legal requirements.

Contractors must maintain a documented system for recording incidents, accidents, and near-misses. This system not only serves as a record of compliance but also facilitates continuous improvement by identifying areas for corrective actions. Similarly, the management of asbestos waste must be closely monitored to ensure compliance with hazardous waste regulations. Proper documentation, including waste transport and disposal certificates, is mandatory to verify that the waste has been handled correctly and transported to a licensed disposal facility.

Establishing clear contractual obligations

All contractual agreements with contractors should explicitly define responsibilities and deliverables related to asbestos management. These agreements must detail waste handling procedures, reporting obligations, validation of work quality, and penalties for non-compliance. Contractors must also demonstrate financial stability, particularly for large-scale or long-duration projects, to avoid disruptions due to funding shortfalls.

Independent oversight

Given the hazardous nature of asbestos, independent oversight is a critical safeguard. An external supervisor should be engaged to monitor contractor activities, ensuring adherence to the defined scope of work and project timelines. The supervisor's role includes verifying enclosure integrity, evaluating the quality of removal techniques, and confirming that remedial actions are implemented when necessary. This independent assessment ensures accountability and provides reassurance that the work complies with all safety and environmental standards.

17.4. Actions and content of the AMP

Considering the reference documentation mentioned in the previous section, as well as the *Asbestos Handling and Disposal Guidelines published by the United Nations Development Programme* (UNDP), the following contents should be considered when developing an asbestos management plan in the event that its presence is detected in the terminal facilities.

Conducting Asbestos survey

The initial phase of an asbestos management plan involves conducting a detailed asbestos survey. Certified specialists should perform this survey to accurately locate Asbestos-Containing Materials (ACMs) throughout

the buildings. Bringing in qualified experts ensures that the assessment is thorough and aligned with current regulatory requirements.

Creating the Asbestos Register

Once the survey is complete, the ACMs must be inspected and their condition evaluated. This evaluation helps determine the level of risk posed by the identified asbestos materials, taking into account factors like type, location, and any visible damage or deterioration. High-risk areas are identified and prioritized based on their potential to release asbestos fibers, with more stable materials possibly monitored over time instead.

Risk evaluation and prioritization

Following the inspection, a detailed risk analysis is essential to prioritize issues effectively. This analysis categorizes ACMs by their likelihood of disturbance and the potential for fiber release, allowing resources to focus on critical areas first. High-risk locations may require immediate attention.

Communication

Effective communication is another key aspect, ensuring that staff and contractors are informed of ACM locations, associated risks, and safety procedures. Clear instructions and regular updates help foster a safe environment, ensuring that everyone understands their role in managing asbestos risks and management plan's effectiveness.

Training

Training is another critical component of the Asbestos Management Plan. Mandatory asbestos awareness training should be provided to workers involved in asbestos handling and disposal. Training should cover legal requirements, safety procedures, PPE usage, waste handling, and emergency protocols.

The Asbestos Management Plan should document all training activities, including who was trained and when, to ensure compliance and preparedness. Organizations involved in cleanup operations must ensure that workers are not exposed to asbestos fibers. Proper training and awareness are essential for those who might encounter asbestos.

Transportation and final disposal

Waste should be transported by licensed carriers, using sealed skips or specially designed vehicles. Waste must be dampened to minimize fiber release, and proper personal protective equipment (PPE) should be worn during handling.

Asbestos waste should be disposed of at licensed facilities specifically designed for hazardous waste. Proper signage and access restrictions must be in place at disposal sites to prevent unauthorized entry.

Documentation and record-keeping

Accurate and detailed record-keeping is essential for the ongoing management of asbestos risks. It should include:

- Survey findings and risk assessments.
- Records of all inspections and their outcomes.

- Details of any remedial actions taken and the results of those actions.
- Scheduled review dates to ensure the plan remains current and effective.

Keeping detailed records of all inspections, actions taken, and updates made to the AMP is essential for compliance and accountability. Documentation should include the dates of inspections, the findings, any remedial actions taken, and the results of those actions. This record-keeping not only helps in tracking the effectiveness of the AMP but also provides evidence of compliance with regulatory requirements.

17.5. Pre-demolition survey

As indicated before, the first step in this process involves conducting a comprehensive asbestos survey. There are different types of surveys typically conducted prior to demolition work, the most common being the pre-demolition survey and the pre-refurbishment survey.

A pre-demolition survey is completed before any demolition begins, involving an in-depth examination of the building or structure to detect and assess any hazardous materials, including asbestos, lead, or other dangerous substances. Conducted by a trained and certified inspector, this survey covers all accessible areas, such as ceilings, walls, and floors, where hazardous materials might be present. Samples may be collected and sent to a lab to identify and quantify any asbestos or other toxic substances. Once the survey is finalized, a detailed report is issued that outlines the findings and offers guidance on how to proceed safely with demolition. This document is critical for the demolition contractor, as it provides essential information for planning and safely conducting the demolition.

A pre-refurbishment survey follows a similar methodology and scope as the pre-demolition survey, focusing specifically on areas that will be impacted by the planned refurbishment work. The inspector will locate any hazardous materials in these areas and provide advice on safe removal or management to prevent health risks to workers during the renovation process

As noted in the project description, this project involves the demolition of all warehouses, offices, and other structures that form part of the Unicargas Terminal, with plans to replace these with new buildings. Consequently, the asbestos survey needed at the outset of the asbestos management plan should follow the approach of a pre-demolition survey.

As indicated before, a pre-demolition survey, also known as a pre-demolition assessment or a pre-demolition inspection, is a systematic evaluation of a building or structure prior to its demolition. The primary objective of this survey is to identify and assess any potential hazards that may be present, such as asbestos-containing materials, hazardous substances, or structural weaknesses.

The asbestos survey process is designed to be adaptable, allowing for adjustments based on the building's size, complexity, and specific characteristics. The comprehensive approach includes several key components to ensure effective identification and management of asbestos-containing materials (ACMs) and other hazardous substances:

Pre-Survey Planning

Before initiating the survey, it's essential to define the scope and objectives clearly. This includes reviewing historical data, such as records, drawings, and any previous survey reports that may provide insights into the

building's condition. A preliminary site visit is conducted to familiarize the survey team with the building's layout and identify potential hazards.

Conducting the Survey

The survey itself involves at least the following activities:

- Visual inspection: the surveyor conducts a comprehensive review of the building's interior and exterior to identify any visible signs of damage, deterioration, or potential hazards.
- Sample collection and laboratory testing: when asbestos or other hazardous materials are suspected, samples are gathered for lab analysis. This process confirms the presence of such materials, allowing for proper handling during demolition.
- Structural assessment: an evaluation of the building's structural integrity is essential to identify weaknesses, instability, or risk of collapse. This assessment informs safe demolition strategies and helps determine necessary precautions.
- Identification of services: the surveyor maps out essential utilities like gas, water, electricity, and telecommunications to ensure they can be safely disconnected or relocated, reducing the risk of incidents during demolition.

Reporting

Upon completion of the survey, a detailed report is prepared. This documentation outlines the findings, including the location, quantity, and condition of any hazardous materials discovered. The report also includes photographs and laboratory test results. Furthermore, it provides recommendations for managing identified hazards, covering options such as removal, containment, and safe disposal methods. This report serves as a critical reference for contractors and stakeholders, guiding them in proceeding with safe demolition practices.

Post-Survey Actions

Following the survey, relevant authorities should be notified, ensuring compliance with legal requirements related to asbestos management. A remediation plan must be developed to address the safe removal and disposal of any hazardous materials identified. Ongoing monitoring procedures should also be implemented to guarantee the continued safety of the site throughout the demolition process.

17.6. Managing an asbestos incident

Asbestos incidents can have severe implications for human health and the environment. Asbestos fibers, when released into the air, can be inhaled, causing long-term health risks such as lung cancer, mesothelioma, and asbestosis. These incidents require immediate, carefully managed responses to protect individuals, control contamination, and ensure organizational compliance.

Managing an asbestos incident requires a systematic approach that prioritizes human health, environmental containment, and organizational accountability. By following the following guidelines, organizations can minimize risks, ensure regulatory compliance, and foster a safer working environment.

Immediate actions for individuals

When asbestos is disturbed, either accidentally or through unforeseen circumstances, immediate actions are critical to minimize risks to individuals and prevent further contamination.

- **Stop work immediately**: the first and most vital step is to halt any ongoing activities. Continuing work risks disturbing asbestos fibers further, potentially increasing exposure to airborne fibers. Workers must act quickly to stabilize the situation without panicking.
- **Secure the area**:
  - All powered equipment, such as drills or vacuums, should be turned off to avoid creating additional hazards.
  - The workspace should be isolated to prevent unauthorized entry. This includes informing nearby individuals to leave the area and placing temporary physical barriers or warning signs reading "Possible Asbestos Contamination."
- **Decontaminate immediately**: workers who suspect exposure must:
  - Remove potentially contaminated clothing carefully to prevent further fiber release.
  - Seal the clothing in asbestos waste bags for proper disposal.
  - Take a thorough shower, washing hair and exposed skin to remove any fibers.
  - Replace clothing with clean, uncontaminated garments.

Containing and managing the environment

Managing the physical environment where asbestos has been disturbed is essential to prevent further contamination and exposure. In this regard, the following should be considered:

- **Engaging accredited contractors**: organizations should have pre-approved asbestos remediation contractors readily available to respond quickly. Only accredited professionals should handle asbestos-containing materials (ACMs) to ensure compliance with regulations.
- **Initial containment measures**:
  - The contaminated area must be dampened to reduce the risk of airborne fiber release. This can be achieved by using water or a specialized asbestos wetting agent.
  - For small debris, an H-Type industrial vacuum cleaner designed for hazardous materials can be used. Larger or widespread contamination may require a full environmental clean, including wiping all surfaces with the wetting agent and securing loose debris in double-sealed asbestos waste bags.
- **Sampling and analysis**: if the presence of asbestos is uncertain, samples must be collected and sent to an accredited laboratory for analysis. In the absence of immediate testing, it is safer to presume the material contains asbestos and proceed with containment measures accordingly.
- **Post-cleanup air testing**: after containment and cleanup, air-quality tests should be conducted to ensure no lingering asbestos fibers remain in the area. Reassurance tests can help alleviate concerns among workers and building occupants, while clearance testing verifies that the area is safe for reoccupation.

Health and Safety of Exposed Individuals

Managing the health implications for individuals exposed to asbestos is a core part of incident management.

- **Counseling and support**: exposure to a known carcinogen like asbestos can cause significant psychological distress. Employers should provide counseling services to address workers' mental well-being following the incident.
- **Health monitoring**: affected individuals should undergo health surveillance, which includes:
    - Chest radiographs: these can provide baseline data for future reference, even though immediate effects of asbestos exposure are unlikely to appear.
    - Pulmonary function tests: these assess lung capacity and function.
    - General health assessments: these establish the worker's health status post-exposure and identify any areas of concern.

Post-incident review

After resolving an asbestos incident, it is essential to conduct a comprehensive review of the organization's response and preparedness. This includes:

- **Improving organizational procedures:** an asbestos incident often highlights gaps in existing management systems. Organizations must review and strengthen their asbestos-related procedures to prevent reoccurrence.
- **Updating the Asbestos Register**: all new findings, whether positive or negative for asbestos, must be added to the asbestos register. This ensures that future workers are informed about materials and locations of concern.
- **Emergency containment kits**: the organization should evaluate the availability and adequacy of emergency containment kits. These kits should include warning signs, sealing materials, and PPE to allow for rapid containment during incidents.
- **Training and awareness**: regular training sessions should be conducted to ensure that all employees understand the risks of asbestos and how to respond in an emergency. Annual refreshers on asbestos awareness are recommended for all staff, particularly those in maintenance and construction roles. Considering if updates to information, instruction, or training are necessary based on lessons learned.
- **Contractor selection and supervision**: if the incident involved external contractors, their qualifications, training, and adherence to organizational procedures must be reviewed. Organizations should enforce strict contractor selection criteria to prevent future incidents.

18. KEY GUIDELINES FOR ADDRESSING GBV RISKS DURING THE WORKER RECRUITMENT PHASE

18.1. Justification and objectives

The World Bank Group considers that no country, community, or economy can achieve its potential or meet the challenges of the 21st century without the full and equal participation of women and men, girls and boys. It is committed to closing gaps between males and females globally for lasting impact in tackling poverty and driving sustainable economic growth that benefits all (World Bank, 2018).

Projects requiring external labor due to insufficient local supply can heighten risks of gender-based violence (GBV), particularly with the temporary influx of workers from outside the project area. The World Bank's 2016 Labor Influx Guidance Note outlines procedures for identifying, assessing, and managing these risks in Bank-financed projects. The guidance helps teams evaluate the labor influx risk profile, which depends on:

- Scale of the influx (Larger numbers of incoming workers pose higher risks).
- Absorptive capacity of the local community (Communities with limited resources or in remote areas face greater impacts than urban areas).

Additional factors such as cultural differences and project duration may also influence risk levels. Addressing labor influx is crucial in mitigating GBV risks, including sexual exploitation and abuse (SEA) and sexual harassment (SH)

If a significant increase in the risk of gender-based violence (GBV) is identified during the worker recruitment phase, a dedicated GBV Action Plan will be developed to ensure the project's compliance with best practices and safeguard measures. This plan will fully adhere to the World Bank's Good Practice Note on addressing GBV in Investment Project Financing involving large civil works and will be guided by the following principles and requirements.

18.2. Key guidelines

Worker recruitment is a critical phase in construction projects that can significantly influence the risks of gender-based violence (GBV), including sexual exploitation and abuse (SEA) and sexual harassment (SH). This phase must be managed carefully to ensure that preventive and mitigation measures against GBV are embedded from the outset.

Integrating GBV Considerations in Recruitment Practices

The recruitment process offers an opportunity to set clear expectations about behavior and responsibilities regarding GBV. To address these risks following guidelines should be considered:

- Screening and Selection: Recruitment practices must incorporate mechanisms to screen candidates for prior conduct related to GBV or violations of ethical standards. Workers with a history of GBV-related misconduct should not be hired.
- Code of Conduct (CoC): All employees, including subcontractors and suppliers, must sign a CoC upon recruitment. This CoC should explicitly outline unacceptable behaviors, including any form of GBV, and the consequences of violating these standards.
- Awareness During Onboarding: Workers must be sensitized to the risks of GBV and their responsibilities under the CoC during onboarding. Clear communication about the project's zero-tolerance policy toward GBV must be emphasized.

Capacity Building for Recruitment Teams

The teams responsible for hiring must be trained to recognize and mitigate GBV risks during the recruitment process. This includes:

- Understanding GBV risks specific to the project and the host community.
- Familiarity with the CoC and its application in recruitment and employment practices.
- Awareness of cultural and social dynamics that may influence GBV risks.

Gender-Responsive Recruitment Policies

To reduce GBV risks, recruitment policies should prioritize inclusivity and gender responsiveness. This includes:

- Actively promoting the hiring of women and ensuring safe and supportive working environments for female workers.
- Implementing measures to prevent power imbalances during recruitment that could increase the vulnerability of women to SEA and SH.

Labor Influx and Community Sensitivities

If an influx of external labor is required, the associated risks of GBV must be managed, particularly in communities with low absorptive capacity or significant cultural sensitivities. Recruitment strategies should consider:

- Limiting the scale of labor influx by maximizing local hires wherever feasible.
- Preparing workers for respectful interactions with the host community, particularly women and girls, through pre-deployment training.
- Ensuring that the recruitment process does not disrupt local community dynamics, such as competing for limited resources or creating tensions around employment opportunities.

Monitoring and Accountability

The recruitment process must ensure that:

- Adequate resources are allocated for GBV prevention measures during recruitment.
- Recruitment procedures are audited periodically to verify compliance with GBV-related policies.
- Violations of the CoC or other recruitment policies are reported and addressed promptly through established mechanisms.

19. ESMP BUDGET CONSIDERATIONS

19.1. Construction phase

This section outlines the considerations for budgeting the Environmental and Social Management Plan for the Unicargas Terminal project during construction phase. At this stage of the project, the budget for the ESMP cannot be definitively specified, as the necessary data and final details for the construction plan have not yet been completed.

Moreover, the economic circumstances in Angola, including currency fluctuations, inflation, and price variability, introduce further uncertainties in cost estimations. These macroeconomic factors are likely to influence final costs in ways that are difficult to predict. Consequently, it is expected that the budget estimation will be more precise within the Construction ESMP, as it will be based on actual economic proposals from subcontractors once the construction details are confirmed.

Unforeseen contingencies during construction may also require additional resources from the Environmental and Social team, potentially leading to cost adjustments. Therefore, while this section does not provide a budget, it outlines key elements that will need to be quantified within the C-ESMP.

Monitoring surveys

As indicated in previous sections, the C-ESMP must be developed based on the ESMP included in this ESIA, as it relies on the impact assessment and the establishment of appropriate mitigation measures. In this way, the conditions and requirements established for monitoring must be considered to enable adequate tracking of the Project's evaluation and its effects, as well as to verify the proper functioning of the measures implemented and to assess the need for additional measures should deviations from the initial plan occur.

In this regard, it is important to note that some of the monitoring activities included in the ESMP involve in-situ measurements. Depending on the results obtained, these measurements may determine the necessity for more comprehensive monitoring, including the analysis of parameters in a laboratory.

One key challenge to consider in the C-ESMP budget is the uncertainty surrounding the availability of accredited laboratories in Luanda or Angola capable of analyzing the environmental parameters required under the IFC guidelines. While it is possible that some parameters can be tested locally, the lack of reliable data on laboratory capacity and the potential need to outsource analyses to international laboratories introduces significant cost variability. If local laboratories are not equipped to handle certain analyses, samples may need to be sent abroad for testing, which would entail additional costs related to transportation, logistics, and laboratory fees.

Additionally, laboratory pricing for environmental analyses can vary widely depending on the specific tests needed, the laboratory's location, and its certification status. Some laboratories may offer competitive pricing, while others, particularly international ones, could impose significantly higher costs. This price variability makes it impractical to provide a precise budget for the monitoring campaigns at this time.

Personnel for ESMP implementation

While the personnel involved in the implementation of the ESMP is diverse and numerous, the participation of specific specialist technicians highlighted below must be explicitly considered within the ESMP implementation costs:

Senior specialist: This individual will be responsible for overseeing the entire development and execution of the ESMP, ensuring the effective implementation of monitoring campaigns, supervising sampling methods, analyzing results, and recommending additional measures if necessary. The Senior Technician will also have the responsibility of preparing and/or controlling various reports aligned with the ESIA and ESMP requirements, ensuring that all monitoring and compliance documentation is accurate, timely, and comprehensive.

Additionally, the Senior Technician will play a key role in stakeholder engagement, ensuring the continued function of the grievance mechanism and maintaining good relationships with stakeholders throughout the project. This individual will oversee worker training in key ESMP areas, such as waste management, emissions reduction measures, gender violence policies, and emergency protocols, ensuring that all training initiatives are documented and reported. Furthermore, the Senior Technician will be tasked with monitoring compliance with the C-ESMP and verifying that the construction contractor adheres to all specified environmental and social obligations.

Sampling specialist: This technician(s) will be responsible for conducting the field-based sampling campaigns required to obtain data on the various environmental and social parameters specified in the

ESMP. The sampling technician will work closely with the senior technician to ensure that all sampling is done in accordance with the ESMP requirements and that the data collected is accurate and reliable.

Contingency considerations

Given the unpredictable nature of many aspects involved in the ESMP implementation and development, the budget should include a contingency allocation to account for unanticipated events or changes that may necessitate additional monitoring or mitigation measures. This contingency fund will ensure that the project can respond flexibly to unforeseen environmental and social challenges that may arise during the different stages.

19.2. Operation phase

Budget planning for the operational phase of the Unicargas Terminal project is crucial to sustaining the environmental, social, and economic commitments outlined in the Environmental and Social Management Plan. A well-structured budget will ensure that ongoing activities such as environmental monitoring, waste management, health and safety training, and stakeholder engagement, among others, are adequately funded to maintain compliance with national and international standards as well as with the policies of the ADPG Integrated Management System.

However, as mentioned in the previous section, there are numerous uncertainties that prevent a precise estimate. In this regard, all the aspects mentioned earlier regarding the economic circumstances in Angola, including currency fluctuations, inflation, and price variability, are applicable. Additionally, considerations regarding the significant variability of laboratory pricing for environmental analyses depending on the specific tests needed, the laboratory's location, and its certification status should also be taken into account.

In any case, some of the main activities that should be considered in the budget for the operational phase are listed below, in a general form.

Environmental Monitoring and Compliance

During the operational phase, the need to carry out activities dedicated to ensuring environmental compliance should be considered. This includes monitoring air quality, marine water and sediment quality, and noise levels to assess the terminal's impact on the surrounding environment. Specialized technicians and equipment will be required to perform these tasks (refer to the previous section).

Waste Management

The operational phase will generate various types of waste. Since the terminal is currently operational, it already holds a valid waste management certificate and works with accredited waste management companies that regularly handle these activities. However, this process should be reviewed and updated, if necessary, in accordance with the ADPG Integrated System and relevant requirements.

Health, Safety, and Emergency Preparedness

Although the Unicargas terminal is currently operational, maintaining high standards for occupational health and safety is a critical aspect of the terminal's operations. Additionally, the requirements arising from the application of the ADPG Integrated Management System, as the new terminal operator, must be considered. Regular staff training on safety protocols, emergency response drills, and the procurement and maintenance

of safety equipment—such as fire suppression systems, first aid kits, and spill containment materials—will require consistent funding. These activities ensure that the terminal is prepared for potential incidents, mitigating risks to both workers and the surrounding community.

Stakeholder Engagement

Transparent and continuous engagement with stakeholders, including nearby communities, regulatory bodies, and other port users, will form an integral part of the operational budget. Funds will be needed to keep the grievance mechanism active and always updated, as well as for periodic updates to stakeholders on environmental and social performance.

Contingency Planning

Given the dynamic nature of port operations, a contingency fund will be essential to address unforeseen incidents. These might include environmental emergencies, such as oil spills or extreme weather events, as well as unplanned maintenance for critical infrastructure. Allocating a portion of the operational budget for such scenarios will ensure the terminal's resilience and ability to respond effectively to unexpected challenges.

19.3. Estimated budget for the implementation of mitigation measures

Despite the uncertainties raised above, Section 17 of the ESIA (Volume I) includes an estimated budget for the implementation of mitigation measures during the operational phase. With regard to the construction phase, costs arising from compliance with the measures included in the environmental and social management plans are integrated within the lump sum price of the project construction contractor.

20. REFERENCES

- Air Quality Index (2023). https://aqicn.org/
- Brian J. Huntley, Vladimir Russo, Fernanda Lages, Nuno Ferrand -editors- (2019). "*Biodiversity of Angola. Science & Conservation: A Modern Synthesis*". https://doi.org/10.1007/978-3-030-03083-4_2
- Dar Al Handasah Consultant (October 2023). "*Environmental Conditions Assessment Document*" Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Desing & Surveys, Doc number 2800-107-V3-0000-02001.
- Dar Al Handasah Consultant (December 2023). "*Preliminary Geotechnical Interpretative Report*" Unicargas Terminal - Port of Luanda, Angola. Front End Engineering Desing & Surveys, Doc number 2800-107-V3-1510-00003.
- European Digital Archive of Soil Maps -EuDASM- (no date referred). *Angola Erosion Hazard Map* 1/2,000,000. https://esdac.jrc.ec.europa.eu/public_path/shared_folder/eudasm/africa/lists/cao.htm
- FAO/UNESCO (1973). *Soil Map of the World -Africa-* 1/5,000,000 approx. https://www.fao.org/fileadmin/user_upload/soils/docs/Soil_map_FAOUNESCO/new_maps/VI_3_petit.jpg
- Food and Agricultural Organization (FAO) - AQUASTAT (2023). https://data.apps.fao.org/aquastat/?lang=en
- Food and Agricultural Organization (FAO) / United Nations (UN) - Hand-in-Hand (2023). https://data.apps.fao.org/?source=https%3A%2F%2Fio.apps.f...&lang=en
- Geosurveys (2021). "*Bathymetry survey*". Development of Unicargas Port in Luanda. Doc number 20210730_Unicargas_MBES_SBP_rep (20210730).
- Index mundi (2023). https://www.indexmundi.com/
- Instituto Nacional de Geologia - Ministério da Indústria, República Popular de Angola (1988). Geological Map of Angola 1/1,000,000 Hoja 1. http://info.igme.es/FONDOCARTOGRAFICOIMG/GEO_DETALLE/ANGOLA2.JPG
- Instituto Nacional de Meterologia e Geofísica -INAMET- (2023). http://inamet.gov.ao/ao/monitoramento-climatologico/
- José-León García Rodríguez, Francisco J. García Rodríguez and Carlos Castilla Gutiérrez (2014). "*Oil, Poverty and Environment in Angola*". Boletín de la Asociación de Geógrafos Españoles nº 64, 2014. Available at: https://bage.age-geografia.es/ojs/index.php/bage/article/view/1708/1625
- José Novais and José Antonio Díaz Duque (2019). "*La contaminación de las zonas costeras de Luanda: soluciones para su mitigación*". Ingeniería Hidráulica y Ambiental, Vol. XL, nº 3, Sep-Dic 2019. Available at: https://www.researchgate.net/publication/336921981_La_contaminacion_de_las_zonas_costeras_de_Luanda_soluciones_para_su_mitigacion_Contamination_of_Luanda_coastal_areas_solutions_for_its_mitigation
- Juliana M. Paca, Francisca M. Santos, José C.M. Pires, Anabela A. Leitão and Rui A.R. Boaventura (2019). "*Quality assessment of water intended for human consumption from Kwanza, Dande and Bengo rivers (Angola)*". Environmental Pollution, Vol. 254, November 2019.
- L. Ferreira-Baptista and E. de Miguel (2002). "*Geochemistry and risk assessment of street dust in Luanda, Angola: A tropical urban environment*". Atmospheric Environment Vol. 39, Issue 25, August 2005.
- Missão de Pedologia de Angola (no referred). Versão Simplificada dos conjuntos de solos de Angola. 1/3,000,000. https://storage.googleapis.com/fao-maps-catalog-data/uuid/ee591590-88fd-11da-a88f-

000d939bc5d8/resources/angola-270-versao_simplificada_dos_conjuntos_de_solos_de_angola-soils-1-3,000,000.jpg

- Orlando Pinheiro (2010). Instituto Geológico de Angola; Ministry of Geology, Mines and Industry. "*Mineral Resources of Angola, its importance for the socio-economic and sustainable development of the country*". International Workshop on United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009), June 2010, Warsaw (Poland). https://unece.org/fileadmin/DAM/energy/se/pp/unfc/UNFC_iw_June10_WarsawPl/13_Pinheiro.pdf
- Pascoal M. D. Campos, José C.M. Pires, Anabela A. Leitão. "*Assessment of aerosols over five cities of Angola based on MERRA-2 reanalysis data*". Atmospheric Pollution Research 13 (2022). https://www.sciencedirect.com/science/article/abs/pii/S1309104222002501
- Rasha El Gohary and Tamer El Gohary (2017). "*Environmental Impact Assessment (EIA). Guidelines for Development of Ports, Harbours and Marines along Egyptian Mediterranean Coast - A Case Study.*" International Journal of Current Engineering and Technology, Vol. 7, No. 3, June 2017.
- Sandra Sorte, Vera Rodrigues, Carlos Borrego and Alexandra Monteiro (2020). "*Impact of harbour activities on local air quality: a review".* Environmental Pollution Vol. 257, 2020. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0269749119326922
- Silvana Faria, Marisa Macuéria, Benjamin A. Mosley, M. Alexandra Teodósio and Vânia Baptista (2021). "*Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola*)". Journal of Spatial and Organizational Dynamics, Vol. IX, Issue 3, 2021. Available at: https://www.researchgate.net/publication/355820081_Characterization_of_Small-Scale_Fishing_Activity_in_Luanda_Bay_Angola
- Thomas Schlüter (2006). Geological Atlas of Africa with notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country. https://link.springer.com/book/10.1007/978-3-540-76373-4
- UN Environment Programme. Air Quality Policies in Angola (2015). https://www.unep.org/resources/policy-and-strategy/air-quality-policies-angola
- Weather Spark - Cedar Lake Ventures (2024). Available at: https://weatherspark.com/
- Wilma Fernandez e Júlio César Torres (2014). "*Ruído urbano na área central de Luanda*". Revista Angolana de Sociologia. Vol. 14, 2014.
- World Bank Group, Climate Change Knowledge Portal (2023). https://climateknowledgeportal.worldbank.org/
- World Health Organization (2021). WHO global air quality guidelines. Particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva. https://www.who.int/publications/i/item/9789240034228
- World Meteorological Organization (2023). https://worldweather.wmo.int/en/home.html

- IBAT (Integrated Biodiversity Assessment Tool) Alliance (BirdLife International, Conservation International, UN Environment Program World Conservation Monitoring Centre (UNEP-WCMC), and IUCN) (13/10/2023). https://www.ibat-alliance.org/
- IUCN Red List of Threatened Species. (IUCN 2023). Version 2022-2. https://www.iucnredlist.org/
- IUCN Red List of Threatened Species. (s.f.). IUCN Habitats Classification Scheme Version: 3.1. https://nc.iucnredlist.org/redlist/content/attachment_files/dec_2012_guidance_habitats_classification_scheme.pdf
- IUCN Red List of Threatened Species. (s.f.). IUCN Threats Classification Scheme Version 3.3. https://www.iucnredlist.org/resources/threat-classification-scheme

- UNEP WCMC-Website https://resources.unep-wcmc.org/
- Smith, Jeremy M.B. "Desert". Encyclopaedia Britannica, 10 Jan. 2024, https://www.britannica.com/science/desert
- UNEP WCMC-Website. The World Database on Protected Areas. https://data-gis.unep-wcmc.org/portal/home/item.html?id=1919c32890074ce5a589a1a99b48994b
- UNEP WCMC-Website. Global Critical Habitat Screening Layer-Basic. https://data-gis.unep-wcmc.org/portal/home/item.html?id=60c2f45412b4460ab17c2d8cd8bcc5f7
- UNEP WCMC-Website. Natural and Modified Habitat Screening Layer. https://data-gis.unep-wcmc.org/portal/home/item.html?id=4e2d929b580b40f48513906ca5097140
- UNEP WCMC-Website. Global Map of Terrestrial Habitat Types. https://data-gis.unep-wcmc.org/portal/home/item.html?id=79134b5187084c2499fc0b1b18e4c6d3
- International Finance Corporation (IFC) Performance Standard 6. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-6
- Population Projection 2014-250, 2016. INE. Angola. https://www.ine.gov.ao/Arquivos/arquivosCarregados/Carregados/Publicacao_637586861813829303.pdf
- Population Projection 2014-2050 province of Luanda, 2016 Edition. INE. Angola
- ILOSTAT (International Labour Organization). Final Results of the General Census of Population and Housing of Angola, 2016. Census 2014. https://www.ilo.org/surveyLib/index.php/catalog/7957/related-materials
- Investment Memorandum of the Multipurpose Terminal of the Port of Luanda, 2019. Concession of the Seaport Infrastructure.
- Tortosa G, 2021. ICEX (España Exportación e Inversiones) Oficina Económica y Comercial de la Embajada de España en Luanda. *Infraestructuras Portuarias de Angola*. https://www.icex.es/content/dam/es/icex/documentos/quienes-somos/donde-estamos/red-exterior/angola/DOC2021897202.pdf
- DAR "Unicargas Terminal – Port of Luanda – Angola Front-End Engineering Design (FEED), Surveys and Investigations, 2023.
- Kirkman et al. 2016. *Spatial characterization of the Benguela ecosystem for ecosystem-based management* https://www.researchgate.net/figure/Map-of-Subsystem-1-north-of-the-Angola-Benguela-Front-showing-main-physical-and-chemical_fig1_296706273
- United Nations, Department of Economic and Social Affairs. Sustainable Development. *Paris Agreement*. https://sdgs.un.org/frameworks/parisagreement
- Angola Initial National Communication to the United Nations Framework Convention on Climate Change, n.d. https://unfccc.int/resource/docs/natc/agonc1.pdf
- BAITAI website. *Hydraulic breaker hammer parameter*. BAITAI. *Hydraulic breaker hammer parameter*. https://baitai.en.made-in-china.com/product/fJcrNzloJARy/China-Mr1400-Sb81-Box-Top-Side-Type-Mining-Machinery-and-Equipment-Hydraulic-Breaker-Hammer.html
- Climate Change Adaptation Plan for the Coastal Zone of Angola, November 2019
- Economic and Commercial Office of Spain in Luanda, 2024. *Economic Report and Commercial of Angola prepared by the economic and commercial office of Spain in Luanda* https://www.icex.es/content/dam/es/icex/oficinas/071/documentos/2023/12/anexos/iec-angola-2023.pdf

- EIB Project Carbon Footprint Methodologies. Methodologies for the assessment of project greenhouse gas emissions and emissions variations. Version 11.3. January 2023 https://www.eib.org/en/publications/20220215-eib-project-carbon-footprint-methodologies
- FANYATOP website. *Excavator Mounted Vibratory Hammer Pile Driver*. http://www.fanyatop.com/product/excavator-mounted-vibratory-hammer-pile-driver
- Food and Agricultural Organization (FAO) / United Nations (UN) - Hand-in-Hand (2023). https://data.apps.fao.org/?source=https%3A%2F%2Fio.apps.f...&lang=en
- Global Assessment Report on Disaster Risk Reduction-Risk data Platform (GAR) https://wesr.unepgrid.ch/?project=MX-XVK-HPH-OGN-HVE-GGN&language=en&theme=color_light
- https://info.undp.org/docs/pdc/Documents/AGO/Get2C_ProdutoIV.1%20-%20Final%20Draft.pdf
- https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC184675/
- hueCO2 TECNIBERIA, 2014. https://hueco2.tecniberia.es/
- InnoEnergy, Co-funded by the European Union. *Descarbonising ports catalogue of innovative solutions* https://eit.europa.eu/sites/default/files/decarbonising_ports-catalogue_of_innovative_solutions_f.pdf
- Intergovernmental Panel on Climate Change (IPCC), 2023: Climate Change 2023: Synthesis Report https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf
- International Maritime Organization, 2020. *Fourth IMO GHG Study. Full Report*. https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/Fourth%20IMO%20GHG%20Study%202020%20-%20Full%20report%20and%20annexes.pdf
- IPCC, 2014: Summary for Policymakers. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf
- Koppe, B. 2017. Article nº39 Conf. CM^2, Split, Croatie. *Climate change - Adaptation options for seaports*. https://www.paralia.fr/cmcm/e04-39.pdf
- Long-Term Development Strategy for Angola 2025
- MITECO, 2023. Emission Factors. Carbon Footprint Registration, Offsetting and carbon Dioxide Absorption Projects Carbon Dioxide Absorption Projects. https://www.miteco.gob.es/content/dam/miteco/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/factoresemision_tcm30-479095.pdf
- National Atmospheric Emissions Inventory (NAEI), UK. https://naei.beis.gov.uk/overview/ghg-overview
- National development Plan 2023-2027 for Angola. Government of Angola. https://www.mep.gov.ao/assets/indicadores/angola2050/20231030(3)_layout_Final_Angola_PDN%202023-2027-1.pdf
- National Strategy for Climate Disrupcion (Estratégia Nacional Para As AlteraçÕes Climáticas 2018-2030. República de Angola) (August, 2017)
- Nationally Determined Contribution of Angola, Republic of Angola May 2021
- One Click LCA. https://www.oneclicklca.com/product-carbon-tool/
- PIANC, 2019. *Carbon Management for Port and Navigation Infrastructure*. PIANC Report Nº188. Environmental Commission.
- RIB Spain, 2014. "*Tecniberia y Presto se hacen "hueCO2" en el medio ambiente*". https://www.rib-software.es/pdf/Art%C3%ADculos/Tecniberia-y-Presto.pdf
- State Ports of Spain, 2020. *Methodological guide for calculating the carbon footprint in ports. December 2020*. Document prepared with the support of: Government of Spain, Ministry of Transport,

Mobility and Urban Agenda, Fourth Vice Presidency of the Government, Ministry for the Ecological Transition and the Demographic Challenge, CEDEX and Agenda 2023. https://www.puertos.es/es-es/medioambiente/Documents/Guia%20Huella%20de%20Carbono%20-%20Puertos%20del%20Estado%20-%20Web.pdf

- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Improving energy efficiency and promoting the use of renewable energy*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2005%20-%20Eficiencia%20Energia.pdf
- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Promotion of alternative energies in transportation*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2004%20-%20Energia%20Alternativa%20V2.pdf
- State Ports of Spain, n.d. Government of Spain, Ministry of Development. Port system sustainability strategy. *Optimize water management and use (Adaptation to drought)*. https://www.puertos.es/es-es/medioambiente/Documents/Transporte%20Sostenible%2012%20-%20Eficiencia%20Agua.pdf
- Technical Report on the status of coastal vulnerability in central African countries, 2020. ICAM dossier nº 10. Technical Series 152 https://unesdoc.unesco.org/ark:/48223/pf0000373623
- The World Association for Waterborne Transport Infrastructure (PIANC, 2020). *Climate Change Adaptation Planning for Ports and Inland Waterways*. PIANCReport Nº 178.
- The World Association for Waterborne Transport Infrastructure (PIANC, 2023). *Waterborne Transport, Ports and Waterways: a 2023 update of climate change drivers and impacts* (EnviCom Task Group Nº3-2023)
- United Nations Office for Disaster Risk Reduction (UNDRR), 2019. *Disaster Risk Profile of Angola for droughts and floods*. https://www.undrr.org/publication/disaster-risk-profile-angola
- Valenciaport, 2021. *Port of Valencia Sustainability Report* https://www.valenciaport.com/wp-content/uploads/APV-Memoria-Sostenibilidad-2021.pdf
- World Bank Group, 2017. Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals. https://www.ifc.org/content/dam/ifc/doc/2010/2017-ports-harbors-terminals-ehs-guidelines-en.pdf
- World Bank Group, Climate Change Knowledge Portal (2023). https://climateknowledgeportal.worldbank.org/
- IPCC, 2006. Guidelines for National Greenhouse Gas Inventories, Volume 1. General Guidance and Reporting. https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol1.html
- AD Ports Group, 2023. Emergency Preparedness and Response.
- Decreto Presidencial n.º 190/12 - Regulamento sobre a Gestão de Resíduos
- Presidential Decree no. 194/11 of July 7th approving the regulation on liability for environmental damage
- Article 9 of Law no. 12/11 of February 16th
- AP Ports Group https://www.adportsgroup.com/en/about-us
- Solid Waste and Effluent Management Plan of Luanda Port Company E.P. (Plano de Gestão de Resíduos sólidos e efluentes).
- Environmental Management Plan of the Port of Luanda (Plano de Gestão Ambiental)
- IFC General EHS Guidelines

- Convention for the Protection of the Marine Environment of the North-East Atlantic ("OSPAR Convention"). 2014-16. "Guidelines for the Management of Dredged Material." www.ospar.org/documents?d=34060
- Solid Waste Management Plan of the Unicargas Multipurpose Terminal (Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU))
- Environmental Management Plan of Unicargas Multipurpose Terminal (Plano de Gestão Ambiental do Terminal Polivalente da Unicargas (PGA/TPU)
- ADPG, 2018. General Waste Management.
- ADPG, 2015. Occupational Health Surveillance Program. Internal Memorandum.
- ADPG, 2018. Employee Health Surveillance.
- ADPG. HSE Guidelines for International Business.
- ADPG, 2022. HSE Plan.
- Asbestos Handling and Disposal Guidelines published by the United Nations Development Programme (UNDP)

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VOLUME III

ANNEXES

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1. Annex 1. Aerial Acoustic Modelling Study

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NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA

TYPSA

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Descriptive Memory

1. INTRODUCTION.

The purpose of this document is to describe the noise study in the nearby area of the development of the "Unicargas Terminal" located in the Port of Luanda, Angola (Lat: -8.800274°; Long: 13.247499°), located in the heart of the capital city of Luanda along the northern Atlantic coastline of Angola. The Port of Luanda serves as Angola's primary port, and it is major industrial, cultural and urban center. The Port of Luanda also serves as a strategic gateway port supporting key trade in the region.

Image 1. Project Location.

1.1. PURPOSE OF THE STUDY

The purpose of the study is to carry out the acoustic impact of the "Unicargas Terminal" located in the Port of Luanda on its immediate surroundings and, where appropriate, nearby sensitive and potentially affected receivers.

The study area is located in a zone where the sound field is disturbed by anthropogenic sources of noise, as it is an area characterized mainly by companies engaged in port activities (e.g., container transport, oil, food and fisheries), by busy roadways, by the railway line, and also by urban areas.

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Thus, the main sources of noise are the road traffic on the EN-100 practically adjacent to the port of Luanda, the traffic on the access roads to the Port, the port activity itself (vehicle circulation, use of machinery and equipment, ship traffic), the railway line and urban activities (commercial establishments, recreational activities, among others).

The study has been carried out considering three phases differentiated and therefore assessing their influence on the acoustic impact. The three phases are:

- Acoustic study in preoperational phase.
- Acoustic study in construction phase.
- Acoustic study in operational phase.

2. ANALYSIS OF THE LEGAL FRAMEWORK. ACOUSTIC REQUERIMENTS.

2.1. LEGAL FRAMEWORK.

In the absence of specific Angolan legislation on noise, guidelines on environmental noise levels from the World Health Organization (WHO, 1999) were considered, as well as those adopted by the International Finance Corporation (IFC) in its environmental health and safety guidelines (IFC, 2007), as they are deemed suitable and capable of addressing the main issues observed and characterizing the acoustic reference framework. According to the IFC guidelines (2007), maximum noise levels should not exceed the levels presented in the following table.

	Maximum Levels L_{Aeq}(1hour) (dBA)	
Receiver	**Day (07:00 – 22:00 H)**	**Night (22:00 – 07:00 H)**
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Table 1. Maximum Noise Levels.

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3. AREA OF ACOUSTIC INFLUENCE AND DEFINITION OF SENSISTIVE RECIVIERS.

For the analysis of the acoustic impact of port areas, it is relevant to establish the limits of the area to be managed. The noise coming from inside the port area influences the environment. Therefore, the acoustic impact study area should include:

- The port area where the noise sources are located.
- Residential areas and other nearest areas sensitive to noise generated in the port.
- The areas between the port area and nearest areas sensitive to noise.

The area of influence has been determined based on the typology of sensitive receivers and the cartography of the area, to fully evaluate the acoustic impact of the operation of the “Unicargas Terminal” located in the Port of Luanda.

Image 2. Land Uses.

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4. OUTDOOR NOISE PROPAGATION STUDY. PREOPERATIONAL PHASE.

In this phase, the study of the acoustic impact on the current situation of the Port of Luanda will be carried out. Thus, in this phase, the main sources of noise are considered: road traffic on the EN-100 practically adjacent to the port of Luanda, traffic on the access roads to the Port and the port activity itself (vehicle circulation, use of machinery and equipment, ship traffic). The railway line and urban activities (commercial establishments, recreational activities, among others) have not been considered since no reliable data are available.

For this first study, the measurements realized in the ***EIA-LDA-AMB-E6736-I00001-24-AS34_Air_noise_Quality*** are considered, because they are used to calibrate the acoustic models and to identify the main sources of noise.

4.1. ACOUSTICAL SOFTWARE.

The following method has been used:

INDUSTRIAL SOURCES: The definition of industrial sources is carried out according to international standards, including the ISO 9613-2 standard dedicated to industrial noise.

ROAD NOISE: The calculation model used for road noise is NMPB-Routes-08, the National French Model.

SOFTWARE USED: DataKustik Cadna-A.

For the predictive calculations, the Software Cadna-A (Computer Aided Noise Abatement) has been used. This software is designed for the calculation, assessment and prediction of the acoustic contamination generated by noise sources. Cadna-A is programmed in C/C++ under Windows environment.

The software is validated to demonstrate that its calculations are correct on the basis of different official tests of the German Administration using comparative calculation and certification corresponding to a test noise source of the German Environmental Federal Office of Berlin and according to the procedures of “Test Tasks for the checking of calculation programs according to the guidelines for Noise Abatement on roads - Test 94“ by the Federal Ministry for Traffic, Germany, as well as the Calculation Test based on the German DIN 45687/48 standard.

This software has been created by the German Company DataKustik that works on software development, technical documentation, and environmental noise predictive calculation tools. DataKustik comes from the firm ACCON GmbH, developers of specific software of evaluation and noise and vibrations control, which has developed computer applications for the acoustics since the 80s.

4.2. CARTOGRAPHY USED AND ELEMENTS OF THE MODEL.

All the relevant elements that influence the propagation of the sound in open space have been inserted in a 3D model.

The most relevant parts of the simulation model are:

- Terrain Model
- Buildings Model
- Noise Source Model
- Modelling of the noise proceeding from the machinery.
- Calculation Model. Configuration

4.2.1. TERRAIN MODEL.

For the terrain model, a terrain without any relevant ground level differences has been considered.

4.2.2. BUILDING MODEL.

The planned buildings have been modelled using the element 'building' of the software, according to the height, layout and other characteristics provided by the costumer. The dimensions of the existing buildings have been obtained from the information available on OpenStreetMap.

4.2.3. NOISE SOURCE MODEL.

To identify and model the noise proceeding from all the different sources, the results of the acoustic measurements ***EIA-LDA-AMB-E6736-I00001-24-AS34_Air_noise_Quality*** have been considered.

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Image 3. Locations of acoustic measurements.

Noise sources of General Services Cup – P01

The noise sources in this area are characterized as vehicular sources or mobile sources, machine circulation, movement of lorries and the boats arriving to the terminal.

Noise sources of technical area – P02

The noise sources in this area are characterized as noise of workers talking and radio noise.

Gatehouse – P03

The noise sources in this area are characterized as workers talking, light vehicles leaving, and heavy vehicles travelling.

Furthermore, to define the noise sources for the preoperational model, the sources indicated in the previous paragraph are considered. So, the sources defined for the acoustical model are defined in the next table, where the sound power of the different sources has been obtained from internal databases and existing bibliography.

An activity regime of 100% has been considered for the day period and 75% for the night period.

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Source	Description	Sound Power	Image
Lorry movements	Trucks with velocity < 20km/h	104dB	Image 4
Boats arrives with goods	Ships about 10.000 – 20.000 ton.	100dB	Image 5
Machine circulation, boat unloading	Reachstackers	11dB	Image 6

Table 2. Noise sources preoperational phase.

Image 4. Lorry movements.

Image 5. Boats arrives with goods.

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Image 6. Reachstackers.

4.2.4. CALCULATION MODEL. CONFIGURATION.

For the realization of the calculations, several general and specific parameters have been fixed for the different calculation methods:

- **General configuration**
- **Reflections calculation configuration**

The reflections considered in the calculations are those up to the 2nd order.

- **Atmospheric conditions and terrain absorption configuration**

For the meteorological conditions influence, the following parameters have been configured:

- Atmospheric parameters that have an influence on the sound absorption
- Temperature: 25ºC. Relative Humidity: 70%.

This configuration constitutes a conservative approach in such a case with absence of more data, so that the calculated levels should be overrated for a greater protection.

The ground factor used to model the absorption of the terrain has been the default value = 0,67 according to the characteristics of the terrain in the zone under study.

- **Topographic model configuration**

The 3D model is done by unifying triangularly the points and thus, creating the topography of the place.

- **Calculation mesh configuration**

  A of 10mx10m mesh has been chosen, which is considered representative enough for the dimensions of the zone under study. The calculations are carried out at a height of 4 m above the ground.

4.3. ACOUSTIC MODELS FOR PREOPERATIONAL PHASE.

The acoustic models have been realized taken account all parameters defined in the previous paragraphs and the source noise levels defined in the section 4.2.3. In the following image, a general representation of the acoustic model is shown:

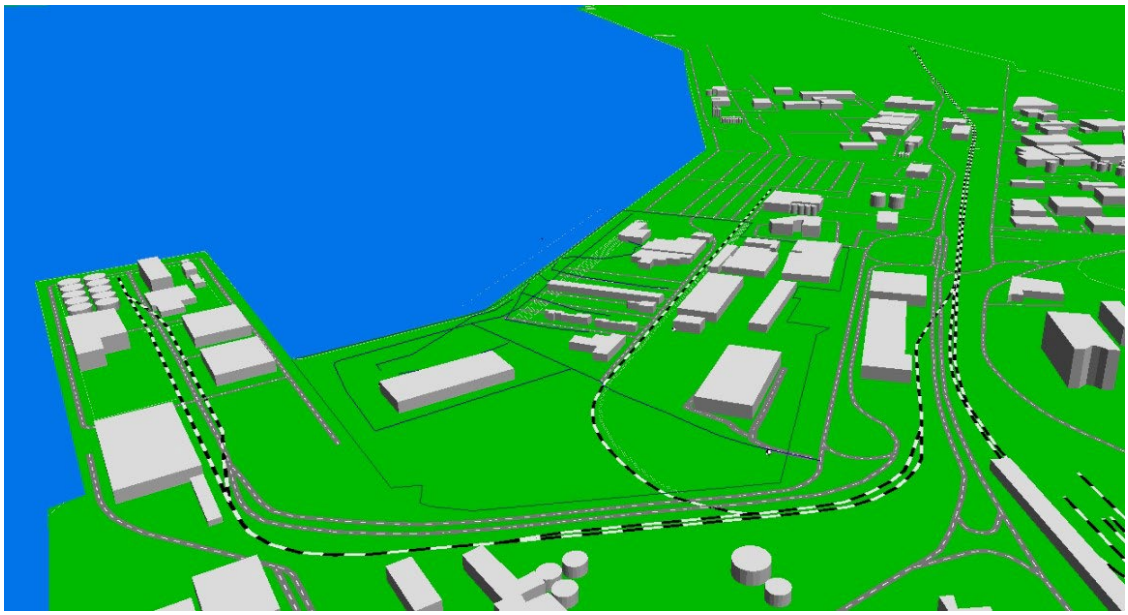

Image 7. 3D Pre-operational acoustic model.

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4.4. RESULTS FOR PREOPERATIONAL PHASE.

The analysis of the study has been carried out by meshes. The meshes have been calculated at a height of 4 m. according to international standards, including the ISO 9613-2 standard dedicated to industrial noise.

The following images show the meshes where it is possible to analyze the transmission of sound levels to the nearest areas:

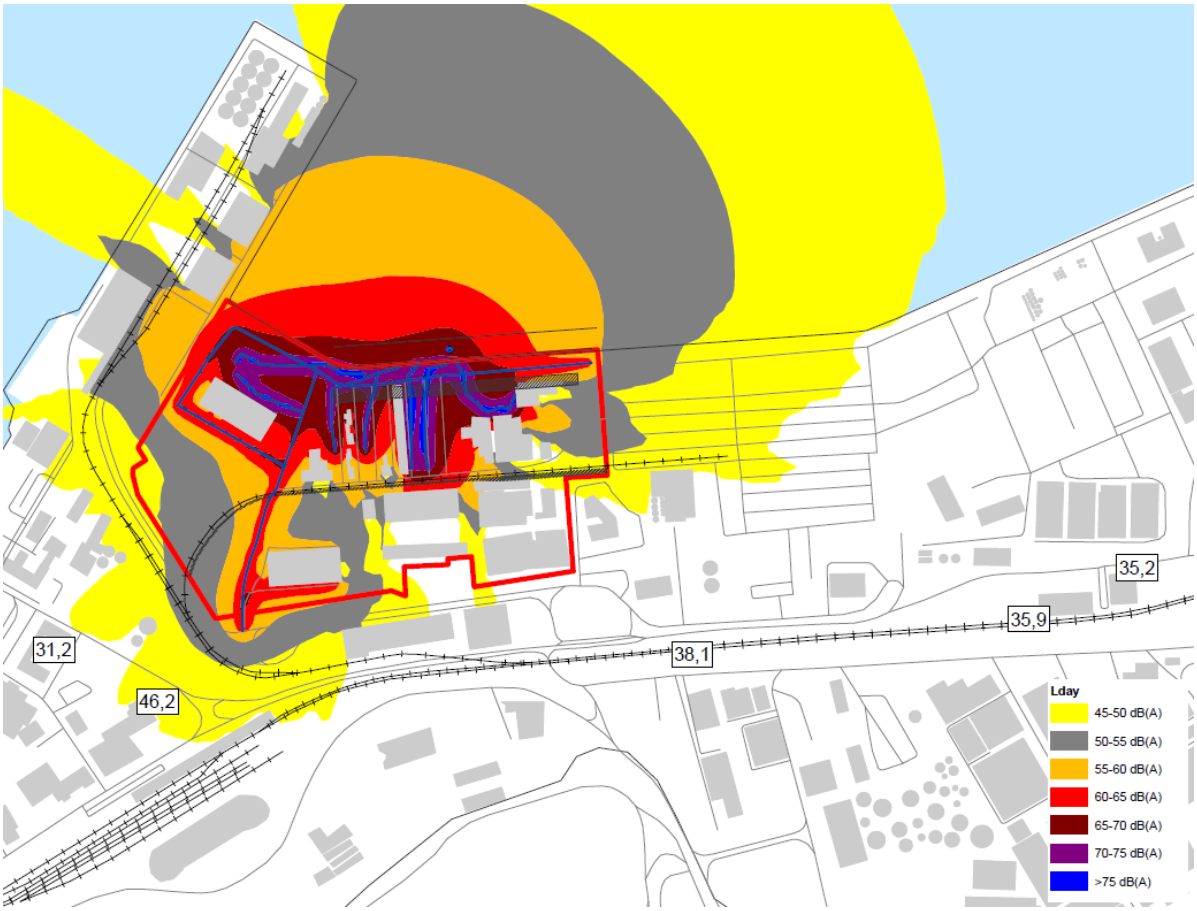

Image 8. Pre-operational noise levels for the day period (7-22h).

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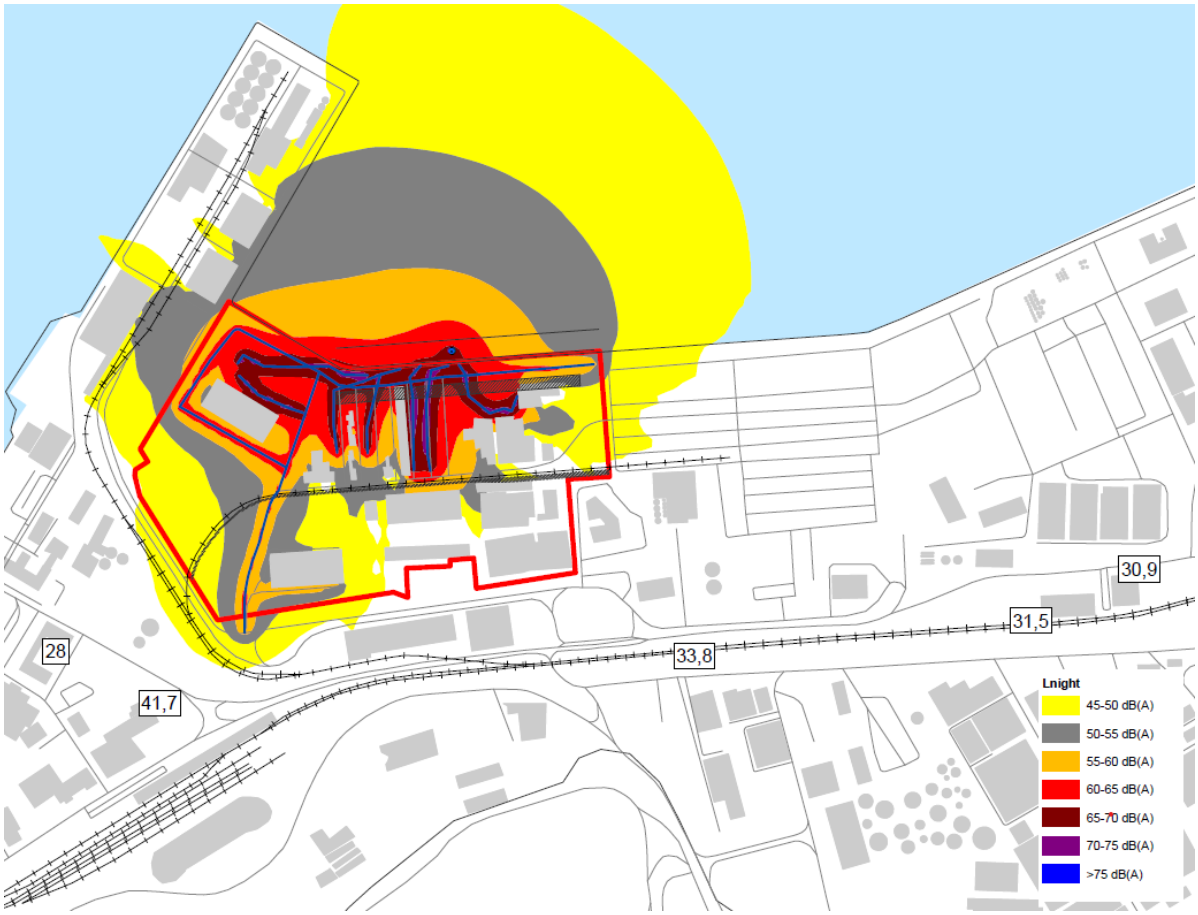

Image 9. Pre-operational noise levels for the night period (22-7h).

Moreover, the results of the calculation mesh are shown in Maps 03, 04, 09 and 10 of Annex I.

In this phase the noise levels are lower than the limits fixed by the WHO due the low port capacity. The highest levels calculated in a residential place are 46,2 dBA for day period, and 41,7 dBA for night period.

5. OUTDOOR NOISE PROPAGATION STUDY. CONSTRUCTION PHASE.

In this phase, the study of the acoustic impact during the constructions works of the of the development of the "Unicargas Terminal" of the Port of Luanda. Thus, in this phase, the main sources of noise considered are the machines and vehicles for constructions works.

The configuration of all elements of the acoustic model is the same as for the preoperational phase, so the only changes in the acoustic model are the sources and the buildings inside the Unicargas Terminal area.

An activity regime of 100% has been considered for the day period and 75% for the night period.

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5.1. BUILDING MODEL.

In this phase there is a change in the buildings in the area of the Unicargas Terminal of the port of Luanda. The existing buildings are demolished. So, in this phase the main sources are all equipment's for the construction of the new buildings.

5.2. NOISE SOURCE MODEL.

In this phase, the main sources of noise to be modelled are defined in the following table:

Source	Description	Sound Power	Image
Lorry movements	Trucks with velocity < 20km/h	104dB	Image 10
Excavator shovel	Mobile crane power <100kW	85dB	Image 11
Caterpillar M24	Compaction machines	114dB	Image 12
CAT 850H	Bulldozer	111dB	Image 13
Loader shovel	Wheeled loaders (> 200 kW)	107dB	Image 14
Pneumatic Hamer	Percussive pneumatic tools	114dB	-

Table 3. Noise sources constructive phase.

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Image 10. Lorry movements.

Image 11. Excavator shovel.

Image 12. Compaction machines.

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Image 13. Bulldozer.

Image 14. Loader Shovel.

Image 15. Pneumatic Hammer.

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5.3. ACOUSTIC MODELS FOR CONSTRUCTION PHASE.

The acoustic models have been realized taken into account all the parameters defined in the previous paragraphs and the noise levels defined in the section 5.1. In the following images general representations of the acoustic model are shown.

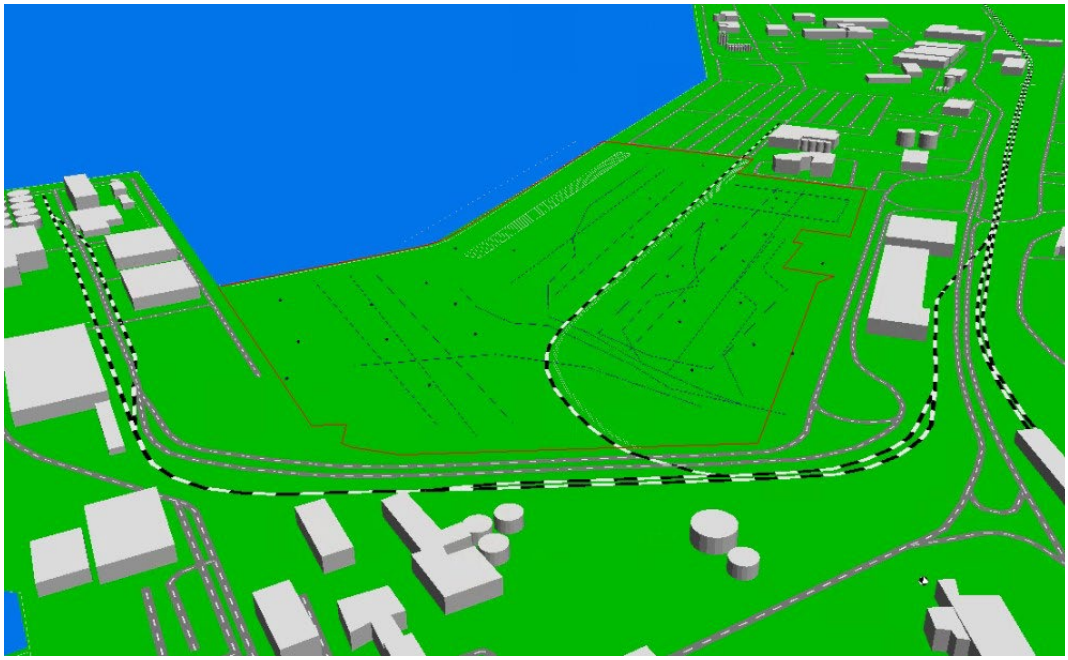

Image 16. 3D constructive phase acoustic model.

5.4. RESULTS FOR CONSTRUCTION PHASE.

The analysis of the study has been carried out by meshes. The meshes have been calculated at a height of 4m. according to international standards, including the ISO 9613-2 standard dedicated to industrial noise.

For the construction noise model, all the works described in previous projects have been considered, such as the construction of the dock wall, the construction of finishing beams, the construction of crane beams and the construction of anchoring walls or the construction of new warehouse buildings. For the noise affection the worst case is considered, which is all equipment working at the same time.

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The following images show the meshes where it is possible to analyze the transmission of sound levels to the nearest areas:

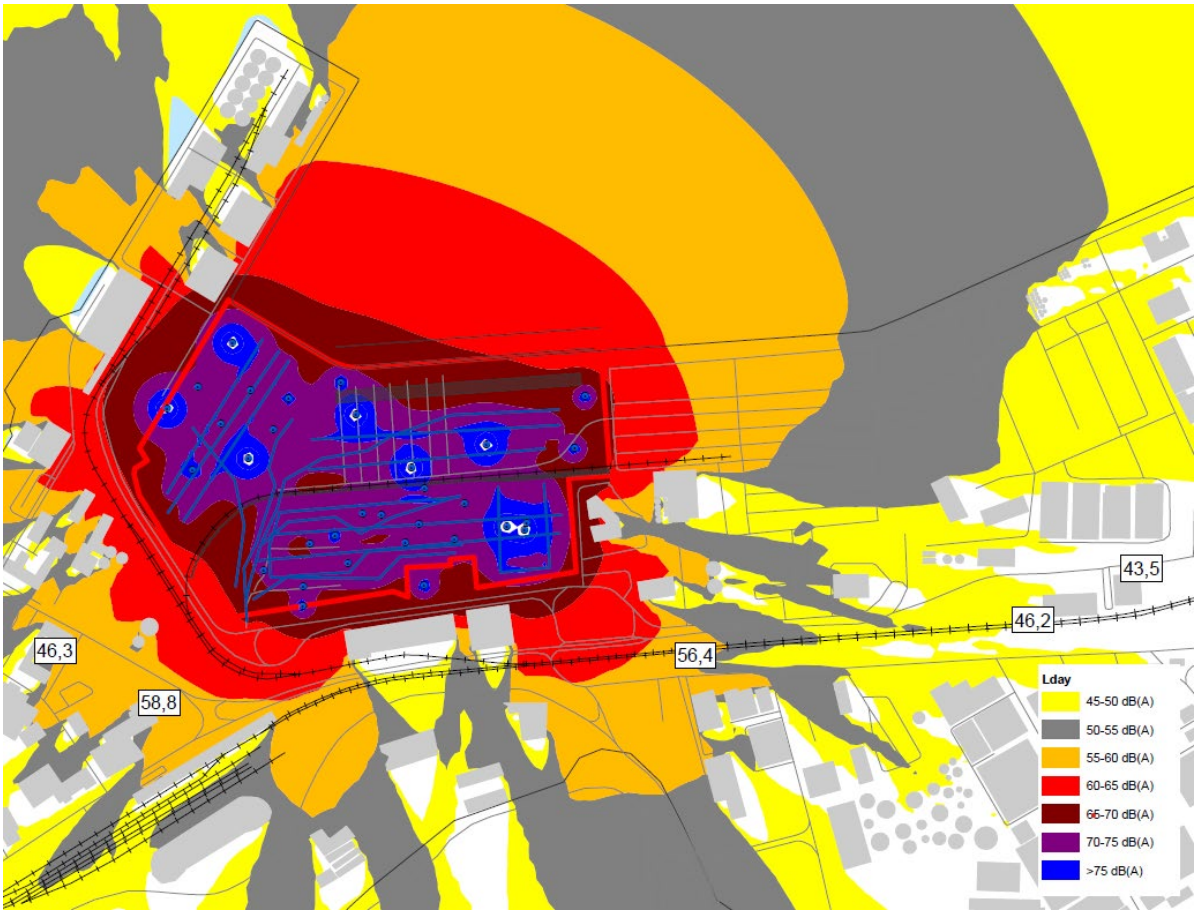

Image 17. Constructive noise levels for day period (7-22h).

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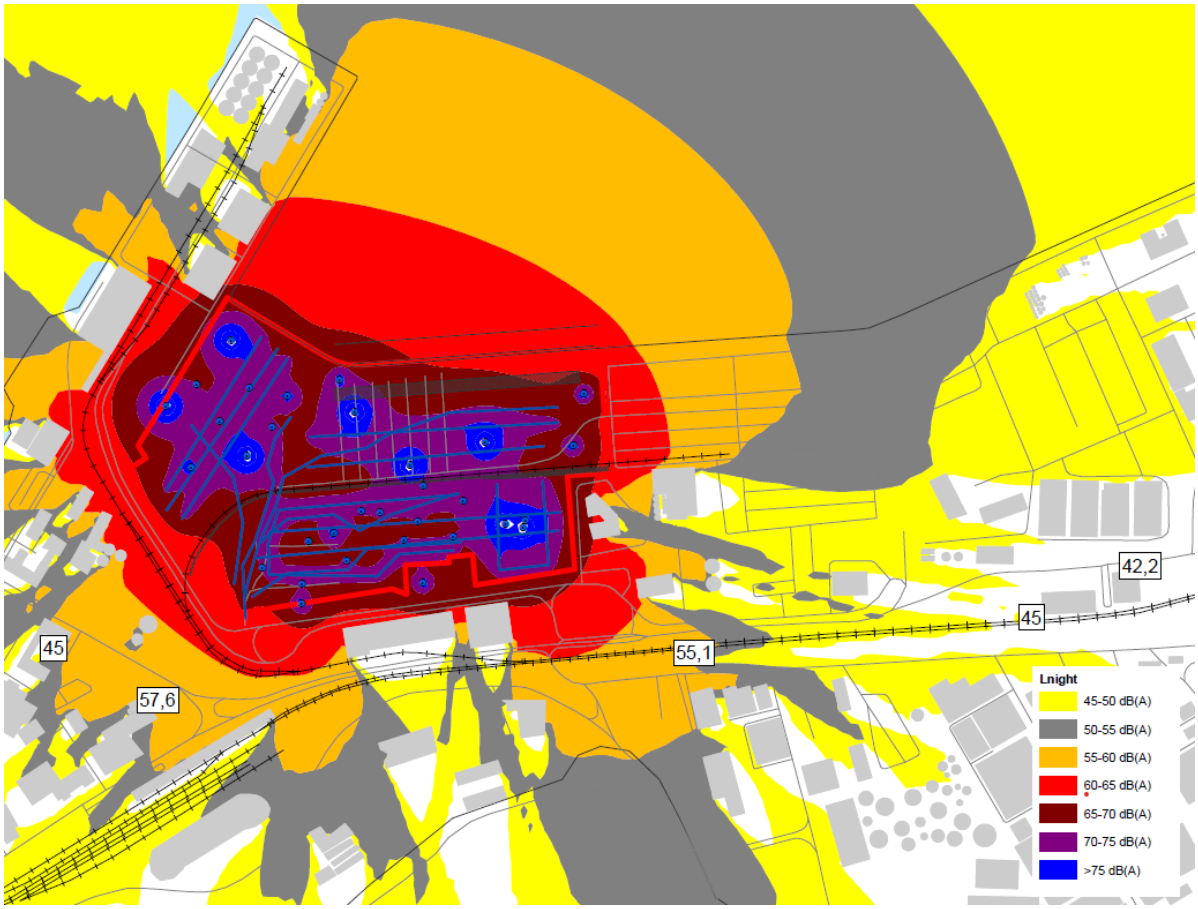

Image 18. Constructive noise levels for night period (22-7h).

Moreover, the results of the calculation mesh are shown in Maps 05, 06, 11 and 12 of Annex I.

For this construction phase, the noise levels are higher than the limits fixed by the WHO, due to all the consideration of all the equipment's working at the same time, and due to the noisy construction equipment (such as Bulldozers, Pneumatic Hammers, etc.). In the worst case for Residential areas the noise levels are 58,8 dBA for the day period and 57,6 dBA for the night period.

To reduce this noise levels, the mitigation measures described in the next section should be implemented. In addition, at night, the work period and places could be limited.

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5.5. MITIGATION MEASURES.

In this phase, it is important to reduce the acoustic impact on nearby residential buildings. To reduce the transmission of noise levels, the installation of mobile acoustic barriers around the different sound sources is proposed. The type and/or location of the acoustic barriers could change depending on the construction phase and the type of existing machinery. These barriers must guarantee a noise reduction of at least 15 dB.

The mobile acoustic barriers are composed of semi-rigid flexible sound-absorbing and insulating panels. Some types of these mobile acoustic screens can be seen in the following images.

Image 19. Mobile noise barriers.

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Image 20. Mobile noise barriers.

These barriers must guarantee a noise reduction of at least the following values:

Frequency (Hz)	**100**	**125**	**160**	**200**	**250**	**315**	**400**	**500**	**630**	**800**	**1k**	**1,25k**	**1,6k**	**2k**	**2,5k**	**3,15k**
R(dB)	8,2	9,9	10,1	10,3	9,3	8,0	9,5	10,5	15,3	18,5	20,2	25,9	30,9	32,5	38,7	40,2

Table 4. Noise reduction values for mobile noise barriers.

These barriers must guarantee a sound absorption of at least the following values:

Frequency (Hz)	100	125	160	200	250	315	400	500	630	800	1k	1,25k	1,6k	2k	2,5k	3,15k
absorption	0,15	0,2	0,3	0,5	0,7	0,9	1,0	1,0	0,8	0,7	0,6	0,4	0,3	0,3	0,3	0,2

Table 5. Noise absorption values for mobile noise barriers.

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6. OUTDOOR NOISE PROPAGATION STUDY. OPERATIONAL PHASE.

In this phase, the study of the acoustic impact on the future situation of the Port of Luanda will be carried out. Thus, in this phase, the following main sources of noise are considered: road traffic on the EN-100 practically adjacent to the port of Luanda, traffic on the new access roads to the Port and the new equipment's for the port activity itself (vehicle circulation, use of machinery and equipment, cranes, container carrier, ship traffic…). The railway line and urban activities (commercial establishments, recreational activities, among others) have not been considered since no reliable data are available.

The configuration of all the elements of the acoustic model is the same as for the preoperational phase, so the only changes are again the sources and the buildings.

An activity regime of 100% has been considered for the day period and 75% for the night period.

6.1. BUILDING MODEL.

In this phase there are new buildings defined in the project of the "Unicargas Terminal" of the Port of Luanda. The information of the buildings has been obtained from the received information of the project.

6.2. NOISE PORT SOURCE MODEL.

In this phase, the main sources of noise related to the new activity of the port are defined in the following table:

Source	Nº of sources	Description	Sound Power	Image
Lorry movements	662	Trucks with velocity < 20km/h	104dB	Image 21
Cranes	3	Dockside cranes	100dB	Image 22
Cranes	8	Stacking cranes	97dB	Image 23
Container carrier	2	Reachstackers	111dB	Image 24
Lifts containers	2	Liftingtruck (diesel) up to 45 ton	111dB	Image 25
Terminal Tractors + Trailers	22	Tugmasters	104dB	Image 26
Forklift 3 Ton	1	Lifting truck - 3 ton - diesel	99dB	Image 27
Ships	1	Ships > 60.000 ton.	98dB	Image 28
Ships	1	Ships 5.000 - 10.000 ton	95dB	Image 29

Table 6. Noise sources in operational phase.

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Image 21. Lorry movements.

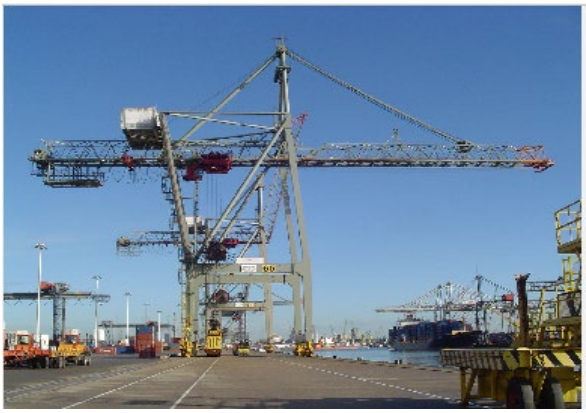

Image 22. Dockside cranes.

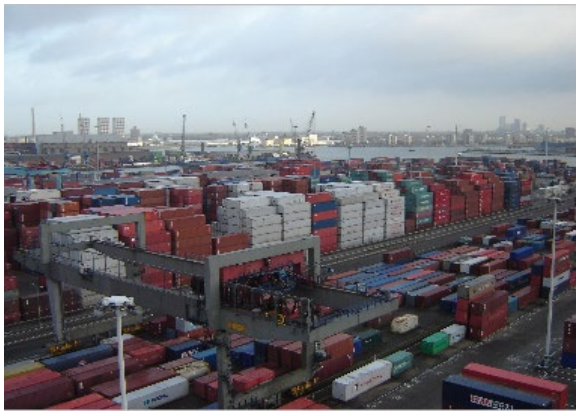

Image 23. Stacking cranes.

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Image 24. Reachstackers.

Image 25. Liftingtruck

Image 26. Tugmasters

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Image 27. Liftingtruck

Image 28. Ships > 60.000 ton.

Image 29. Ships 5.000 -10.000 ton.

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6.3. ACOUSTIC MODELS FOR OPERATIONAL PHASE DUE TO PORT ACTIVITIES ONLY.

The acoustic models have been realized taken into account all the parameters defined in the previous paragraphs and the noise levels defined in the section 6.2. In the following images, general representations of the acoustic model are shown.

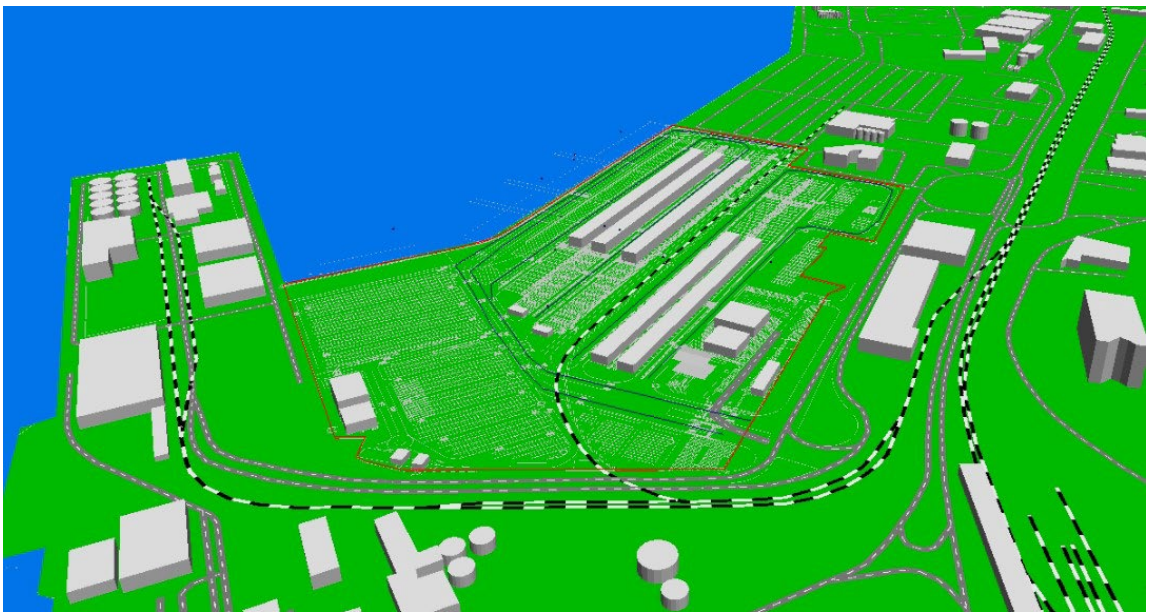

Image 23. 3D operational phase acoustic model.

6.4. RESULTS FOR OPERATIONAL PHASE DUE TO PORT ACTIVITIES ONLY.

The analysis of the study has been carried out by meshes. The meshes have been calculated at a height of 4m. according to international standards, including the ISO 9613-2 standard dedicated to industrial noise.

The following images show the meshes where it is possible to analyze the transmission of sound levels to the nearest areas.

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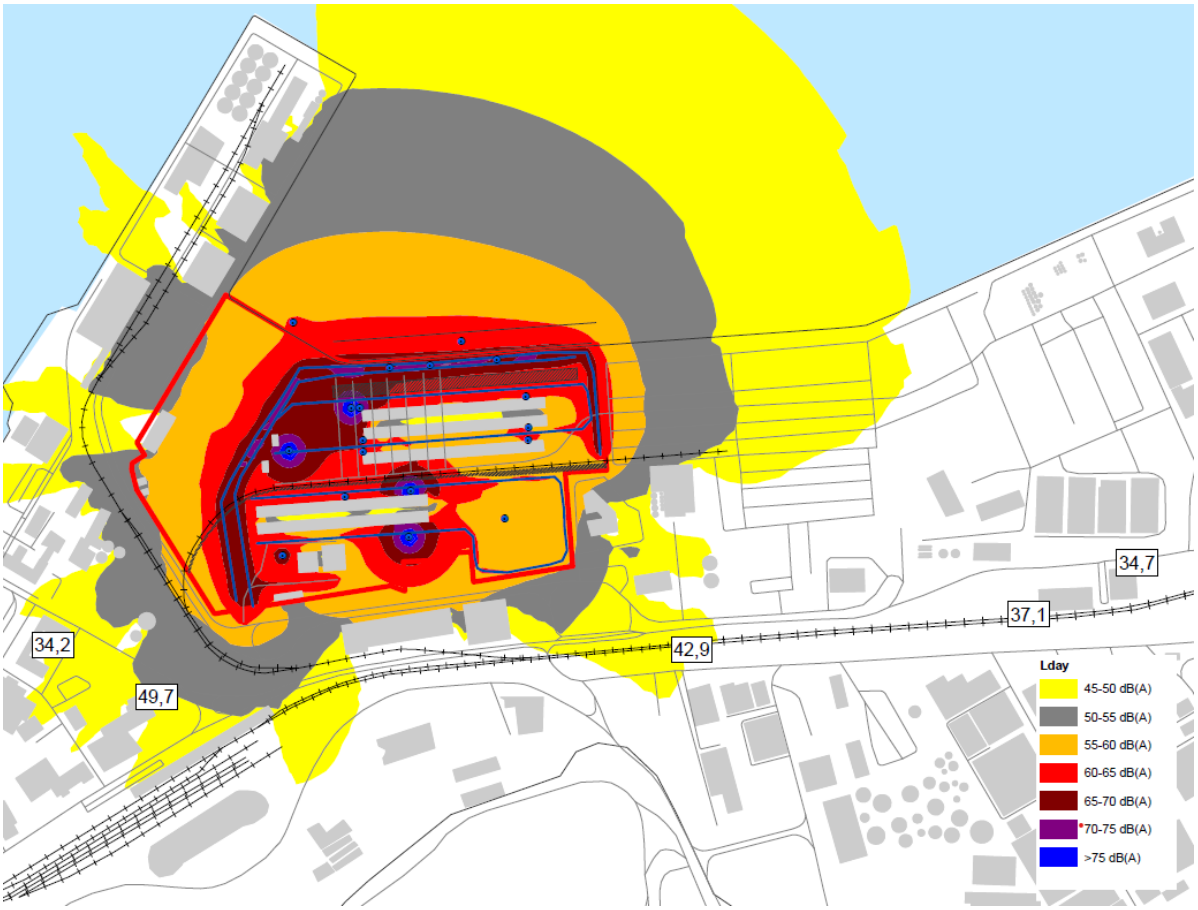

Image 30. Post-Operational noise levels for day period (7-22h).

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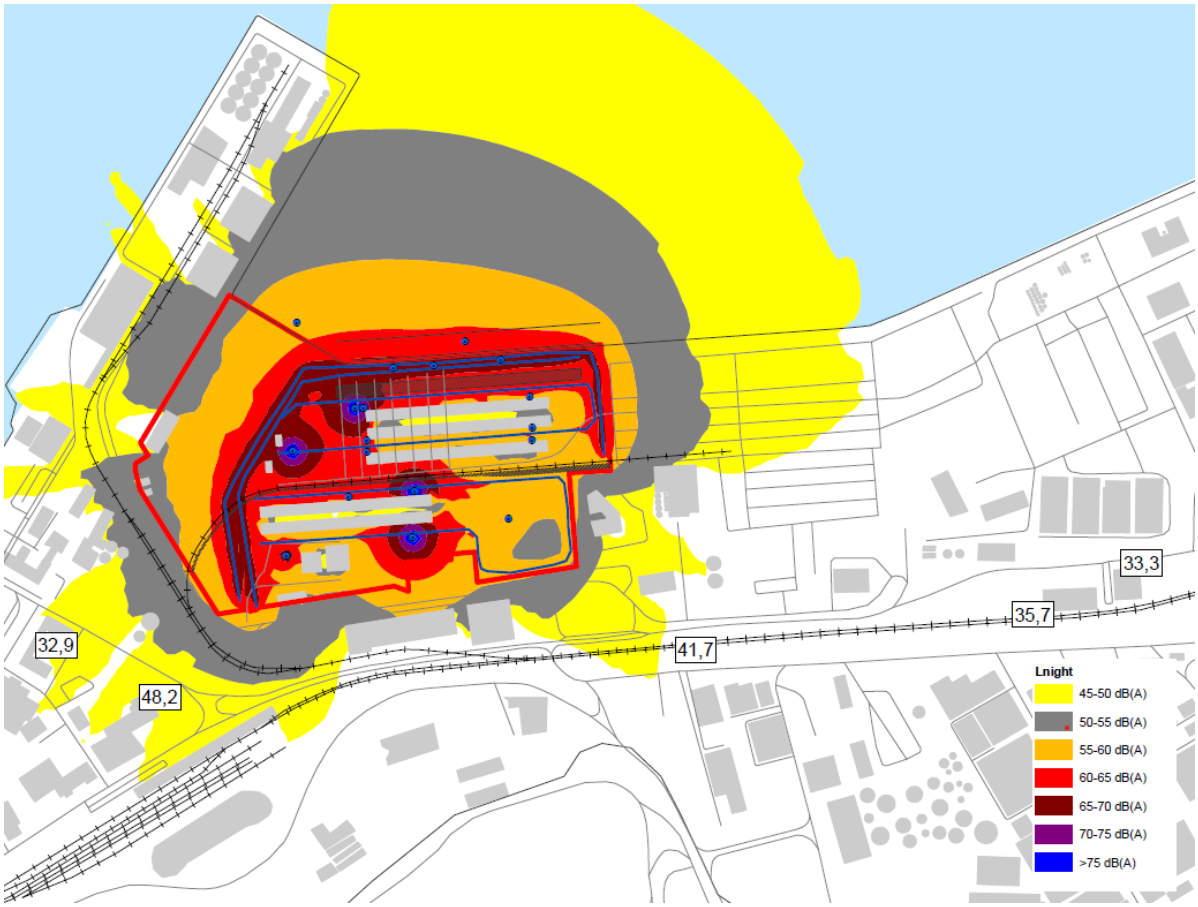

Image 31. Post-Operational noise levels for night period (22-7h).

Moreover, the results of the calculation mesh are shown in Maps 09, 10, 13 and 14 of Annex I Maps.

In this phase, operational noise levels are higher than the noise in the current situation due the activity increase (more capacity, more container movements, more equipment, etc.), so in the worst case in a residential area, levels are 49,7 dBA during the day period and 48,7 dBA during the night period, higher than the noise levels fixed as limits by the WHO for the night period (45 dBA).

6.5. ASSESSMENT OF OPERATIONAL ENVIRONMENTAL NOISE TAKING INTO ACCOUNT THE CONTRIBUTION OF THE ROAD EN-100 ONLY.

The road EN-100 is one of the main sources of noise in the nearest area of the "Unicargas Terminal" of the Port of Luanda. This road concentrates a main traffic flow and therefore a high ambient noise level in the residential areas close to the port facility.

At this point, an analysis will be made of the acoustic impact in the areas nearest to the port due to the existing traffic flow on this road. This analysis will allow to know if the new port activity increases the existing noise levels in the area or not.

The configuration of all the elements of the acoustic model is almost the same as for the operational phase due to the port activities, so the only changes are the sources, where the EN-100 will be considered.

6.5.1. NOISE SOURCE MODEL.

In this case, the main source is the traffic of the road, so all these parameters of the road will be considered:

- IMD daily, 5.000 Veh/day.
- Velocity in the road, 80 – 50 km/h.
- Type of vehicles: percentage of heavy and light vehicles (20 % heavy vehicles and 80 % light vehicles).
- Type of the road (dimensions, type of pavement, etc.). Main road characteristics.

Those data are considered as a typical low traffic main road.

6.5.2. RESULTS FOR EN-100 ROAD NOISE

The analysis has been carried out by meshes. The meshes have been calculated at a height of 4m. according to international standards, including the NMPB-Routes_08 French noise model for road noise.

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The following images show the meshes where it is possible to analyze the transmission of sound levels to the nearest areas:

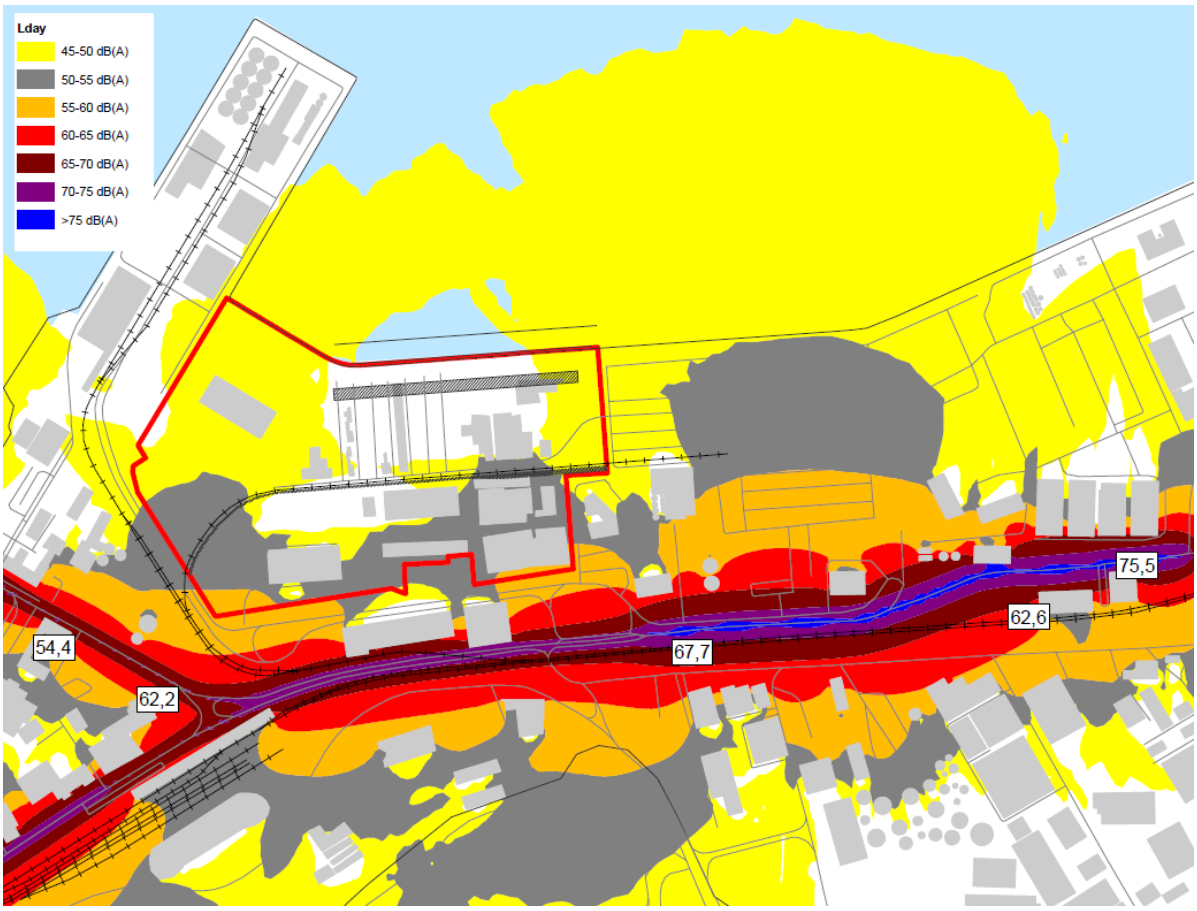

Image 32. EN-100 road noise levels for day period (7-22h).

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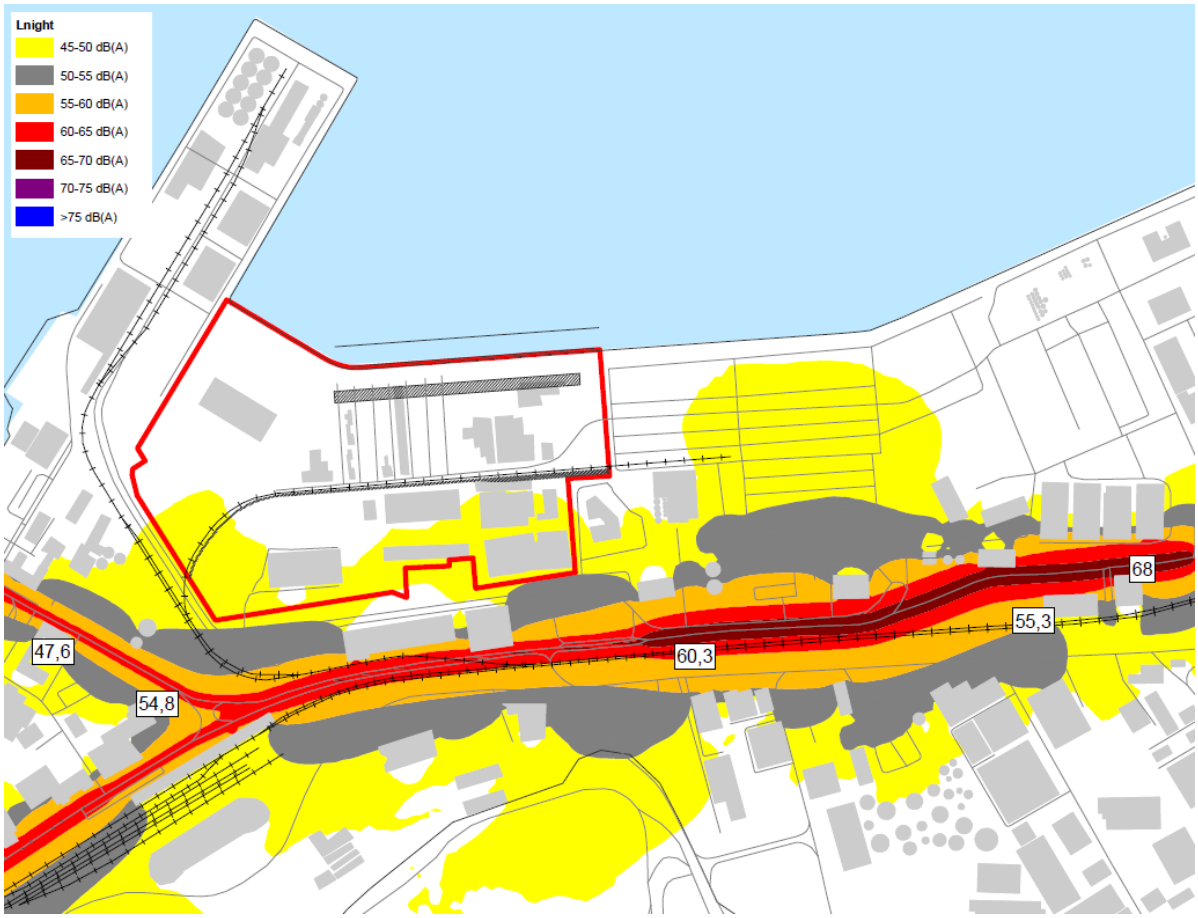

Image 33. EN-100 road noise levels for night period (22-7h).

Moreover, the results of the calculation mesh are shown in Maps 15, 16, 17 and 18 of Annex I.

The road noise levels generated at the main receivers are higher than the noise levels generated by the port activity, and higher than the noise levels fixed by the WHO as limits. The noise levels at the worst residential area for the port activity due the road noise levels are 62,2 dB(A) during the day period and 54,8 dB(A) during the night period.

6.6. ACOUSTIC MODELS FOR OPERATIONAL PHASE TAKING INTO ACCOUNT BOTH PORT ACTIVITIES AND THE ROAD EN-100.

The acoustic models have been realized taken account all the parameters defined in the previous paragraphs and the noise levels defined in the section 6.2. In the following images, general representation of the acoustic model is shown:

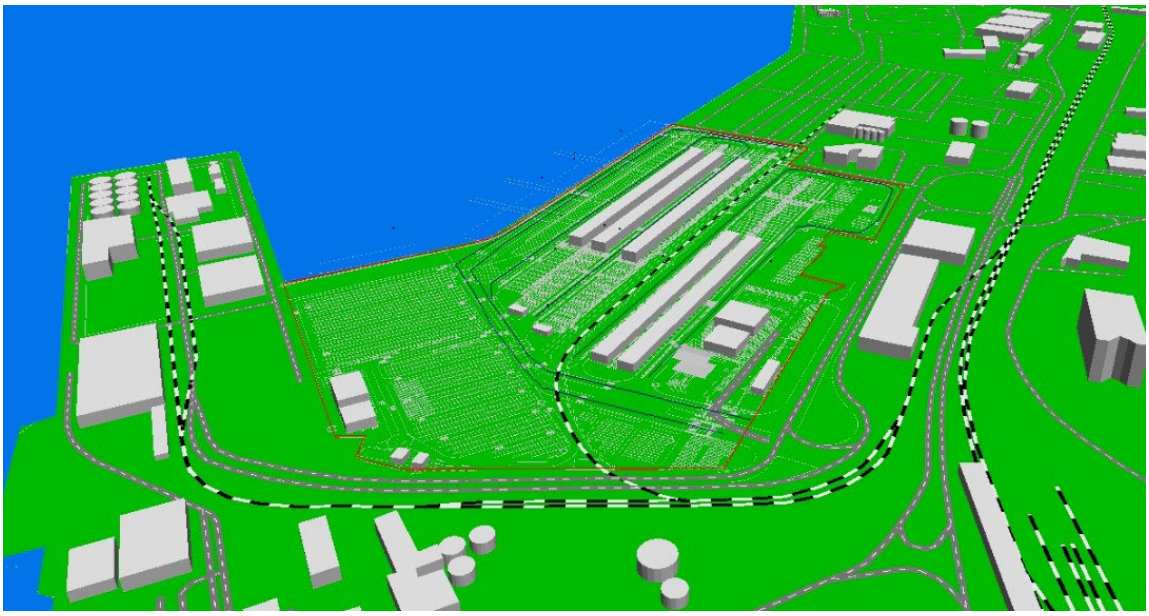

Image 34. 3D operational phase acoustic model.

The analysis of the study has been carried out by meshes. The meshes have been calculated at a height of 4m. according to international standards, including the ISO 9613-2 standard dedicated to industrial noise, and the NMPB-Routes_08 French noise model for road noise.

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The following images show the meshes where it is possible to analyze the transmission of sound levels to the nearest areas:

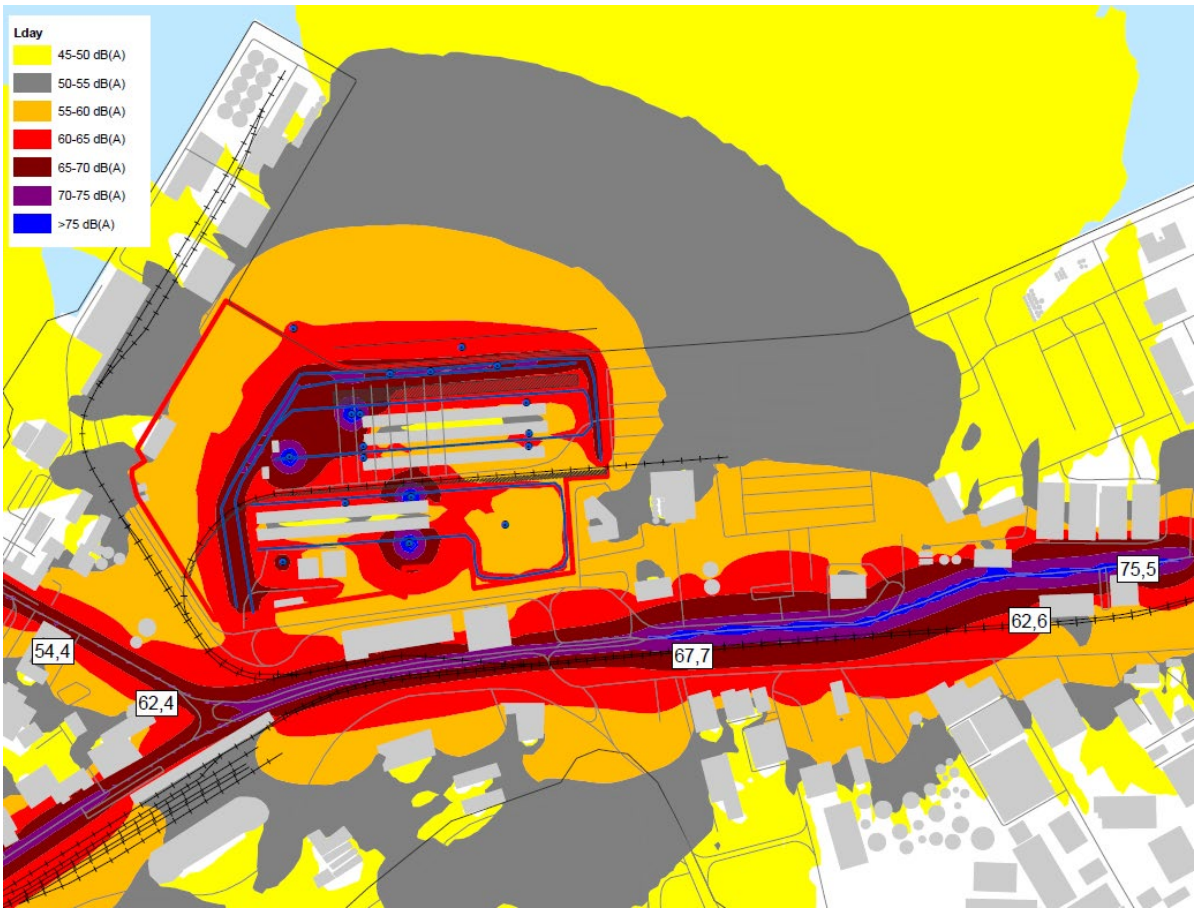

Image 35. Operational, considering noise road, noise levels for day period (7-22h).

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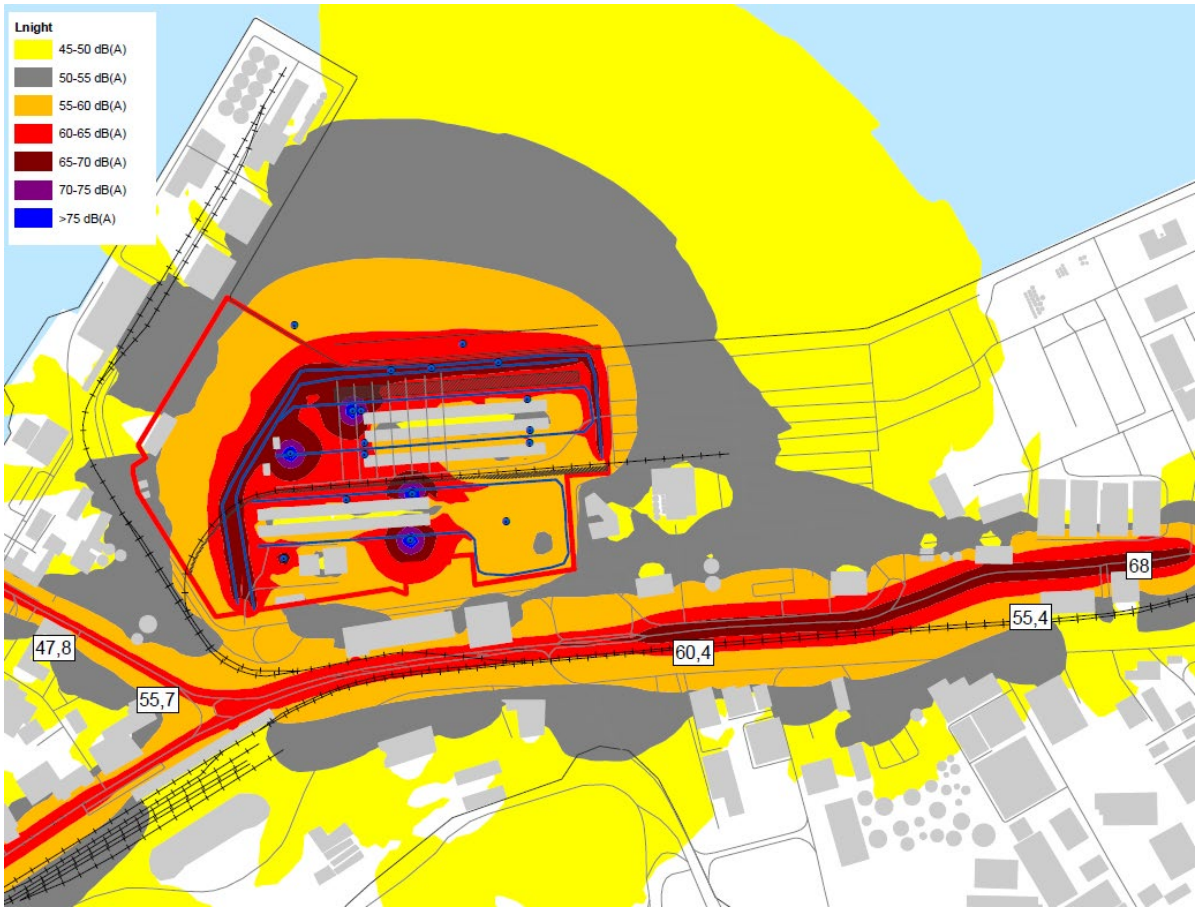

Image 36. Operational, considering noise road, noise levels for night period (22-7h).

Moreover, the results of the calculation mesh are shown in Maps 19, 20, 21 and 22of Annex I.

Considering all noise sources, at the worst residential area considered due to port activity noise, the noise levels obtained are 62,4 dB(A) during the day period and 55,7 dB(A) during the night period, which are similar to the noise levels from the road only at this area.

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7. CONCLUSIONS.

In the absence of specific Angolan legislation on noise, guidelines on environmental noise levels from the World Health Organization (WHO, 1999) were considered, as well as those adopted by the International Finance Corporation (IFC) in its environmental health and safety guidelines (IFC, 2007), as they are deemed suitable and capable of addressing the main issues observed and characterizing the acoustic reference framework. According to the IFC guidelines (2007), maximum noise levels should not exceed the levels presented in the following table:

	Maximum Levels L_{Aeq}(1hour) (dBA)	
Receiver	**Day (07:00 – 22:00 H)**	**Night (22:00 – 07:00 H)**
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Table 7. Maximum noise levels.

A 3D noise propagation model based on the ISO 9613-2 standard dedicated to industrial noise and the NMPB-Routes-08, the French national model standard for road noise, has been developed to determine the noise levels for different phases: pre-operational, constructive, and operational.

Conclusion 1. With this noise model, adjusted with the noise levels measured at the "Unicargas Terminal" located in the Port of Luanda, the noise levels obtained in the worst case at the residential area are lower than the maximums noise levels fixed by the WHO:

	Maximum Levels L_{Aeq}(1hour) (dBA)		Pre-operational noise level (dBA)	
Receiver	**Day (07–22H)**	**Night (22–07H)**	**Day (07–22H)**	**Night (22–07H)**
Residential, institutional, educational	55	45	46,2	41,7

Table 8. Pre-Operational noise levels.

Conclusion 2. The noise levels obtained in the worst case at the residential area for construction noise are higher than the maximums noise levels fixed by the WHO during the night period:

	Maximum Levels L_{Aeq}(1hour) (dBA)		Construction noise level (dBA)	
Receiver	**Day (07–22H)**	**Night (22–07H)**	**Day (07–22H)**	**Night (22–07H)**
Residential, institutional, educational	55	45	58,8	57,6

Table 9. Construction noise levels.

However, during the day, the levels from the road EN-100 are higher than those from the construction activities by more than 3 dBA and thus, mitigation measures are proposed at night only.

Conclusion 3. To reduce the noise levels due to construction activities, mitigation measures based on mobile noise barriers should be adopted and/or the work periods and places could be adjusted at night.

Conclusion 4. The noise levels obtained in the worst case at the residential area for operational noise due to port activities only are higher than the maximums noise levels fixed by the WHO during the night period:

	Maximum Levels L_{Aeq}(1hour) (dB A)		Operational noise level due to port activities (dBA)	
Receiver	**Day (07–22H)**	**Night (22–07H)**	**Day (07–22H)**	**Night (22–07H)**
Residential, institutional, educational	55	45	49,7	48,2

Table 10. Operational noise levels.

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Conclusion 5. If the traffic noise levels generated by de EN-100 road is considered, the difference between operational results with and without the port activities is lower than 1 dB, so the noise levels generated by the port activity do not modify the acoustic situation generated and dominated by EN-100 road noise:

	Traffic noise levels (dBA)		Port activities and traffic noise levels (dBA)	
Receiver	**Day (07–22H)**	**Night (22–07H)**	**Day (07–22H)**	**Night (22–07H)**
Residential, institutional, educational	62,2	54,8	62,4	55,7

Table 11. Operational noise levels.

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Thursday, April 30, 2024.
Juan Luís Aguilera de Maya.
Technical Telecommunications Engineer
Collegiate Nº.6629.

IMPORTANT NOTE

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ANNEX I

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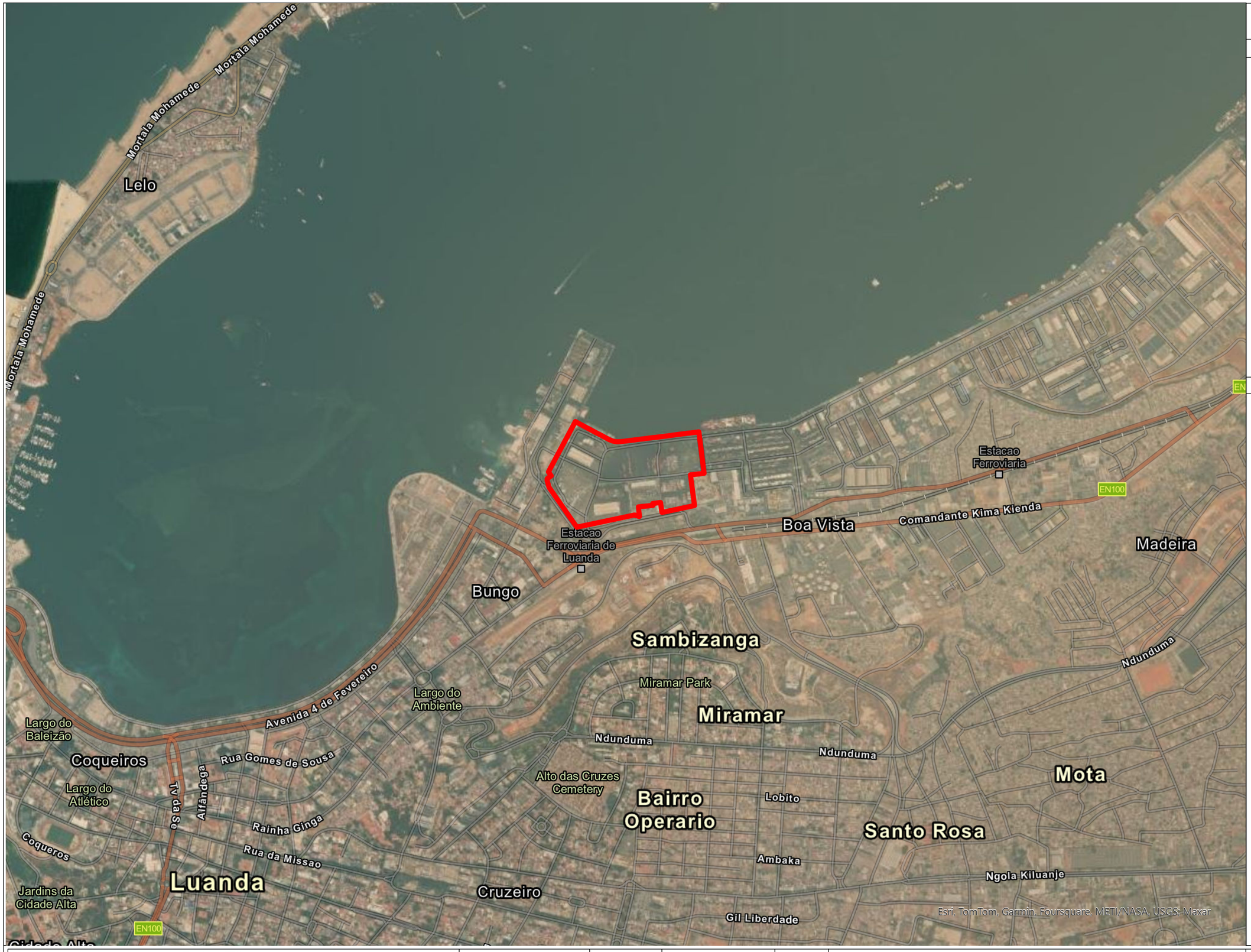

Description Map

SITUATION MAP

Legend:

Project Limit

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Description Map

LAND USES MAP

Legend:

Land Uses

- Governmental
- Commercial
- Educational
- Historical
- Industrial
- Residential
- Tertiary

Buildings

Project Limit

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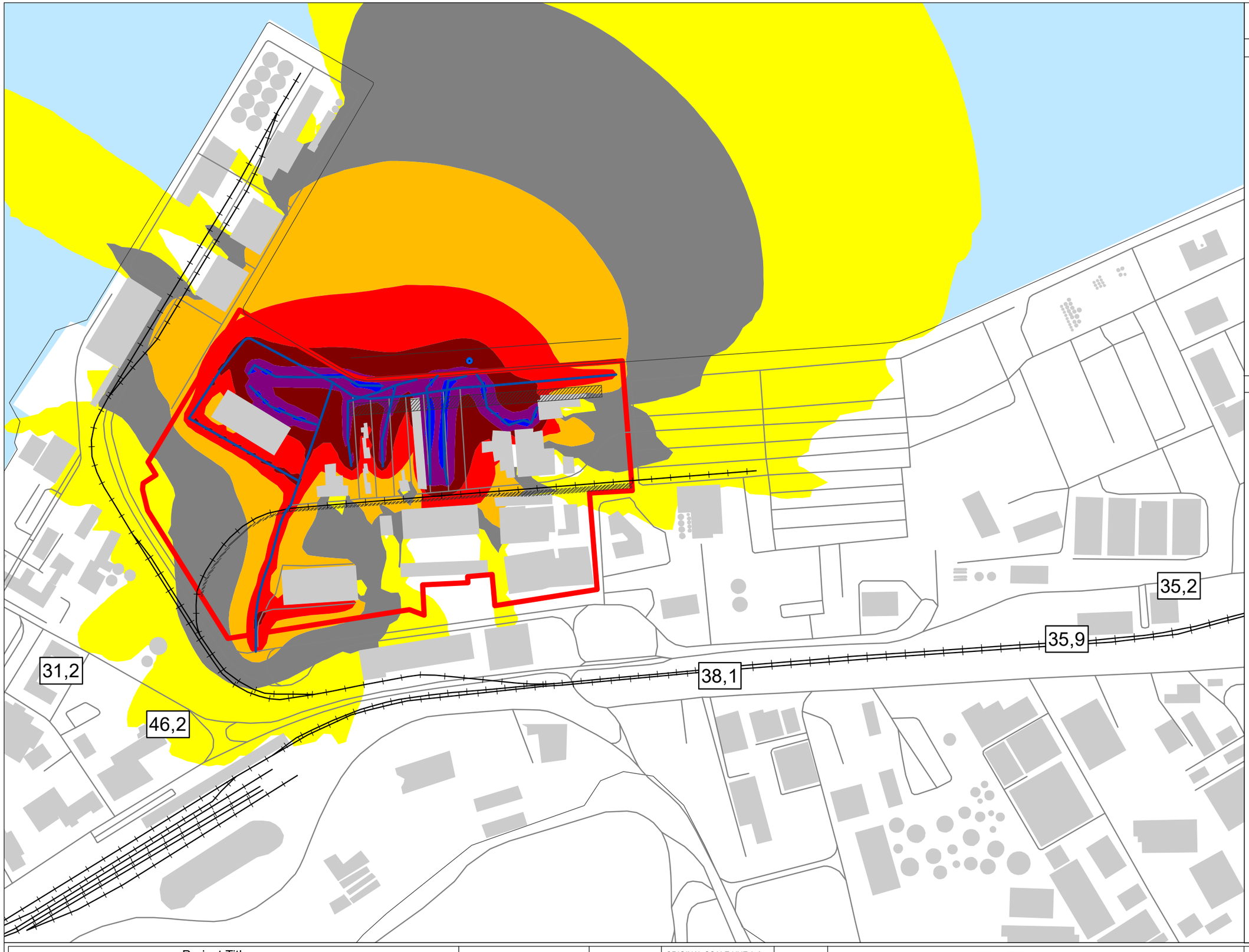

Description Map

Noise Levels Map

Indicator Ld (7 - 22 h).

Preoperational Phase

Noise Levels:

Lday

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title:

NOISE STUDY OF THE DEVELOPMENT
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Fdo: Juan Luis Aguilera

ORIGINAL SCALE UNE A-3

Numerical: 1:5.000

Graphic: 0 100 Metros

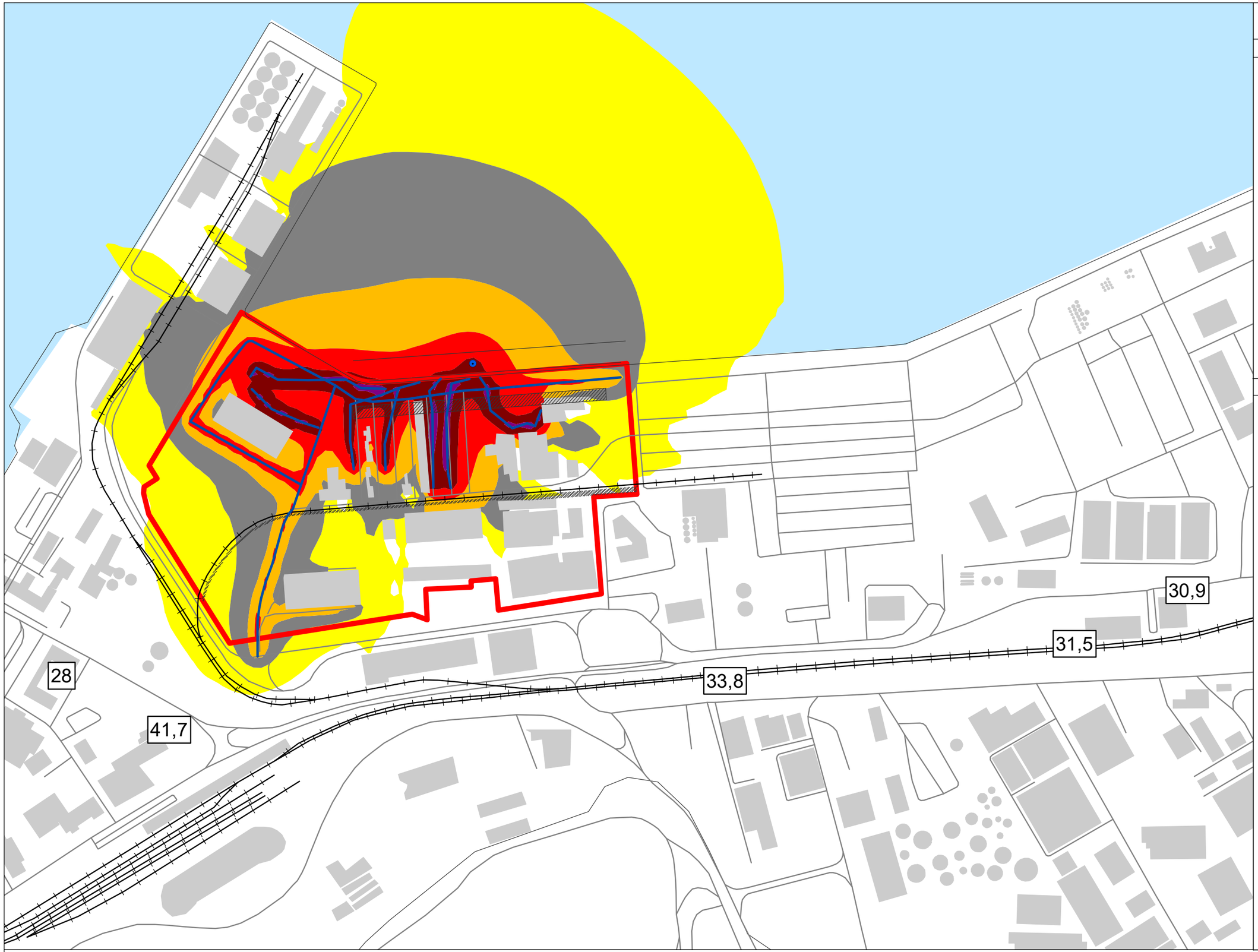
N

Map Title:

NOISE LEVELS MAP. Ld(7-22H)
PREOPERATIONAL PHASE.

Date:30/04/2024

Map 03



Description Map

Noise Levels Map.

Indicator Ln (22 - 7 h).

Preoperational Phase

Noise Levels:

Lnight

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

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ORIGINAL SCALE UNE A-3

Numerical: 1:5.000

Graphic:

0 100 Metros

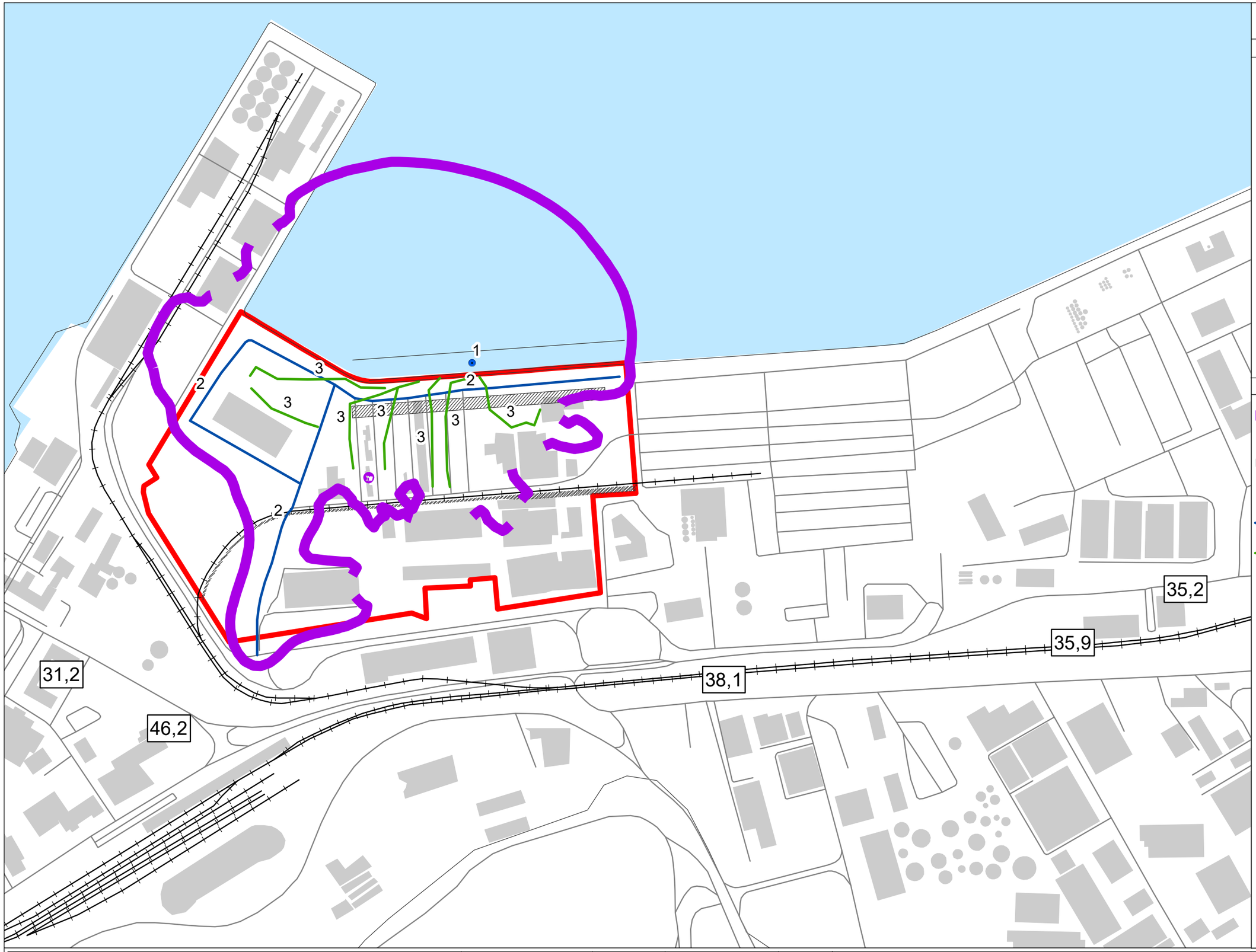
N

Map Title:

NOISE LEVELS MAP. Ln(22-7H)
PREOPERATIONAL PHASE.

Date:30/04/2024

Map 04



Description Map

Noise Levels Map.

Indicator Ld (7 - 22 h).

Preoperational Phase

Noise Levels:

Noise Limit 55 dB(A)

Noise sources:

1: Boats arrives

2: Lorry movements

3: Reachstackers

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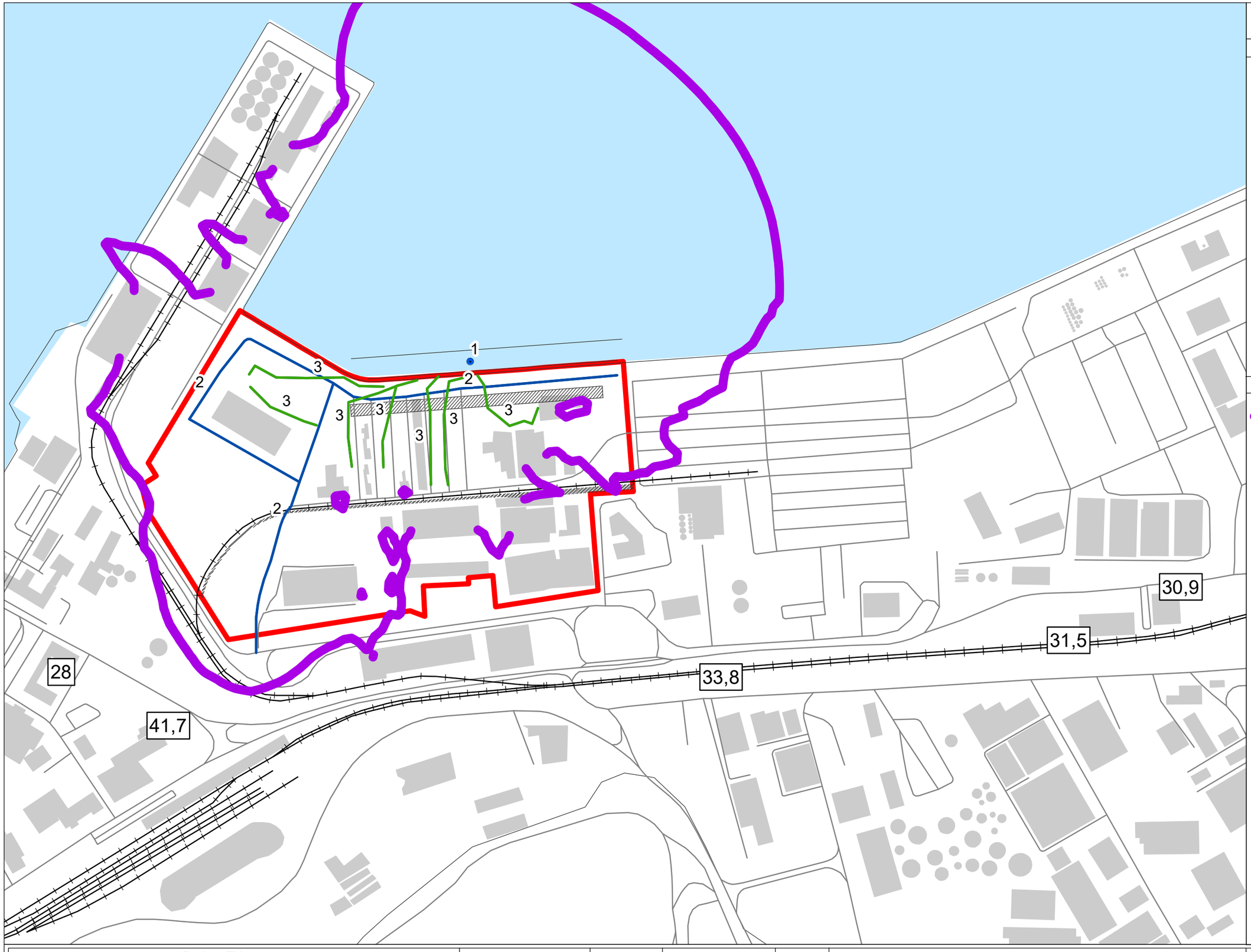

Description Map

Noise Levels Map.

Indicator Ln (22 - 7 h).

Preoperational Phase

Noise Levels:

Noise Limit 45 dB(A)

Noise sources:

1: Boats arrives

2: Lorry movements

3: Reachstackers

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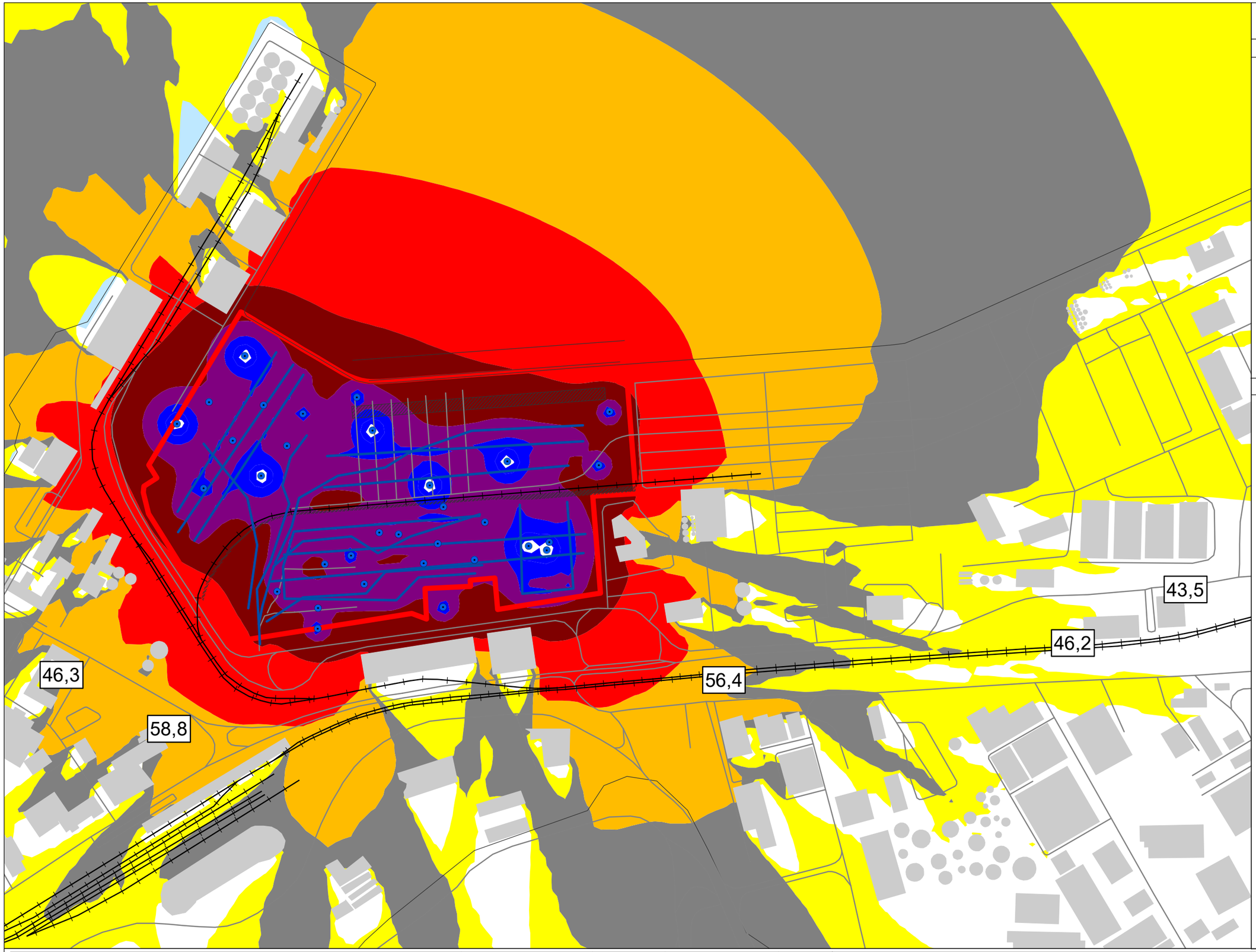

Description Map

Noise Levels Map

Indicator Ld (7 - 22 h).

Construction Phase.

Noise Levels:

Lday

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

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Description Map

Noise Levels Map.

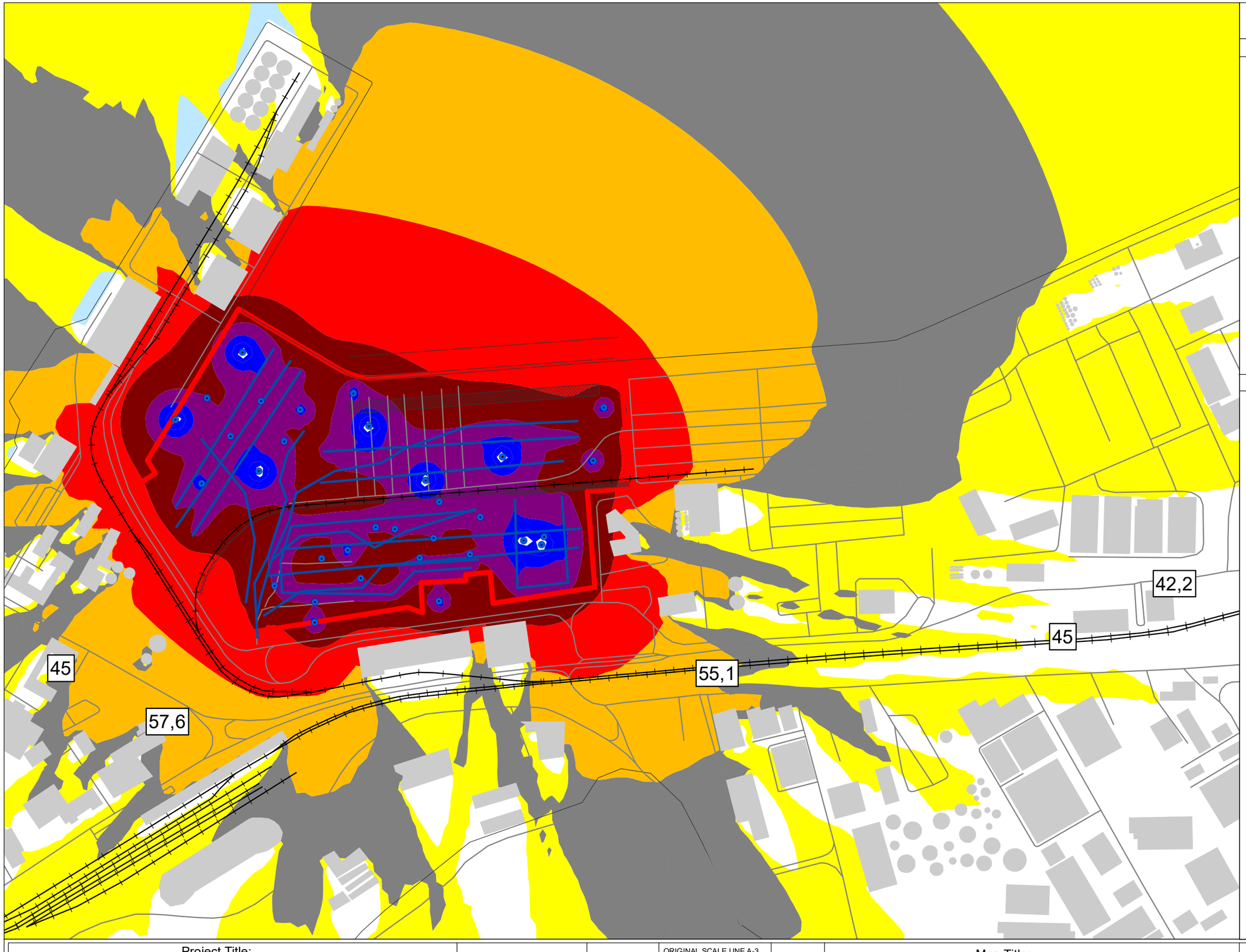
Indicator Ln (22 - 7 h).

Constructive Phase.

Noise Levels:

Lnight

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)



Project Title:

NOISE STUDY OF THE DEVELOPMENT
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Acústica y Telecomunicaciones

Fdo: Juan Luis Aguilera

ORIGINAL SCALE UNE A-3

Numerical: 1:5.000

Graphic: 0 100 Metros

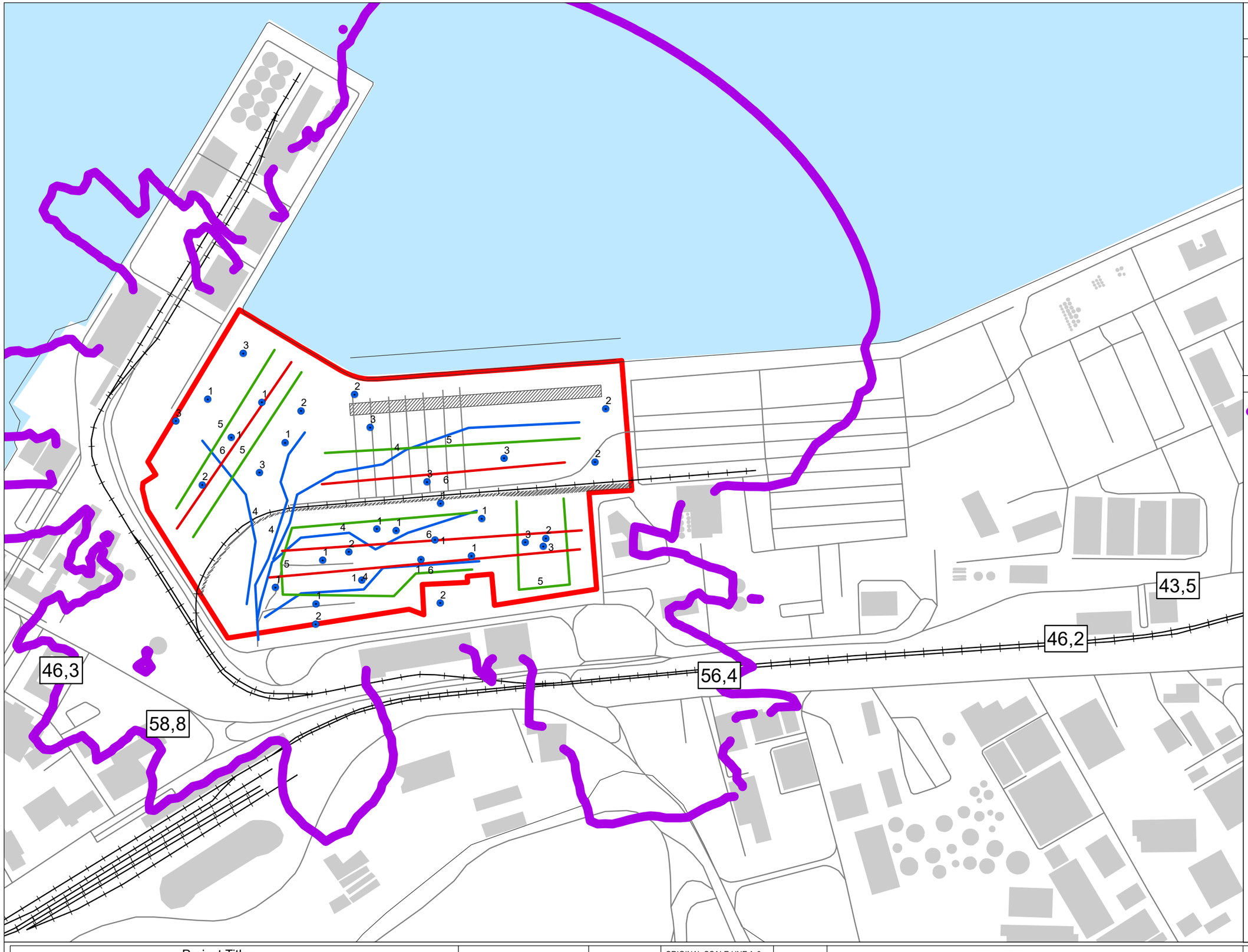
N

Map Title:

NOISE LEVELS MAP. Ln(22-7H)
CONSTRUCTIVE PHASE.

Date:30/04/2024

Map 08



Description Map

Noise Levels Map.

Indicator Ld (7 - 22 h).

Construction Phase.

Noise Levels:

Noise Limit 55 dB(A)

Noise Sources

- 1: Excavator shovel
- 2: Wheeled loaders
- 3: Pneumatic Hamer
- 4: Lorry movements
- 5: Compaction machine
- 6: Bulldozer

Project Title:
NOISE STUDY OF THE DEVELOPMENT
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LOCATED IN THE PORT OF LUANDA, ANGOLA

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Fdo: Juan Luis Aguilera

ORIGINAL SCALE UNE A-3
Numerical: 1:5.000
Graphic:
0 100 Metros

N

Map Title:
NOISE LEVELS MAP. Ld(7-22H)
NOISE LIMIT 55 dB(A)
CONSTRUCTION PHASE.

Date:30/04/2024

Map 09

Description Map

Noise Levels Map.

Indicator Ln (22 - 7 h).

Construction Phase.

Noise Levels:

Noise Limit 45 dB(A)

Noise sources:

- 1: Excavator shovel
- 2: Wheeled loaders
- 3: Pneumatic Hamer
- 4: Lorry movements
- 5: Compaction machine
- 6: Bulldozer

45

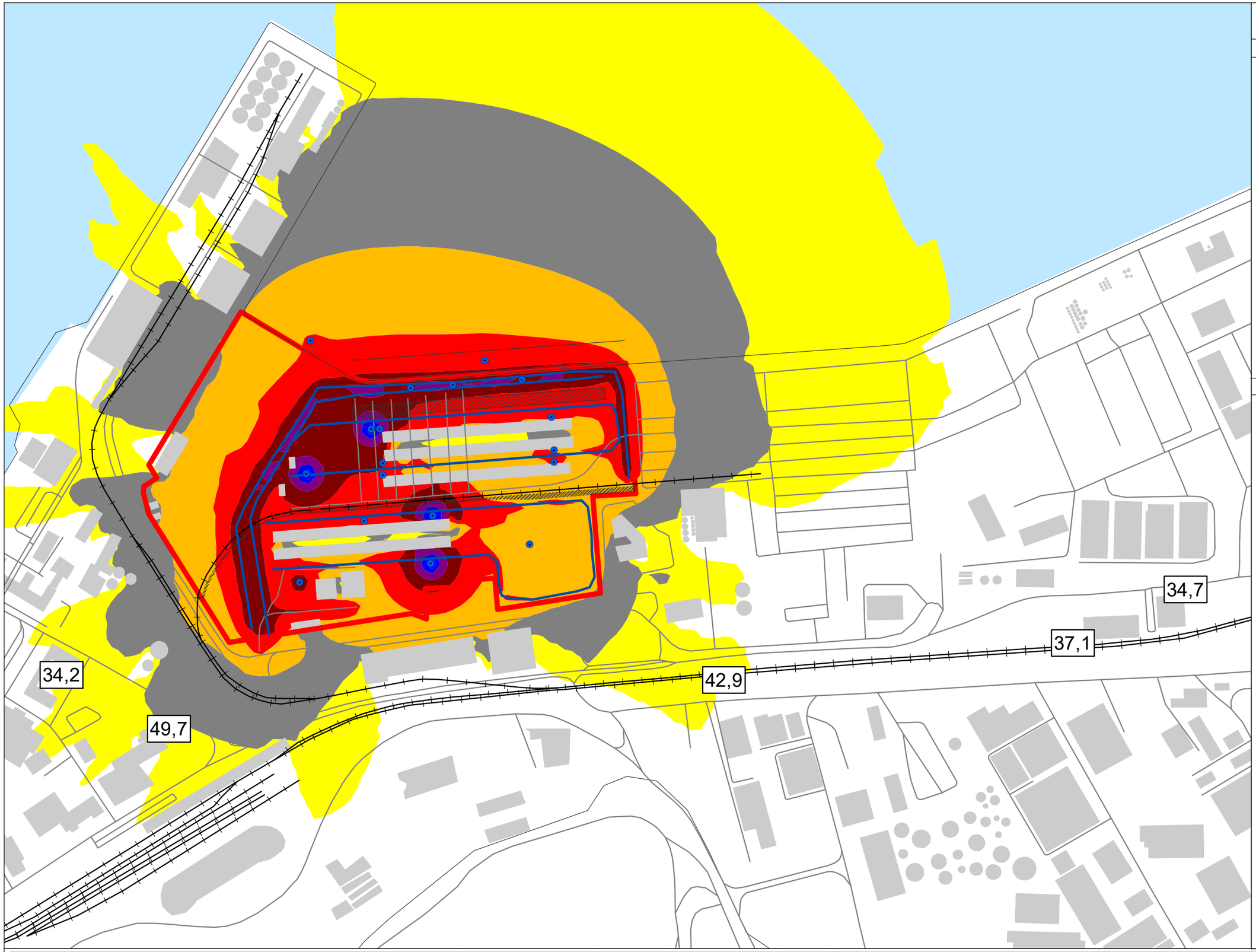
57,6

55,1

45

42,2

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: NOISE LEVELS MAP. Ln(22-7H) NOISE LIMIT 45 dB(A) CONSTRUCTION PHASE.	Date:30/04/2024 Map 10



Description Map

Noise Levels Map.

Indicator Ld (7 - 22 h).

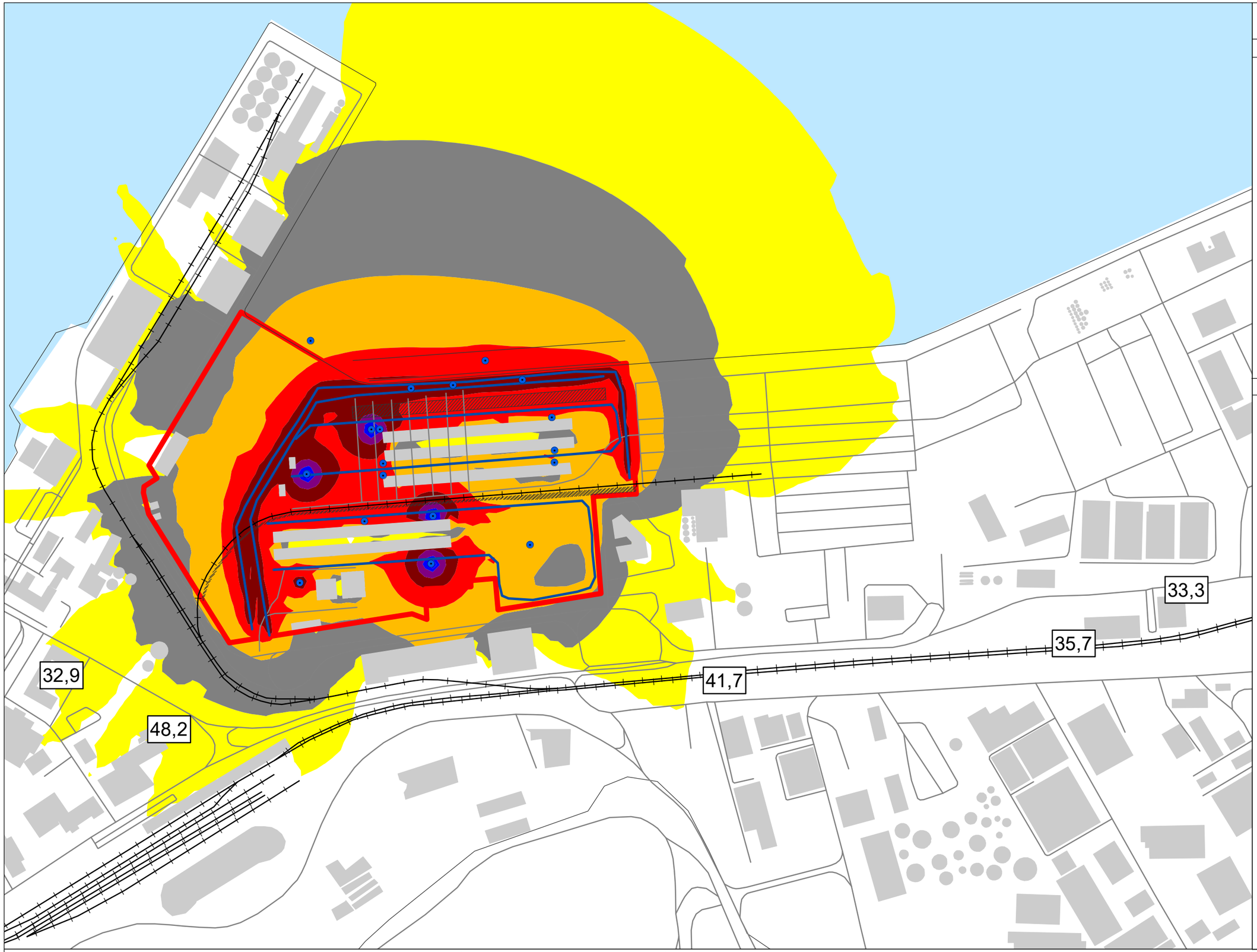
Operational Phase

Noise Levels:

Lday

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: NOISE LEVELS MAP. Ld(7-22H) OPERATIONAL PHASE.	Date: 30/04/2024 Map 11



Description Map

Noise Levels Map.

Indicator Ln (22 - 7 h).

Operational Phase

Noise Levels:

Lnight

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title:					Map Title:	Date: 30/04/2024
NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: Metros 0 100	N	NOISE LEVELS MAP. Ln(22-7H) OPERATIONAL PHASE.	Map 12

Description Map

Noise Levels Map.

Indicator Ld (7 - 22 h).

Operational Phase

Noise Levels:

Noise Limit 55 dB(A)

Noise sources:

- 1:Boat
- 2: Boat
- 3: Liftingtruck
- 4: Forklift
- 5: RS-Reachstackers
- 6: RTG-Staking Cranes
- 7: STS-Dockside Cranes
- 8: Tugmasters
- 9: Trucks

34,2

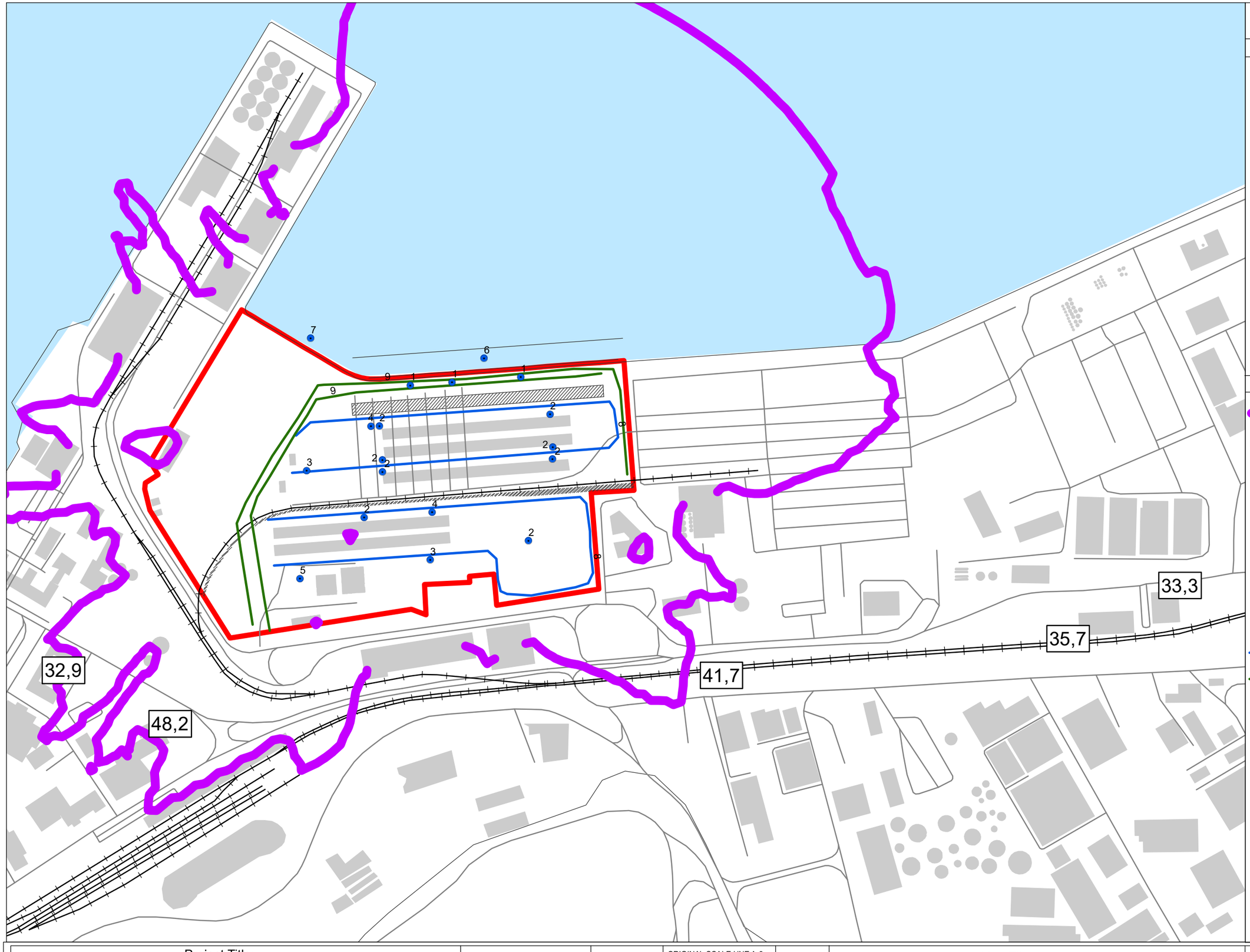
49,7

42,9

37,1

34,7

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE “UNICARGAS TERMINAL” LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: NOISE LEVELS MAP. Ld(7-22H) NOISE LIMIT 55 dB(A) OPERATIONAL PHASE.	Date:30/04/2024 Map 13



Description Map

Noise Levels Map.

Indicator Ln (22 - 7 h).

Operational Phase

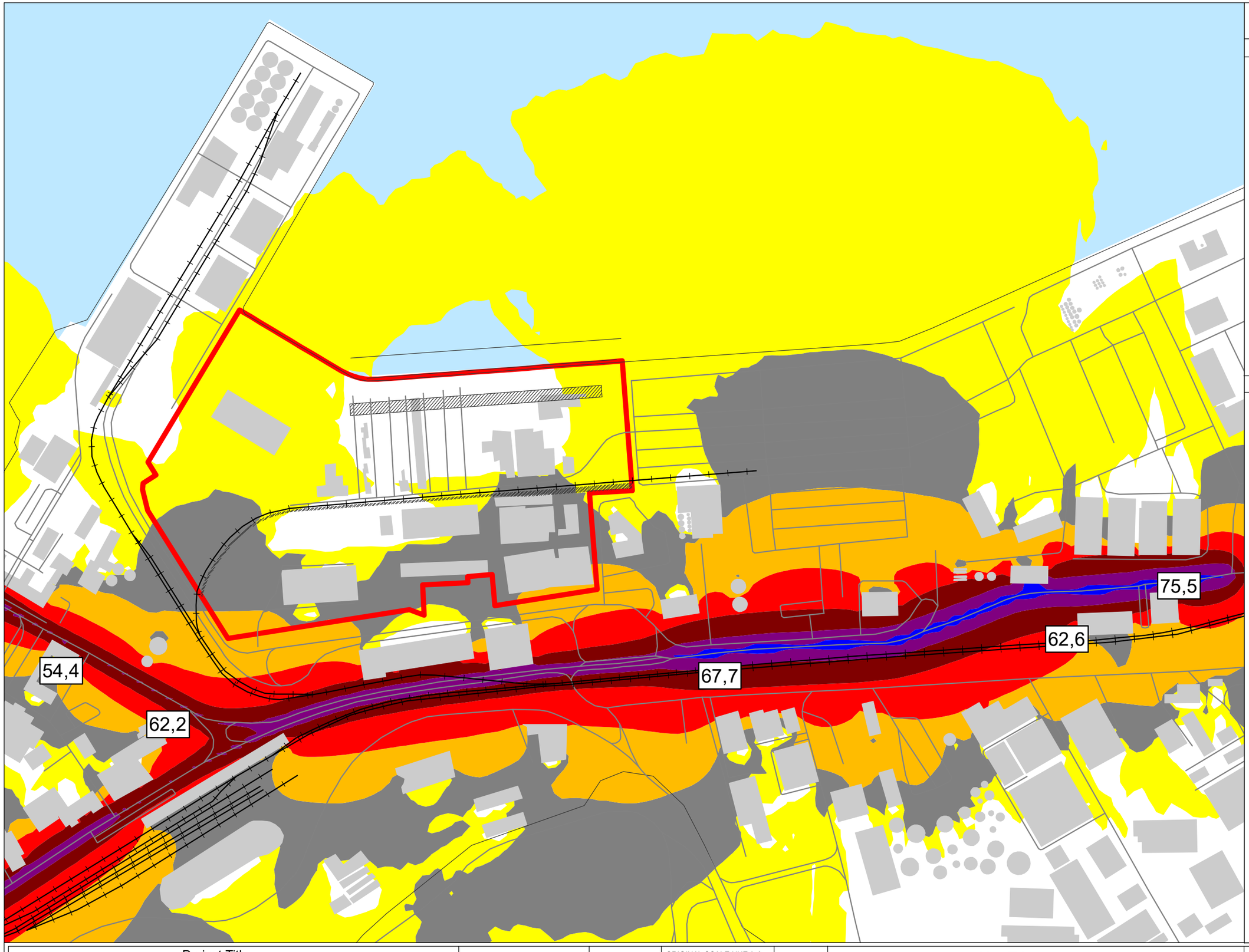
Noise Levels:

Noise Limit 45 dB(A)

Noise sources:

- 1:Boat
- 2: Boat
- 3: Liftingtruck
- 4: Forklift
- 5: RS-Reachstackers
- 6: RTG-Staking Cranes
- 7: STS-Dockside Cranes
- 8: Tugmasters
- 9: Trucks

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE “UNICARGAS TERMINAL” LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: Metros 0 100	N	Map Title: NOISE LEVELS MAP. Ln(22-7H) NOISE LIMIT 45 dB(A) OPERATIONAL PHASE.	Date: 30/04/2024 Map 14



Description Map

NoiseTraffic Levels Map.

Indicator Ld (7 - 22 h).

Noise Levels:

Lday

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title:

NOISE STUDY OF THE DEVELOPMENT
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Acusttel® Acústica y Telecomunicaciones

Fdo: Juan Luis Aguilera

ORIGINAL SCALE UNE A-3

Numerical: 1:5.000

Graphic: 0 100 Metros

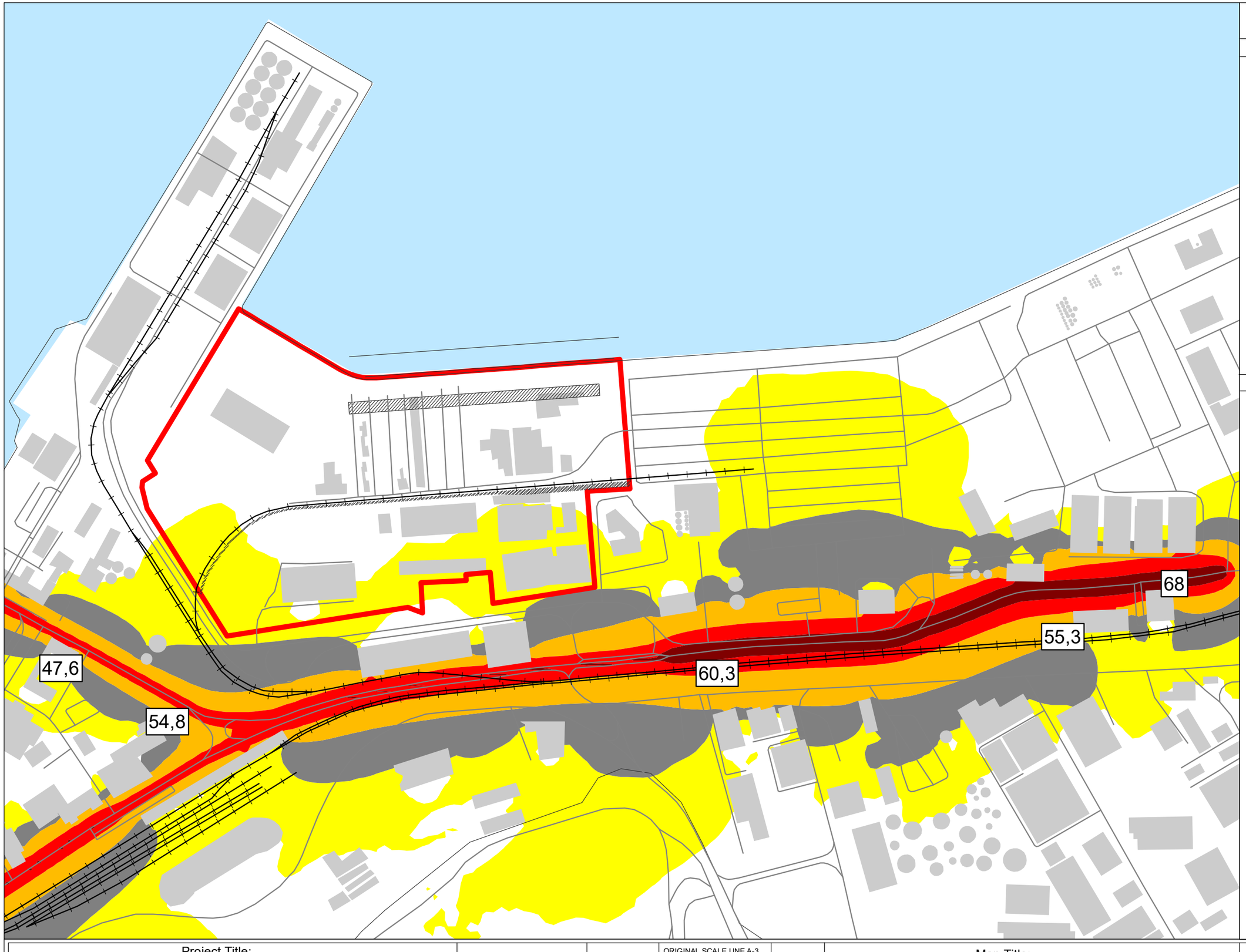
N

Map Title:

TRAFFIC LEVELS MAP. Ld(7-22H)

Date:30/04/2024

Map 15



Description Map

Noise Traffic Levels Map.

Indicator Ln (22 - 7 h).

Noise Levels:

Lnight

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title:

NOISE STUDY OF THE DEVELOPMENT
OF THE "UNICARGAS TERMINAL"
LOCATED IN THE PORT OF LUANDA, ANGOLA

Acusttel® Acústica y Telecomunicaciones

Fdo: Juan Luis Aguilera

ORIGINAL SCALE UNE A-3

Numerical: 1:5.000

Graphic: 0 100 Metros

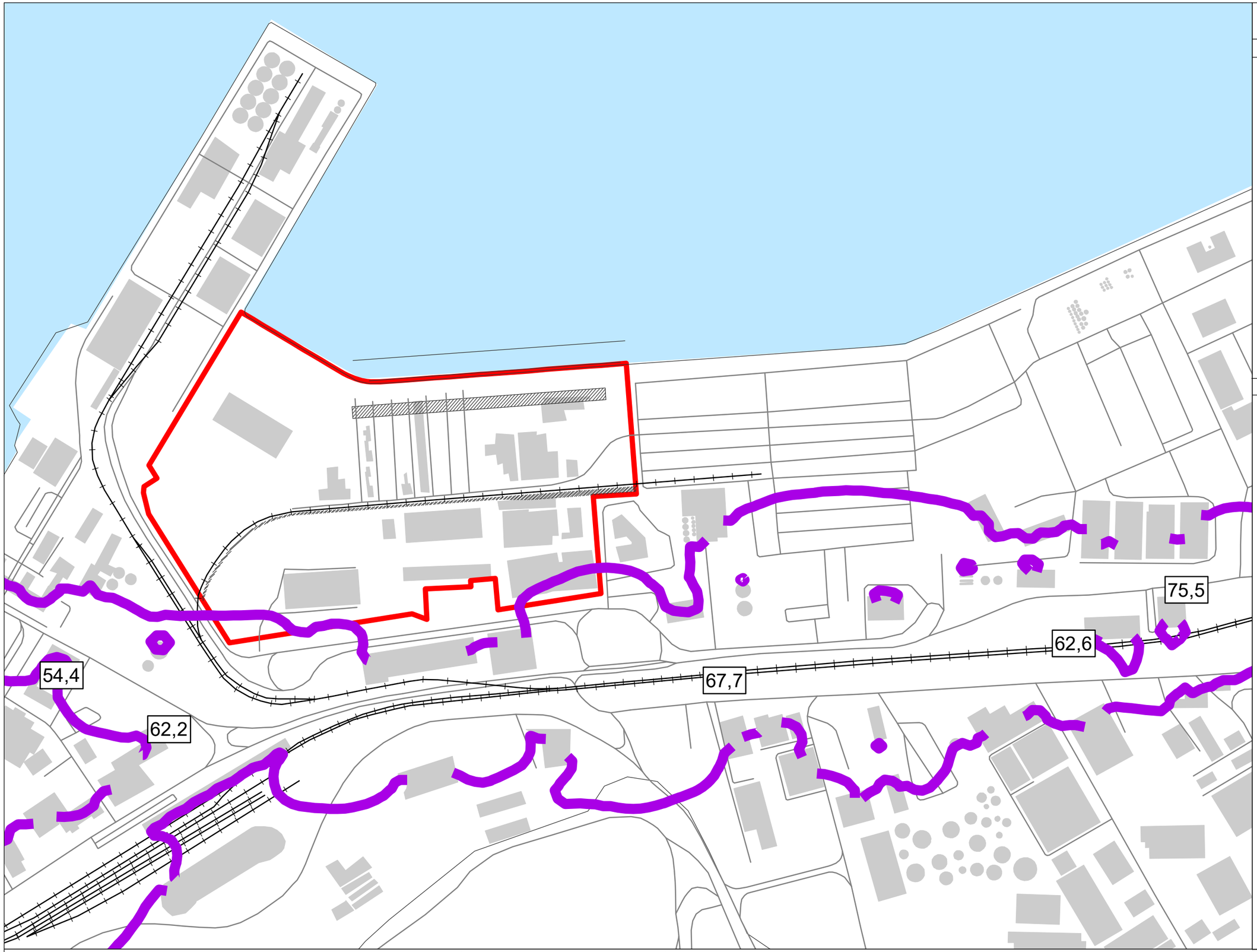
N

Map Title:

NOISE TRAFFIC LEVELS MAP. Ln(22-7H)

Date: 30/04/2024

Map 16



Description Map

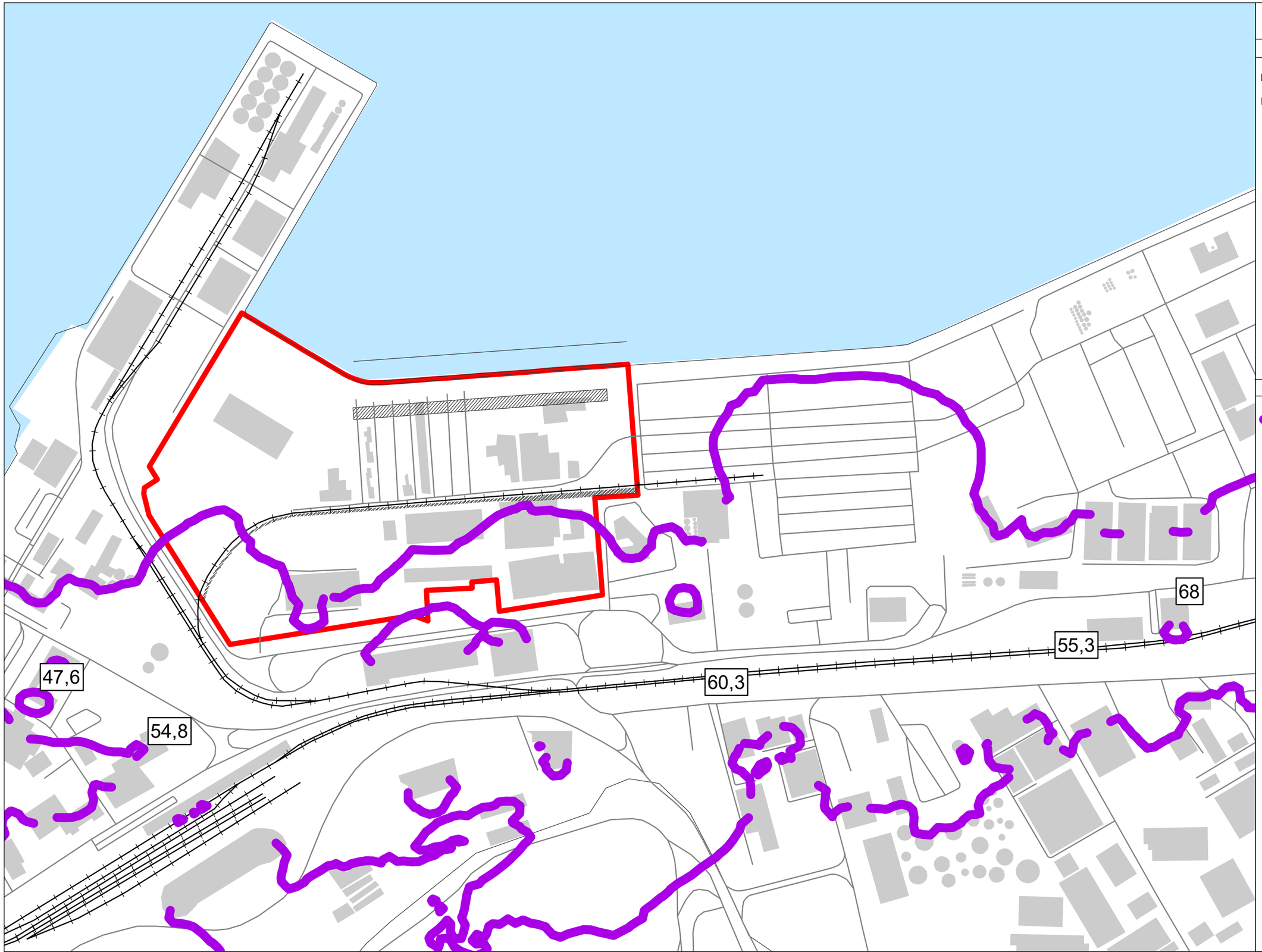
Noise Traffic Levels Map.

Indicator Ld (7 - 22 h).

Noise Levels:

Noise Limit 55 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: NOISE TRAFFIC LEVELS MAP. Ld(7-22H) NOISE LIMIT 55 dB (A)	Date: 30/04/2024 Map 17



Description Map

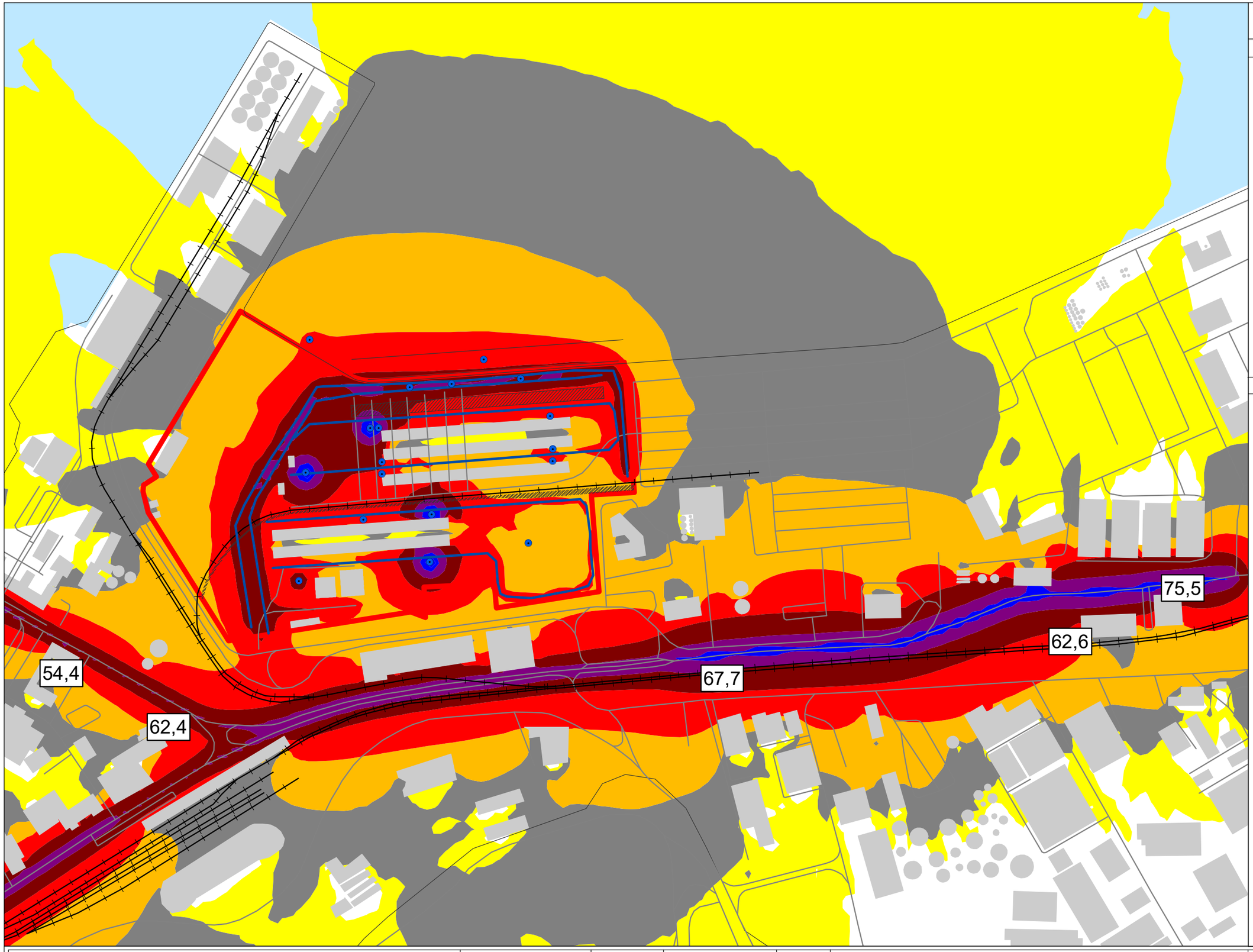
Noise Traffic Levels Map.

Indicator Ln (22 - 7 h).

Noise Levels:

Noise Limit 45 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE “UNICARGAS TERMINAL” LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: NOISE TRAFFIC LEVELS MAP. Ln(22-7H) NOISE LIMIT 45 dB(A)	Date: 30/04/2024 Map 18



Description Map

Operational and
Traffic Noise Levels Map.

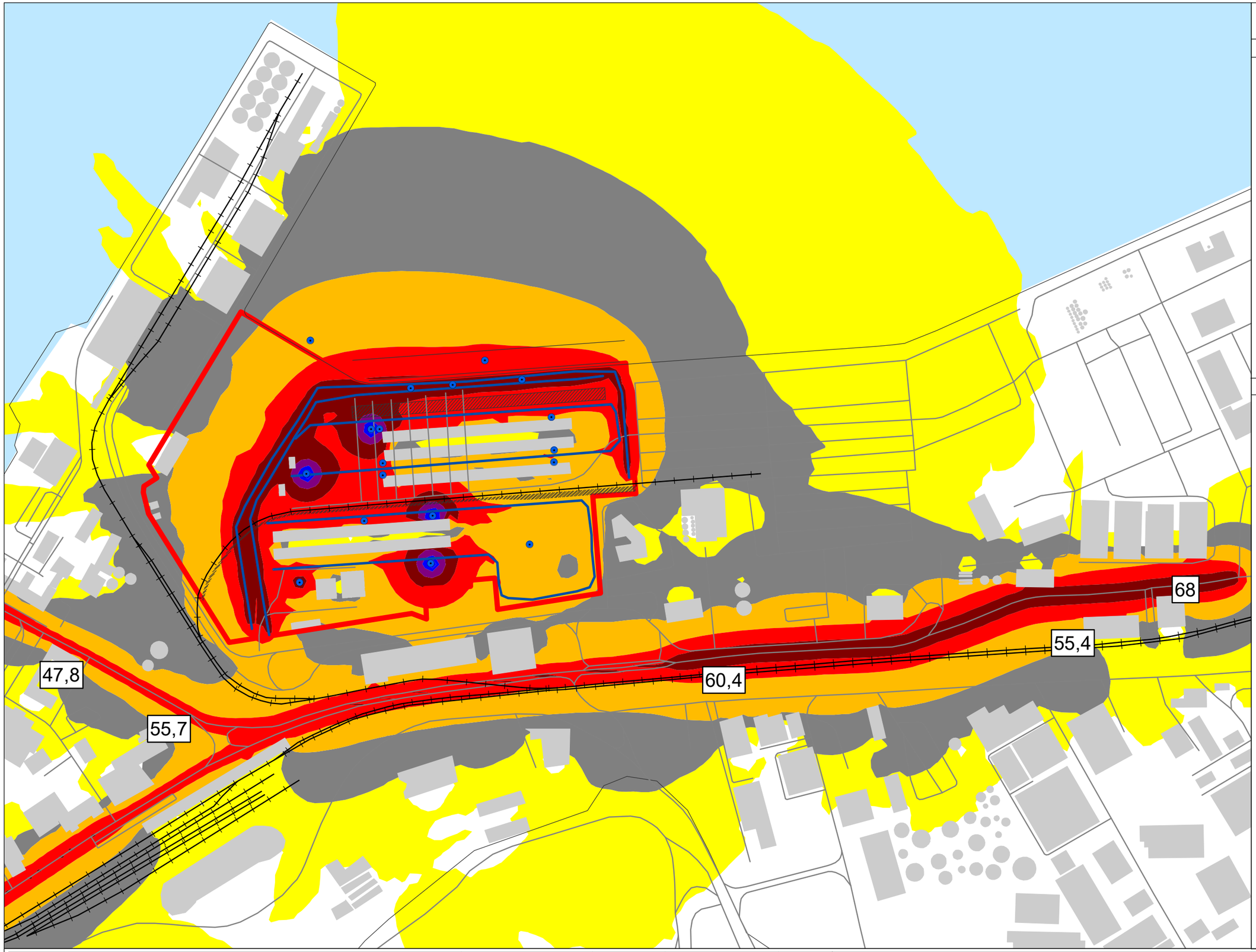
Indicator Ld (7 - 22 h).
Operational phase.

Noise Levels:

Lday

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: OPERATIONAL AND TRAFFIC NOISE LEVELS MAP. Ld(7-22H)	Date: 30/04/2024 Map 19



Description Map

Operational and
Traffic Noise Levels Map.

Indicator Ln (22 - 7 h).

Operational Phase

Noise Levels:

Lnight

- 45-50 dB(A)
- 50-55 dB(A)
- 55-60 dB(A)
- 60-65 dB(A)
- 65-70 dB(A)
- 70-75 dB(A)
- >75 dB(A)

Project Title:
NOISE STUDY OF THE DEVELOPMENT
OF THE "UNICARGAS TERMINAL"
LOCATED IN THE PORT OF LUANDA, ANGOLA

Acusttel®
Acústica y Telecomunicaciones

Fdo: Juan Luis Aguilera

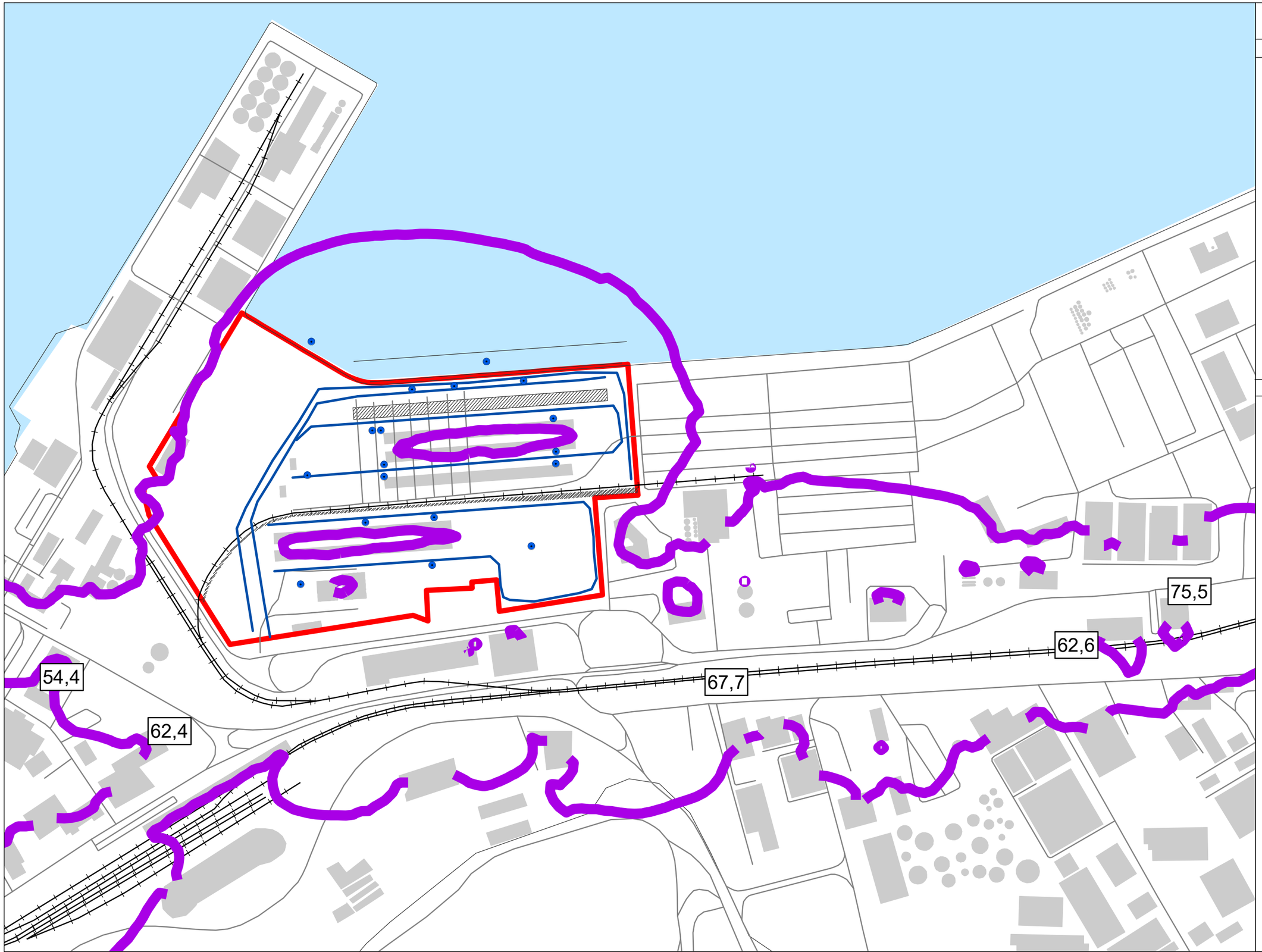
ORIGINAL SCALE UNE A-3
Numerical: 1:5.000
Graphic:
0 100 Metros

N

Map Title:
OPERATIONAL AND
TRAFFIC NOISE LEVELS MAP. Ln(22-7H)

Date: 30/04/2024

Map 20



Description Map

Operational and
Traffic Noise Levels Map.

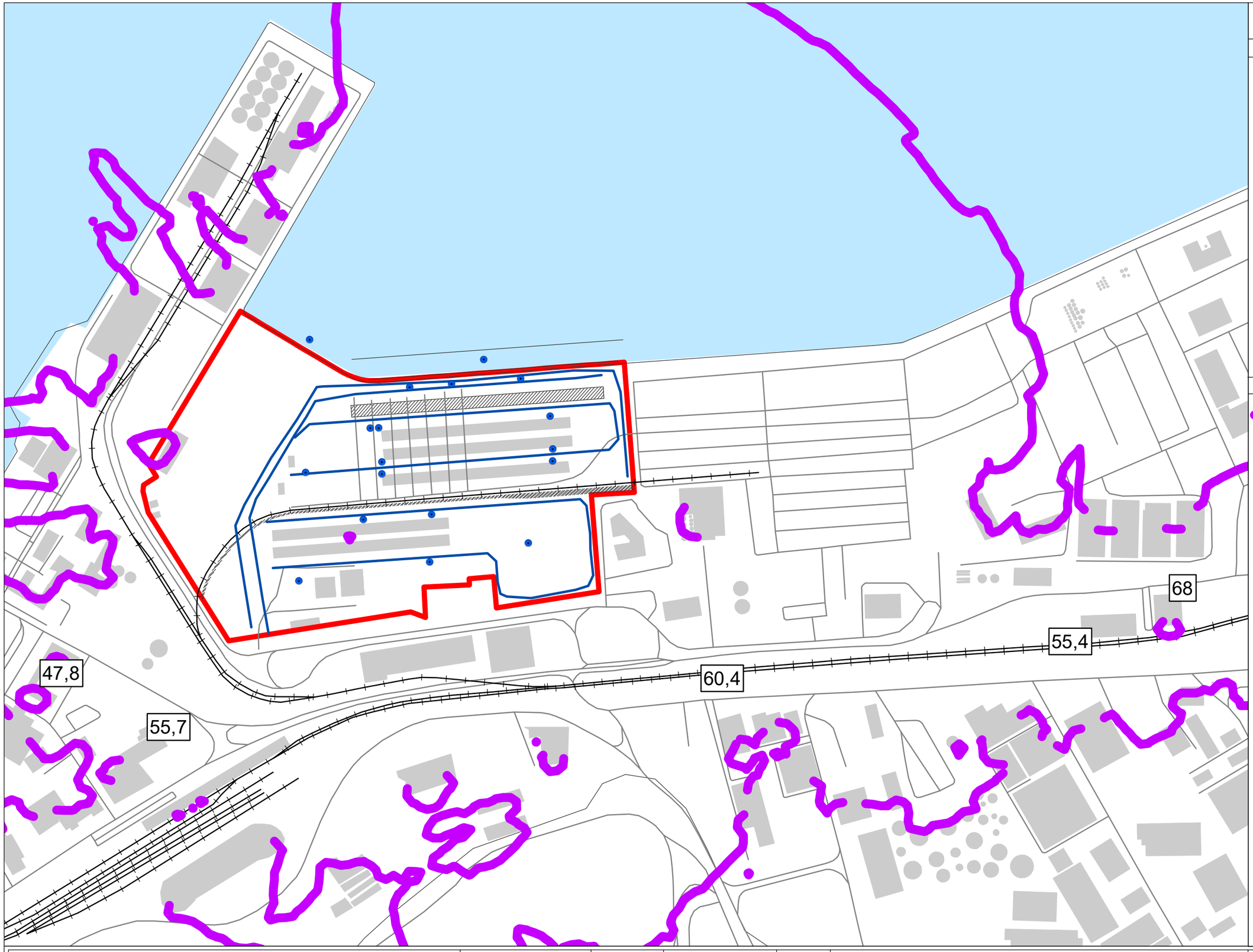
Indicator Ld (7 - 22 h).

Operational Phase.

Noise Levels:

Noise Limit 55 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE “UNICARGAS TERMINAL” LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: OPERATIONAL AND TRAFFIC NOISE LEVELS MAP. Ld(7-22H) NOISE LIMIT 55 dB (A)	Date:30/04/2024 Map 21



Description Map

Operational and
Traffic Noise Levels Map.

Indicator Ln (22 - 7 h).

Operational Phase

Noise Levels:

Noise Limit 45 dB(A)

Project Title: NOISE STUDY OF THE DEVELOPMENT OF THE "UNICARGAS TERMINAL" LOCATED IN THE PORT OF LUANDA, ANGOLA	Acusttel® Acústica y Telecomunicaciones	Fdo: Juan Luis Aguilera	ORIGINAL SCALE UNE A-3 Numerical: 1:5.000 Graphic: 0 100 Metros	N	Map Title: OPERATIONAL AND TRAFFIC NOISE LEVELS MAP. Ln(22-7H) NOISE LIMIT 45 dB(A)	Date: 30/04/2024 Map 22

2. Annex 2. Environmental Management Plan of the Port of Luanda

PORTO DE LUANDA E.P.

PLANO DE GESTÃO AMBIENTAL
PORTO DE LUANDA

Luanda, 2019

PORTO DE LUANDA E.P.

PLANO DE GESTÃO AMBIENTAL
PORTO DE LUANDA

FICHA TÉCNICA

Nome: Porto de Luanda

Entidade Gestora: Administração do Porto de Luanda, EP

Endereço: Largo 4 de Fevereiro

Correio Eletrónico: geral@portoluanda.co.ao

Caixa Postal: 1229 – Luanda

Código Localização: NU AOLAD

EQUIPA TÉCNICA

Nome	Função/Categoria	Função PGA	Assinatura
Romão Andrade	Director	Director do Plano: Análise do Plano de Gestão Ambiental	
Natalino Mateus	Chefe de Departamento	Coordenador do Plano	
Faustino António	Chefe de Sector	Coordenador e Revisão do Plano	
Manuel António	Técnico Ambiental	Levantamento dos Aspectos Ambientais, Plano de Acção.	
Sérgio Bartolomeu	Técnico Ambiental	Levantamento dos Aspectos Ambientais, Plano de Acção.	

Aprovação

O presente plano foi aprovado em aaaa-mm-dd pelo Exmo Sr. Alberto António Bengue, Presidente do Conselho de Administração do Porto de Luanda E.P, ao abrigo das competências atribuídas pelo Decreto nº26/98 de 14 de Agosto.

Termo de Promulgação

A Administração do Porto de Luanda (APL), elaborou o presente Plano de Gestão Ambiental, como parte de um esforço integrado e contínuo de toda a organização na busca pela excelência ambiental, no quadro da prevenção e da melhoria contínua do seu desempenho a esse nível, com vista a um desenvolvimento sustentável.

Os principais objectivos do Conselho de Administração do Porto de Luanda E.P, no âmbito da segurança e da preservação do ambiente, actuando como ferramenta para estabelecer práticas e procedimentos com vista à mitigação dos impactos ambientais resultantes dos aspectos ambientaid correlacionados ao desenvolvimento dos processos produtivos da empresa, visando contribuir também para a formação dos seus colaboradores como pessoas conscientes relativamente às questões ambientais.

O Plano de Gestão Ambiental, entra em vigor em _____/_____/2019

O Presidente do Conselho de Administração

_____

Alberto António Bengue

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Resumo

O objectivo de elaboração deste Plano de Gestão Ambiental (PGA), foi de analisar as possíveis situações que têm contribuído na degradação do ambiente portuário, onde se caracterizam os aspectos positivos e negativos nas dimensões económica, tecnológica, social e ambiental, resultantes das actividades portuárias, sobre tudo dos serviços directos e indirectos, que o Porto dispõe;

Podemos denotar nas áreas diferentes formas de poluições: emissões gasosas, resíduos sólidos e líquidos, hidrocarbonetos e águas residuais e de lastro, tanto na forma vertical e horizontal.

Há ausência de preocupações de preservação das condições naturais do litoral e as intervenções humanas geram impactos negativos, fruto do desenvolvimento económico

As comunidades envolventes; as alterações paisagísticas notáveis na mesma unidade ambiental geram vários impactos ambientais desde os positivos e negativos, resultantes dos agentes passivos desses impactos.

Palavras-chaves: Porto de Luanda; Gestão Ambiental; Conservação ambiental

Abstract

The objective of this Environmental Management Plan (EMP) was to analyze the possible situations that have contributed to the degradation of the port environment, which characterize the positive and negative aspects of the economic, technological, social and environmental all of the direct and indirect services that Porto has.

We can denote different types of pollution in the areas: gaseous emissions, solid and liquid waste, hydrocarbons and waste water and ballast, both in vertical and horizontal forms.

There is no concern for the preservation of the natural conditions of the coast and human interventions generate negative impacts as a result of economic development.

The surrounding communities; the notable landscape changes in the same environmental unit generate several environmental impacts from the positive and negative ones, resulting from the agents passive of these impacts.

Keywords: Port of Luanda; Environmental management; Environmental Conservation.

CAPÍTULO I

INTRODUÇÃO

I. INTRODUÇÃO

1.1. Introdução

A Gestão Ambiental é uma prática recente, que vem ganhando importância nas instituições públicas e privadas, fazendo parte do sistema de gestão geral e tendo como suporte a política ambiental definida pela Alta Direcção de cada organização. Traduz-se na realização de actividades que visam obter efeitos positivos sobre o ambiente, quer minimizando ou mitigando os danos causados pela intervenção humana, quer evitando que eles ocorram, sempre numa óptica de melhoria contínua.

A Gestão Ambiental anseia instaurar um processo de implementação de uma cultura organizacional, no caso presente no Porto de Luanda, com vista à conscientização de todos os seus colaboradores, e demais partes interessadas, para a optimização e utilização de recursos, para um efectivo combate ao desperdício e para a procura de uma melhor qualidade do ambiente de trabalho, tudo em respeito ao Ambiente.

É fundamental que a empresa tenha, também neste sentido, uma atitude coerente, responsabilizando-se pelo seu comportamento ao princípio da sustentabilidade, tornando-se exemplo na excelência e mudança de paradigmas dos processos produtivos, mantendo e adequando as suas acções à ética socio-ambiental.

A Gestão Ambiental, para a Administração Portuária, é uma questão estratégica, na medida em que, além de contribuir para a preservação do ambiente e, por consequência, da natureza e da biodiversidade, concorre também para reduzir os custos directos (água, energia, matérias-primas e demais insumos) e indirectos

(multas e passivos por danos ambientais). Pretende ainda pautar a actuação da organização por critérios de eficiência na utilização de recursos, incluindo critérios socio-ambientais, nas aquisições e contratação de serviços.

De acordo com o compromisso assumido na Política Ambiental estabelecida pela Administração do Porto de Luanda (anexo 1), mobilizando toda a organização para conduzir os negócios de um modo a promover a qualidade melhoria contínua do desempenho ambiental. Assim, implementa o Plano de Gestão Ambiental (PGA), que reitera e dá força à Política Ambiental definida e que apresenta um conjunto de actividades e ferramentas de gestão que toda região portuária adotará voluntariamente, tendo como finalidade a protecção do ambiente, a prevenção da poluição, e a melhoria do comportamento e do desempenho ambiental. Todos os procedimentos e acções que interessam a este respeito têm suporte material no Plano de Gestão Ambiental, ora implementado.

1.2. Objectivo

O Plano de Gestão Ambiental (PGA) faz parte de um esforço integrado e contínuo de toda a organização na busca pela excelência ambiental, no quadro da prevenção e da melhoria contínua do seu desempenho a esse nível, com vista a um desenvolvimento sustentável.

O PGA actua como ferramenta para estabelecer práticas e procedimentos com vista à mitigação dos impactos ambientais resultantes dos aspectos ambientais correlacionados ao desenvolvimento dos processos produtivos da empresa, visando contribuir também para a formação do seus colaboradores como pessoas conscientes relativamente às questões ambientais.

Desta forma, o PGA actua como ferramenta que levanta os impactos ambientais relevantes e estabelece práticas, directrizes e procedimentos para monitorá-los e mitigá-los de maneira a buscar a melhoria contínua do desempenho a este respeito que consiste no seguinte:

- Orientar o tratamento das questões ambientais em conformidade aos princípios de sustentabilidade e políticas ambientais;

- Melhorar continuamente as medidas e práticas relativas as questões de protecção ambiental;

- Estimular o foco na preservação e prevenção, através da criação de programas permanentes de comunicação e educação ambiental na região portuária.

1.3. Âmbito

O âmbito de aplicação do Plano de Gestão Ambiental é a área de jurisdição do Porto de Luanda E.P, que prevê estabelecer procedimentos práticos para a mitigação dos impactos negativos esperados e significativos, responder e identificar as acções e medidas de monotorização das questões chaves, incluindo aspectos sociais relacionados com a saúde e segurança de todos os colaboradores.

1.4. Metodologia

A metodologia utilizada para a elaboração do presente Plano de Gestão Ambiental (PGA), baseou-se na pesquisa bibliográfica e levantamento das legislações nacional e internacional, sobre as matérias de cargas perigosa, gestão de resíduos, fornecimento de hidrocarbonetos e água potável no recinto portuários e navios, que inclui a recolha de dados e informações extraídas em livros, relatórios, artigos e documentação oficial do Porto de Luanda, E.P.

Além disso, foi realizada visitas de estudo aos terminais, baseada nas entrevistas não estruturadas a técnicos das empresas e terminais, ligados ao manuseio de resíduos, e a profissionais da área ambiental do Porto de Luanda, assim como a observação directa e o registo de imagens fotográficas.

CAPÍTULO II

ENQUADRAMENTO LEGAL

II. ENQUADRAMENTO LEGAL

2.1. Legislação Aplicável ao PGA

- Lei nº 5/98 de 19 de Junho "Lei de Bases do Ambiente".
- Decreto nº 51/04 de 23 de Julho "Sobre Avaliação de Impacte Ambiental".
- Decreto nº 59/07 de 13 de Julho " Sobre Licenciamento Ambiental".
- Decreto nº 1/10 de 13 de Janeiro "Auditorias Ambientais".
- Decreto Presidencial nº 194/11 de 7 de Julho "Regulamento sobre Responsabilidade por Danos Ambientais".
- Decreto Executivo nº 87/12 de 24 de Fevereiro "Regulamento de Consultas Públicas dos Projectos Sujeitos a Avaliação de Impactos Ambiental".

2.2. Convenções Internacionais Aplicáveis

- Convenção MARPOL-73/78 "*Prevenção da Poluição por Navios*".
- Código IMDG "*Transporte de Mercadorias Perigosas*".
- Convenção de Londres e Protocolo de Londres

2.3. Leis, Normas e Procedimentos Internos Aplicáveis

- Decreto nº 52/97 de 18 de Julho " *Bases Gerais das Concessões Portuárias*".
- Lei nº 26/98 de 14 de Agosto "*Estatuto Orgânico do Porto de Luanda*".
- Lei nº 9/98 de 18 de Setembro "*Lei do Domínio Portuário*".
- Normas de Gestão Ambiental ao Nível da Região Portuário, de 03.05.2004.
- Decreto Executivo Conjunto nº 323/08 de 16 de Dezembro, "*Regulamento de Tarifas Portuárias de Angola*".
- Decreto nº 53/03 de 11 de Julho "*Regulamento de Exploração dos Portos de Angola*".

CAPÍTULO III

CARACTERIZAÇÃO DO PORTO DE LUANDA

III. CARACTERIZAÇÃO DO PORTO DE LUANDA

3.1. Descrição Geral

O porto contempla 5 terminais concessionados sendo 4 (quatro) deles comerciais e 1 (um) dedicado ao apoio à indústria petrolífera, trabalhando todos eles 24/24 horas dia.

Outrossim, existe um terminal de Cabotagem localizado na face W (Oeste) do travessão, numa extensão de 250 m, inoperante estando em curso obras de beneficiação e constituído por um cais aberto avançado de 7,80 m em relação ao alinhamento geral da restante frente de acostagem e tem fundo projetados (-3,50 m) ZH.

3.2. Instalações Portuárias

❖ Terminal de Carga Geral

Terminal de Carga Geral (TCG), Concessionado a Multiterminais, está vocacionado para o manuseamento de graneis líquidos e cereais. Possui uma área de terraplenos de 72.190,20 **m2** e um cais acostável de 900 metros com profundidades que variam entre (– 6,00 m) ZH e (-10,50 m) ZH. Foi construído no interior destas instalações uma indústria moageira.

Dispõe de 01 (um) acesso marítimo e 03 (três) terrestres com moro de vedação em toda sua extensão, tendo no geral 527 (Quinhentos e Vinte e Sete) trabalhadores.

- **Terminal de Contentores**

O terminal de Contentores, concessionado a SOGESTER, uma sociedade constituída pela MAERSK e a Gestão de Fundos, ocupa uma área de 144.667, 24**m2** de terraplenos e um cais acostável de 543 m com fundos que variam entre (-10,50 m) ZH e (-12,50 m) ZH.

Tem acesso 01 (um) marítimo, 01 (um) de emergência que interliga com outros terminais e 02 (dois) terrestre sendo principal com moro de vedação, delimitado pela via de interland do porto, com um total de 474 trabalhadores.

- **Terminal Polivalente**

O Terminal Polivalente está vocacionado para operar simultaneamente carga geral e contentores. Está sob gestão da empresa pública UNICARGAS, a quem foi adjudicada a concessão para exploração do serviço portuário. O terminal possui uma área de 178.641 **m2** de terraplenos e um cais acostável de 536 m. Tem fundos de projecto de (- 10,50 m) ZH.

Possui 01 (um) acesso marítimos, 01 (um) de emergência e 01 (um) terrestre principal, que interliga com a via do interland do porto com um moro de vedação, tendo no seu quadro com pessoal um total de 325 (Trezentos e Vinte e Cinco) trabalhadores.

- **Terminal de Apoio a Actividade Petrolífera**

Concessionado desde 2001 à Sonangol, por um período de 20 anos, sendo a SONILS a operadora do mesmo.

Este terminal dispõe actualmente de uma área de 1.505.123 **m2** e um cais acostável de 1.465 metros com fundos de (-12,50 m) ZH. Constitui o centro de serviços de apoio a indústria petrolífera de Luanda, proporcionando uma vasta gama de serviços a indústria do petróleo e do gás na região. No terminal opera as principais companhias multinacionais produtoras de petróleo e de serviços afins.

Possui 01 (um) acesso marítimo, 01 (um) de emergência e 02 (dois) terrestre, que interliga com a via do interland do porto com um moro de vedação, tendo no seu quadro de pessoal um total de 877 trabalhadores.

- **Terminal Multiusos**

Concessionado a SOPORTOS, por um período de 20 anos, esta vocacionada para operação simultânea de carga geral e contentores. Este terminal ocupa uma área de 181.070, 40**m2** de terraplenos, um cais acostável de 610 m, com uma profundidade média de (-12,50 m) ZH.

O terminal possui 01 (um) acesso marítimo, 01 (um) terrestre que liga com a via do interland do porto com um moro de vedação e 01 (um) de interligação com os outros terminais, tendo no seu quadro de pessoal um total de (X) trabalhadores.

- **Terminal de Passageiros**

Esta vocacionado para o embarque e desembarque de passageiros, onde influente alberga serviços, comerciais e bancarias, esta sob gestão do Instituto Marítimo e Portuário de Angola, em face de concessão. Tem uma área de 4.050 m², com 3 pontes cais com capacidade cada uma de acostagem de 2 navios do tipo Catamarã.

❖ **Terminal de Cabotagem**

Esta vocacionado para a actividade comercial de cabotagem, tão logo sejam concluídas as obras de construção e equipamentos para apoiar as operações. O Terminal de Cabotagem possui as seguintes instalações:

- Uma frente acostável com 260 metros de comprimentos (em construção);
- Um terrapleno com 27.650 m²;
- Instalações para os serviços de Pilotagem, Reboque e amarração com 1.080 m² (EPIBAL e EPINOSUL);
- Um armazém com área de 2.250 m² (metade concessionada à Logística).

3.3. Localização Geográfica

O Porto de Luanda localiza-se numa região da Costa Ocidental de África com características muito propícias para garantir um acesso marítimo facilitado. Isto decorre principalmente pelas características da região que possui ventos e correntes fracas e agitação marítima muito regular e geralmente de pequena altura, tendo a sua Administração um total de 446 trabalhadores.

A existência da Ilha do Cabo propicia uma proteção natural e excelente contra as correntes e ondulações marítimas da região, permitindo obter na baía condições excelentes para as operações de manobra e acostagem de navios.

Coordenadas:

Latitude 08º 47' S

Longitude 013º 14' E

Área de Jurisdição

A área de jurisdição está definida na Lei n° 9/98 de 18 de Setembro, delimitada por duas áreas sendo marítima e terrestre conforme representada graficamente na Fig. 1 layout do porto de Luanda conforme figura abaixo.

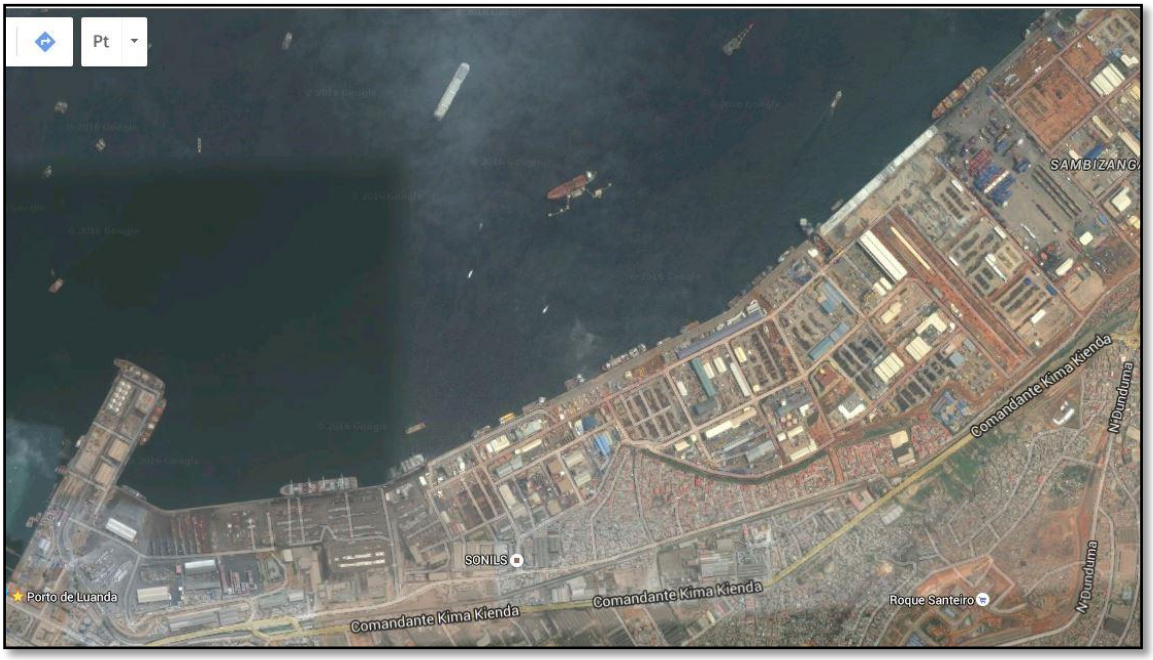


Figura 1: Imagem por satélite do Porto de Luanda.

Fonte: Imagem retirada no Google.

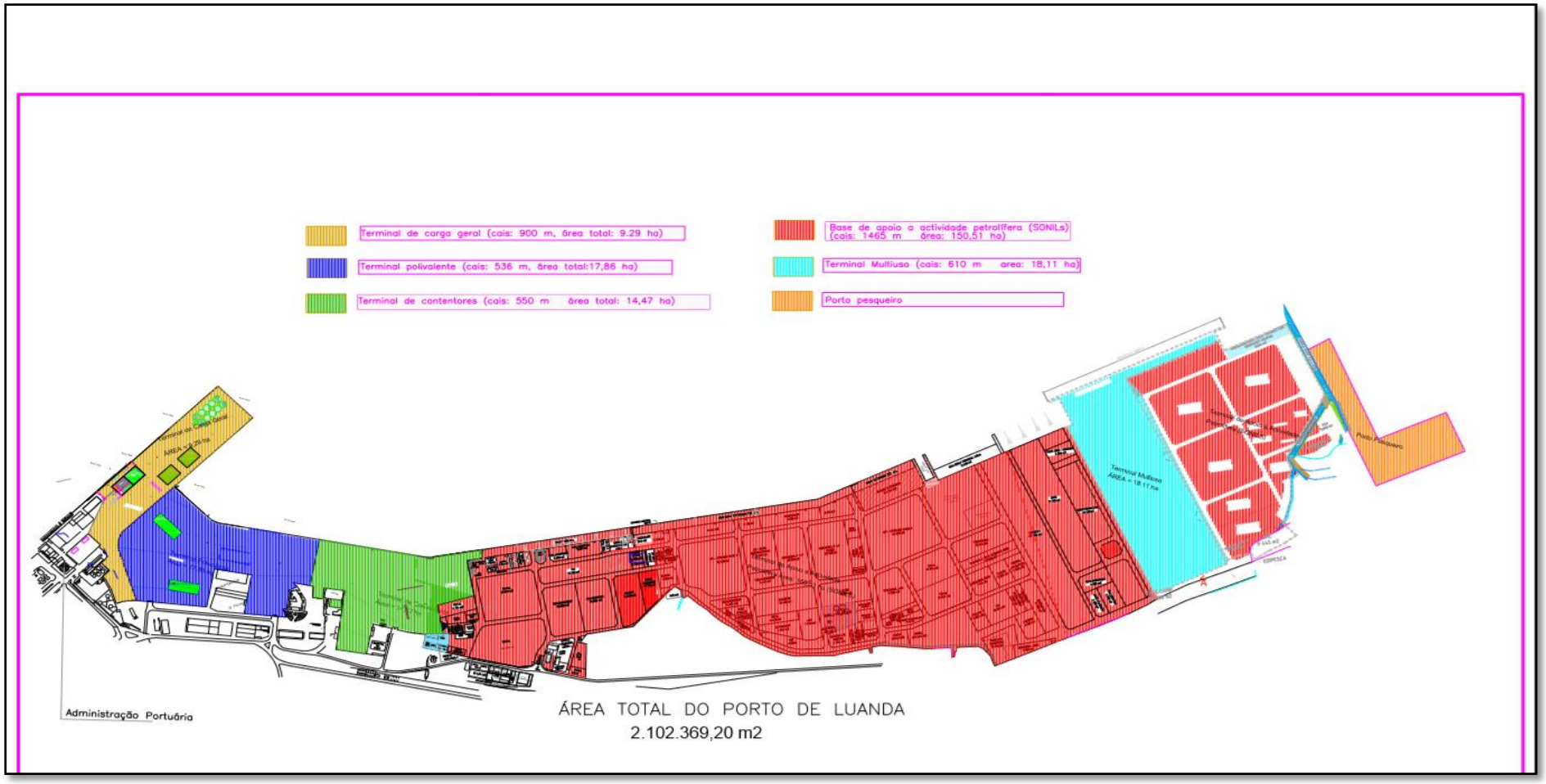


Figura 2: Layout do Porto de Luanda.

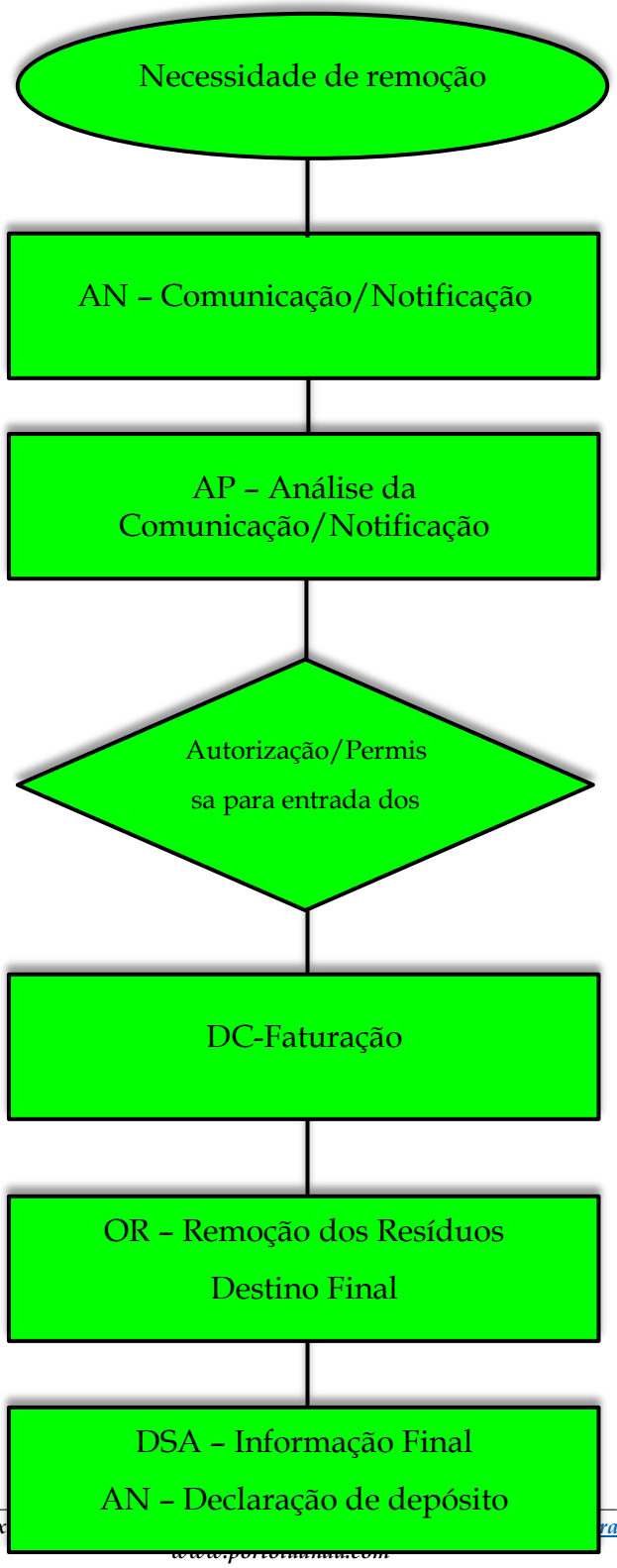
Fonte: Direcção Técnica

CAPÍTULO IV

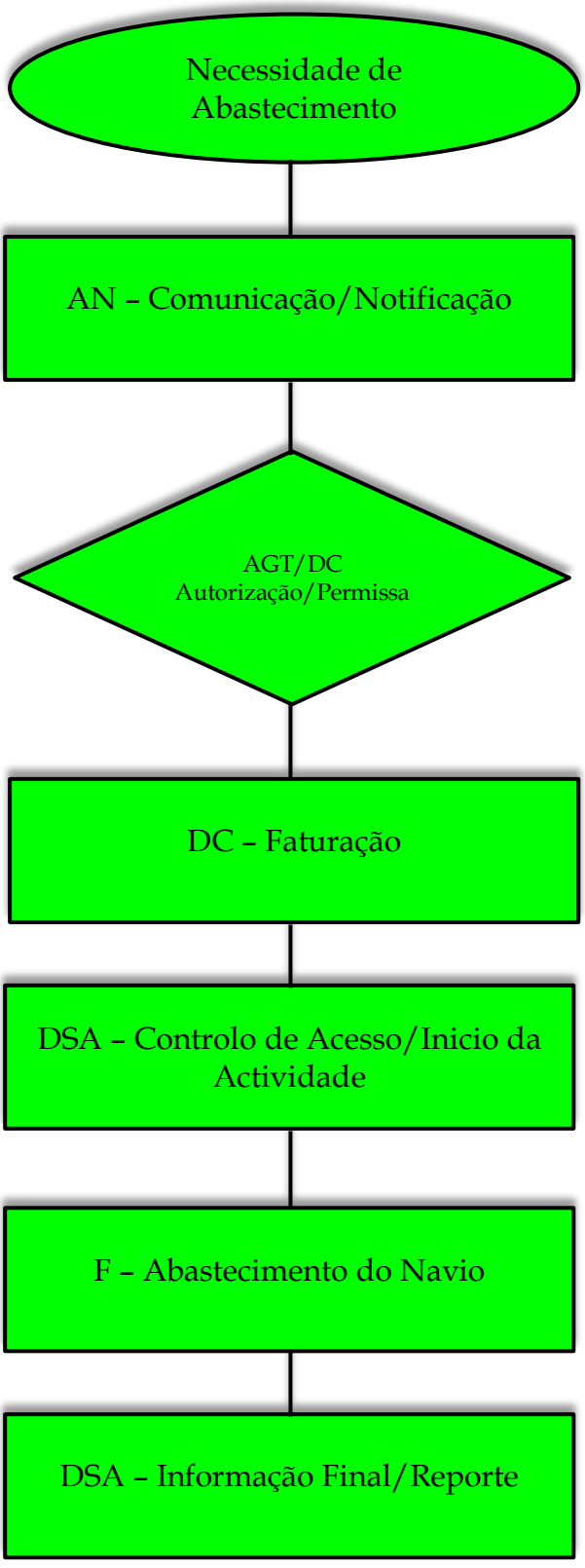
IDENTIFICAÇÃO DOS PROCESSOS

IV. IDENTIFICAÇÃO DOS PROCESSOS

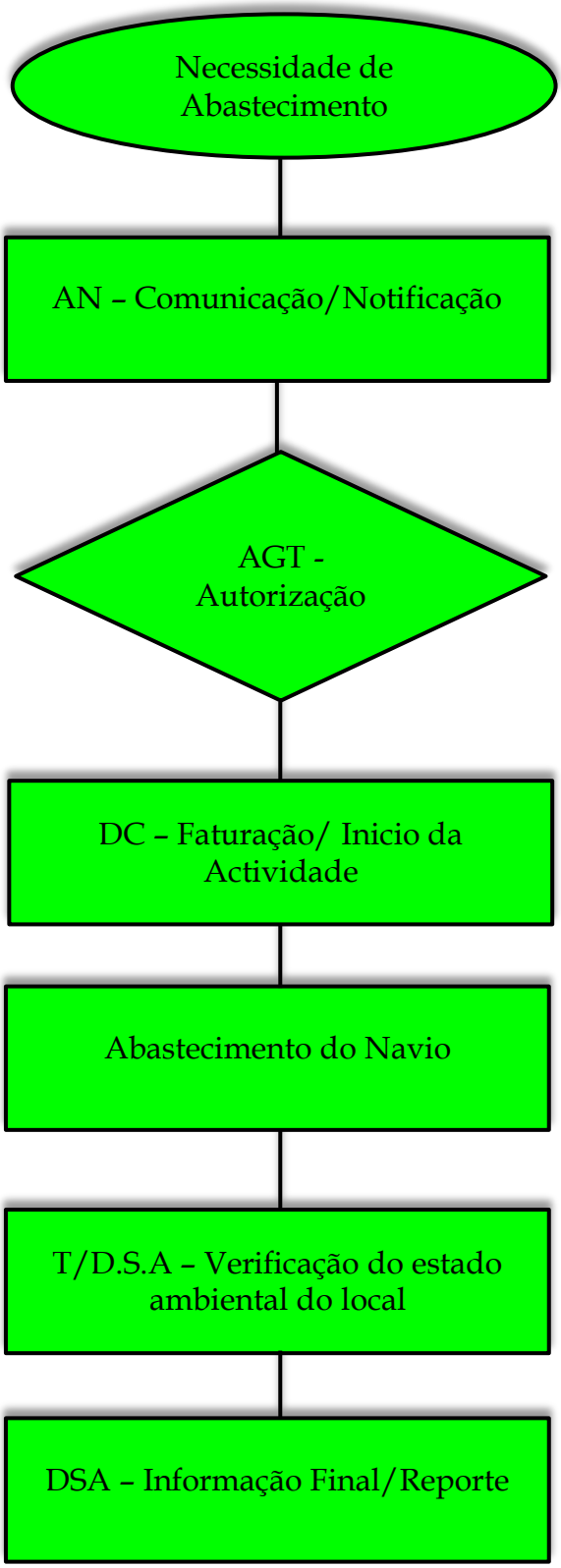
4.1. Processo de Gestão de Resíduos em Navios



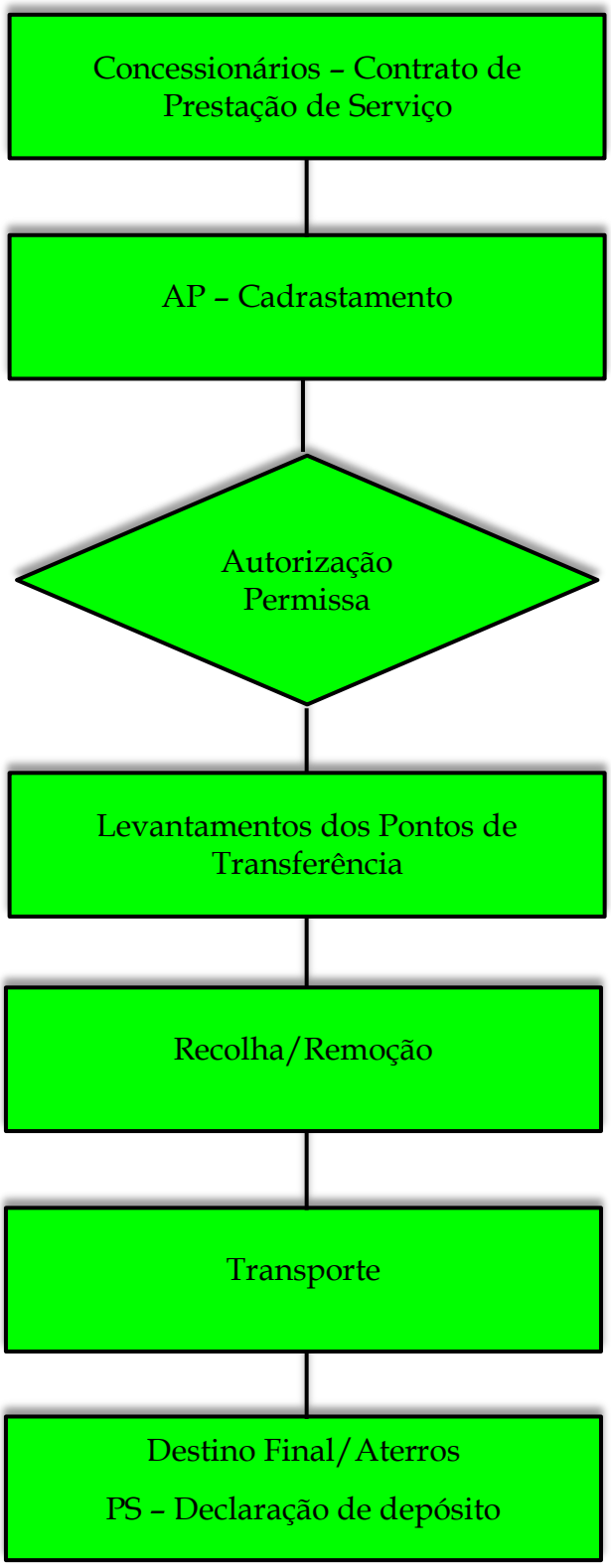
4.2. Processo de Abastecimento de Água ao Navio



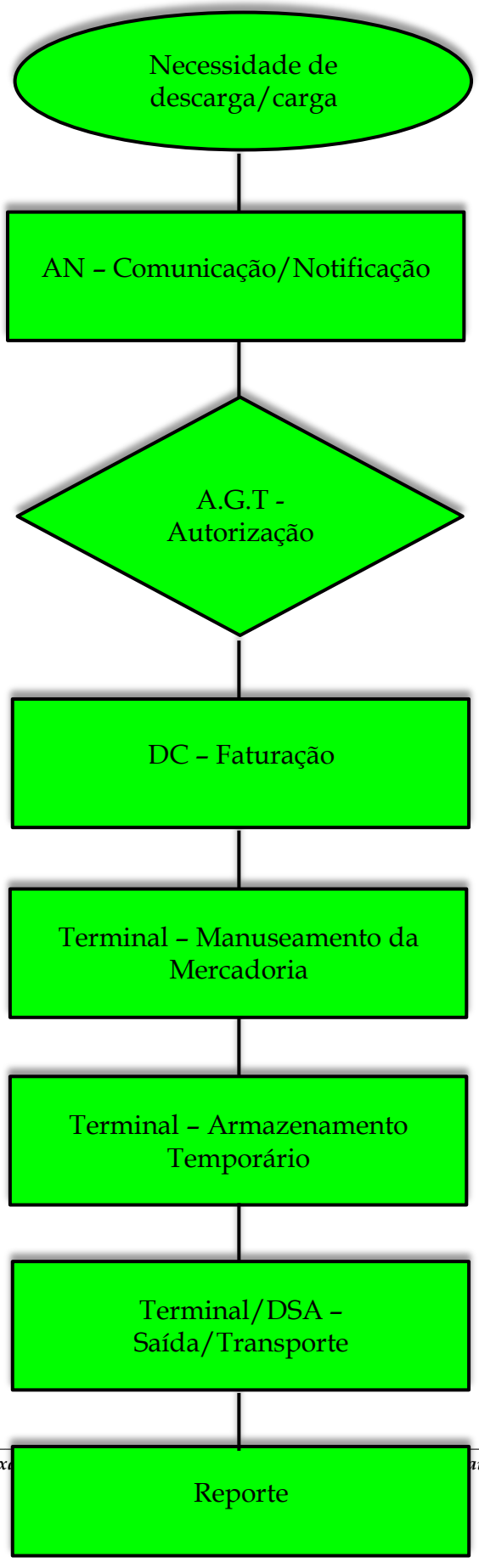
4.3. Processo de Abastecimento de Combustível nos Navios



4.4. Processo de Recolha de Resíduos no Recinto Portuário



4.5. Processo de Gestão de Mercadorias Perigosas



4.6. Actores Envolvidos

Tabela 1: Actores Envolvidos

Actores Envolvidos	Características sociais e organização	Interesses e espectativas (Objectivos)	Sensibilidade e respeitos por temas de protecção ambiental	Conhecimento e experiencias	Implicações para o plano (Acções necessárias)
Estado/AGT	Autorizações	Orientador	Aplicação da legislação em matérias ambientais na zona portuária		
Porto de Luanda	Traça as linhas do plano de gestão Ambiental	Política Ambiental	Fiscalização e inspecções		Políticas não divulgadas
Agente Navegação	Solicitação de Pedido	Satisfação dos serviços			Falta de conhecimento no assunto
Empresa prestadoras de serviço	Implementações e Executores	Economico	Disponibilidade de recursos e experiencia		Ausência de meios técnicos e humanos e requisitos legais de licenciamento da actividade.
Terminal	Organizacional e Financeiro	Economico	Falta de educação ambiental do meio ambiente portuário		Inoperância dos meios e de falta de R.H. qualificadas para o feito
Navios	Social /Bem estar	Bem-estar social	Falta de sensibilização / Educação		Falta de conhecimentos
Cliente	Social / Bem estar	Bem-estar social	Falta de sensibilização / Educação		Falta de conhecimentos

4.7. Gestão do Plano

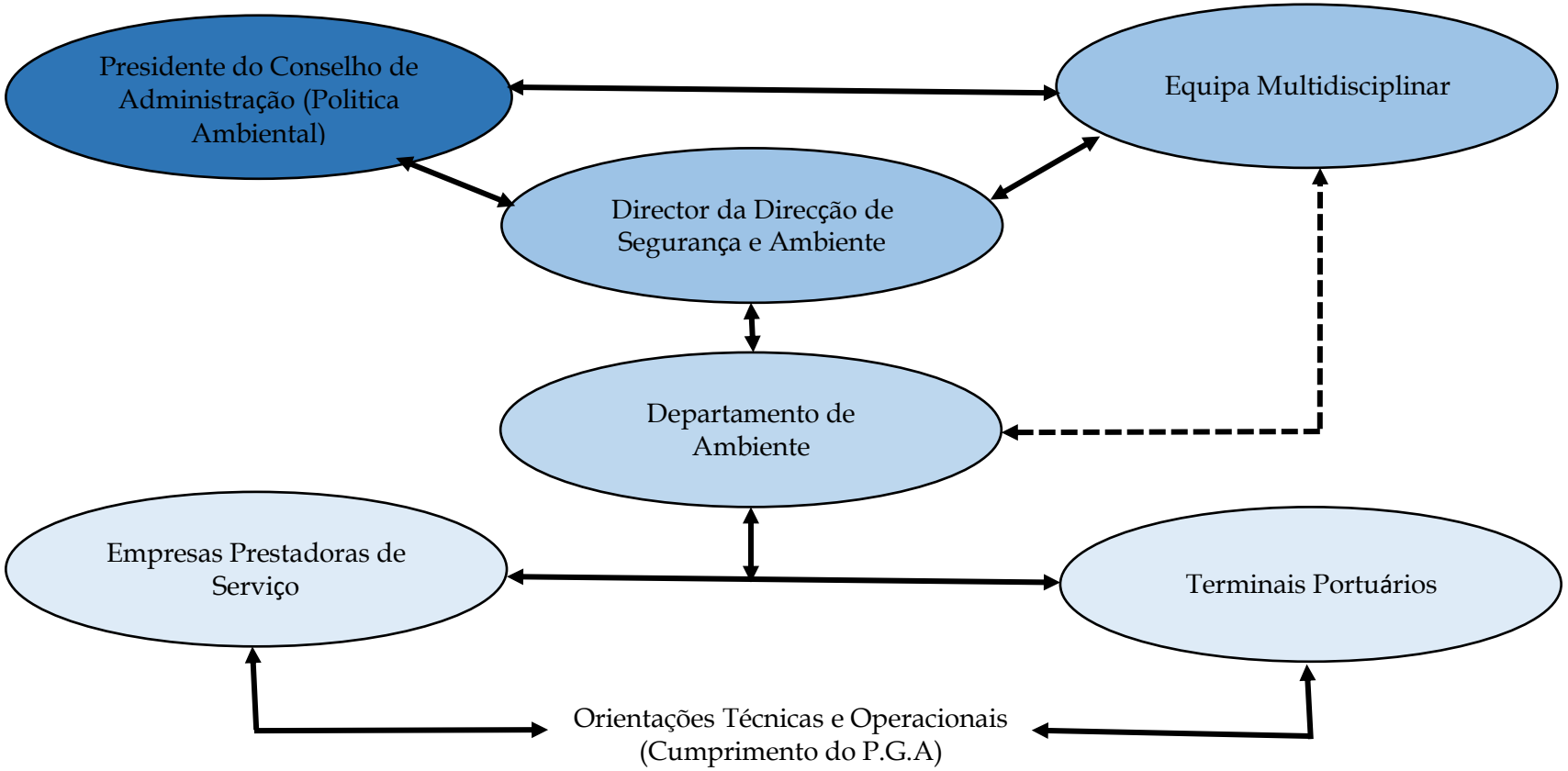


Figura 3: Estrutura Operacional

Responsabilidades

Presidente do Conselho de Administração: Prover recursos necessários para evitar impactos ambientais, atender legislações e condicionantes e apoio a Equipa Multidisciplinar e ao Director da Direcção de Segurança e Ambiente nas ações para melhorar o desempenho ambiental da organização.

Director da Direcção de Segurança e Ambiente: Dar apoio a Equipa Multidisciplinar para implantar e realizar actividades ambientais. Apresentar melhorias e solicitar recursos ao Presidente do Conselho de Administração para implantação de acções promovendo o desempenho ambiental.

Equipa Multidisciplinar: Compete a equipa multidisciplinar rever e actualizar a matriz de aspectos e impactos ambientais e o PGA de acordo com as inspecções em campo, investigações de possíveis acidentes ambientais, actualização de legislações, novas condicionantes ambientais e ampliações dos processos.

Departamento de Ambiente: Revisar e actualizar a matriz de aspectos e impactos ambientais e realizar acções preventivas e correctivas evitando impactos ambientais negativos. Informar imendiatamente ao Director da D.S.A sobre qualquer impacto ambiental ocorrido ou previsto e sobre qualquer fiscalização, para melhor atender as exigências e informações solicitadas. Disponibilizar em tempo hábil todas as informações solicitadas pelo técnico ambiental, para os processos de licenciamentos e relatórios em geral.

Terminais e Empresas Prestadoras de Serviço: Cumprir os procedimentos e realizar as actividades prevenindo que ocorra algum impacto ambiental. Solicitar manutenção sempre que necessário, segregar e acondicionar correctamente os resíduos. Informar imediatamente o técnico ambiental do terminal e o

Departamento de Ambiente do Porto de Luanda sobre o impacto ambiental ocorrido ou previsto e qualquer fiscalização, para melhor atender as exigências e informações solicitadas.

CAPÍTULO V

LEVANTAMENTO DOS ASPECTOS AMBIENTAIS

V. LEVANTAMENTO DOS ASPECTOS AMBIENTAIS

5.1. Caracterização das Unidades Ambientais

Tabela 2: Descrição das Unidades Síntese

Nº		CLASSE	GRUPO	CÓDIGO	DESIGNAÇÃO	CARACTERIZAÇÃO
01	UNIDADE AMBIENTAL MENO DEGRADADA	NATURAL	1.1.1- NATURAL	1.1.1	MAR	Compreende-se toda extensão da zona costeira (Orla marítima) até ao largo de navios fundeados (Mar).
02	UNIDADES AMBIENTAIS DEGRADADA	NÃO NATURAL	2.1- INTRODUZIDA (Zona de transição)	2.2.1	ÁREA DE ACOSTAGEM (Cais)	Entende-se por área de acostagem, uma faixa que estende da zona costeira (Orla marítima) designada por cais, onde de realiza as actividades de cargas e descargas de mercadorias (Manuseamento), com grande extensões de camadas de betão armada
		NATURAL	2.2- NATURAL (Terra firme)	2.2.2	ZONA DE SERVIÇOS (Terraplanada)	Área onde se acondiciona (Armazenamento) de mercadorias, onde coexistem algumas equipamentos de médio e grande porte, para suportar as actividades decorrentes na zona. (Escritórios, Oficinas, Armazéns e outros serviços.

Fonte: Adaptada ao estudo de caso.

5.2. Análise de Impactos Ambientais e Sociais Identificados nas Unidades Ambientais Caracterizadas no Porto de Luanda.

Aqui destacamos entre outros impactos identificados a descaracterização da zona de serviços, por uma enorme porção de betão armado.

Tabela 3: Caracterização dos Impactos Sócio/Económicos e Naturais/Ambientais

Nº	Impactos	Caracterização
01	**Sociais / Económicos**	- Presença de unidades territoriais e edificações não recomendáveis na zona costeira; - Uso irracional dos recursos naturais; -Aumento de volumes de actividades e serviços com a utilização de equipamentos que servem de fontes de poluição e contaminação do meio; - Não cumprimento da Lei, regulamentos e normas nas actividades portuárias, como consequências o surgimento das doenças e degradação do ambiente.
02	**Naturais / Ambientais**	- Falta de educação e sensibilização ambiental aos usuários e utilizadores portuário; - Diminuição da cobertura vegetal e fragilidade da zona consequentemente extinção de espécies; - Poluição do Ar atmosférico, Águas, Solos e degradação dos ecossistemas; - Recolha e tratamentos de resíduos sólidos e líquidos deficientes; -Alterações do curso normal das águas e paisagística.

Fonte: Adaptadas ao Plano de Gestão Ambiental.

Este plano tem como base fundamental, a aprimorar a consciência critica sobre a problemática ambiental; compreendendo-se como "critica" a capacidade de captar a génese e a evolução dos problemas ambientais;

Consistirá em fornecer os conhecimentos básicos e multidisciplinar, necessários para promover, hábitos de protecção do meio em nos rodeia e alcançar o desenvolvimento ecológico sustentável.

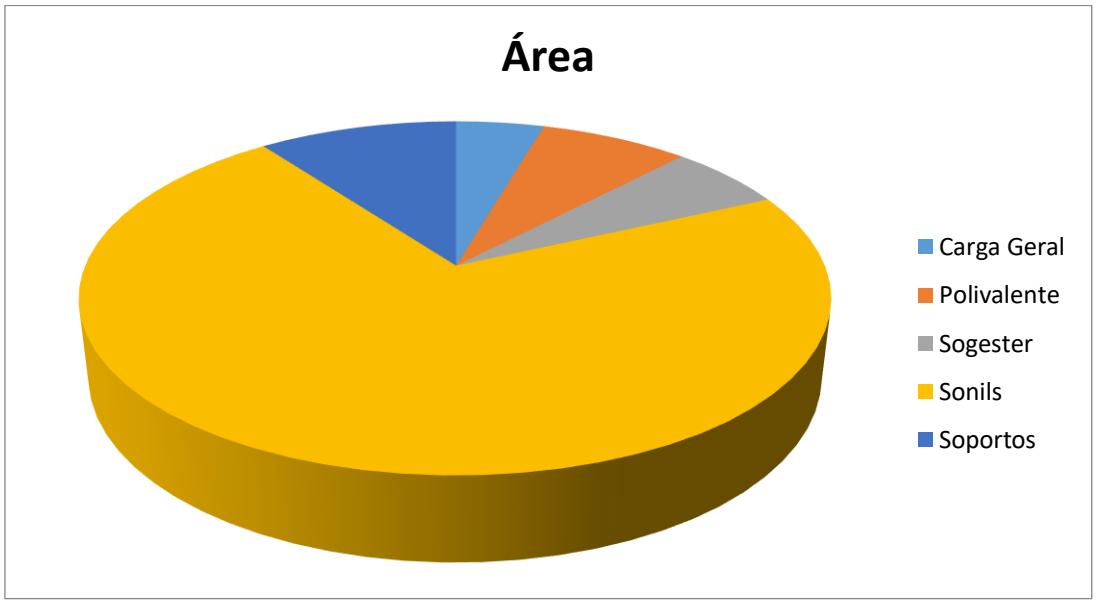


Gráfico 1: Representativo das áreas por terminais de operações

Fonte:

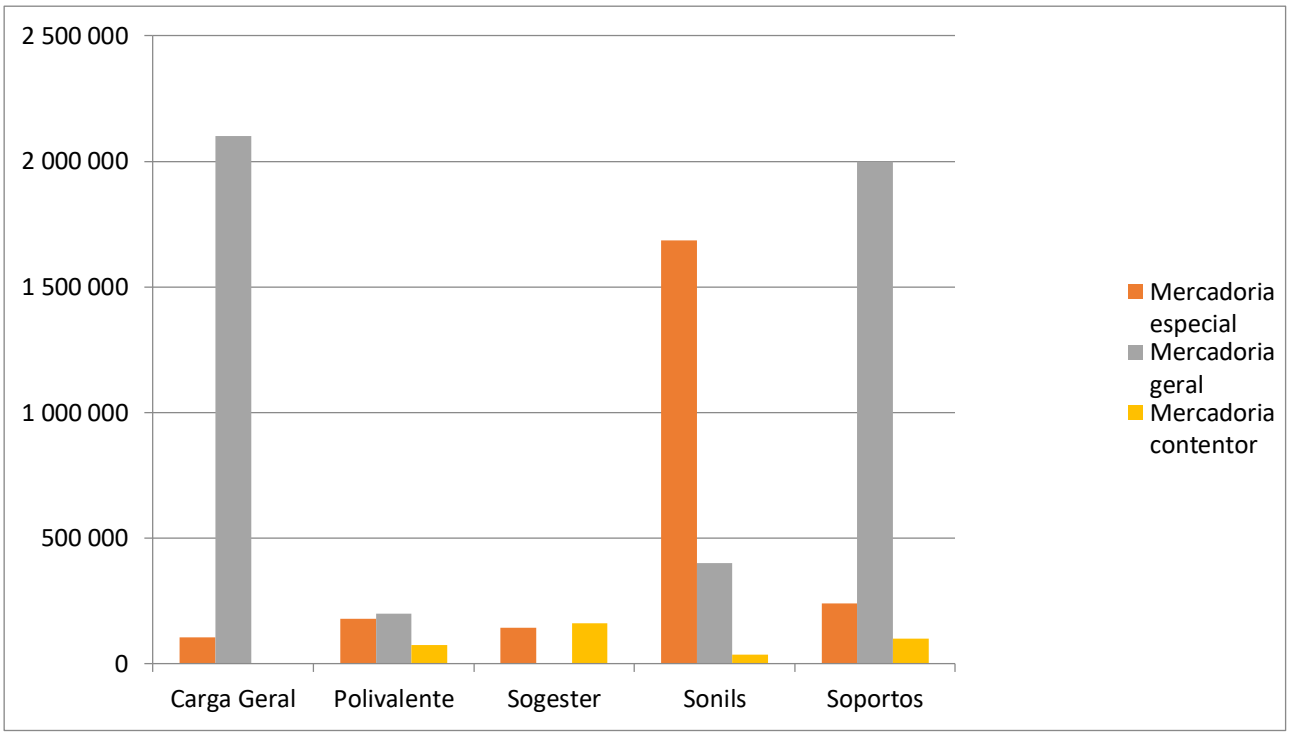


Gráfico 2: Representação percentual de mercadorias operados por terminal

Fonte:

Tabela 4: Matriz de Valorização das Unidades

UNIDADES AMBIENTAIS	DIMENSÕES DE VALORES					
	Valor Ecológico	Valor Paisagístico	Valor Funcional	Valor Cultural	Valor Produtivo	Valores De Conservação
MAR	4	4	5	5	5	23/5=4.6
ÁREA DE ACOSTAGEM	2	2	5	3	5	17/5=3.4
ZONA DE SERVIÇOS	2	2	4	4	4	16/5=3.2

Fonte: Adaptada ao plano de Gestão Ambiental, 2019.

LEGENDA:

1- MUITO BAIXO;
2- BAIXO;
3- MÉDIO;
4- ALTO;
5- MUITO ALTO

Tabela 5: Matriz de Aptidão das Unidades

Itens	**Unidades Ambientais**	**Valores De Conservação**	**Actividades, Objectos de Analise em Plano**			
			Manuseamento	Armazenagem	Assistência Técnica	Transporte
1	Mar	5	4	2	3	4
2	Área De Acostagem (Cais)	3	4	0	1	3
3	Zona De Serviços (Terraplanado)	3	4	4	3	2

Fonte: Adaptada ao Plano de Gestão Ambiental, 2019.

LEGENDA:

0- Não aplicável
1- Muito pequena
2- Razoável
3- Médio
4- Elevado
5- Muito Elevado

Tabela 6: Matriz de Impacto das Unidades

Itens	Unidades Ambientais	Valores de Conservação	Actividades, Objectos de análise no Plano			
			Manuseamento	Armazenagem	Assist. Técnica	Transporte
1	Mar (Navio)	5	4	3	1	4
2	Área de Acostagem (Cais)	3	4	2	2	4
3	Zona de Serviços (Pavimentada/Terraplanada)	3	4	2	3	4

Fonte: Adaptada ao Plano de Gestão Ambiental, 2019.

LEGENDA:

0- Não aplicável
1- Muito pequena
2- Razoável
3- Médio
4- Impacto elevado
5- Impacto muito elevado

Tabela 7: Capacidade de Cargas das Unidades

APTIDÃO		1- Muito Baixa	2- Baixa	3- Médio	4- Alto	5- Muito Alto
CLASSE DE IMPACTO TOTAL	1- Muito baixo			**MAs**		
	2- Baixa	**AAs**			**ZA**	
	3- Média		**MA**	**ZAs**		
	4- Alta		**ZT**	**AT**	**MM; MT** **AM; ZM**	
	5- Muito Alta					

Fonte: Adaptada ao Plano de Gestão Ambiental, 2019.

LEGENDA:

MM – Mar Manuseamento

MA – Mar Armazenagem

MAs – Mar Assistência Técnica

MT – Mar Transporte

AM – Área de Acostagem Manuseamento

AAs – Área de Acostagem Assistência Técnica

AT – Área de Acostagem Transporte

ZM – Zona de Serviços Manuseamento

ZA – Zona de Serviços Armazenagem

ZAs – Zona de Serviços Assistência Técnica

ZT - Zona de Serviços Transporte

Tendo feito a avaliação da valorização, aptidão, impactos ambientais, estabelecendo uma analogia da capacidade de cargas das unidades, com níveis de impactos e aptidão, considerado vulnerável as unidades territoriais na área de estudo, a sua actividades e tipos de serviços praticados e na magnitude desse problema, foi utilizado método de (SWOT) ou (EDPD, FOFA), que tem como objecto de analise, efectuar uma síntese das análises internas e externas; identificar elementos chave para a gestão e estabelecer prioridades de actuação, preparar – mos as opções estratégicas para resolver-mos os riscos e problemas.

Os resultados esperados e algumas actividades com os respectivos indicadores, meios de verificação e sugestões estão apresentados no quadro lógico que de uma forma geral é o instrumento de planeamento para o Porto de Luanda, que pode ser considerado como um Programa Plano para a Gestão Ambiental na zona portuária de Luanda e como Plano de Gestão de Resíduos

CAPÍTULO VI

PLANO DE ACÇÃO

VI. PLANO DE ACÇÃO

6.1. Análise SWOT

FORÇAS / EXITOS	FRAQUEZAS
1- Administração portuária sensibilizada para implementação de plano de gestão de resíduos no Porto de Luanda; 2- Implementação progressiva de acções de formação e educação ambiental no seio da comunidade portuária e áreas adjacentes; 3- Existências de várias instituições para tratamentos de resíduos; 4- Há empresa com equipamentos e meios de recolha, acomodação e transporte apropriado de vários tipos de resíduos portuários.	I- Existências de lacunas na implementação de política e legislação na gestão dos resíduos portuários; II- Os orçamentos deficitários dos órgãos afins em relação a matéria ambientais. III- Ausências de meios e equipamentos aos técnicos para desenvolver as suas actividades em pleno, usam técnicas de dedução; IV- Falta de ecopontos para segregação e triagem de resíduos.
OPORTUNIDADES	AMEAÇAS
1- Elevados investimentos na área e nas actividades portuárias; 2- Apoio do governo e das instituições que colaboram na cadeia portuária; 3- Existências de equipamentos e tecnologia muito avançada nas actividades no porto; 4- Promove estabilidade económica, social das instituições que operam na cadeia logística portuária.	I- Inexistências de um diploma que regulamenta, as taxas e uma legislação específica para os resíduos produzidos nos navios e no recinto portuário; II- Inexistências de infra-estruturas apropriadas recepção, tratamento de resíduos produzidos na área, segundo a OMI (Organização Marítima Internacional); III- Défices na formação de pessoal em matérias de gestão ambiental; IV- Ausência de Instalações para abastecimento de combustível.

6.2. Quadro Lógico

Tabela 8: Matriz de Enquadramento Lógico (MEL)

	Intervenção	Indicadores	Meios de Verificação	Pressupostos
Finalidade objectivo superior (Geral)	Controlo (mitiga-los ou reduzi-los) dos impactos negativos da degradação do ambiente portuário.	O Porto de Luanda, promove actividades ecologicamente sustentáveis à 50%.	Através do Departamento de Ambiente da DSA, da Administração Portuária de Luanda	Conferir a sustentabilidade do ambiente portuário.
Propósito e Objectivo Especifico	Implementação de actividades ecologicamente sustentáveis nos serviços portuários.	Aumento dos rendimentos tantos económicos e sociais dos integrantes do ambiente portuário à 75% .	Monitorização de actividades. Através de acções de Inspecção e Fiscalização dos processos e métodos utilizados nas actividades e serviços.	Existências de políticas públicas e financiamentos por parte das instituições de colaboram nos serviços portuários.
Componentes, Resultados e Produtos	1-Equilibro e sustentabilidade de boas praticas dos seus serviços portuários;	Desempenho à 75% dos intervenientes nas acções de preservação, conservação e	Elaboração de relatórios finais das ocorrências as empresas para uma melhor	Os ecossistemas da área portuárias protegidas perante a actuação dos

	2-Biodiversidade marinha e terrestre protegida e conservada	protecção dos ecossistemas nas actividades e serviços praticados no dia-a-dia.	sensibilização em matérias de protecção do ambiente	actores envolvidos nas actividades
Actividades	1-Implemeentação do plano de gestão ambiental em toda áreas da Administração Portuária e Concessionarias do Porto de Luanda, 2-Cadastramento e licenciamento de toadas as instituições ou empresas prestadoras de serviços na região portuárias pela Administração Portuária de Luanda Maior produtividade das concessionárias 3-Aplicação de Principio de Poluidor Pagador (PPP) em	1.1-As actividades operacionais são realizadas em 75% às todas instituições contratadas 1.2-Cumprimentos efectivos e rigoroso da Lei, normas e procedimentos, convenções por parte de todos integrantes na cadeia portuária em cerca de 75% 2.1- 50% das instituições cumprem com as orientações e intruções dada pela Administração Portuária de Luanda	Relatórios e Fichas de controlo das inspecções realizados pelo Departamento de Ambiente do Porto de Luanda Observação directa no campo Informações de falha ou outras situações constatadas	Existência de politicas públicas e financiamento Sensibilização da comunidade e gestores áreas de exploração (terminais) em matérias de protecção do ambiente.

	todas os serviços e actividades portuárias	2.2-Existencias de uma equipa de inspectores de varias áreas da EPL, para fiscalização permanente ou acompanhamento acerca do funcionamento das mesmas pelos técnicos de ambiente		

6.3. Plano Operacional

Tabela 9: Plano Operacional

Resultados das Actividades	Indicadores	Prazo e Execução	Responsável Entidades Envolvidas no plano	Material Equipamentos
1- Implementação de políticas que visam a protecção do meio ambiente.	Controlo e redução de impactos negativos resultantes de actividades e serviços à 75%.	24 Meses (Renovável)	Autoridade Portuária de Luanda.	Plano Estratégico 2016-2020, Plano de Emergências do Porto de Luanda e Plano de Gestão de Ambiental (PGA)
2- Por Acções de Inspecção e fiscalização	Desempenho na redução da degradação, poluição dos solos, Ar, Águas, Atmosfera e do meio ambiente em geral à 85%.		Os gestores das Concessionários	Campanha de Sensibilização e Educação ambiental, as comunidades portuárias local e não só.
3- Programas de Educação e Sensibilização de ambiental.	Proteger o ambiente da zona portuária de Luanda á 85%.		Toda a comunidade portuária (Publico e Privada).	Relatórios de Auditórias Ambiental Internas (AA) e outras disposições legais

Medidas do Plano

Melhoramento e monitoramento nas actividades económicas nas áreas, que gera fontes de poluição, contaminação e estacionamento no Porto de Luanda.

A Melhoria no sistema de saneamento básico no que concerne a recolha, tratamento e deposição dos resíduos sólidos e líquidos produzidos, tanto no âmbito domestica, industrial ou comercial.

Os solos devem ser preservados e estabilizados por serem argiloso e neste processo de estabilização biológica, deve contar-se com a vegetação enquanto agente de fixação dos solos.

Plantação de vegetação adicional como medida de compensação das áreas deteoradas pelo processo de alteração ambiental ocorrida na zona.

CAPÍTULO VII

PROCEDIMENTOS

VII. PROCEDIMENTOS

7.1. Procedimentos de Gestão de Resíduos em Navios

	Procedimentos
Gestão de Resíduos em Navios	1- Prestar à Autoridade Portuária todas as informações e fornecer todos os elementos estatísticos relacionados com o exercício da sua actividade, na perspectiva de uma gestão ambiental adequada; 2- As empresas que pretendam exercer a actividade de recolha de resíduos, deverão estar licenciadas pela Agência Nacional de Resíduos e cadastradas no Porto de Luanda; 3- O pagamento à EPL das taxas regulamentares que forem devidas pelo exercício da actividade; 4- Providenciar, no sentido de que durante e após as operações de recolha de resíduos no cais e navios atracados, se proceda à remoção/limpeza e recolha dos referidos resíduos involuntariamente derramados nas operações, sem causar danos à saúde pública e à qualidade do ambiente; 5- Assegurar o tratamento e transporte até ao destino final dos resíduos recolhidos; 6- Apresentação de declaração por responsabilidade do cumprimento do mencionado no ponto anterior, no que diz respeito à depósito dos resíduos recolhidos em local apropriado designadamente, Aterro Sanitários predefinidos por entidades competentes; 7- As empresas prestadoras de serviço de recolha de resíduos devem dispor de meios técnicos, materiais e pessoal qualificado para o exercício da actividade; 8- Indemnizar os prejuízos causados à Autoridade Portuária ou terceiros, pelo exercício defeituoso da sua actividade de recolha de resíduos no recinto portuário e embarcações e ainda por danos causados aos mesmos, nos termos da legislação aplicável.

7.2. Procedimentos de Abastecimento de Combustível nos Navios

	Procedimentos
Abastecimento de Combustíveis a Navios	Entende-se como abastecimento de combustíveis a navios a transferência de produtos petrolíferos, ou outros combustíveis, a partir qualquer embarcação ou camião cisterna e destinados à propulsão do próprio navio ou dos seus auxiliares. 1- Comunicar à Autoridade Portuária, com 48 horas de antecedência o abastecimento de combustível, por forma a serem tomadas as devidas medidas de prevenção de acordo com o tipo e o local de abastecimento, devendo conter as seguinte informações: - Nome e tipo do navio - Agente de Navegação - Local e meio de abastecimento - Tipo(s) e quantidade(s) de combustíveis - Nome da empresa abastecedora e da pessoa responsável - Hora prevista de início e final da operação 2- Antes do início das operações de abastecimento, as quais deverão ser sempre efectuadas o mais rapidamente possível, deverá ser parado o motor do camião cisterna, só devendo ser de novo posto em marcha depois da operação estar terminada e de ser verificado que todas as aberturas e tubagens estão devidamente fechadas; 3- É expressamente proibido fumar ou de qualquer forma produzir ou utilizar qualquer chama ou fogo durante as operações de abastecimento num raio de 5 metros em torno do local onde estiverem a ser efectuadas as operações, bem como o uso, para qualquer fim, de ferramentas metálicas susceptíveis de provocar faísca; 4- Durante as operações de abastecimento deverá haver sempre um sapador de bombeiros junto à válvula de saída de combustível, munida de um extintor, para que em caso de alarme de incêndio, possa acionar e fechar imediatamente essa válvula e a do veículo, e desligar a mangueira; 5- O abastecimento de combustíveis a navios está sujeito a permissão prévia da Autoridade Portuária, que poderá recomendar a adopção de medidas particulares de segurança de acordo com o tipo e local do abastecimento;

	6- As empresas abastecedoras deverão estar devidamente autorizadas pelos organismos competentes para o transporte do tipo de produtos combustíveis a fornecer aos navios e possuir pessoal devidamente habilitado para a condução e operação dos equipamentos utilizados; 7- Os equipamentos de transporte, bombagem e trasfega bem como flexíveis e dispositivos de corte e medição dos fluxos de fornecimento, deverão estar devidamente certificados por entidade competente, recomendando-se o cumprimento das respectivas normas nacionais e internacionais, no sentido de prevenir as suas falhas mecânicas e estruturais; 8- A empresa abastecedora é responsável pelo eventual derrame de produtos para o solo ou as águas do mar, devendo estar devidamente preparada, em procedimentos e equipamentos, para a contenção de um derrame de dimensão razoável para o seu tipo de operação, produto e capacidade; 9- A empresa abastecedora deverá possuir seguro de responsabilidade civil suficiente para cobrir os eventuais riscos de poluição causada por deficiências ou acidentes na sua operação; 10- As manobras de ligação de flexíveis, início, interrupção ou fim de bombagem do combustível ou ainda de atracação da embarcação de abastecimento, quando aplicável, deverão ser previamente acordadas com o navio. Das horas destas manobras deverá ser mantido registo pela empresa fornecedora.

7.3. Procedimentos de Gestão de Resíduos no Recinto Portuário

Gestão de Resíduos no Recinto Portuário	**Procedimentos**
	1- Prestar à Autoridade Portuária todas as informações e fornecer todos os elementos estatísticos relacionados com o exercício da sua actividade, na perspectiva de uma gestão ambiental adequada; 2- As empresas que pretendam exercer a actividade de recolha de resíduos, deverão estar licenciadas pela Agência Nacional de Resíduos; 3- O pagamento à EPL das taxas regulamentares que forem devidas pelo exercício da actividade; 4- Providenciar, no sentido de que durante e após as operações de recolha de resíduos no cais e navios atracados, se proceda à remoção/limpeza e recolha dos referidos resíduos involuntariamente derramados nas operações, sem causar danos à saúde pública e à qualidade do ambiente; 5- Assegurar o tratamento e transporte até ao destino final dos resíduos recolhidos; 6- Apresentação de declaração por responsabilidade do cumprimento do mencionado no ponto anterior, no que diz respeito à depósito dos resíduos recolhidos em local apropriado designadamente, Aterro Sanitários predefinidos por entidades competentes; 7- As empresas prestadoras de serviço de recolha de resíduos devem dispor de meios técnicos, materiais e pessoal qualificado para o exercício da actividade.

7.4. Procedimentos de Gestão de Mercadorias Perigosas

Gestão de Mercadorias Perigosas	**Procedimentos**
	1- O operador ou o seu agente deverão fornecer a Autoridade Portuária, uma notificação (ficha de segurança) com os seguintes dados: a) Nome técnico das mercadorias de acordo com a classificação das OMI; b) A quantidade de mercadoria perigosa a bordo, indicando aquela que deverá ser descarregada no porto e aquela que permanecerá a bordo, bem como onde estão estivadas; c) O tipo de embalagem; d) A condição da mercadoria e se há riscos a ocorrer; e) Se a embarcação tem algum certificado ou apólice de seguro para o transporte de mercadorias perigosas. 2- O armador ou seu agente deverão preencher a ficha fornecida pela autoridade portuária e enviá-lá até 72 horas antes da data prevista para o seu manuseamento. 3- No caso de mercadoria radioactiva (classe 7 do IMDG), o armador ou seu agente devem obter autorização prévia dos Ministérios do Ambiente, Ciência e Tecnologia e Defesa, devendo os respectivos pareceres serem enviados à Autoridade Portuária com 72 horas de antecedência relativamente ao seu manuseio. 4- Terminal: a) Manusear, somente, mercadorias perigosas para as quais instalações e recursos adequados e compatíveis com a sua operação portuária; b) Cumprir com rigor, as instruções e recomendações da Autoridade Portuária; c) Efectuar o manuseamento de mercadorias, correspondentes às classes 1 e 7 do código IMDG, por carga/descarga directa para o meio de transporte; d) Limitar a estadia no recinto portuário, por 48 horas, de mercadorias correspondentes à classe 5 do IMDG; e) Tomar, no caso de mercadorias de classes 1,5, e 7, as seguintes medidas: - Proibição do uso de fonte de ignição;

	- Interditar o recinto de operações; - Dispor de equipamento de combate a incêndio e derrames, no terminal e/ou no navio; - Avisar a Autoridade Portuária em caso de acidente. 5- A EPL não poderá ser responsabilizada por qualquer prejuízo que o dono ou consignatário da mercadoria ou o transportador venham a sofrer por incumprimento defeituoso, por parte do operador do terminal, das instruções e recomendações da Autoridade Portuária.

CAPÍTULO VIII

CONSIDERAÇÕES FINAIS

8.1. Sugestões

Havendo a necessidade de se prestar maior e melhor atenção ao ambiente em que estamos inseridos, e sobre tudo a zona em estudo (Porto de Luanda), apresentamos as seguintes sugestões:

1º - Que se dê maior enfâse ou se crie programa de educação e sensibilização ambiental no seio da comunidade portuária;

2º - Que se crie estratégia de intervenção no ambiente para redução de feitos das modificações do meio, para proteger o trinómio natureza-homem e desenvolvimento tecnológico;

3º - No desempenho de actividade e serviços nas áreas portuárias, deve ter em conta os procedimentos e normas nacionais e internacionais, que pai ratificou para melhor integração dos seus utentes.

8.2. Conclusão

Como é sabido, a degradação ambiental advém das actividades antrópicas e que a região portuária não é uma excepção; torna-se obrigatória uma gestão ambiental de actividades, de forma a mitigar danos ambientais e antecipar soluções diante de situações que se prevê em acontecer, ou poderá acontecer com base e estimativas e conhecimentos sobre o que se pretende prevenir, seus efeitos e modo de ocorrências.

No uso da Norma ISO-14001 como um dos instrumentos de Gestão Ambiental no Porto de Luanda (PGA) e a aplicação da regulamentação de convenções internacionais, como o MARPOL 73/78.

Dada a importância que esta zona assumiu, no ponto de vista económico, deve merecer de um projecto de integração, que mereça com um plano de ordenamento urbanístico e paisagista de vias, e a construção de infra-estruturas de malha urbana na região.

O nosso plano demostra que se deveria ser também centralizada nos métodos qualitativos e quantitativos no processo requalificação urbana que o território portuário está a beneficiar.

E para que aja melhoria no problema de saúde, saneamento do meio, é necessário dar-se ênfase na construção adicional de equipamentos de infra-estruturas básicas para proporcionar uma boa qualidade de vida aos seus habitantes em termos qualitativos e quantitativos.
Pretendemos que sejam realizados um trabalho intenso e permanente na educação e gestão ambiental sobre as consequências da emissão de poluentes e contaminantes na atmosfera.

8.3. Anexos

Anexo 1: Esquema das diferentes zonas dos espaços portuários

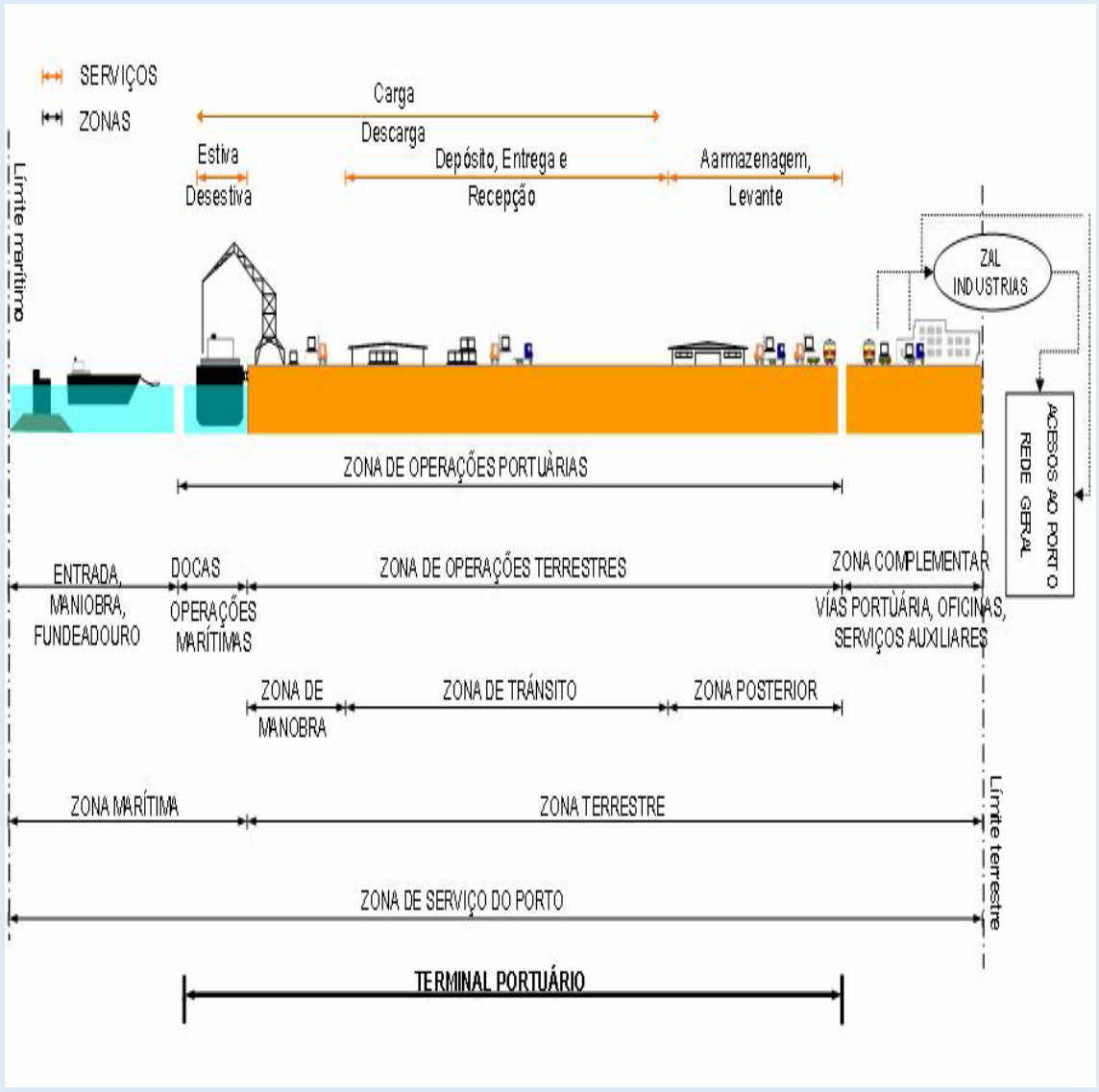


Figura 4: Esquema das diferentes zonas dos espaços portuários.

Fonte: Estrada, José Luís L. 2007.

Anexo 2: Fotografias da Região Portuária

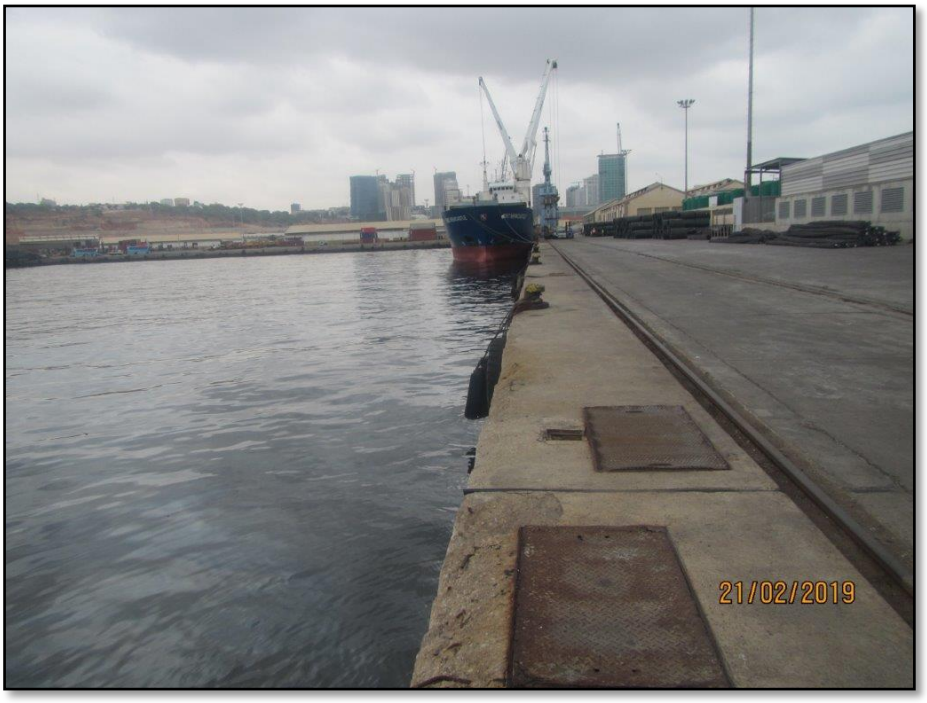


Foto 1: Ilustração das Unidades Ambientais, Mar e Área de Acostagem.

Foto 2: Zona de Serviços, especificamente para armazenagem de mercadoria perigosa.

Foto 3: Processo de Recolha de Resíduos no Navio.

Foto 4: Processo de Recolha de Resíduos no Navio (Meio de transporte utilizado).

Anexo 3: Proposta de Política Ambiental do Porto de Luanda

Estamos comprometidos com a melhoria contínua na gestão ambiental em todos locais e instalações da região portuária, e com a melhoria do bem-estar das comunidades nas quais operamos.

Nosso compromisso:

1- Cumprir integralmente os regulamentos, normas, convenções ambientais e outros que o Porto de Luanda E.P. subescreva;
2- Promover o uso racional do consumo de recursos naturais especificamente, a água e energia com enfâse a redução dos consumos e para a utilização de energias renováveis;
3- Motivar os nossos colaboradores o crescimento da consciência ambiental e a busca pela melhoria contínua de nossa performance de prevenção do ambiente;
4- Assegurar que os fornecedores, contratados e clientes cumprem os requisitos legais aplicáveis e outros estabelecidos em regulamentos internos;
5- Promover o desenvolvimento pessoal e profissional dos colaboradores, garantindo o seu empenho na gestão ambiental da empresa, desiderato que abrange toda comunidade portuária;
6- Cooperar e promover a comunicação com entidades externas, tais como Instituições Governamentais e do Poder local, Associações de Defesa do Ambiente e o público em geral;
7- Incentivar a comunidade portuária à melhoria constante do seu desempenho ambiental em todas as suas actividades, produtos e serviços;
8- Buscar tecnologias e métodos que nos mantenham competitivos, preservando o meio ambiente;

9- Prevenir a poluição e minimizar os impactos ambientais significativos às actividades desenvolvidas;

10- Divulgar a política ambiental adoptada a todos os que trabalham para o Porto de Luanda-EP ou em seu nome, mantendo acessível para todos níveis de trabalhadores e comunidades.

O Presidente do Conselho de Administração

_____

Alberto António Bengue

8.4. Referências Bibliográficas

- ROCHA, Amadeu F. 2005."O papel da Administração Pública e o Envolvimento do Sector Privado na Gestão dos Portos portugueses". APDL-Administração dos Portos do Douro e Leixões. Matosinhos, Portugal.

- MENDES, Susana. "O homem e a responsabilidade ambiental" O Turismo de natureza e a Sustentabilidade. 2011, Zaina Editores.

- JÚNIOR, Dos Santos Piedade Manuel. "Gestão Ambiental" para Internacionalização das Empresas Angolanas- Norprint Artes Gráficas S.A.- De 2014.

- DW_Development Workshop" Terra". Reforma sobre a terra urbana em Angola no período pós-guerra: pesquisa, advocacia & política de desenvolvimentos.

- PARTIDARIO, Maria do Rosário et al" Fundamentos de Avaliação de Impactos Ambientais". 2003, Universidade Aberta".

- PORTO DE LUANDA, Dados Estatísticas (2010 – 2011).

- PORTO DE LUANDA. Disponível em: http://www.portoluanda.co.ao

- JARDIM, Maria de Fátima. "Seminário sobre Legislação do Ambiente em Angola. 2001, I.N.– U.E.E.

- FRIEDEL, Henri et al," Dicionário de Ecologia e do Meio Ambiente", 1980, Lello e Irmão- Editores PORTO.

- CEITIL Mário; PANTALEÃO João Maria et al "Os 7 Hábitos das Pessoas Altamente Eficazes",2012, Edições Sílabo, Lda. Lisboa

- MARTINS, Gilberto de Andrade. "Guia para Elaboração de Monografias e Trabalho de Conclusão de Curso", 2010. 2ª Edição, editora Atlas S.A.

- DA SILVA Edna L.; MENEZES, Estera Muszkat, 2005."Metodologia da Pesquisa e Elaboração de Dissertação", 4ª Edição revisada e actualizada. Florianópolis.

Outras Fontes Consultadas

Legislação sobre o sector portuário:

- Decreto nº 53/03 de 11 de Julho "Regulamento de Exploração dos Portos de Angola".
- Lei nº 5/89 de 19 de Junho "Lei de Bases do Ambiente".
- Decreto Executivo nº 87/12 de 24 de Fevereiro "Regulamento de Consultas Públicas dos Projectos Sujeitos a Avaliação de Impactos Ambiental".
- Decreto Presidencial nº 192/11 de 7 de Julho "Regulamento sobre Responsabilidade por Danos Ambientais".
- Decreto nº 1/10 de 13 de Janeiro "Auditorias Ambientais".
- Decreto nº 59/07 de 13 de Julho "Sobre Licenciamento Ambiental".
- Normas de Gestão Ambiental ao Nível da Região Portuário".
- Código IMDG "Transporte de Mercadorias Perigosas".
- Convenção MARPOL-73/78 "Prevenção da Poluição por Navios".
- Decreto nº 51/04 de 23 de Julho "Sobre Avaliação de Impacte Ambiental".
- Lei nº 26/98 de 14 de Agosto "Estatuto Orgânico do Porto de Luanda".
- Lei nº 9/98 de 18 de Setembro "Lei do Domínio Portuário".
- Decreto nº 52/97 de 18 de Julho "Bases Gerais das Concessões Portuárias".
- Decreto Executivo Conjunto nº 323/08 de 16 de Dezembro, "Regulamento de Tarifas Portuárias de Angola".

3. Annex 3. Environmental Management Plan of the Unicargas Terminal

Título	**Plano de Gestão Ambiental do Terminal Polivalente da Unicargas (PGA/TPU)**
Observação	Documento interno Observação: Para enviar este documento para fora da empresa, e necessária a aprovação do gerente principal: **CCG**.

PLANTA DE ARRANJO GERAL

LUANDA-ANGOLA

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1 DADOS GERAIS DA INSTALAÇÃO DO TERMINAL POLIVALENTE DA UNICARGAS

Razão Social: Operadora de Terminais	**Nome Fantasia**: Terminal Polivalente da Unicargas
Endereço: Rua de Cintura do Porto	Municipio: Município da Ingombota
NIF: 5410003136.	**Telefone**: 00244 912 212 090
Email: www.unicargas.co.ao	**Caixa Postal:** 3965
Área Total: 178.641m²	**Nº de Funcionários**
	Próprios: 298 / **Terceiros**: 357
Cais acostável: 536 m²	**Armazéns:** 02
Zonas de armazenamento: 7.268m²	**Cais de Operação: 03**
Calado: Apro. -10m	**Oficinas de Manutenção: 01**
Acessos de Emergência: 02	**Gerador:** 01
Responsável Legal: Joaquim Nazaré Pimentel da Piedade	**Cargo**: Coordenador da Comissão de Gestão da Unicargas
Responsável pela implantação do Plano: Edivaldo Januário.	**Cargo**: Director da Direcção Segurança Empresarial
Descrição da actividade: O Terminal Polivalente da Unicargas-EP, é um terminal multifunctional que opera 24 horas por dia, 365 dias por ano, possibilita a movimentação e armazenamento de todo tipo de carga diversos, tipos de embarcações e navios, suas actividades são essencialmente de cariz operacional e administrativas.	

1.1 Equipe Técnica de Elaboração

PLANO DE GESTÃO AMBIENTAL DO TERMINAL POLIVALENTE DA UNICARGAS	**Versão nº:** 002DSE_2022
	Revisão nº 002
	Data: 20 de Novembro de 2023
Elaborado por: Ludmila Campos Ferreira – Engenheira Ambiental	**Cargo**: Responsável do Departamento de Ambiente da Direcção de Segurança Empresarial
Revisto por: Edivaldo Januario – PFSO Principal	**Cargo**: Director da Direcção de Segurança Empresarial

2 ENQUADRAMENTO LEGAL

2.1 Legislação

- **Lei nº 5/98, de 19 de Junho "Lei de Bases do Ambiente"** que institui a obrigatoriedade de licenciamento das actividades que, pela sua natureza, localização ou dimensão sejam susceptíveis de provocar impacte ambiental e sociais significativos.

- **Decreto Presidencial nº 190/12 de 24 de Agosto "Regulamento sobre a Gestão de Resíduos"** estabelece as regras gerais relativas à produção, depósito no solo e no subsolo, ao lançamento para água ou para atmosfera, ao tratamento, recolha, armazenamento e transportação de quaisquer resíduos, excepto os de natureza radioactiva ou sujeito à regulamentação específica, de modo a prevenir ou minimizar os seus impactes negativos sobre a saúde das pessoas e no ambiente, sem prejuízo do estabelecimento de regras que visem a redução, reutilização, reciclagem, valorização e eliminação de residuos.

- **Decreto Presidencial nº 194/11 de 7 de Julho "Regulamento sobre Responsabilidade por Danos Ambientais"** estabelece a responsabilidade pelo risco e degradação do ambiente baseando no principio do poluidor-pagador, para prevenir e reparar danos ambientais.

- **Decreto Presidencial nº 194/12 de 21 de Junho "Regulamento para a prevenção e Controlo da Poluição das Águas Nacionais"** estabelece o regime de prevenção, vigilância e controlo da poluição das águas nacionais por poluentes provenientes em particular de navios, embarcações plataformas e estabelecimentos industriais.

- **Decreto nº 53/03 de 11 de Julho "Regulamento de Exploração dos Portos de Angola"** no seu artigo 39º do cap. III, institui responsabilidade aos operadores portuários à limpeza das instalaçõesbem como a remoção do lixo, residuos ou outros materiais resultante da movimentação de mercadorias.

- **Regulamento Ambiental do recinto portuário**, institui um conjunto de normas destinadas à protecção do meio ambiente, no decurso das actividades portuárias, com

vista a garantir a sua preservação, nomeadamente no que concerne à saúde, água, solo, ar, ecossistemas e atmosfera.

2.1.1 Convenções Internacionais Aplicáveis

- **Convenção MARPOL-73/78 "Prevenção da Poluição por Navios"** dedica-se a prevenção à prevenção da poluição do meio marinho por navios considerando cenários operacionais de rotina ou acidentais.

- **Código IMDG "Transporte de Mercadorias Perigosas"** estabelece todas as condições para o acondicionamento, embalagem, rotulagem, documentação, estiva e todo o processo até ao destinatário que sejam relativos as mercadorias perigosas de forma a oferecer maior cuidados e menores riscos de acidentes à carga.

2.2 Elaboração, Aprovação, Implementação e Revisão

O Terminal Polivalente da Unicargas, através da Direcção de Segurança Empresarial (DSE), é responsável por zelar pela aplicação dos procedimentos de gestão ambiental da instalação, bem como pela elaboração do Levantamento dos Aspectos e Impactos Ambientais do TPU-2021 versão 01.

2.3 Registos

No processo de gestão de ambiental da instalação do Terminal Polivalente da Unicargas, os impressos que geram registos são:

- Inspecções de Auditoria das condições do Posto de trabalho;
- Tratamento dos residuos sólidos;
- Tratamento da carga perigosa;
- Vazamentos /derrames de produtos químicos;
- Controlo dos vectores e pragas urbanas;
- Controlo do estado da luminosidade das áreas internas
- Relatório de Ambiente.

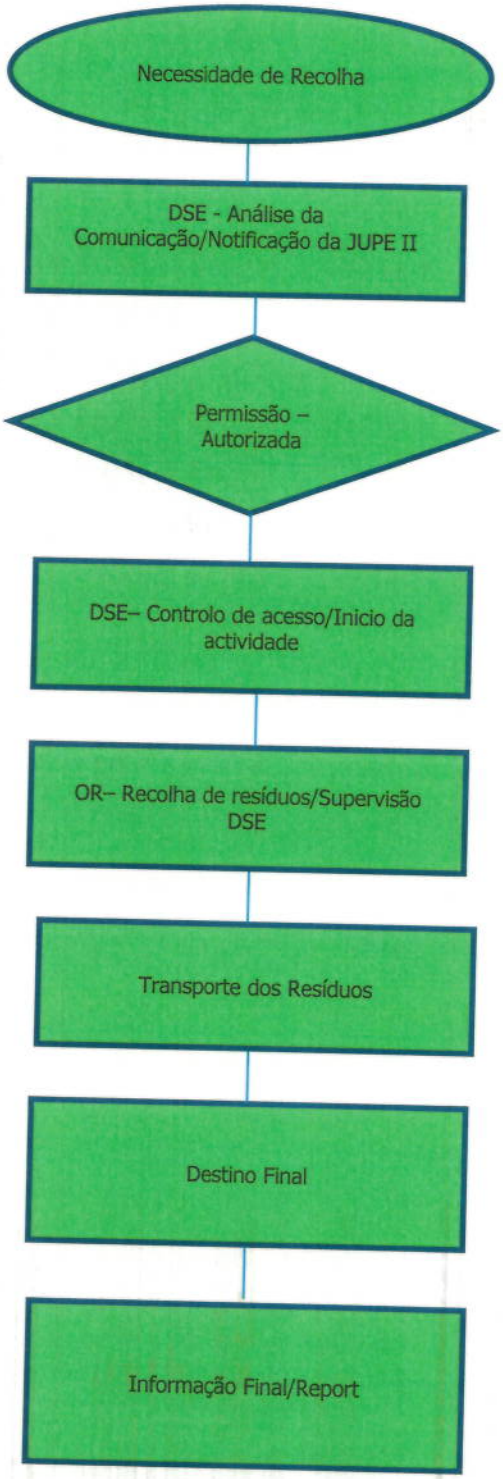
3 DIAGNOSTICO DA SITUAÇÃO

As actividades desenvolvidas no Terminal Polivalente da Unicargas, abrangem particularidades que são consideradas para a gestão ambiental da Instalação. As figuras abaixo apresentam os fluxogramas das actividades principais e de apoio contida nos diferentes processos ocorridos no Terminal Polivalente, cuja saídas em cada actividade resultam na produção de diversos tipos de resíduos.

3.1.1 Processo de Gestão de Resíduos do TPU

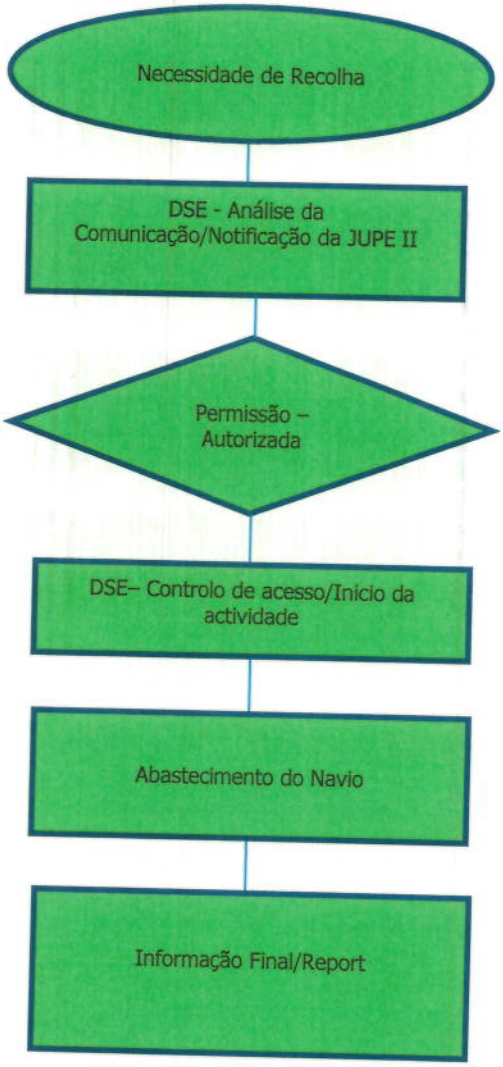
RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial

3.1.2 Processo de Acompanhamento da Recolha de Resíduos em Navios



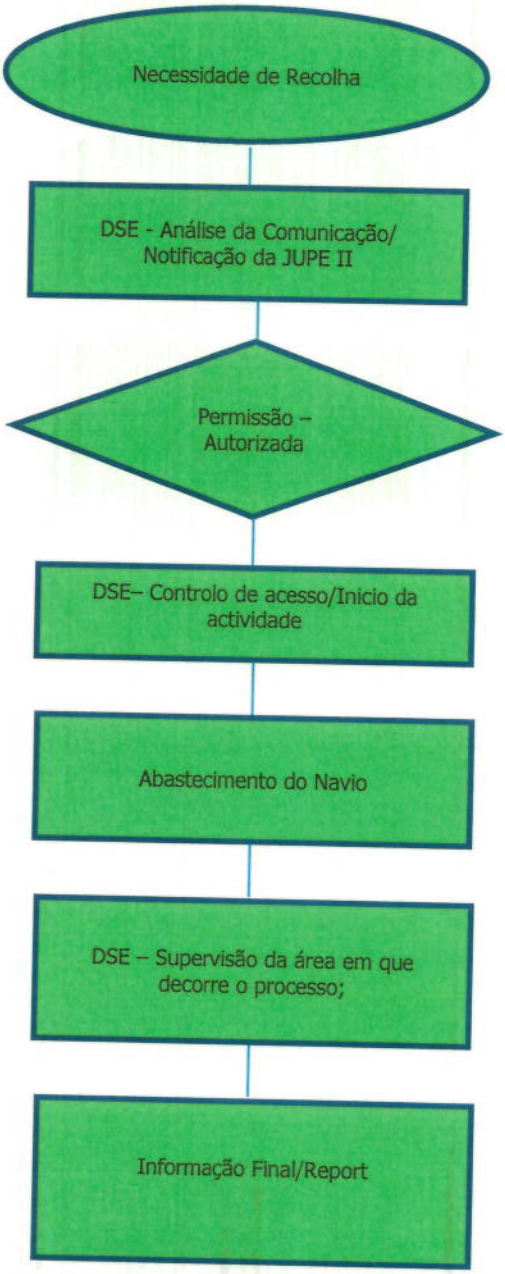
RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial; OR- Operadora de resíduos

3.1.3 Processo de Acompanhamento de Abastecimento de água em Navios



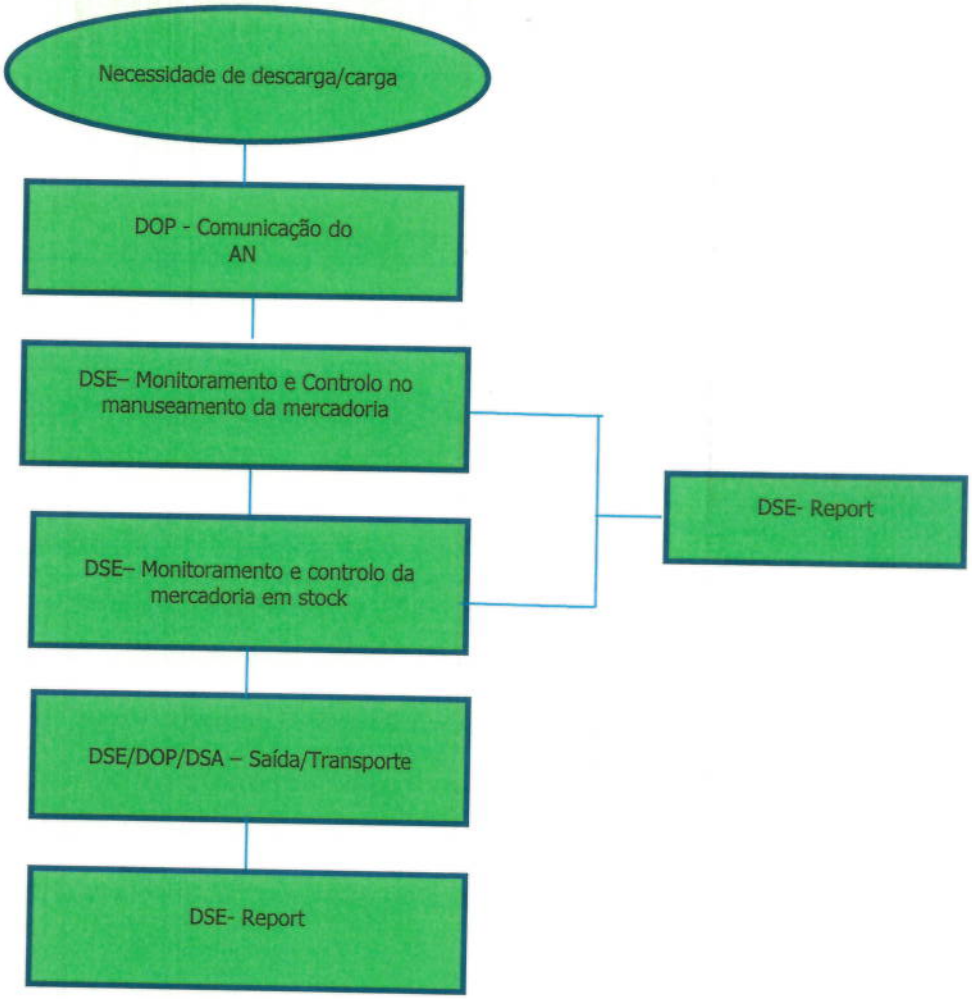
RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial

3.1.4 Processo de Acompanhamento de Abastecimento de Combustível



RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial

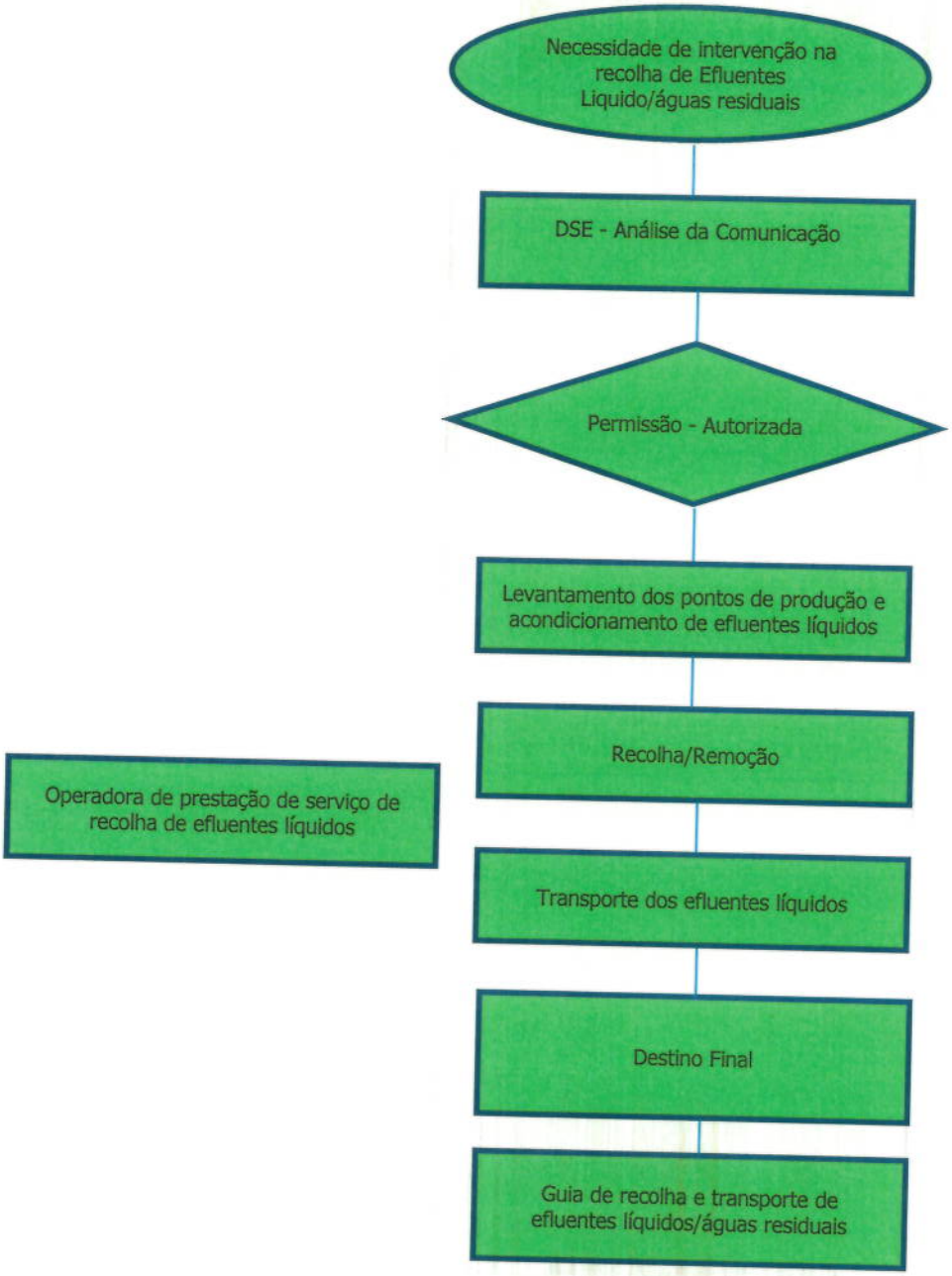
3.1.5 Processo de tratamento da Carga Perigosa



3.1.6 Processo de tratamento de Derrames/Vazamentos de produtos químicos

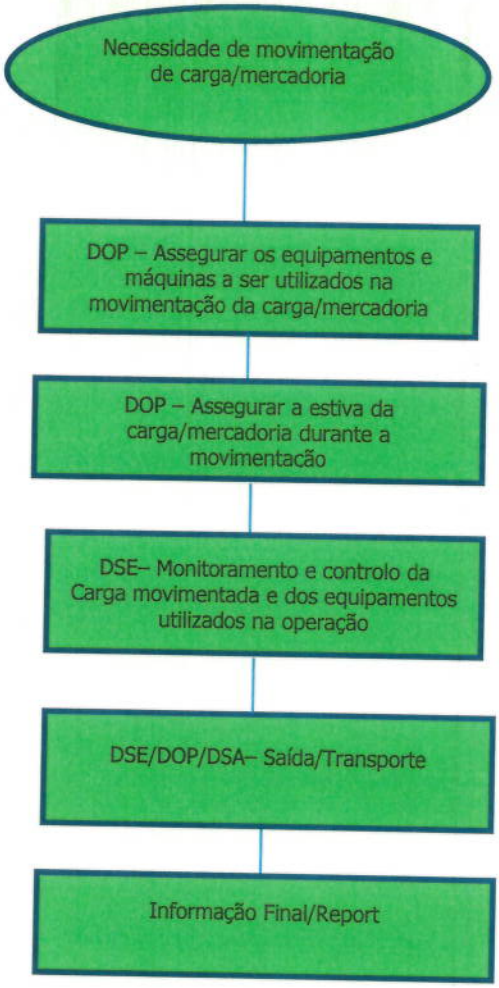
RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial; OR- Operador de Resíduos

3.1.7 Processo de recolha de Efluentes Líquidos/Águas residuais



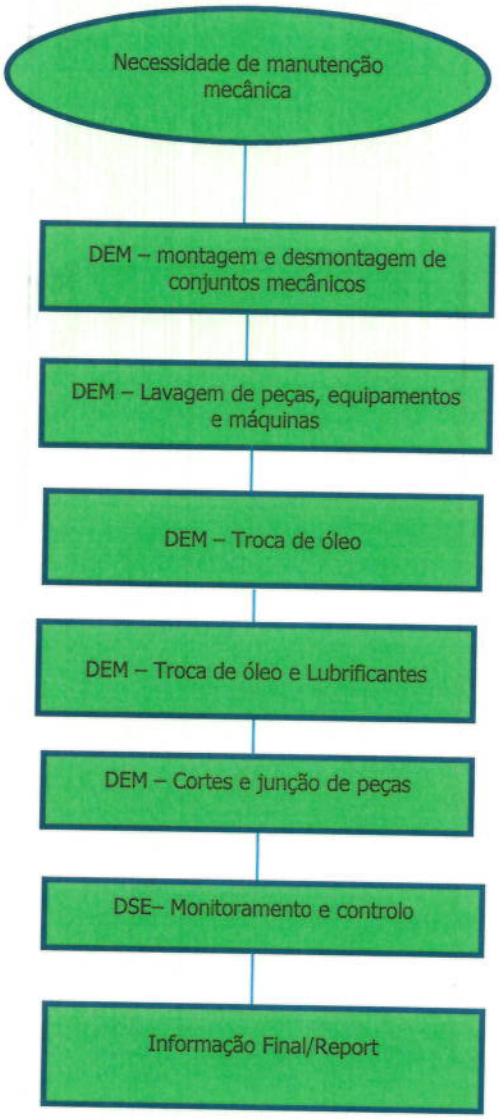
RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial; DSA- Direcção de Segurança e Ambiente do Porto de Luanda

3.1.8 Processo de movimentação das Operações Portuárias



RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial; DOP- Direcção de Operações; DSA- Direcção de Segurança e Ambiente do Porto de Luanda

3.1.9 Processo de manutenção Mecânica



RESPONSÁVEIS: DSE- Direcção de Segurança Empresarial; DEM- Direcção de Engenharia e Manutenção

4 AVALIAÇÃO DOS ASPECTOS E IMPACTOS AMBIENTAIS DO TPU

A Avaliação dos Aspectos e Impacto Ambiental do TPU (Quadro 4.1), foi realizada com base no método qualitativo utilizando o método da Matriz de Leopold[1] onde ponderou-se a caracterização e a importância de cada impacto, mediante as possíveis interações entre as acções operacionais da instalação e os factores ambientais afectados.

4.1 Caracterização

A Caracterização da instalação foi avaliada mediante a adopção dos critérios seguintes:

- Situação Operacional;
- Classe do Impacto;
- Incidência do Impacto;
- Frequência do Impacto na Instalação;
- Temporalidade do Impacto.
- Abrangência do Impacto na Instalação.

4.2 Avaliação da Importância

A Importância foi avaliada mediante a adopção dos critérios seguintes:

- Probabilidade do Impacto;
- Severidade do Impacto;

Onde a **Importância = Probabilidade + Severidade.**

4.3 Significância[2]

Quadro 2.1. Determinação da Significância para suporte na implementação das medidas de controle

IMPORTÂNCIA	CRITÉRIO	SIGNIFICÂNCIA
(I) <4	-	Não Significativo
(I) =4	Severidade (S) =1	Não Significativo
(I)≥4	Severidade (S) >1	Significativo

Fonte: Francinei Rodrigues (https://www.bebee.com/@francinei-rodrigues). Acesso (21.03.2021)

(1) Informação extraída do portal brasileiro do Instituto Federal do PIAUI. Mitigação dos Aspectos Ambientais. Acesso (12.02.21).
(2) Informação extraída do portal brasileiro Francinei Rodrigues (https://www.bebee.com/@francinei-rodrigues). Acesso (21.03.2021)

Quadro 4.1. Matriz de Avaliação dos Aspectos e Impactos Ambientais da Instalação do TPU

unicargas	MATRIZ DE AVALIAÇÃO DOS ASPECTOS E IMPACTOS AMBIENTAIS DA INSTALAÇÃO DO TPU	Numero do Documento: 002/DSE/DA Revisão nº: 002 Data: 20.Outubro.2023
Processo:	Operações Portuárias	Local: Terminal Polivalente da Unicargas

Nº	Descrição da Actividade	Aspecto Ambiental	Impacto Ambiental	Caracterização						Avaliação da Importância			Significancia	Acções para Controle e/ou Mitigação
				Situação Operacional	Classe	Incidência	Frequencia	Temporalidade	Abragência	Probabilidade	Severidade	Importância		
1	Operação de Movimentação e transferência da Carga (Embarque/Desembarque de Carga à bordo do navio/Cais)	Escape/Perda da Carga	Alteração /Contaminação da qualidade do solo ou da água	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 2.3.12 (Controlar actividades no parque); Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Estabelecimento de barreiras de contenção para proteger o meio marinho;
		Produção Poeira; fumaça e gases pelos meios (máquinas e camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho); Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Derrame/Vazamento de produtos perigosos	Alteração /Contaminação da qualidade do solo ou da água superficiais; extinção de especies da floura/fauna	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Plano de Manutenção periodica dos meios.
		Geração de residuos (Classe I)	Alteração da qualidade do solo ou da água	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.

		Geração de residuos (Classe II)	Alteração da qualidade do solo ou da água	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Segregação de Residuos Plásticos usados	Redução de risco de Contaminação	Es	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos; Monitoramento e Melhoria Continua; Parceiro Homologado
		Segregação de Residuos operacionais de Madeiras usadas	Redução de risco de Contaminação	Es	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos; Monitoramento e Melhoria Continua; Parceiro Homologado
		Segregação de Residuos operacionais Ferrosos e não ferrosos	Redução de risco de Contaminação	Es	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;; Monitoramento e Melhoria Continua; Parceiro Homologado
		Risco de Acidente	Ocorrência de Lesões; danos da Carga e perdas de vidas humanas	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho);
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
2	**Transferencia de produtos petroleiros via pipline**	Risco de Acidente	Ocorrência de Lesões; danos da Carga e perdas de vidas humanas	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); PPRA - Programa de Prevenção de Riscos Ambientais
		Derrame/Vazamento de produto inflamável	Alteração /Contaminação da qualidade do solo ou da água superficiais; extinção de especies da floura/fauna	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar Manutenção periodica dos meios.
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
3	**Operação de Armazenamento e transfêrencia da Carga (Contentores, Volumes, meios, viaturas, meios e equipamentos)**	Produção Poeira; fumaça e gases pelos meios (máquinas e camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho); Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).

		Escape/Perda da Carga	Assoreamento das caixas e valas de drenagens; Contaminação das águas superficiais	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Seguir procedimento Instalação de barreira de contenção para a carga
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou da água superficiais	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou da água superficiais	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;
		Derrame/Vazamento de produtos (Lubrificantes/Combustivel)	Alteração da qualidade do solo ou da água	Em	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar inspecção periodica da Carga; Plano de Atendimento a Emergencias.
		Risco de Acidente	Ocorrência de Lesões; danos da Carga e perdas de vidas humanas	Em	A	D	1	A	2	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); PPRA - Programa de Prevenção de Riscos Ambientais
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
4	**Operação de Armazenamento e transferência da Carga (Perigosa)**	Produção Ruídos; pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Risco de Acidente	Ocorrência de Lesões; danos da Carga e perdas de vidas humanas	Em	A	D	1	A	2	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa);
		Produção Poeira; fumaça e gases pelos meios (máquinas e camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho). Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Vazamento de gás provocada pelos produtos perigosos	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	Em	A	D	3	A	2	1	4	5	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar inspecção periodica da Carga.
		Deerame/Vazamento de produtos perigosos	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar inspecção periodica da Carga; Plano de Atendimento a Emergencias.

		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou da água superficiais	N	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;l.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou da água superficiais	Es	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;.
5	**Circulação de Veiculos e máquinas**	Derrame/Vazamento de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar Manutenção periodica dos meios.
		Produção Ruídos; pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).PPRA - Programa de Prevenção de Riscos Ambientais
		Produção Poeira; fumaça e gases pelos meios (máquinas e camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou da água superficiais	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou da água superficiais	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;.
		Risco de Acidente	Ocorrência de Lesões; danos e perdas de vidas humanas	Em	A	D	1	A	2	1	4	5	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa); 2.3.14 (Inspecção ao Dptº de Máquinas e Equipamentos); PPRA - Programa de Prevenção de Riscos Ambientais
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).

6	**Abastecimento de Combustível via cisterna**	Derrame/Vazamento de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Em	A	D	2	A	2	2	2	4	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Realizar Manutenção periodica dos meios; Plano de Atendimento a Emergencias.
		Produção Poeira; fumaça e gases	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos; pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;.
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
7	**Lubrificação, troca de óleo e manutenção dos meios e equipamentos**	Derrame/Vazamento de óleo e Lubrificantes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	3	A	2	2	2	4	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Criação de Fossas de Manutenção para contenção do oleo;
		Produção de fumaças e gases de escape	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	2	4	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Manutenção periodica dos motores dos meios e veiculos	Menor taxa de emissão de gases; Menor consumo dos materiais	N	A	D	3	A	1	1	1	2	N	Seguir Plano de Manutenção periodica dos meios.
		Segregação do óleo lubrificante usado	Redução de risco de contaminação da qualidade do solo e das águas superficiais;	N	B	D	3	A	1	2	1	3	N	Seguir procedimento 3.4.11 (Assegurar e acompanhar a Recolha de òleos); Monitoramento e Melhoria Continua; Parceiro Homologado

		Segregação de baterias usadas	Redução de risco de contaminação da qualidade do solo e das águas superficiais;	N	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;; Monitoramento; Parceiro Homologado
		Segregação de pneus usados	Redução de risco de contaminação da qualidade do solo e das águas superficiais;	N	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos; Monitoramento; Parceiro Homologado
		Segregação de material ferroso e não ferroso	Redução de risco de contaminação da qualidade do solo e das águas superficiais;	N	B	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;; Monitoramento; Parceiro Homologado
		Risco de Acidente	Ocorrência de Lesões; e perdas de vidas humanas	Em	A	D	1	A	2	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa); PPRA - Programa de Prevenção de Riscos Ambientais
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	1	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos;.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Em	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão Ambiental.
8	**Armazenamento de produtos quimicos e materiais em almoxarifado**	Vazamentos de óleo e Lubrificantes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	3	A	2	1	2	3	N	Aplicar Caixas de contenção de vazamentos; Lavagem do piso
		Geração de residuos (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	1	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Risco de Acidente	Ocorrência de Lesões; danos da Carga e perdas de vidas humanas	N	A	D	1	A	2	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa); PPRA - Programa de Prevenção de Riscos Ambientais
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica.	N	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).

9	**Trabalhos de Pintura**	Produção de Compostos Organicos Volateis; Biocida e metais pesados	Poluição do ar; Desconforto e efeitos à saude dos trabalhadores.	Es	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Produção de Residuos sólido (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	3	4	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
		Derrame/Vazamento de solventes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	2	1	2	3	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação); Criar Plano de Manutenção dos equipamentos.
		Risco de Acidentes	Ocorrência de Lesões e perdas de vidas humanas	Em	A	D	1	A	2	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa); PPRA - Programa de Prevenção de Riscos Ambientais
10	**Trabalhos de Serralharia e Soldadura**	Produção de fumaças, vapores e gases tóxicos.	Poluição do ar; Desconforto e efeitos à saude dos trabalhadores;	N	A	D	3	A	2	1	2	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Produção de Ruido	Poluição sonora; Desconforto aos trabalhadores;	N	A	D	3	A	2	1	2	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Produção de Radiações não ionizantes	Desconfortos e efeitos à saúde dos trabalhadores.	N	A	D	3	A	1	1	2	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Risco de Acidentes	Ocorrência de Lesões e perdas de vidas humanas	Em	A	D	1	A	1	1	3	4	S	Seguir procedimento 2.3.6 (Gerir E.P.I); 2.3.10 (Gerir Acidentes de Trabalho); 3.4.7 (Realizar Inspecção da Carga Perigosa); PPRA - Programa de Prevenção de Riscos Ambientais
		Produção de Residuos sólido (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.

		Reaproveitamento de material ferroso	Menor extração da materia prima; Redução do volume de residuos para o aterro;	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão Ambiental; Monitoramento e Melhoria Continua; Parceiro Homologado
		Reaproveitamento de tambores usados (contaminados)	Redução do volume de residuos enviados para o aterro; Redução de risco de contaminação do solo e das águas superficiais	Es	A	D	3	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão Ambiental; Monitoramento e Melhoria Continua; Parceiro Homologado
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
11	**Lavagem dos Meios; Equipamentos e Máquinas Operacionais**	Produção de Residuos sólido (Classe I)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Produção de efluentes (Classe I)	Alteração /Contaminação da qualidade do solo ou da água superficiais	N	A	D	3	A	2	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação);
		Consumo de Água	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Seguir procedimento de Combate ao disperdicio; Gerir requesitos legais;
		Escape dos efluentes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	3	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Estabelecimento de barreiras de contenção para proteger o meio marinho;
		Consumo de Energia	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Seguir procedimento de Combate ao disperdicio; Gerir requesitos legais;
		Armazenamento dos efluentes contaminantes na fossa septica	Prevenção na contaminação do solo e das águas superficiais	N	B	D	3	A	2	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Criação de pequenas ETAR´s compactas;
12	**Recolha de Águas Residuais à bordo do Navio**	Produção Poeira e fumaça pelos meios (camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	Es	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.

		Produção Ruídos; pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	Es	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Vazamentos de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou da água	Em	A	D	1	A	2	1	2	3	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação);
		Escape dos efluentes	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	3	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Estabelecimento de barreiras de contenção para proteger o meio marinho;
13	**Recolha de Residuos sólidos à bordo do Navio**	Produção Poeira e fumaça pelos meios (camiões)	Poluição do ar; intoxicação dos gases;Desconforto aos trabalhadores.	Es	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos; pelos meios (máquinas e camiões)	Poluição sonora; Desconforto aos trabalhadores.	Es	A	D	1	A	2	1	1	2	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Vazamentos de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Em	A	D	1	A	2	1	2	3	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação);
		Escape dos Residuos (Classe I e II)	Alteração /Contaminação da qualidade do solo ou da água superficiais	Em	A	D	1	A	3	2	1	3		Seguir procedimento 3.4.1 (Gerir residuo nos navios); PGR- Plano de Gestão de Resíduo.
		Proliferação de Vectores de Pragas	Traumas fisicos	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Seguir procedimento 3.4.6 (Gerir Vectores e pragas urbanas);
14	**Abastecimento de Águas Potavél à bordo do Navio**	Produção Poeira e fumaça pelos meios (camiões)	Poluição do ar; intoxicação dos gases; Desconforto aos trabalhadores.	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos; pelos meios (camiões)	Poluição sonora; Desconforto aos trabalhadores.	Es	A	D	1	A	1	1	1	2	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Vazamentos de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Em	A	D	1	A	1	1	2	3	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação);

15	**Fornecimento de Energia Electrica (Geradores)**	Produção gases e fumaças	Poluição do ar;	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas;
		Produção Ruídos	Poluição sonora;	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Incêndio/Explosão	Alteração da qualidade do ar; perdas e danos a instalação fisica; e perdas de vidas humanas.	Em	A	D	1	A	3	1	4	5	S	Seguir procedimento 4.4.5 (Gerir Instalações para prevenção contra incêndios); Seguir procedimento 4.4.6 (Gerir instalações para extinção e combate contra incêndios).
		Vazamentos de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou da água	Em	A	D	3	A	2	1	3	4	S	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação);
16	**Rotinas Administrativas**	Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	1	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestãode Residuos.
		Produção de efluentes e esgoto sanitário	Contaminação das águas superficiais	N	A	D	3	A	2	2	2	4	S	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Criação de pequenas ETAR´s compactas;
		Proliferação de Vectores de doenças	Traumas fisicos	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Seguir procedimento 3.4.6 (Gerir Vectores e pragas urbanas);
		Consumo de Água	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis para a redução do consumo de água (Plano de Manutenção e Limpeza; Orientação dos funcionários sobre a economia de água; Evitar vazamentos de água);
		Consumo de energia electrica	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis de Redução de Consumo de Energia (Instalação de Lampadas de menor consumo de energia; Manter as luzes apagadas fora do horario de funcionamento).
		Segregação de Torners Usados	Redução de risco de contaminação da qualidade do solo e das águas superficiais; Redução do volume de residuos enviados para o aterro;	N	B	D	2	A	1	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos; Monitoramento e Melhoria Continua; Parceiro Homologado

		Economia do papel de escritório	Redução de risco de contaminação da qualidade do solo e das águas superficiais; Redução do volume de residuos enviados para o aterro;	N	B	D	2	A	1	1	1	2	N	Implantação de medidas sustentavéis para a redução do uso de papel (Uso de Scanner; Email; Configuração do Texto; Reuso de Rascunho; Revisão dos documentos antes da impressão)
17	**Serviço de Jardinagem**	Consumo de Água	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis para a redução do consumo de água (Plano de Manutenção e Limpeza; Orientação dos funcionários sobre a economia de água; Evitar vazamentos de água);
18	**Serviço de Refeitório**	Geração de residuos (Classe II)	Alteração da qualidade do solo ou da água	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.
		Produção de efluentes domesticos	Contaminação das águas superficiais	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Criação de pequenas ETAR´s compactas;
		Consumo de Água	Redução de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis para a redução do consumo de água (Plano de Manutenção e Limpeza; Orientação dos funcionários sobre a economia de água; Evitar vazamentos de água);
		Consumo de energia electrica	Redução de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis de Redução de Consumo de Energia (Instalação de Lampadas de menor consumo de energia; Manter as luzes apagadas fora do horario de funcionamento).
		Presença de Vectores de doenças	Traumas fisicos	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir Vectores e pragas urbanas); Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Seguir plano no de Limpeza;
19	**Serviço de Recolha de Residuos**	Produção Poeira e fumaça pelos meios (camiões)	Poluição do ar; intoxicação dos gases;Desconforto aos trabalhadores.	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).Plano de Monitoramento das emissões Atmosfericas; Realizar processo de humidificação sobre o pavimento.
		Produção Ruídos pelos meios	Poluição sonora; Desconforto aos trabalhadores.	N	A	D	2	A	2	2	1	3	N	Seguir procedimento 3.4.4. (Gerir Contaminantes quimicos/Ruídos/Vibrações Ionizantes); Seguir procedimento 3.4.9 (Realizar Auditoria das condições do Posto de Trabalho).
		Vazamentos de combustivel e lubrificantes	Alteração /Contaminação da qualidade do solo ou das águas superficiais	Em	A	D	1	A	2	1	2	3	N	Seguir procedimento 3.4.5 (Gerir vazamentos/derrames de produtos quimicos da Instalação);

		Proliferação de Vectores de Pragas	Traumas fisicos	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.13 (Inspeccionar higiene da Instalação); Seguir procedimento 3.4.6 (Gerir Vectores e pragas urbanas);
		Disposição e destinação de Residuos indeferenciados	Redução de risco de Contaminação do solo/água	N	A	D	3	A	2	1	1	2	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão Ambiental; Monitoramento e Melhoria Continua; Parceiro Homologado
20	**Serviço de limpeza**	Consumo de energia electrica	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis de Redução de Consumo de Energia (Instalação de Lampadas de menor consumo de energia; Manter as luzes apagadas fora do horario de funcionamento).
		Consumo de Água	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis para a redução do consumo de água (Plano de Manutenção e Limpeza; Orientação dos funcionários sobre a economia de água; Evitar vazamentos de água);
21	**Serviço de Atendimento à Emergência**	Consumo de Água	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis para a redução do consumo de água (Plano de Manutenção e Limpeza; Orientação dos funcionários sobre a economia de água; Evitar vazamentos de água);
		Consumo de energia electrica	Utilização de recursos naturais	N	A	D	3	A	2	3	1	4	N	Implementação de medidas sustentaveis de Redução de Consumo de Energia (Instalação de Lampadas de menor consumo de energia; Manter as luzes apagadas fora do horario de funcionamento).
		Produção de efluentes	Contaminação das águas superficiais	Es	A	D	3	A	2	1	2	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); Criação de pequenas ETAR´s compactas;
		Geração de residuos (Classe II)	Alteração /Contaminação da qualidade do solo ou das águas superficiais	N	A	D	3	A	2	2	1	3	N	Seguir procedimento 3.4.6 (Gerir residuo da Instalação); PGR- Plano de Gestão de Residuos.

Elaborado por:	**Revisto por:**	**Aprovado por:**
Ludmila Campos	Edivaldo Januário	Joaquim da Piedade

Legenda:

Situação: (N) Normal; (Es) Esporádica; (Em) Emergencial.

Classe: (A) Adverso; (B) Benéfico.

Incidência: (D) Directa; (I) Indirecta.

Temporalidade: (A) Actual

Significância: (N) Não Significativo; (S) Significativo

5 PROGRAMAS DE GESTÃO AMBIENTAL DO TPU

O Programa de gestão ambiental foi estabelecido tendo em conta as metas e os objectivos que o Terminal Polivalente da Unicargas espera alcançar em consonância com a sua politica ambiental, sendo identificadas todas as acções contundentes à sua prossecução, bem como o prazo referido para a sua execução.

Mapa 6.1. Programas de gestão ambiental

Objectivo	Meta	Acção	Prazo	Indicador de Medida
Obj.1 – Melhorar o desempenho ambiental da empresa	Obter junto do Órgão Ambiental Nacional a aprovação do PGRS do TPU.	Remessa ao orgão ambiental o plano de gestão de residuos da instalação.	Jun. 2023	Cerificado de confirmação de envio ao orgão ambiental
	Obter junto do Órgão Ambiental Nacional a Licença de operação das actividades do TPU.	Remessa ao orgão ambiental o relatório ambiental da instalação.	Dez. 2023	Cerificado de confirmação de envio ao orgão ambiental
Obj.2 – Melhorar a infraestruturas e promover a redução de resíduos produzidos nas instalações da empresa	Reduzir 2% o consumo de papel para o ano de 2023.	Imprimir oficios, informações, e outros documentos frente e verso.	Out. 2023	Consumo de papel ≤ que o ano anterior.
	Reduzir 3% do resíduo enviado para o aterro sanitário para o ano de 2023	Promover os 3rs Reaproveitar/reutilizar e reciclar na instalação	Ano 2023	Cerificado de confirmação dos residuos enviados para o aterro.
	Delimitação física da área de acondicionamento de resíduos/central de resíduos até Agost. 2024.	Contratação de serviços para obra de delimitação da zona de residuos.	Ano 2023	Prazo de execução
Obj.3- Diminuir o consumo de energia electrica	Reduzir 2% do consumo de Energia Elétrica	Substituição de lâmpadas fluorescentes por lâmpadas LED até 2023.	Ano de 2023	100% das lampadas incandescente substituidas por lampadas LED.
		Instalação de luzes de sensores nas áreas internas	Ano de 2023	100% dos locais referidos com luzes de sensores instaladas.
		Instalação de Painéis Solares nas áreas externas até 2030.	Ano de 2023	100% dos postes de iluminação fornecidos com energia de painel solar

Mapa 6.2. Programas de gestão ambiental

Objectivo	Meta	Acção	Prazo	Indicador de Medida
Obj. 4-Diminuir o consumo de água Potável	Reduzir o consumo de água em 2% para o	Aplicação de redudores de caudal nas torneiras	Ano de 2023.	100% das torneiras com redutor de caudal
Obj. 5 - Diminuição das emissões de CO2 e particulados	Reduzir em 2% da emissão de CO2 e particulados.	Reduzir o número de camiões que acedem a instalação.	Ano de 2023.	Acesso à instalação de camiões dentro da capacidade nominal.
		Sensibilização ambiental	Ano de 2023.	Realização de acções de sensibilização ambiental
Obj. 6 – Melhoria das infraestruturas do sistema de saneamento das águas residuais da empresa.	Reduzir o volume de efluentes e aguas residuais para a zona marinha.	Criação de pequenas ETAR´s compactas em todos os pontos de drenagem da instalação	Ano 2023	100% das caixas e fossas de drenagem da instalação com sistemas de tratamento.
Obj.7 - Diminuir a quantidade de resíduos industriais e eletrónicos acumulados	Reduzir à 2% o passivo ambiental da instalação do TPU	Enviar para reciclagem todos os resíduos industriais e electronicos acumulados.	Ano de 2023	Prazo de execução
Obj.8- Melhoria das infraestruturas de acondicionamento de resíduos perigosos (óleo lubrificante usado/filtros de óleo/baterias usadas).	Delimitação da área de acondicionamento de resíduos perigosos	Contratação de serviços para execuçaõ da obra de delimitação da zona de residuos perigoso.	Ano de 2023	Prazo de execução
	Instalação de placas de sinalização na área de acondicionamento de resíduos perigosos.	Contratação de serviços para execução de placas de sinalização .	Ano de 2023	Prazo de execução
	Instalação de paletas de contenção para acondicionamento de óleo lubrificante usado e baterias usadas(Ano 2023).	Contratação de serviços para aquisição das paletas de contenção de óleo lubrificante usado e baterias	Ano de 2023	Prazo de execução

6 MONITORAMENTO E CONTROLO AMBIENTAL DO TPU

A Gestão Ambiental do Terminal Polivalente da Unicargas compreende uma serie de acções que abrange as operações portuárias; a gestão de residuos, a gestão de efluentes/águas residuais; o monitoramento da qualidade do ar, trinamento e conscientização, conforme descrevemos a seguir:

6.1 Operações Portuárias

O Terminal Polivalente da Unicargas no âmbito da gestão ambiental tem realizado acções de minimização dos impactos das actividades operacionais sobre as componentes ambientais das áreas de intervenção, preservando assim no limite possivel a boa qualidade ambiental das áreas operacionais e da sua envolvente directa, incluindo a qualidade do ar, qualidade do solo, recursos marinhos e ambiente sonoro.

6.1.1 Acções Ambientais

De modo a minimizar os impactos nas operações portuárias constam as seguintes medidas:

Veiculos, Máquinaria e Equipamentos

- Uso de veiculos e equipamentos com motores eficientes, de modo a minimizar a emissão dos gases de efeito de estufa proveniente da combustão de combustiveis fosseis;
- Implementar programa de manutenção de meios, máquina e equipamentos, de modo a garantir as suas boas condições de funcionamento atraves de manutenção e revisão periodica minimizando as emissões sonoras e gasosas.
- Uso de equipamento de protecção para o controlo de ruido, vibrações;

Prevenção e Controlo de emissão de poeiras

- A movimentação de materiais inertes e pulvurentos durante as operações, os mesmos são transportados em meios, em recipientes cobertos e não excessivamente carregados;
- Instalalação de barreiras de contenção durante as operações com carga à granel;
- Humidificação do pavimento em zonas com emissões de poeira de forma a evitar o levantamento de poeira atraves da movimentação de meios e maquinarias;

- Redução da velocidade de circulação dos meios e maquinarias nas áreas operacionais, para evitar ressuspenção de particulas;
- Garantir a limpeza regular dos acessos as áreas operacionais de forma a evitar a ressuspenção de poeiras quer por acção do vento, ou quer por acção da movimentação de veiculos e equipamentos operacionais.
- Uso de equipamento de protecção para o controlo de poeira;

Eventos acidentais de poluição

- Em caso de ocorrencia de eventos de poluição ambiental com derrames de óleo, combustivel ou quaisquer outras substâncias poluentes para o solo, a área afectada é realizado de forma imediata acções de controlo, e o solo contaminado é recolhido e conduzido em local apropriado de acordo as disposições do plano de gestão de residuos do TPU.

6.2 Gestão de Resíduos

A Direcção de Segurança Empresarial/Departamento de Ambiente é responsável pela elaboração e implementação do Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas, onde constam as acções necessárias para a identificação, controle da recolha, acondicionamento, transporte, armazenamento e destino final conforme a legislação pertinente.

6.2.1 Identificação, Origem, Caracterização e Volume

Os resíduos produzidos na instalação do TPU compreende todos os resíduos produzidos nas actividades administrativas, operação de movimentação da carga, oficinas, refeitório, varrição de vias e parques, atendimento à emergência, jardinagem, levando em consideração a sua identificação, classificação, caracterização, local de produção e volume.

6.2.2 Acondicionamento

Os resíduos produzidos em cada ponto da instalação, são disponibilizados em recipientes com tampa e adequados ao volume e ao tipo de resíduo, de forma a evitar a dispersão na instalação.

6.2.3 Recolha e Transporte dos Resíduos

6.2.3.1 Recolha e Transporte interno

A Recolha e transporte interno dos resíduos é realizado por técnicos da empresa CLEAN SYSTEM, responsável pela gestão interna de resíduos da instalação licenciada pela agência Nacional de Resíduos, atendendo as seguintes acções preventivas:

- Uso de E.P.I´s apropriados para a actividade;
- Uso de equipamentos/meios compatíveis com o volume do resíduo.

O transporte interno nos pontos de produção é feita por meios motorizados e carrinhos de rodas até a caçamba da central de resíduos, duas vezes por dia durante a semana excepto dias complementares e feriados.

6.2.3.2 Recolha e Transporte Externo

A recolha e transporte de resíduos para o exterior da instalação do TPU é garantida por operadores contratados e licenciadas pelo órgão ambiental da Agência Nacional de Resíduos, consoante a tipologia de resíduos a recolher sempre que o contentor antigir a capacidade máxima de segurança, e dando cumprimento das seguintes acções preventivas:

- Equipamento de transporte adequado e compatível ao volume do resíduo;
- Uso de E.P.I´s apropriados para a actividade;
- Protecção dos resíduos contra intempéries durante a saída da instalação;
- Assinatura da guia de remessa de recolha de resíduos sólidos pelo transportador e pelo técnico de Ambiente;
- Assinatura da Ficha de controle de transporte de resíduos.
- Apresentação do comprovativo de disposição final do resíduo.

A recolha de resíduos sólidos equiparados a urbanos é efectuada pela empresa Envirobac, desde 2020. Os resíduos de hidrocarbonetos ou contaminados com hidrocarbonetos, resíduos reaproveitáveis e resíduos perigosos são recolhidos por operadores licenciados.

6.2.4 Armazenamento Temporário

Os resíduos são armazenados em caçambas metálica roll on, protegido contra intempéries e mantidos em uma área bem ventilada, sobre o piso impermeabilizado e sinalizada como central e resíduos.

6.2.5 Quantificação dos Resíduos

O Terminal produz em média diária 0,91 m³ (zero virgula noventa e um metros cúbicos) de resíduos, e 333,2 (Trezentos e trinta e três virgula dois metros cúbicos) anualmente, cuja a quantificação é realizada por unidades e por meio de instrumentos de medição devidamente calibrados, conforme o comprovativo de disposição final de resíduo sendo registada na planilha de controle dos resíduos.

Os gráficos 5.2.5.1 e 5.2.5.2 ilustram a proporção de resíduos produzidos no Terminal Polivalente da Unicargas, considerando a classificação de tipologia.

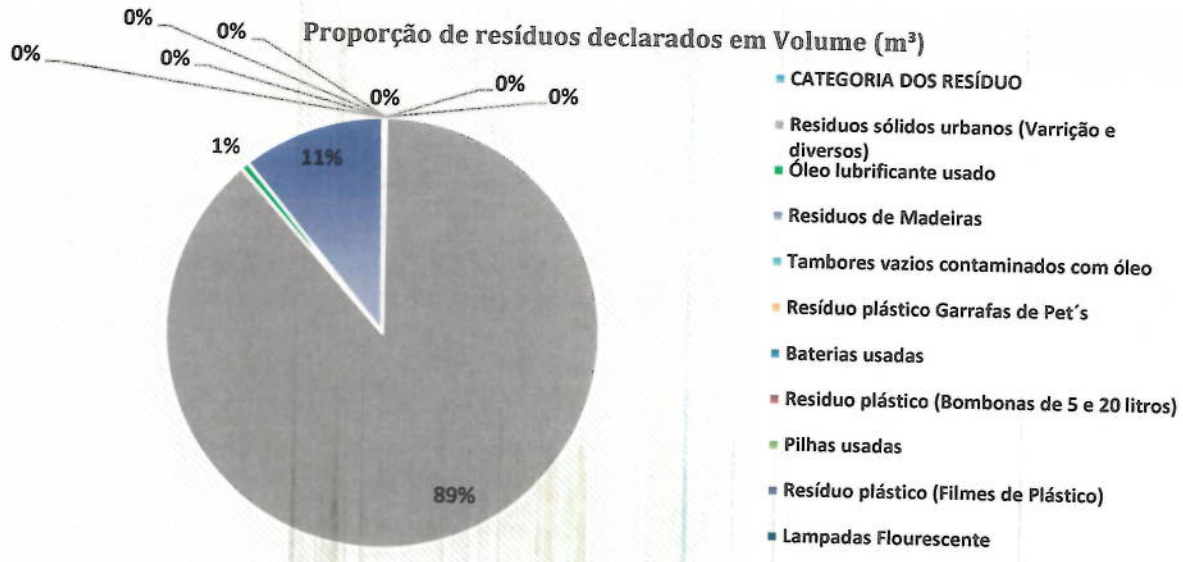


Gráfico 5.2.5.1. Proporção da produção de resíduos declarados em volume (metros cúbicos) no TPU

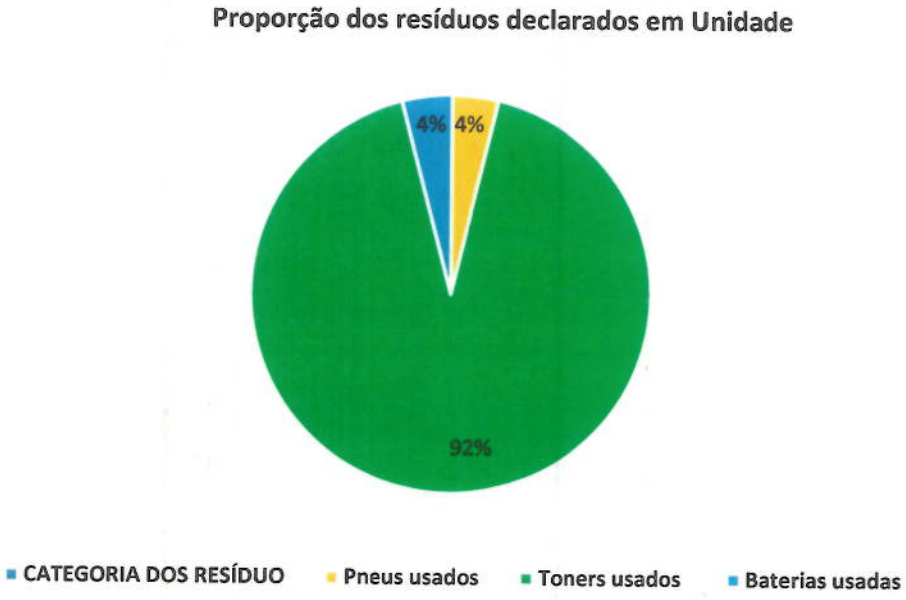


Gráfico 5.2.5.2. Proporção da produção de resíduos declarados em unidade no TPU

6.2.6 Destino Final

Os resíduos sólidos produzidos no Terminal Polivalente da Unicargas, têm como destino final diferentes fins tais como aterro sanitário, reaproveitamento, reciclagem e incineração. O envio dos resíduos para o seu destino final deve ser registado a quantidade e a destinação final na guia de remessa de resíduos.

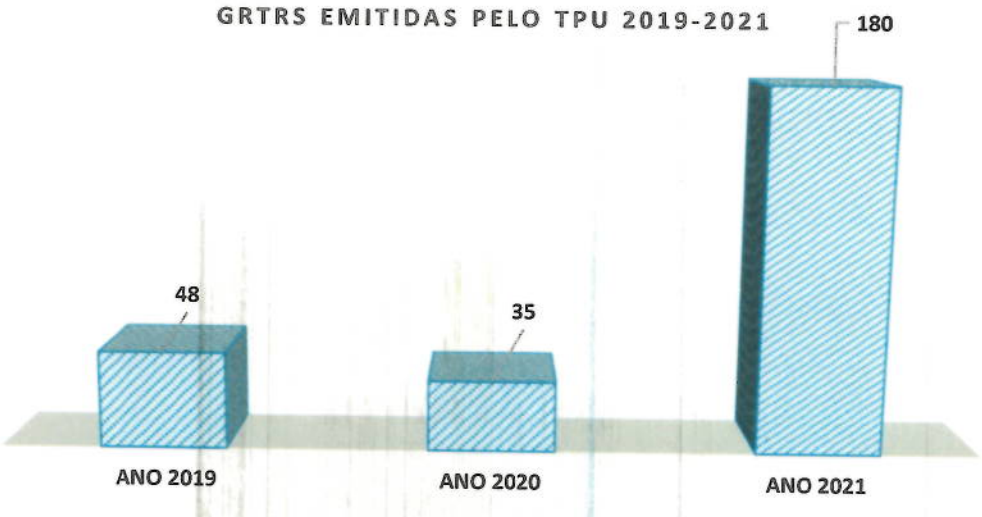


Gráfico 5.2..6.1- Quantidade de Guias de Remessa e transporte de resíduos emitidas pelo TPU

Porporção das guias de remessa de recolha de residuos sólidos emitidas no TPU

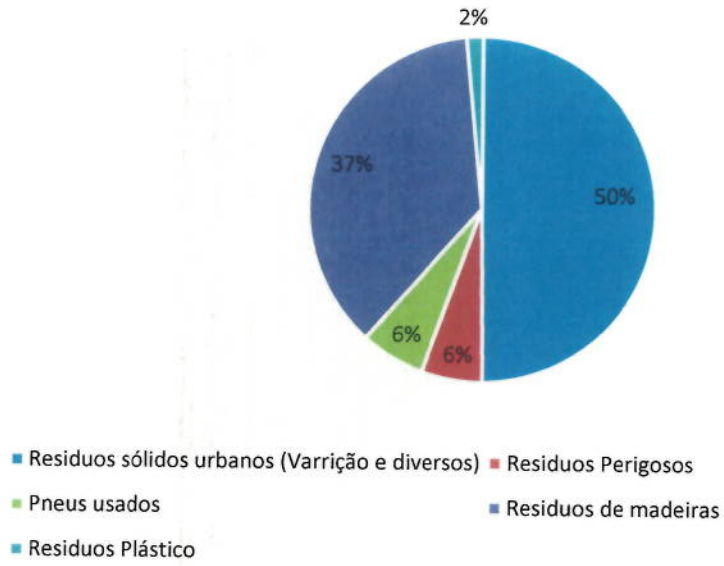


Gráfico 5.2.6.2- Quantidade proporcional das Guias de Remessa e transporte de resíduos emitidas pelo TPU

6.2.7 Acções Ambientais

De modo a controlar os impactes que possam advir da produção e gestão de resíduos constam as seguintes medidas:

- Comunicação por meio digital (Uso emails digitais e plataformas de comunicação corporativa);
- Impressão de documentos relevantes e necessários;
- Reaproveitamento e reciclagem de residuos de pneus usados, torners usados, madeiras usadas, recipientes de plástico, baterias usadas, metais ferrosos e não ferrosos, oleo lubrificante usado, papel usado e papelão);
- Uso de bebedores no interior nas áreas internas e externas;
- Inventario dos resíduos produzidos nos diversos pontos de produção do TPU. O Inventário deverá apontar os tipos de residuos, as quantidades a sua classificação, e a forma de tratamento a ser adoptada para evitar danos no meio ambiente;
- Sinalização, delimitação do local de acondicionamento de residuos (Central de residuos);
- Interditar qualquer qualquer derrame/vazamento ou liberação de residuos para o meio natural (solo; drenagem natural e meio marinho);

- Armazenar os óleos usados em recipientes e em local impermeabilizado (betão), longe de fontes de ignição;
- Expedição para tratamento/valorização quando a quantidade armazenada atingir o limite de segurança do recipiente;
- Disponibilizar produtos absorventes e/ou adsorventes, em quantidade adequada à dimensão da carga, em cada unidade de acondicionamento de óleos usados;
- Intervenção imediata de limpeza sempre que se verificar um derrame de óleos usados, e os resíduos resultantes da utilização dos produtos de contenção são encaminhados para local adequado;
- Delimitação do local para acondicionar residuos perigosos provenientes da área das oficinas (óleo lubrificante usado e filtros);
- Assegurar distino final dos residuos de forma a garantir a conformidade legal e salvaguardar a instalação com base em procedimentos operacionais especificos;
- Contratação de serviços de reutilização e/ou reaproveitamento externo de residuos incluindo os de transporte, por empresas que atendam os requisitos aplicaveis;
- Acondicionamento dos recipientes de residuos em locais impermeabilizados, cobertos e devidamente sinalizados;
- Armazenar os resíduos de toners usados, garrafas de pet, em contentores destinados à deposição selectiva dos resíduos de acordo com as suas características;
- Assegurar que a armazenagem de resíduos nos respectivos contentores não exceda a capacidade máxima do recipiente onde estão armazenados;
- Garantir a identificação dos recipientes/locais de armazenagem de resíduos;
- Armazenamento adequado de materiais pulverulentos;
- Interdição de acesso de camiões com emissão de fumaças e particulados;
- Interdição de acesso à instalação de contentores sujos e com residuos;
- Realizar vistorias inspectivas periódicas nos pontos de produção, acondicionamento e armazenamento e resíduos do TPU.
- Substituir de forma imediata os contentores e meios de contenção/retenção de fugas ou derrames, que não se encontrem em bom estado de conservação e que, por isso, possam originar situações de emergência ambiental;

Fig 2 . Recipientes de acondicionamento dos residuos do TPU

6.3 Monitoramento e gestão dos efluentes/àguas residuais

O Terminal polivalente da Unicargas, tem realizado ações que visam prevenir o despejo directo no meio marinho das águas residuais e dejectos liquidos produzidos nas principais actividades das operações do Terminal Polivalente da Unicargas nomeadamente:

- Navios;
- Lavagem dos equipamentos;
- Sanitários;
- Refeitório

6.3.1 Acções Ambientais

- Construção de fossa séptica para o tratamento das águas oleosas;
- Construção de caixas de drenagem para acondicionar os efluentes e águas residuais;
- Realização periódica de fiscalização e inspecção das fossas e caixas de drenagem ou qualquer outro tipo de destinação efluentes/águas residuais no domínio da instalação;
- Contratação de serviços de recolha de águas residuais e dejectos liquidos por empresas que atendam os requisitos aplicaveis;
- Garantir o uso de Equipamento de protecção individual aos operadores desta actividade;

- Monitorizar o sistema de condução dos efluentes líquidos oleosos provenientes da lavagem de equipamentos de meios;
- Criação de bacia de contenção na área de lavagem dos equipamentos e meios de forma a evitar vazamento do efluente para a zona marinha;
- Assegurar distino final dos efluentes de forma a garantir a conformidade legal e salvaguardar a instalação com base em procedimentos operacionais especificos;
- Manutenção das tampas das caixas de drenagem de efluentes e águas residuais;
- Manutenção das caixas, valetas e tubos de drenagem da instalação;
- Cobertura com tampas e gradeamentos das caixas, fossas e valetas de drenagem de efluentes e águas residuais;
- Inventario dos efluentes produzidos nos diversos pontos de produção do TPU;
- Monitorar e avaliar a drenagem da área da instalação bem como verificar a eficiência da caixa separadora de água e oleo e do tratamento das caixas de visitas.

6.4 Programa de Monitoramento da Qualidade do ar

O Terminal polivalente no âmbito da gestão ambiental tem realizado acções que visam prevenir, evitar ou minimizar as emissões atmosfericas, provenientes da emissão de particulados e outros produtos de combustão interna gerados nas principais fontes de poluição das operações do Terminal Polivalente da Unicargas nomeadamente:

- Navios;
- Meios, máquinas e equipamentos do TPU;
- Camiões que acedem ao Terminal;
- Movimentação e armazenagem da carga à granel;
- Residuos sólidos e efluentes domesticos e industriais

6.4.1 Acções Ambientais

- Tratamento dos residuos;
- Manutenção periodica dos meios e máquinas operacionais da instalação do TPU;
- Inspecções de emissão de fumaça preta pelos veiculos e máquinas utilizados no TPU;
- Uso de equipamentos e meios que minimizem a emissão de particulados ou pulvurentos;
- Adequado armazenamento de materiais pulvurentos;
- Manutenção e criação de áreas verdes ao longo do perimetro do Terminal;
- Limpeza urbana e industrial;
- Redução do número de camiões no interior do Terminal;

- Interdição de acesso de camiões com emissão de fumaças e particulados no TPU;
- Operar meios e equipamentos dentro da capacidade nominal;
- Realização de induções de Higiene e Segurança;
- Garantir o uso de Equipamento de protecção individual;

6.5 Programa de Monitoramento e Controlo de Vectores de pragas

O Terminal Polivalente da Unicargas, no ambito da gestão ambiental tem realizado acções de combate e eliminação de vectores de pragas urbanas presentes na instalação nomeadamente mosquitos, ratos, baratas, aranhas, visando manter a instalação livre das mesmas garantindo assim um espaço mais salubre, para os trabalhadores portuários e o comprometimento da mercadoria.

6.5.1 Acções Ambientais

- Limpeza urbana e industrial
- Registo dos tipos de vectores de pragas presentes na instalação;
- Realização periódica de fiscalização e inspecção das fontes de vectores de pragas urbanas;
- Criação de zonas para o tratamento e gestão dos resíduos;
- Tratamento dos resíduos;
- Manutenção de áreas verdes ao longo do perímetro da instalação do TPU;
- Intervenções acções de controlo com métodos químicos e mecânicos;
- Manter em estado adequado as instalações hidráulicas e de redes de esgoto.
- Uso de Equipamento de Protecção Individual E.P.I;

Fig. 3 e 4 Ilustra as acções de Controlo de Vectores de pragas

6.6 Monitoramento e Controle de Ruídos Ambientais

No âmbito da gestão ambiental tem realizado acções que visam prevenir a exposição dos trabalhores em ambientes com niveis excessivos de ruídos ambientais, gerados nas principais actividades das operações do Terminal Polivalente da Unicargas nomeadamente:

- Navios;
- Meios, máquinas e equipamentos do TPU;
- Camiões que acedem ao Terminal;
- Manutenção Mêcanica;

6.6.1 Acções Ambientais

- Realizar Inspecções dos niveis de ruido nas áreas operacionais dos TPU;
- Garantir o uso de Equipamento de protecção individual aos operadores desta actividade;
- Fiscalizar as fontes de emissão de ruidos na instalação;
- Realização de induções de Higiene e Segurança;

6.7 Prevenção à Emergencias Ambientais

No âmbito da gestão ambiental tem realizado acções de respostas às situações de emergências ambientais que eventualmente possam a ocorrer nas operações da instalação do TPU, assegurando a protecção ao meio ambiente, a comunidade circunvizinha, colaboradores e a própria empresa.

6.7.1 Acções Ambientais

- O Inspector ambiental da DSE deve assegurar que os residuos produzidos na instalação do TPU, devem ser manuseados de forma a minimizar a possibilidade de fogo, explosão, derrames e vazamentos para a zona marinha, solo ou ar.

- O Inspector ambiental da DSE deve realizar vistorias periódicas nos pontos de produção, acondicionamento e armazenamento de resíduos.

- O Inspector ambiental da DSE deve assegurar que os residuos produzidos na instalação do TPU devem ser segregados e mantidos em locais adequados.

- O Inspector ambiental da DSE deve assegurar que todas as pessoas envolvidas no manuseio dos residuos da instalação do TPU, devem fazer o uso do Equipamento de Protecção Individual E.P.I, definido no Manual de Procedimento da Direcção de Segurança Empresarial.

- O Inspector ambiental da DSE deve encadear acções para conter situações de emergencias;

- As acções para contenção dos vazamentos e derrames devem ser alinhadas com o definido no Manual de Procedimentos da Direcção de Segurança Ambiental;

- Assegurar o Kit de emergencia e criar barreiras de contenção e absorção do produto derramado;
- O Inspector ambiental da DSE junto do operador interno de gestão de residuos, deve assegurar que o pessoal envolvido deve colocar o material derramado dentro de recipientes adequados.

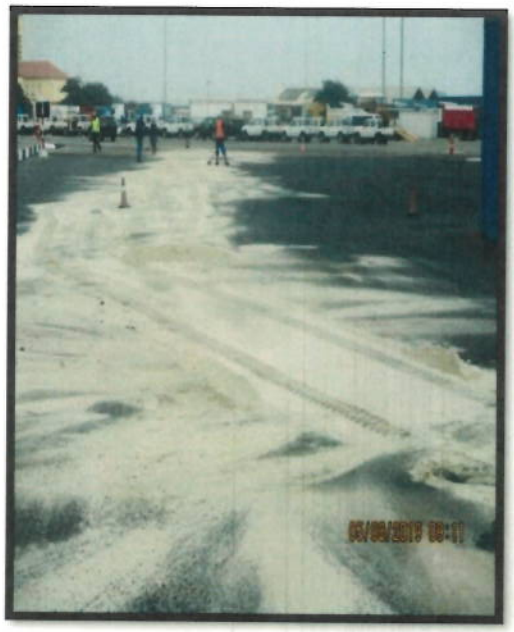
- O Inspector ambiental da DSE junto do operador interno de gestão de residuos, deve assegurar a limpeza do local onde ocorreu o derrame bem como garantir a disponibilidade de recipientes e equipamentos adequados para o material recolhido.

- As acções de remediações da área contaminada deverão ser estabelecidas após vistoria do local pela equipa do ambiente da instalação do Terminal Polivalente da Unicargas.

- O Inspector ambiental da DSE deve após o termino da emergencia realizar a classificação dos residuos para descarte.

- O Inspector ambiental da DSE deve avaliar a causa e o efeito para que sejam estabelecidas as acções cooretivas aplicaveis caso ocorra alguma alguma falha no gerenciamento de residuos.
- O Inspector ambiental deve preencher o formulário de registo de incidente e acidente.

Fig. 11-12. Ilustra as acções de controlo de vazamentos com produtos quimicos



7 TREINAMENTO E CAPACITAÇÃO DOS TECNICOS

O Terminal Polivalente da Unicargas tem realizado acções educativas capazes de construir conhecimento e desenvolver habilidades e actividades nos trabalhadores portuários e comunidade circunvizinha afectados directa ou indirectamente pelas actividades realizadas pelo Terminal Polivalente.

7.1.1 Acções Ambientais

- Forma de utilização e preenchimento da Guia de remessa de recolha de resíduos do TPU;
- Forma de utilização e preenchimento do Mapa de Controle de transporte de Resíduos do TPU;
- Forma de operação nos pontos de acondicionamento de residuos;
- Preenchimento da Planilha do inventário de residuos;
- Uso de Equipamento de Protecção Individual E.P.I;
- Realização de acções preventivas e corretivas a serem executadas em caso de situações de gestão incorreta ou incidentes.
- Realização de induções de Higiene e Segurança;
- Implementação de projectos ambientais sustentáveis;

- Manutenção e criação de áreas verdes ao longo do perimetro portuário envolvendo a participação de trabalhadores e da população circunvizinha;
- Realização de campanhas de Limpeza no perimetro da orla portuária envolvendo trabalhadores e a população da circunvinzinhaça;

Fig. 5 e 6 Ilustra as acções de Indução de Segurança no manuseamento da Carga Perigosa

Fig. 7. Ilustra as acções de manutenção das áreas verdes envolvendo os trabalhadores

De acordo ao cumprimento do Plano de necessidade da Direcção de Segurança, os Inspectores ambientais tem sido capacitados anualmente por periodos trimestrais com as seguintes formações:

- Higiene e Segurança no Trabalho;
- Código IMDG;
- Segurança Portuária
- Gestão Ambiental

8 COMUNICAÇÃO

- **Contactos de Emergência da DSE**

NOME	CATEGORIA	CONTACTO
Edivaldo Januário	Dir. Segurança	927172438
Ludmila Campos	Ch. Dptº de Ambiente	923498263
Virgilio de Almeida	Inspector Ambiental Principal	935078595
Antonio Bamba	Inspector Ambiental Principal	922770495
Fernando Flávio	Inspector Ambiental Principal	923341320
Severino Paulino	Inspector Ambiental Principal	923666438

- **Contactos de Emergência das Autoridades S.A**

NOME	CONTACTO
Bombeiros	115/914395651
Sanidade Maritima	TCB
Porto de Luanda (D.S.A)	222 310074 / 222 311207
Comité Nacional do Codigo ISPS	222 310375

9 INSPECÇÕES LOCAIS E AUDITORIAS DO POSTO DE TRABALHO

O desempenho da instalação do TPU é avaliado mediante a realização de inspecções diárias/regulares, bem como a realização de auditorias de posto de trabalho realizadas mensalmente.

Actividade	Inspecções	Responsáveis
Tratamento da carga perigosa	Diariamente	Inspector Ambiental
Gerir residuos da instalação	Diariamente	Inspector Ambiental
Gerir Vazamentos/derrames de produtos quimicos	Diariamente	Inspector Ambiental
Gerir contaminantes/ruidos e vibrações ionizantes	Diariamente/mensalmente	Inspector Ambiental
Gerir pragas urbanas	Bimensal	Inspector Ambiental
Inspeccionar higiene da instalação	Diariamente/mensalmente	Inspector Ambiental
Inspeccionar ás condições de higiene e segurança alimentar	Diariamente	Inspector Ambiental

10 BIBLIOGRÁFIA

- Decreto Presidencial nº 53/03 de 11 de Julho "Regulamento de Exploração dos Portos de Angola"
- Decreto Presidencial nº 194/11 de 07 de Julho, sobre Responsabilidade por Danos Ambientais;
- Decreto Presidencial nº 190/12 de 24 de Agosto "Regulamento sobre a Gestão de Resíduos"
- Decreto Presidencial nº 194/12 de 21 de Junho "Regulamento para a prevenção e Controlo da Poluição das Águas Nacionais"
- Regulamento Ambiental do recinto portuário.
- Decreto 117/20 de 22 de Abril;

11 ANEXOS

11.1 Anexos I. Impressos

11.1.1 Croquis de Localização do TPU;

11.1.2 Certificado de Conformidade de Gestão de Residuos;

11.1.3 Impresso nº2- Fichas de Controlo da Carga perigosa movimentada.

11.1.4 Impresso nº4- Relatórios de incidentes ambientais com derrames de produtos quimicos.

11.1.5 Impresso nº5- Relatórios de Indução e Segurança.

ANEXOS

R. Sanzalas Cabinda, Boavista
Município: Ingombotas
Luanda/Angola

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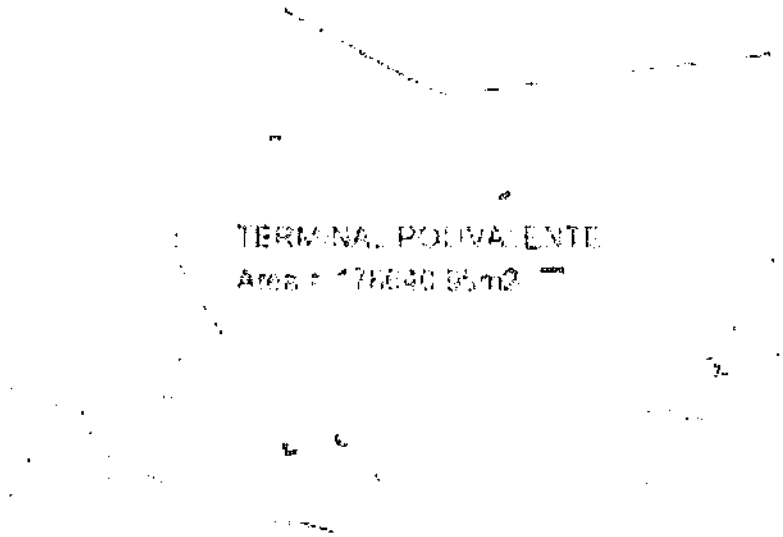
unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136

Operadora de Terminal

Características Gerais – Infra-estrutura



Área Total	178.641 m²
Terraplenos	168.141 m²
Área de Armazenagem	10.500 m²
Nº de Armazéns	2
Cais Acostável	536 m
Profundidade Média	(- 10 m) ZH
Postos de Atracação	4

A UNICARGAS faz a gestão integral do Terminal Polivalente do Porto de Luanda onde manuseia contentores e carga geral. A produção média anual estimada é de 156.500 TEUS e de 244.500 TONS de Carga Geral.

Contamos nos nossos quadros com pessoal especializado em transporte marítimo, navegação, gestão portuária, segurança de instalações portuárias entre outras especialidades que permitem a UNICARGAS responder eficientemente as necessidades dos diferentes stakeholders que procuram os nossos serviços.

CROQUIS LOCALIZAÇÃO

COORDENADAS GEOGRAFICAS					
PONTOS	LATITUDE	LONGITUDE	PONTOS	LATITUDE	LONGITUDE
P1	8°47'55.88"S	13°14'43.54"E	P3	8°47'57.50"S	13°15'0.34"E
P2	8°47'58.66"S	13°14'49.07"E	P4	8°48'2.88"S	13°15'1.13"E
P5	8°48'3.29"S	13°14'59.32"E	P6	8°48'7.30"S	13°14'59.75"E
P7	8°48'6.18"S	13°14'55.45"E	P8	8°48'3.74"S	13°14'54.74"E
P9	8°48'4.36"S	13°14'50.79"E	P10	8°48'8.66"S	13°14'51.14"E
P11	8°48'10.08"S	13°14'48.49"E	P12	8°48'2.66"S	13°14'39.14"E

ÁREA_REQUERIDA

PONTOS DE REFERÊNCIAS

0 900 1 800 3 600 5 400 7 200 Metros

O PRESENTE CROQUIS DE LOCALIZAÇÃO SERVIRA APENAS COMO DOCUMENTAÇÃO COMPLEMENTAR AO DOSSIER PARA EFEITOS LEGAIS ADMINISTRATIVOS

REQUERENTE	UNICARGAS - Transporte Rodoviário e Gestora de Terminais Portuario
DESC. E VERF.	GPL 14/01/2380
DATA: Agosto/2023	Rua Kima Kienda II (EN 100), BairroPatrice Lumumba (Boavista), Distrito Urbano da Ingombota, Municipio de Luanda, Provincia de Luanda.
ESCALA:1:9 182	INGOMBOTA LUANDA

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

AGÊNCIA NACIONAL DE RESÍDUOS

CERTIFICADO

Conformidade do Plano de Gestão de Resíduos

N.º 557 / 2023

A Agência Nacional de Resíduos, em conformidade com as competência conferidas pela alínea g) do n.º 1 do artigo 5.º do Decreto Presidencial n.º 181/14, de 28 de Julho, que aprova o Estatuto Orgânico da Agência Nacional de Resíduos;

Tendo sido cumpridas as disposições consignadas pelo artigo 7.º do Decreto Presidencial n.º 190/12, de 24 de Agosto, que aprova o Regulamento sobre a Gestão de Resíduos;

Certifica que foi aprovado o Plano de Gestão de Resíduos a favor de **UNICARGAS, LDA TERMINAL POLIVALENTE DA UNICARGAS** Contribuinte Fiscal n.º **5410003136**, estabelecimento localizado no Bairro **INGOMBOTA** Distrito **INGOMBOTA**, Município **INGOMBOTA**, Província **LUANDA**, em observância ao exposto nas disposições constantes nos diplomas supra mencionados.

Emitido em 10 / 11 / 2023 Válido até 09 / 11 / 2027

O(A) Presidente do Conselho de Administração

A-CAAT,
P/ Conhecimento.
C/c: DEM
14.10.2021

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AO
DIRECTOR DE SEGURANÇA EMPRESARIAL

L U A N D A

RELATORIO DE INCIDENTE	
Nº 078/2021	
TIPO DE INCIDENTE	Ressequimento de um tubo de Óleo Hidraulico.
LOCAL DO INCIDENTE	Parque de Contentores vazios.
PESSOA A SER CONTACTADA	Inspetor:Severino Paulino
HORA DO INCIDENTE:16h25m	**Data do Incidente 11.10.2021**

DESCRIÇÃO DO INCIDENTE
No dia 11 de Outubro de 2021, quando eram 16 horas e 25 minutos, ocorreu um incidente na Máquina TEREX nº 053,no Parque de contentores vazios rotura de um tubo de óleo hidraulico conduzida pelo Sr. Miguel Manuel Domingos, Operador Principal de Cais, afeto a Direção das operações,quando efetuava a remoção de contentores para o Cais nº2, causando um derrame de pequena dimensão de aproximadamente 5Litros de óleo Hidráulico, conforme ilustra as fotos.

CAUSAS DO INCIDENTE:
Tubo ressequido.

ACÇÕES TOMADAS PELO INSPECTOR
Desloquei-me ao local para averiguar a situação e vedar a zona com alguns cones, e elaborei o presente Relatório e fez-se as fotos em anexo.

RECOMENDAÇÕES:
Recomenda-se a manutenção periódica aos meios, e aos colegas quando acontece situação do genero devem colocar uma paradeira.

Feito em Luanda, aos 12/10/ 2021

Atenciosamente

Severino Paulino
Inspetor de 1ª Classe
Departamento de Ambiente

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BoavistaMunicípio:
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TC

10.05.2021

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL
DEPARTAMENTO DO AMBIENTE

CONTROLO DE CARGA PERIGOSA DESEMBARCADA
Nº 12/2021

Instalação Portuária – LUANDA- UNICARGAS

Nome do Navio: OBS SATURN

Nº da IMO: 9222223

Agência: Goldan

Caís de Atracação: Cais 2

Data de Atracação: 19/04/2021

Mercadoria perigosa á bordo: Carga em Volume.

Total de carga perigosa á bordo:

- **Carga em Volume desembarcada:**7.414 Big Bag Luanda Pentoxido de Nitrogénio.

Incidentes/Acidentes Registados durante a descarga: Durante a descarga até ao armazenamento dos contentores de carga perigosa não registou-se incidente/acidente.

Inconformidades Registadas durante á operação: Durante a descarga até ao armazenamento dos contentores de carga perigosa não registou-se inconformidades.

Luanda, aos 04 de Maio de 2021

O Inspector
Fernando Flávio

O Gestor de Linha
Rubem Teófilo

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DEM
P/devido efeito.
C/c: DOP
06.11.19

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

AO
DIRECTOR DE SEGURANÇA EMPRESARIAL

LUANDA

N/RELATÓRIO Nº 09/53.11/D.S.E/LAVAGEM DOS MEIOS,PINTURA,SOLDAGEM,SERRALHARIA E LUBRIFICAÇÃO/2019

Assunto: Relatório síntese de inspecção realizada na área técnica do T.P.U

Venho por este meio levar ao conhecimento do Sr. Director que no dia 01.11.2019 por volta das 10 horas e 10 minutos realizou-se uma inspecção nas áreas da técnica de serralharia, soldagem, pintura e lubrificação com o objectivo de verificar as condições do posto de trabalho e no cumprimento das normas de segurança.

Apos a visita recomendamos os seguintes pontos

Recomendamos melhorias das evidências verificadas nos Itens a baixos: **Lavagem dos meios**.
05,09,10,11,12,13,15.

- O ambiente de trabalho não esta organizado.
- Não existe na área desperdícios.
- O operador em serviço não esta usar bota de segurança.
- O operador em serviço não esta usar óculos de protecção.
- O operador em serviço não esta usar luvas.
- O operador em serviço não esta usar roupas impermeáveis.
- O operador em serviço não esta usar mascaras de proteccão.
- Existe algumas justificativas sobre o E.P.I.

Recomendamos melhorias das evidências verificadas nos Itens a baixos: **Pintura**.
50.

- O pintor em serviço não esta utilizar avental.

Recomendamos melhorias das evidências verificadas nos Itens a baixos: **Soldagem/Serralharia**.

- 05,06,07,08,16,24.
- O alicate de solda encontra-se com emenda.
- O porta eletródio esta em mau estado de conservação.
- Os cabos de soldagem apresentam emendas e estão sem isolamentos.
- O cabo de terra da máquina não existe.
- O soldador não encontra-se munido de com as perneiras.
- Existe algumas justificativas sobre o E.P.I.

Ambrósio 07.11.19

D.S.A,
P/Conhecimento.
15.09.22

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DO AMBIENTE

AO

DIRECTOR DE SEGURANÇA EMPRESARIAL

LUANDA

ASSUNTO: Diálogo de Higiene (DH)

Venho por este meio informar ao Sr. Director que no dia 10.09.2022 quando era 14h40 minutos realizou-se um Diálogo de Higiene de 05 minutos aos estivadores do Grupo da manhã da empresa **MAESSA**, que trabalhavam no navio craan seja que encontra-se no cais 1 para sensibilizar o pessoal nos cuidados de prevenção de Higiene no TPU, onde participaram 54 efetivos.

Em anexo a lista de presença do pessoal.

Luanda aos 10 de Setembro de 2022

Atenciosamente
Virgílio de Almeida
Inspector Principal

DIRECÇÃO DE SEGURANÇA E AMBIENTE

12/09/22

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AO CCG,
P/conhecimento
10/05/23

DIRECÇÃO DE SEGURANÇA EMPRESARIAL
DEPARTAMENTO DE AMBIENTE

AO
DIRECTOR DA DSE

LUANDA

N/REF: 127/53.09/2023

ASSUNTO: Relatório de indução de Higiene e Segurança

Venho pela presente informar ao chefe do DSE que no dia 04 de Maio do corrente ano, das 15h30 minutos às 16h35 minutos, de forma a prevenir acidente/incidente com derrame na operação desembarque de betume de asfalto do Navio Biskra, assegurou-se medidas de controlo de emergencia Ambiental e indução de higiene e segurança.

As medidas de controlo realizadas foram:

- Assegurou-se a aplicação de almofada de areia na zona de cobertura da operação.
- Verificação do estado de caducidade dos Extintores;
- Aplicação de Cones;
- Aplicação de bancos de areia (Tambores e carrinha com areia);

Apois criar-se as medidas de segurança junto a empresa Soida, deu-se uma indução de Higiene e segurança referentes aos risco presente na operação de betume de asfalto e as medidas de controlo caso ocorrer um acidente/incidente com derrame do produto. Participaram desta indução de um total de quinze (15) participantes sendo 11 da empresa Soida, 02 da DSE, 01 DOP, 01 segurança Lemuxus-lda.
Em anexo as fotos e a lista de presença.

Sem outro assunto deixo a considerações superior, saudações

Luanda, aos 09 de Maio de 2023

Atenciosamente

Fernando Flávio dos Santos
InspectorPrincipal
Departamento de Ambiente

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PRODUTO USADO NA PULVERIZAÇÃO => ALFAMAX50SC

PRODUTO USADO NA PULVERIZAÇÃO => OLEO MINERAL

GRUPO J.A.J. LDA.

Empresa de Desinfestação

Limpeza e Comercio Geral

CERTIFICADO DE CONCLUSÃO

O***Grupo J.A.J Lda***, vem atravéz desta certificar que o trabalho de desinfestação executado na Unidade UNICARGAS TERMINAL no dia 17/02/2023 pelos nossos técnicos Miguel Fortuna Francisco Viegas e Emanuel Tobias foi feito com sucesso. O mesmo Certificado serve como prova de conlusão do referido trabalho.

Por nos ter sido solicitado, passou-se o presente Certificado de Conclusão que serve como comprovativo de execução valido até ao dia 07/04/2023 e será entregue ao nosso cliente que certificará sobre o cumprimento do referido trabalho por nós efectuado, assinando e carimbando abaixo.

Sem outro assunto de momento, queiram por favor aceitar as nossas cordeias saudações.

Miguel Viegas

Supervisor Técnico

GRUPO J.A.J. LDA

A EMPRESA O CLIENTE

17/02/2023

Rua Santa Barbara nº 2, Bairro da Kinanga, Município das Ingombotas, Luanda- Angola.
Email: geral@grupojaj.co.ao
Telf: 222352229 Moveis: 923643792/914265217/923375854/930011345
NIF: 5401182309

11.2 Anexos II. Definições

As definições apresentadas no referido documento, refletem os diplomas nacionais e internacionais, em vigor aplicavéis na Unicargas, nomeadamente criterios de actuação e procedimentos operacionais. Assim, para o efeito do PGA/TPU entende por:

Ambiente – envolvente na qual uma organização actua, incluindo ar, água, solo, recursos naturais, flora, fauna, seres humanos e suas inter-relações;

Aspecto Ambiental – elemento das actividades, produtos ou serviços de uma organização que possam interagir com o meio ambiente;

Código IMDG - Código Maritimo Internacional para transporte de mercadorias perigosas, desenvolvido pela Organização Maritima Internacional IMO, para completar os principios estabelecidos na Parte A do Capitulo VII da Convenções Solas, relativa à Salvaguarda da vida no mar e no Anexo III da Convenção MARPOL.
O Código IMDG contém especificações técnicas detalhadas que permitem que as mercadorias perigosas possam ser transportadas por via marítima em condições de segurança;

Contaminante – Introdução no meio ambiente (água, solo ou ar) ou em alimentos, de organismos patogenicos, de substâncias tóxicas ou radioátivas em concentração nócivas a saúde, ou de elementos que possam afectar a saúde do homem (NBR 9.649/1986);

Desempenho Ambiental – resultados mensuráveis do sistema de gestão ambiental, relacionados com o controlo de uma organização dos seus aspectos ambientais, baseados na sua política, objectivos e metas ambientais;

Impacto Ambiental – Qualquer alteração no ambiente, adversa ou benéfica, resultante, total ou parcialmente, das actividades, produtos ou serviços de uma organização;

IMO ou OMI (International Maritime Organization ou Organização Marítima Internacional) – Órgão das Nações Unidas que legisla sobre a segurança Marítima Internacional;

IMDG (International Maritime Dangerous Goods) – Segurança no transporte de mercadorias perigosas por via marítima;

MARPOL 73/78 – é a principal convenção internacional que abrange a prevenção da poluição do meio ambiente marinho de causas operacionais ou acidentais. A Convenção Marpol 73/78, tem 6 (seis) Anexos que compreendem as regulações para prevenir a contaminação por hidrocarbonetos, por substâncias nocivas perigosas, por águas de esgoto, por lixo gerado nos navios e pela contaminação do ar a partir dos escapes dos motores de combustão interna e as substâncias que prejudicam a camada de ozono;

Mercadorias Perigosas – Substâncias ou preparações que devido à sua inflamabilidade, eco toxicidade, corrosividade ou radioatividade, por meio de derrames, emissão, incêndio ou explosão podem provocar situações com efeitos negativos para a vida humana e ao meio ambiente;

Navios Porta Contentores – São navios de carga que transportam toda a sua carga em contentores;

Navios Ró-ró – São navios de carga que entra e saem por rolamento (Roll On – Roll Off). Eles podem ter uma rampa na popa, na proa ou de lado;

Poluente - qualquer substância que pela sua natureza e/ou concentração é suscetível de causar degradação do Ambiente;

Poluição da Água – A introdução nas águas sob jurisdição nacional, directa ou indirectamente, de substâncias de qualquer especie, de matéria ou energia nas águas quando produzam ou possam produzir efeitos nocivos, tais como a destruição ou danos aos recursos vivos e a vida marinha, riscos à saúde humana, danos às actividades económicas, deterioração da qualidade de água para consumo e danos as áreas de lazer costeiro em geral;

Prevenção da Poluição – utilização de processos, práticas, materiais e produtos que evitem, reduzam ou controlem a poluição, que podem incluir reciclagem, tratamento, alterações de processo, mecanismos de controlo, utilização eficiente de recursos e substituição de materiais.

Os benefícios potenciais da prevenção da poluição incluem a redução de impactos ambientais adversos, eficiência e a redução de custos;

Procedimentos – documentos que especificam quais as actividades que é necessário desenvolver para que se cumpram os requesitos do sistema, que registos ou documentos serão gerados e quem são os responsáveis pelo desenvolvimento dessas actividades;

Residuos hospitalares – residuos produzidos em unidades de prestação de cuidados de saúde, incluindo os resultantes das actividades de diagnostico, tratamento e investigação humana e veterinária.

Resíduos urbanos – residuos provenientes de habitações ou outros resíduos semelhantes, em razão da sua natureza ou composição nomeadamenteos provenientes do sector de serviços ou estabelecimentos comerciais ou industriais e unidades prestadoras de serviço de saúde, desde que em qualquer dos casos, a produção diária não exceda os 1.100 litros por produtor.

Reutilização – reintrodução, em utilização análoga e sem alterações, de substâncias, objectos ou produtos nos circuitos de produção ou de consumo, de forma a evitar produção de resíduos.

Resíduos associádos à carga – restos de materiais/produtos usados para a conservação da carga.

Solo contaminado – todo aquele cuja as caracteristicas físicas, químicas e biologicas, foram alteradas negativamente pela presença de componentes de caracter perigoso de origem humana, em tal concentração que comporte um risco para a saúde humana ou para o ambiente, de acordo com critérios e padrões determinados pelo Governo.

Terminal Portuário – Instalação dedicada a navios de carga ou de passageiros.

4. Annex 4. Environmental Operating License. Port of Luanda

REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE OPERAÇÃO

Nº 17200623232

Nos termos do Decreto Presidencial nº 117/20 de 22 de Abril sobre Regulamento Geral de Avaliação de Impactes Ambientais e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes Ambientais, nomeadamente apresentação do Instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para execução e operação do projecto.

É passada a Licença Ambiental de Operação, do projecto denominado:
Empresa Portuária de Luanda-Administração e Infra-Estrutura - Município de Luanda, Província de Luanda.
Operado pela **Empresa Portuária de Luanda E.P**
Confirma-se a não existência de potenciais impactes ambientais negativos no decorrer do desenvolvimento do projecto a desenvolver na província de **Luanda**, que se enquadra na categoria B de Projectos de Infra-Estrutura.

Emitida em, 24 Outubro de 2023	**Válida até,** 23 de Outubro de 2028

Assinatura

(Ministra)
ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

A autenticidade deste documento poderá ser verificada através dos passos a seguir: 1. Aceda ao Portal Minamb (https://sia.minamb.gov.ao/validacaodocumentos)
2. Introduza o código **LOPE-5265048210d4a7820** no campo "Código de Validação"
3. Clique em "Pesquisar"
Número da Licença: 17200623232

República de Angola Ministério do Ambiente	**ANEXO** **Número da Licença: 17200623232** **Página 1 de 7**

Gabinete da Ministra

Medidas de Mitigação

É emitida a Licença Ambiental do Projecto denominado por **Empresa Portuária de Luanda-Administração e Infra-Estrutura** da empresa **por Empresa Portuária de Luanda E.P:**

1.Medidas de Mitigação (C):

1.1 Nos termos da Legislação em vigor deve o proponente cumprir com o seguinte:

1.1.1 A Licença Ambiental de Instalação precede à Licença Ambiental de operação;

1.1.2 Obrigatoriedade de informar a entidade responsável pela política do ambiente, no prazo de 24 horas, de qualquer incidente que afecte consideravelmente o ambiente;

1.1.3 O requerimento para renovação da Licença Ambiental deve ser submetido ao Departamento Ministerial responsável pelo Sector do Ambiente ou ao Órgão Provincial competente, até 90 dias antes do termo de validade da Licença Ambiental;

1.1.4 As ampliações ou alterações das instalações para efeitos de aumento da produção ou melhoria de qualidade requerem licenciamento ambiental;

1.1.5 O proponente responde civil e criminalmente sempre que:

a) Não submeter a sua actividade ao processo prévio de licenciamento ambiental;

b) Altere a actividade inicial após a emissão da licença ambiental sem prévia autorização da entidade competente;

c) Apresentar informação fraudulenta, adulterada ou omissa durante o processo de AIA;

d) Não implemente as medidas propostas nos estudos técnicos, bem como a não observância das condições de licenciamento ambiental;

e) Não proceder à actualização da licença ambiental.

1.1.6 No âmbito do licenciamento ambiental, constitui infracção ambiental punível com multa:

a) O início da implementação e operação de actividades e alterações das instalações antes de emitida a competente licença ambiental;

b) A alteração do sistema de produção ou de exploração sem a devida licença ambiental.

DIÁRIO DA REPÚBLICA - I SÉRIE Nº 84 DE 13DE JULHO DE 2007

1.2 Medidas de Protecção do Ar e Ruído para o Controlo de Emissões

1.2.1 Criação de boas práticas de eficiência energética e fontes renováveis de energia;

1.2.2 Dar preferência a iluminação do exterior do projecto para *LED´s*;

1.2.3 Trocar progressivamente lâmpadas ineficientes por lâmpadas eficientes e instalar dispositivos de controlo (sensores de luz e sensores de movimento);

1.2.4 Realização de Campanhas de fornecimento de lâmpadas eficientes e dispositivos de controlo (sensores de luz e sensores de movimento) ao nível doméstico;

1.2.5 Promover a troca de geradores a gasóleo por turbinas a gás natural;

1.2.6 Promover aplicação de tecnologias solares e solares fotovoltaicas para produção de eletricidade e calor nas Instalações da empresa;

1.2.7 Os topos dos respiradores, abertos para atmosfera e em local visível, deverão estar munidos de tapa-chamas em rede de arame e libertar os gases a uma altura do solo igual ou superior a 4 m;

1.2.8 Deverá efectuar-se manutenção adequada da frota de veículos, reduzindo as emissões excessivas de gases e de partículas provenientes dos veículos e geradores móveis;

1.2.9 Pulverizar as áreas externas com solo descoberto;

1.2.10 As emissões de partículas podem ser controladas pelo uso de equipamentos de aspiração e separação mediante o uso de ciclones;

1.2.11 Instalação e manutenção dos filtros de manga nos sistemas dos geradores e equipamentos de emissões de gases poluentes;

1.2.12 Os equipamentos ruidosos devem ser instalados em compartimentos fechados, dotados de condicionamento acústico e saídas de exaustão/ventilação dos sistemas de acondicionamento de ar;

1.2.13 Os equipamentos sonoros e máquinas deverão ter a sua potência sonora, bem identificada e cumprir com os limites considerados admissíveis;

1.2.14 Controlar a velocidade de circulação das viaturas pesadas, de modo a minimizar a ressuspensão de partículas e os níveis de ruído;

1.2.15 Manter o nível de ruído dentro de limites aceitáveis e as actividades de construção devem, sempre que possível, ser limitadas ao horário normal de trabalho. Sempre que se considerar que se irão ultrapassar, ou se ultrapassem os limites aceitáveis, devem instalar-se silenciadores para máquinas e equipamentos e barreira insonorizadoras nos locais passive de produzir ruído;

1.2.16 Utilizar chaminés com filtros apropriados nos geradores para minimizar a emissão de poluentes atmosféricos;

1.2.17 Planear acções de comunicação e informação à população relativamente à possibilidade de ocorrência de actividades geradoras de maiores níveis de ruído.

ANGOLA

1.3 Solos e Uso do Solo

1.3.1 Implementar medidas preventivas, para adopção de um planeamento prévio em qualquer actividade ligada ao uso do solo, para a prevenção dos processos erosivos;

1.3.2 Todas as superfícies onde são manuseados combustíveis e potenciais poluidores, devem estar em superfície lisa e impermeável;

1.3.3 Instituir procedimentos internos relativamente aos derrames acidentais e encaminhamento dos solos ou material absorvente eventualmente contaminados para destino adequado;

1.3.4 Limpar todos os pequenos derrames que ocorram na área, de forma a minimizar os impactes sobre o solo e não só. Devem ser desenvolvidos procedimentos de gestão de derrames, incluindo procedimentos de limpeza remoção, depósito/armazenamento e eliminação.

1.4 Medidas de Prevenção e Controlo de Gestão de Águas

1.4.1 A colecta semestral de amostra dos poços de monitoramento para verificação da qualidade da água subterrânea, controle e detecção de vazamentos do sistema de abastecimento subterrâneo de combustíveis, devendo ser apresentado o Plano de Gestão Ambiental Trimestral ao Ministério do Ambiente.

1.4.2 Fica Proibido a alteração dos regimes de escoamento dos cursos naturais de água. Fica Proibido a alteração dos regimes de escoamento cursos naturais de água;

1.4.3 Prevenir a potencial contaminação do meio hídrico, não permitindo a descarga de poluentes (óleos, lubrificantes, combustíveis, produtos químicos e outros materiais) e evitando o seu derrame acidental;

1.4.4 Deve o proponente adoptar práticas que permitem controlar e reduzir o consumo de água instalando equipamentos que permitem por si só a redução do consumo de água (por exemplo, utilizar torneiras com redução de caudal ou torneiras de pressão);

1.4.5 Implementação de separadores de hidrocarbonetos para a separação da fração aquosa e da fração contaminada com óleos e hidrocarbonetos, permitindo assim a descarga da primeira e a remoção periódica da segunda fração;

1.4.6 As águas residuais devem ser drenadas para uma bacia de retenção, impermeabilizada e isolada da rede de drenagem natural;

1.4.7 Instalação de caleiras para o aproveitamento de água das áreas condicionadas, bem como das pluviométricas para o combate a incêndio, lavagem dos pavimentos, lavagem das viaturas, rega dos espaços verdes;

1.4.8 Sensibilizar os colaboradores para a adopção de medidas que conduzam a um consumo de água mais eficiente;

1.4.9 Criar um sistema de monitorização da qualidade da água para o consumo nas principais fontes de água potável.

1.5 Medidas de Controlo e Gestão de Resíduos

1.5.1 Implementação de Plano de Gestão de Resíduos, de acordo com a legislação em vigor nomeadamente o Decreto Presidencial nº190/12 de 24 de Agosto, referente ao Regulamento sobre Gestão de Resíduos;

1.5.2 O processo de identificação e acondicionamento de resíduos perigosos deve ser efectuado de acordo Decreto 190/12 de 24 de Agosto, sem prejuízo da aplicação do Regulamento Sanitário Nacional, Regulamento de

Radioprotecção para garantir a sua conformidade e harmonia com os princípios e normas internacionais assumidas pelo País sobre gestão de resíduos perigosos, bem como sobre o transporte de substâncias ou produtos perigosos;

1.5.3 Os resíduos perigosos devem ser empacotados ou acondicionados de acordo com as normas técnicas a estabelecer. Devem ser efectuados segundo percursos definidos por instruções específicas sobre acondicionamento de resíduos perigosos, devendo no mínimo serem contidos em recipiente com capacidade para:

a) Resistir às operações normais de armazenagem e de transporte;
b) Manter selado o conteúdo para que não vaze;
c) Não serem danificados pelo seu conteúdo;

Não formarem substâncias prejudiciais ou perigosas quando em contacto com o seu conteúdo;

d) Serem devidamente identificados com os símbolos previstos no Anexo V do presente Regulamento DP 190/12 de 24 de Agosto.

1.5.4 Para além das condicionantes acima descritas, devem ser ainda observados os seguintes cuidados especiais para as seguintes categorias de resíduos:

a) As substâncias autoinflamáveis devem ser acondicionadas em recipientes hermeticamente fechados;
b) As substâncias que libertam gazes inflamáveis quando em contacto com água, devem ser acondicionadas em locais livres de humidade;
c) As substâncias radioactivas, devem ser acondicionadas em recipientes construídos de tal maneira que as radiações por estas emitidas sejam limitadas a uma quantidade mínima e eficientemente protegidas em áreas completamente seladas, de modo a que, não haja qualquer possibilidade de os trabalhadores ou o público em geral terem contacto com os isótopos de acordo com as normas internacionais supervisionadas pela Agência Internacional de Energia Atómica - AIEA.

1.5.5 Contratar uma empresa efectiva que se ocupa do tratamento de limpeza e manutenção das fossas sépticas que esteja registada na Agência Nacional de Resíduos para efectuar tais trabalhos;

1.5.6 Criação de uma zona apropriada para o armazenamento dos resíduos;

1.5.7 Reforçar e documentar um programa de limpeza periódica da área do gerador, e dar o devido encaminhamento dos resíduos obtidos, como os filtros, os óleos queimados, para um destino ambientalmente correcto;

1.5.8 Assegurar que resíduos são colocados em contentores próprios e encaminhados para destino adequado por operadores licenciados para o efeito, não permitindo que estes equipamentos ultrapassem os 90% da sua capacidade;

1.5.9 Assegurar a instalação em todos os lugares de depósito de combustíveis, lubrificantes ou outras substâncias químicas, sejam manipuladas, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados;

1.5.10 Colocação de bacias de retenção e equipamento com material absorvente no grupo de geradores e no depósito de combustível;

1.5.11 Deve-se proceder à monitorização das quantidades específicas e tipos de resíduos produzidos, para que seja possível implementar acções de minimização e redução dos impactes na fonte;

1.5.12 Inspecção e manutenção periódica da rede de encaminhamento de

águas residuais quer para o separador de hidrocarbonetos quer para as fossas sépticas;

1.5.13 Estabelecer uma área devidamente impermeabilizada dedicada somente para alocação de contentores para acondicionamento dos resíduos;

1.5.14 A deposição final dos resíduos deverá ser feita por uma empresa Licenciada pelo Ministério do Ambiente.

1.6 Medidas de Protecção de Derrames e Incêndios

1.6.1 Instalações eléctricas devem ser mantidas em bom estado;

1.6.2 O quadro eléctrico deve ficar fora da área de armazenamento e os fios eléctricos devem estar em calhas apropriadas para prevenir os curto-circuitos que constituem as causas da maioria dos incêndios;

1.6.3 Sinalização das áreas e estantes, além dos locais dos extintores de incêndio, precisam ser identificadas;

1.6.4 Verificar a possibilidade de instalação de um sistema de bombagem dos óleos lubrificantes, diminuindo assim a possibilidade de derrames acidentais, uma vez que os sistemas mecânicos são menos falíveis do que a interacção humana;

1.6.5 Deve ser prevista a contenção/retenção de eventuais derrames considerando a quantidade de combustível armazenada no empreendimento, disponibilizar Kit's de contingência em todas as áreas susceptíveis de ocorrer incidentes e implementar um plano de formação do pessoal, resposta a incidentes para prontidão em caso de ocorrência de derrames;

1.6.6 A empresa deverá fornecer a todos os compartimentos com susceptibilidade de risco, equipamentos de combate a incêndios devidamente testados e aprovados;

1.6.7 Extintores de incêndio devem ser adequados aos tipos de materiais armazenados e devem estar fixados nas paredes e sinalizados conforme normas vigentes;

1.6.8 Implementação de uma Rede de Combate a Incêndios composta por detectores de fumo, bocas de incêndio, extintores e outros com a orientação do Serviço Nacional de Protecção Civil e Bombeiros;

1.6.9 Colocação do sinal de ponto de concentração para em caso de emergência;

1.6.10 Deve o proponente desenvolver e implementar um Plano de Emergência que defina as medidas preventivas e os procedimentos a adoptar em situações de emergência;

1.6.11 Deve-se assegurar que todos os locais de instalação dos depósitos de combustíveis, lubrificantes ou outras substâncias químicas, assim como todas as áreas onde estes sejam manipulados, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados, para poderem reter o volume máximo de líquido susceptível de ser derramado.

1.7 Socioeconomia

1.7.1 Zelar pela rigorosa observância e os Direitos das comunidades locais na zona de inserção do projecto;

1.7.2 Deverá respeitar as leis de Segurança e Protecção no trabalho, de acordo com as directrizes do Decreto nº 128/04 de 23 de Novembro que aprova o Regulamento Geral de Sinalização de Segurança e Saúde no trabalho;

3. Sistema de Gestão Ambiental (e)

3.1 Deverá o proponente implementar um Plano de Gestão Ambiental (PGA) de caráter operacional, que visa garantir que o projecto ou partes do projecto sejam executadas de forma a ter em conta os requisitos ambientais que levem a prevenção e minimização do impacte ambiental associado à efectiva execução do mesmo.

3.2. Apresentação dos Programas de Monitorização Ambiental Trimestral ao Ministério do Ambiente, de acordo o Termo de Referência Anexo, este deve incluir:

a) Programa de Gestão da Qualidade do Ar, Solo e Água;
b) Programa de Gestão de Resíduos e Efluentes;
c) Programa de Combate a Incêndios;
d) Plano de Contingência a Derrames;
e) Programa de Treinamento de Conscientização Ambiental.

3.2Nota: Deve a empresa enviar à entidade licenciadora, no prazo de 30 dias o Plano de Acção detalhado, incluindo medidas e acções concretas, cronograma e recursos a utilizar para a implementação das Medidas de Compensação. Com a aprovação do Plano de Acção, as Medidas e Acções Propostas deverão ser imediatamente implementadas pela empresa.

4. Observação

4.1 Segundo Decreto nº 117/20 de 22 de Abril, as actividades sujeitas a Avaliação de Impacte Ambiental estão igualmente sujeitas a Auditoria Ambiental definida por directrizes e prazos estabelecidos pelo Ministério Do Ambiente. O que pressupõe que durante todo o período de vigência desta licença, o proponente deve incluir no orçamento anual, despesas relacionadas com Auditorias Públicas a serem realizadas pelo Ministério do Ambiente.

Assinatura

ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

(Ministra)

República de ANGOLA

5. Annex 5. Solid Waste Management Plan of the Unicargas Multipurpose Terminal (*Plano de Gestão de Residuos Sólidos do Terminal Polivalente da Unicargas*)

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

AGÊNCIA NACIONAL DE RESÍDUOS

CERTIFICADO

Conformidade do Plano de Gestão de Resíduos

N.º **557** / **2023**

A Agência Nacional de Resíduos, em conformidade com as competência conferidas pela alínea g) do n.º 1 do artigo 5.º do Decreto Presidencial n.º 181/14, de 28 de Julho, que aprova o Estatuto Orgânico da Agência Nacional de Resíduos;

Tendo sido cumpridas as disposições consignadas pelo artigo 7.º do Decreto Presidencial n.º 190/12, de 24 de Agosto, que aprova o Regulamento sobre a Gestão de Resíduos;

Certifica que foi aprovado o Plano de Gestão de Resíduos a favor de **UNICARGAS, LDA TERMINAL POLIVALENTE DA UNICARGAS** Contribuinte Fiscal n.º **5410003136**, estabelecimento localizado no Bairro **INGOMBOTA** Distrito **INGOMBOTA**, Município **INGOMBOTA**, Província **LUANDA**, em observância ao exposto nas disposições constantes nos diplomas supra mencionados.

Emitido em **10** / **11** **2023** Válido até **09** / **11** / **2027**

O(A) Presidente do Conselho de Administração

Título	**Plano de Gestão de Resíduos Sólidos do Terminal Polivalente da Unicargas (PGRS/TPU)**
Observação	Documento interno Observação: Para enviar este documento para fora da empresa, e necessária a aprovação do gerente principal: **CCG**.

PLANTA DE ARRANJO GERAL

LUANDA-ANGOLA

APRESENTAÇÃO

De acordo com a legislação em vigor (Decreto 117/20 de 22 de Abril), os projectos capazes de causar efeitos no ambiente deverão ser sujeitos a um procedimento de Licenciamento Ambiental.

O presente Plano de Gestão de Resíduos foi elaborado de acordo as directrizes do Decreto Executivo 190/12 de 24 de Agosto, que regulamenta a Gestão de Resíduos sólidos à nível do Território Nacional.

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INTRODUÇÃO

Um dos principais problemas com que actualmente todos os gestores de empresas se deparam é o balanço necessário entre desenvolvimento económico e a manutenção da protecção do ambiente.

Sendo que as duas não são, de todo, incompatíveis, muitas vezes as melhores técnicas disponíveis e os novos avanços da ciência, área em constante mutação, podem passar despercebidos àqueles que, devido à exigência do seu trabalho e às preocupações diárias, pouco tempo têm para se manter constantemente actualizados a uma realidade que por vezes se encontra distante e em constante mudança.

Por outro lado, a forma de resíduos sólidos e emissões gasosas, liquidas entre outras, têm um impacte profundo na contabilidade das empresas, e no ambiente.

Por esse motivo, o presente Plano de Resíduos foi elaborado por meio de colecta de dados da organização com base no estudo das actividades desempenhadas, com o subsídio do Decreto Presidencial 190/12 de 24 de Agosto que estabelece as regras gerais relativas a produção e depósito, lançamento para água ou atmosfera, ao tratamento, recolha, armazenamento e transportação de quaisquer resíduos, de modo a prevenir ou minimizar os seus impactes sobre a saúde das pessoas e no ambiente.

O objectivo principal da criação deste plano é a Obtenção do Certificado de gestão de Resíduos. A entidade Licenciadora é a Agência Nacional de Resíduos.

1 DADOS GERAIS DA INSTALAÇÃO DO TERMINAL POLIVALENTE DA UNICARGAS

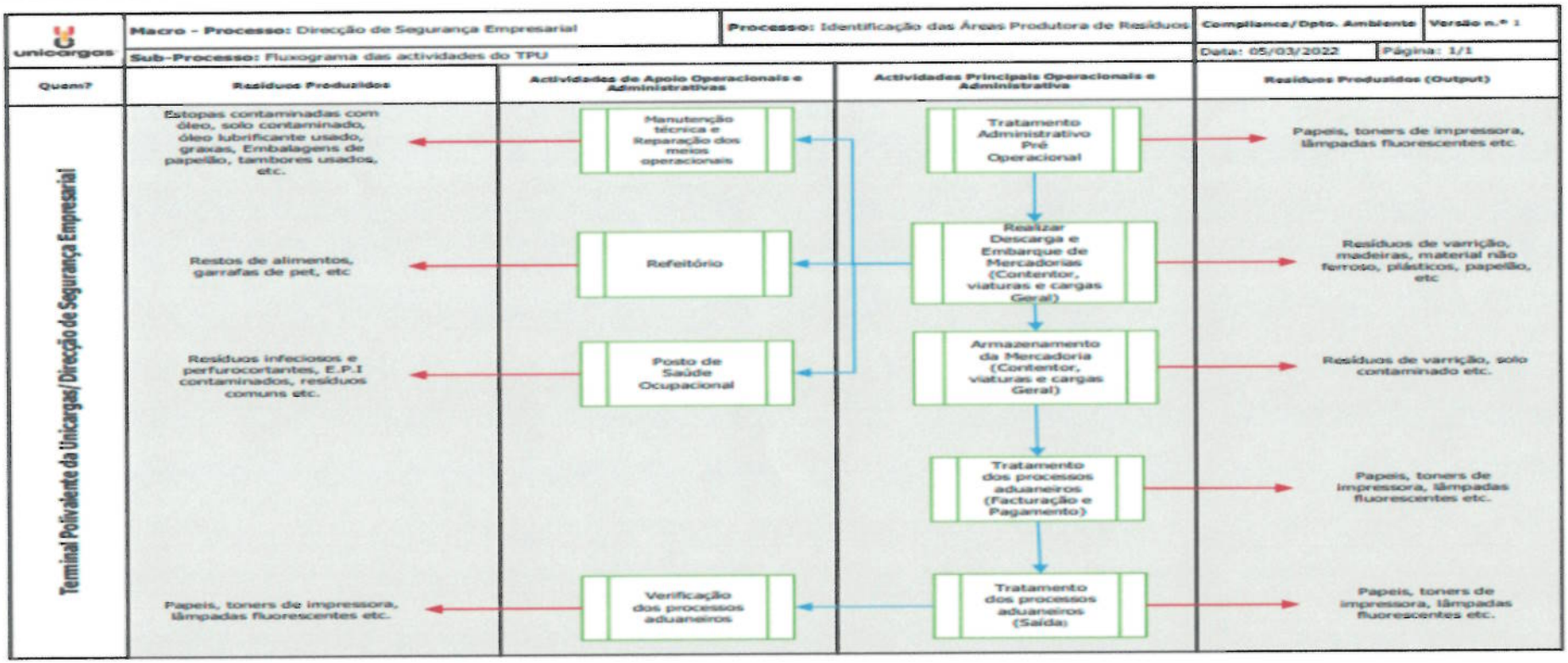
Razão Social: Operadora de Terminais	**Nome Fantasia**: Terminal Polivalente da Unicargas
Endereço: Rua de Cintura do Porto	Municipio: Município da Ingombota
NIF: 5410003136.	**Telefone**: 00244 912 212 090
Email: www.unicargas.co.ao	**Caixa Postal:** 3965
Área Total: 178.641m²	**Nº de Funcionários**
	Próprios: 298 / **Terceiros**: 357
Cais acostável: 536 m²	**Armazéns:** 02
Zonas de armazenamento: 7.268m²	**Cais de Operação: 03**
Calado: Apro. -10m	**Oficinas de Manutenção: 01**
Acessos de Emergência: 02	**Gerador:** 01
Responsável Legal: Joaquim Nazaré Pimentel da Piedade	**Cargo**: Coordenador da Comissão de Gestão da Unicargas
Responsável pela implantação do Plano: Edivaldo Januário.	**Cargo**: Director da Direcção Segurança Empresarial
Ludmila Campos Ferreira – Engenheira Ambiental	Responsável do Departamento de Ambiente da Direcção de Segurança Empresarial
Revisto por: Edivaldo Januário – PFSO Principal	**Cargo**: Director da Direcção de Segurança Empresarial
Descrição da actividade: O Terminal Polivalente da Unicargas-EP, é um terminal multifunctional que opera 24 horas por dia, 365 dias por ano, possibilita a movimentação e armazenamento de todo tipo de carga diversos, tipos de embarcações e navios, suas actividades são essencialmente de cariz operacional e administrativas.	

1.1 Equipe Técnica de Elaboração

PLANO DE GESTÃO DE RESÍDUOS SOLIDOS DO TERMINAL POLIVALENTE DA UNICARGAS	**Versão nº:** 001DSE_2022
	Revisão nº 001
	Data: 20 de Maio de 2022
Elaborado por: DCBI Consultoria Ambiental	**Endereço:** Bairro Projecto Nova Vida, Municipio de Kilamba Kiaxi, Luanda
Contactos: +244 936346074	**Email:** dcbi2018@gmail.com
Coordenadora: Engª. Rosa Gabriel	**Especialidade**: Engenheira Ambiental e Gestão do Território

1.2 Fluxograma das actividades desenvolvidas no TPU

Fig. 1.2..1. Fluxograma das actividades do Terminal Polivalente da Unicargas



As actividades desenvolvidas no Terminal Polivalente da Unicargas, abrangem particularidades que são consideradas para a gestão ambiental da Instalação. A figura 1.2.1 apresenta o fluxograma das actividades principais e de apoio contida nos diferentes processos ocorridos no Terminal Polivalente, cuja saídas em cada actividade resultam na produção de diversos tipos de resíduos.

2 DEFINIÇÕES

As definições apresentadas no referido Plano de Gestão de Resíduos, refletem os diplomas nacionais e internacionais, em vigor aplicavéis e a realidade do controlo de resíduo implementados no Terminal Polivalente da Unicargas, nomeadamente criterios de actuação e procedimentos operacionais. Assim, para o efeito do PGR/TPU entende por:

Aproveitamento ou Valorização – todo o procedimento que consista na utililização de residuos ou componentes destes, por meio de processos de refinação, recuperação, regeneração, reciclagem, reutilização, ou qualquer outra acção com o objectivo de reintroduzir os residuos no circuito de produção e/ou consumo em utilização análoga, sem qualquer alteração dos mesmos, e desde que não ponha em perigo a saúde humana.

Armazenagem – deposição tempóraria e controlada por prazo indeterminado, de resíduos, anterior ao seu tratamento, valorização ou eliminação.

Aterros – instalações de eliminação utilizadas para a deposição controlada de resíduos, acima ou abaixo da superficíe do solo.

Detentor – produtor de resíduos, a pessoa física ou jurídica que os tenha em seu poder.

Central de resíduos – Local destinado ao armazenamento temporário dos resíduos sólidos.

Deposição – destino final a dar aos resíduos que não sejam objecto de valorização ou eliminação.

Deposição adequada – deposição em condições estanques e de higiene (contentores limpos e sempre de tampa fechada), se possivel em sacos de plástico ou de papel de forma a evitar a sua disperção na via publica.

Gestão de Resíduos – todos os procedimentos viáveis com vista a assegurar uma gestão ambientalmente segura, sustentável e racional dos resíduos, tendo em conta a necessidade da sua redução, reciclagem e reutilização, incluindo a separação, recolha, transporte, armazenagem, tratamento, valorização e eliminação dos resíduos bem como a posterior protecção dos locais de eliminação, de forma a proteger a saúde humana e o ambiente contra os efeitos nocivos que possam advir dos mesmos.

Guia de remessa de Residúos – Formulário que confirma a tipologia, quantidade de residuos recolhidos e o destino final.

Plano de Gestão de Resíduos – documento que contém informação técnica sistematizada sobre as operações de recolha, transporte, armazenamento, tratamento, valorização ou eliminação de residuos, incluindo a monitorização dos locais de descarga durante e após o encerramento das respectivas instalações, bem como o planeamento dessas operações.

Produtor de Resíduo – qualquer pessoa, singular ou colectiva cuja actividade produza resíduos.

Recolha – operação de colecta,triagem e/ou mistura de resíduos, com vista ao seu transporte para uma instalação de tratamento ou deposição de resíduos.

Resíduos – substâncias ou objectos de que o detentor se desfaz ou tem a intenção ou obrigação legal de se desfazer, que contêm carcteristicas de risco por serem inflamáveis, explosivas, corosivas, tóxicas, infecciosas ou radioactivas ou por apresentarem qualquer outra carteristica que constitua perigo para vida ou saúde das pessoas e para o ambiente conforme a lista de resíduos estabelecida.

Resíduos perigosos – resíduos que contêm uma mais caracteristicas de risco por serem inflamáveis, explosivos, corrosivos, tóxicos, infecciosos ou radioactivos, ou por apresentarem qualquer outra caracteristica que constitua perigo para a saúde humana e de outros seres vivos e para a qualidade do ambiente, bem como aqueles que sejam aprovados ou considerados para tal, por tratados e convenios internacionais e que Angola tenha ratificado.

Resíduos urbanos – residuos provenientes de habitações ou outros resíduos semelhantes, em razão da sua natureza ou composição nomeadamenteos provenientes do sector de serviços ou estabelecimentos comerciais ou industriais e unidades prestadoras de serviço de saúde, desde que em qualquer dos casos, a produção diária não exceda os 1.100 litros por produtor.

Reutilização – reintrodução, em utilização análoga e sem alterações, de substâncias, objectos ou produtos nos circuitos de produção ou de consumo, de forma a evitar produção de resíduos.

Resíduos especiais – os resíduos com carcteristicas especificas, designadamente, embalagens, resíduos de equipamentos elétricos e electrónicos, veículos em fim de vida, resíduos de construção e demolição, pilhas, pneus, óleos minerais e outros, que devem ser objecto de recolha e tratamento específico.

Resíduos de Jardins – os resultantes da conservação de jardins particulares tais como aparas, ramos, troncos ou folhas.

Resíduos associádos à carga – restos de materiais/produtos usados para a conservação da carga.

Solo contaminado – todo aquele cuja as caracteristicas físicas, químicas e biologicas, foram alteradas negativamente pela presença de componentes de caracter perigoso de origem humana, em tal concentração que comporte um risco para a saúde humana ou para o ambiente, de acordo com critérios e padrões determinados pelo Governo.

Terminal Portuário – Instalação dedicada a navios de carga ou de passageiros.

Transporte – qualquer operação de transferencia fisica dos residuos dentro do território nacional.

Tratamento – processos mecânicos, fisicos, térmicos, químicos ou biológicos incluindo separação, que alteram as carcteristicas dos residuos de forma a reduzir o seu volume ou perigosidade e a facilitar a sua deposição.

3 ENQUADRAMENTO LEGAL

3.1 Legislação

- **Decreto Presidencial nº 190/12 de 24 de Agosto "Regulamento sobre a Gestão de Resíduos"** estabelece as regras gerais relativas à produção, depósito no solo e no subsolo, ao lançamento para água ou para atmosfera, ao tratamento, recolha, armazenamento e transportação de quaisquer resíduos, excepto os de natureza radioactiva ou sujeito à regulamentação específica, de modo a prevenir ou minimizar os seus impactes negativos sobre a saúde das pessoas e no ambiente, sem prejuízo do estabelecimento de regras que visem a redução, reutilização, reciclagem, valorização e eliminação de residuos.

- **Decreto Presidencial nº 194/11 de 7 de Julho "Regulamento sobre Responsabilidade por Danos Ambientais"** estabelece a responsabilidade pelo risco e degradação do ambiente baseando no principio do poluidor-pagador, para prevenir e reparar danos ambientais.

- **Decreto Presidencial nº 194/12 de 21 de Junho "Regulamento para a prevenção e Controlo da Poluição das Águas Nacionais"** estabelece o regime de prevenção, vigilância e controlo da poluição das águas nacionais por poluentes provenientes em particular de navios, embarcações plataformas e estabelecimentos industriais.

- **Decreto nº 53/03 de 11 de Julho "Regulamento de Exploração dos Portos de Angola"** no seu artigo 39º do cap. III, institui responsabilidade aos operadores portuários à limpeza das instalaçõesbem como a remoção do lixo, residuos ou outros materiais resultante da movimentação de mercadorias.

- **Regulamento Ambiental do recinto portuário**, institui um conjunto de normas destinadas à protecção do meio ambiente, no decurso das actividades portuárias, com vista a garantir a sua preservação, nomeadamente no que concerne à saúde, água, solo, ar, ecossistemas e atmosfera.

3.1.1 Convenções Internacionais Aplicáveis

- **Convenção MARPOL-73/78 "Prevenção da Poluição por Navios"** dedica-se a prevenção à prevenção da poluição do meio marinho por navios considerando cenários operacionais de rotina ou acidentais.

- **Código IMDG "Transporte de Mercadorias Perigosas"** estabelece todas as condições para o acondicionamento, embalagem, rotulagem, documentação, estiva e todo o processo até ao destinatário que sejam relativos as mercadorias perigosas de forma a oferecer maior cuidados e menores riscos de acidentes à carga.

3.2 Elaboração, Aprovação, Implementação e Revisão

O Terminal Polivalente da Unicargas, através da Direcção de Segurança Empresarial (DSE), é responsável por zelar pela aplicação dos procedimentos de tratamento de residuos produzidos na instalação, bem como pela elaboração do Plano de Gestão de Residuos do TPU-2022 versão 001.

3.3 Registos

No processo de gestão de residuos da instalação do Terminal Polivalente da Unicargas, os impressos que geram registos são:

- Guia de remessa de residuos sólidos;
- Guia de remessa de residuos reaproveitáveis;
- Guia de remessa de residuos oleosos;
- Ficha de Controle de transporte Externo de Resíduos Sólidos;

4 DIAGNÓSTICOS DOS RESÍDUOS PRODUZIDOS NO TPU

4.1 Identificação, Origem, Caracterização e Volume

Os resíduos produzidos na instalação do TPU compreende todos os resíduos produzidos nas actividades administrativas, operação de movimentação da carga, oficinas, refeitório, varrição de vias e parques, atendimento à emergência, jardinagem, levando em consideração a sua identificação, classificação, caracterização, local de produção e volume.

4.2 Acondicionamento

Os resíduos produzidos em cada ponto da instalação, são disponibilizados em recipientes com tampa e adequados ao volume e ao tipo de resíduo, de forma a evitar a dispersão na instalação (Mapa 4.2.1).

Mapa 4.2.1. Formas de acondicionamento dos resíduos do TPU

Nº	Formas de Acondicionamento
01	Tambores de 200 litros com tampa
02	Tambores de outros tamanhos com tampa
03	Sacos plásticos 124 litros
04	Contentor de plástico de 240 Litros
05	Cestos de lixo de 10 litros

4.3 Recolha e Transporte dos Resíduos

4.3.1 Recolha e Transporte interno

A Recolha e transporte interno dos resíduos é realizado por técnicos da empresa CLEAN SYSTEM, responsável pela gestão interna de resíduos da instalação licenciada pela agência Nacional de Resíduos, atendendo as seguintes acções preventivas:

- Uso de E.P.I´s apropriados para a actividade;
- Uso de equipamentos/meios compatíveis com o volume do resíduo.

O transporte interno nos pontos de produção é feita por meios motorizados e carrinhos de rodas até a caçamba da central de resíduos, duas vezes por dia durante a semana excepto dias complementares e feriados.

4.3.2 Recolha e Transporte Externo

A recolha e transporte de resíduos para o exterior da instalação do TPU é garantida por operadores contratados e licenciadas pelo órgão ambiental da Agência Nacional de Resíduos, consoante a tipologia de resíduos a recolher sempre que o contentor antigir a capacidade máxima de segurança, e dando cumprimento das seguintes acções preventivas:

- Equipamento de transporte adequado e compatível ao volume do resíduo;
- Uso de E.P.I´s apropriados para a actividade;
- Protecção dos resíduos contra intempéries durante a saída da instalação;
- Assinatura da guia de remessa de recolha de resíduos sólidos pelo transportador e pelo técnico de Ambiente;
- Assinatura da Ficha de controle de transporte de resíduos.
- Apresentação do comprovativo de disposição final do resíduo.

A recolha de resíduos sólidos equiparados a urbanos é efectuada pela empresa Envirobac, desde 2020. Os resíduos de hidrocarbonetos ou contaminados com hidrocarbonetos, resíduos reaproveitáveis e resíduos perigosos são recolhidos por operadores licenciados.

O quadro 4.3.2.1. resume os principais resíduos transportados no período de 2019 à 2021, pelos operadores de gestão de resíduos na instalação do Terminal Polivalente da Unicargas.

Quadro 4.3.2.1. Principais resíduos transportados

RESÍDUO	Quantidade (m³/Un)	ANO 2019	ANO 2020	ANO 2021
Resíduos sólidos urbanos	(m³)	371	182,36	256,38
Óleo lubrificante usado	(m³)	1,1	2,9	1,8
Resíduos de Madeiras	(m³)	0,00001	0,00001	97,17
Tambores vazios contaminados com óleo	(m³)	0,6	0,36	0,56
Pneus usados	(Un)	0	10	42
Toners usados	(Un)	0	971	307
Resíduo plástico Garrafas de Pet´s	(m³)	0	0,00001	0,1
Baterias usadas	(Un)	41	0	15
Resíduo plástico (Bombonas de 5 e 20 litros)	(m³)	0	0,015	0,0046
Pilhas usadas	(m³)	0,00059	0,0011	0.0023
Resíduo plástico (Filmes de Plástico)	(m³)	0	0	0,2
Lâmpadas Fluorescente	(m³)	0,017	0,0028	0,0016

Face ao exposto, o quadro 4.3.2.2. resume os operadores de gestão de resíduos e respectivos contactos.

Quadro 4.3.2.1. Operadores e parceiros de recolha de resíduos da instalação do TPU

Nº	Empresa	Colaborador	Função	Contacto	Actividade
01	Clean System	Adilson Pinheiro	Director Geral	933200485	Recolha de resíduos sólidos no interior do TPU
02	Envirobac	Adilson Pinheiro	Coordenador das Operações	933200485	Recolha de resíduos sólidos para o exterior do TPU
03	Tonangol	Nuno Maria	Director Geral	930439008	Recolha de Toners de impressora usados
04	Nação Verde	Nuno Cruz	Coordenador das Operações	932904647	Recolha de garrafas de plásticos vazias
05	Angojordan	Dionisio Marcelino	Coordenador das Operações	931828141	Recolha de resíduos oleosos e outros resíduos sólidos reaproveitáveis.
06	Kikando	Helder Sebastião	Coordenador das Operações	942125994	Recolha de resíduos oleosos.
07	Zhongai Hentgtai	Aniha Moreira	Coordenador das Operações	935 150 813	Recolha de resíduos oleosos e outros resíduos sólidos reaproveitáveis.

4.4 Armazenamento Temporário

Os resíduos são armazenados em caçambas metálica roll on, protegido contra intempéries e mantidos em uma área bem ventilada, sobre o piso impermeabilizado e sinalizada como central e resíduos.

4.5 Quantificação dos Resíduos

O Terminal produz em média diária 0,91 m³ (zero virgula noventa e um metros cúbicos) de resíduos, e 333,2 (Trezentos e trinta e três virgula dois metros cúbicos) anualmente, cuja a quantificação é realizada por unidades e por meio de instrumentos de medição devidamente calibrados, conforme o comprovativo de disposição final de resíduo sendo registada na planilha de controle dos resíduos.

Os gráficos 4.5.1 e 4.5.2 ilustram a proporção de resíduos produzidos no Terminal Polivalente da Unicargas, considerando a classificação de tipologia.

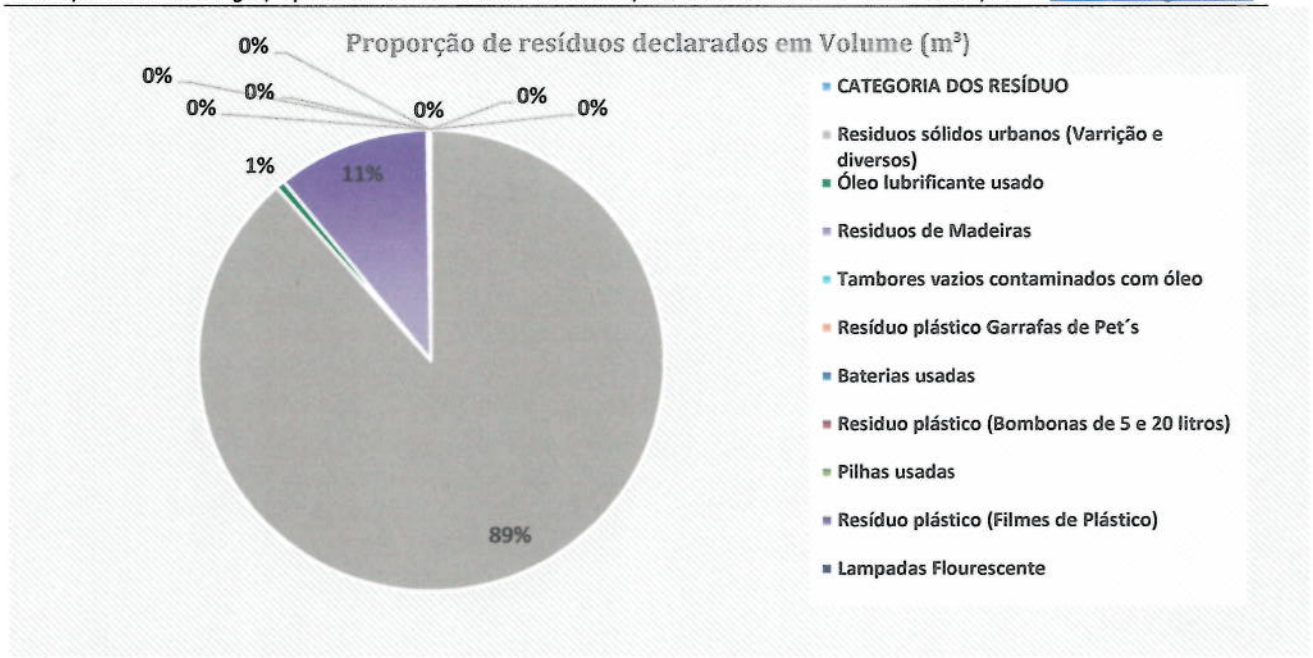


Gráfico 4.5.1. Proporção da produção de resíduos declarados em volume (metros cúbicos) no TPU

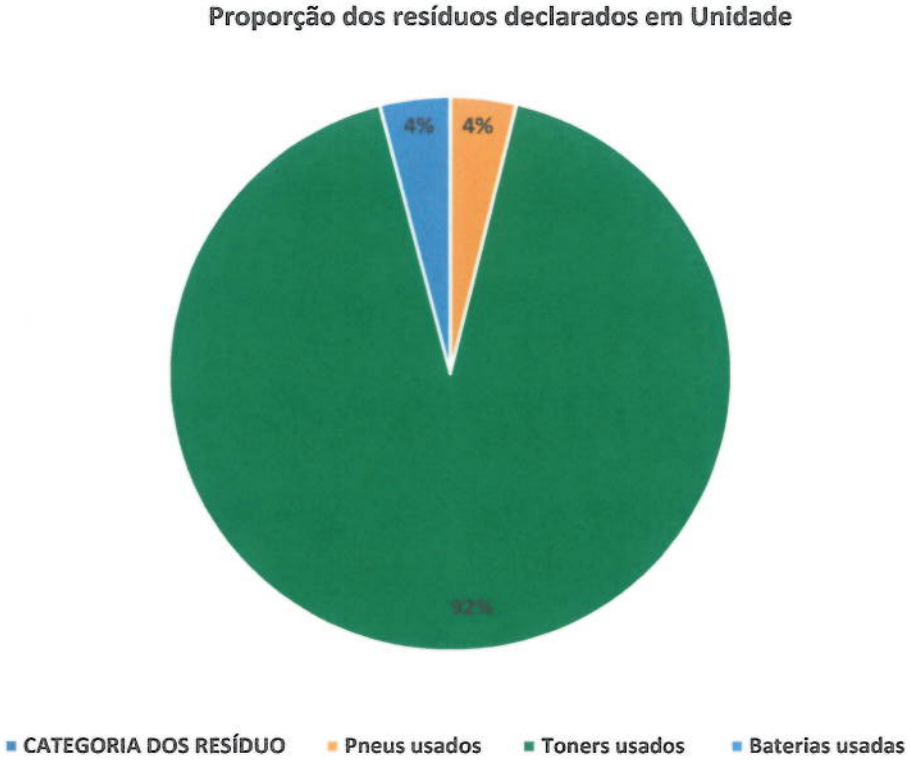


Gráfico 4.5.2. Proporção da produção de resíduos declarados em unidade no TPU

4.6 Destino Final

Os resíduos sólidos produzidos no Terminal Polivalente da Unicargas, têm como destino final diferentes fins tais como aterro sanitário, reaproveitamento, reciclagem e incineração. O envio dos resíduos para o seu destino final deve ser registado a quantidade e a destinação final na guia de remessa de resíduos.

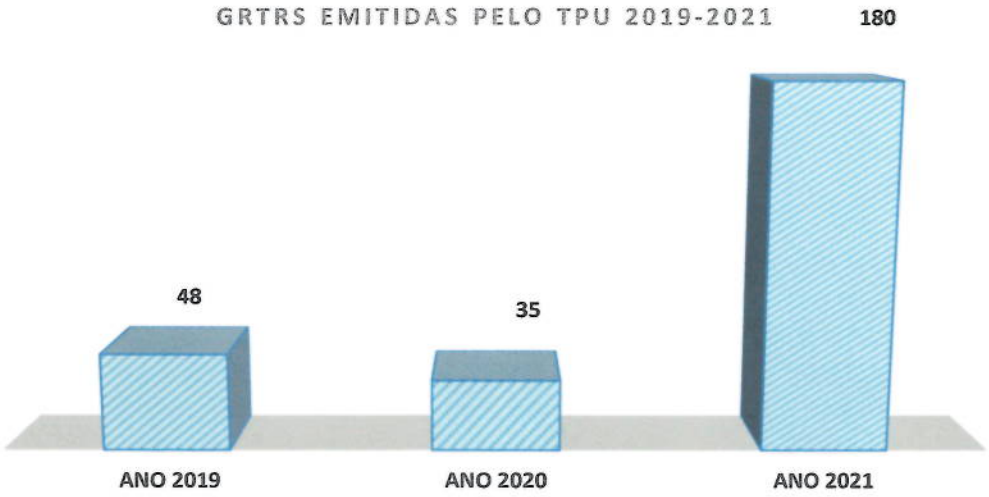


Gráfico 4.6.1- Quantidade de Guias de Remessa e transporte de resíduos emitidas pelo TPU

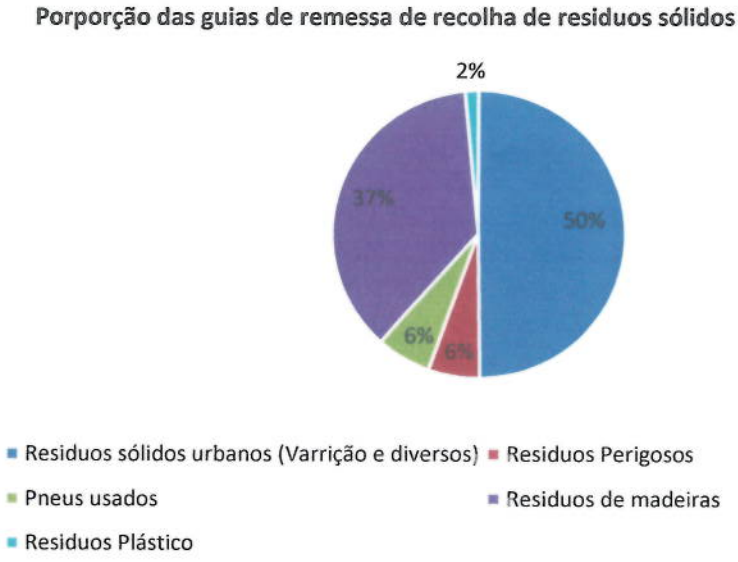


Gráfico 4.6.2- Quantidade proporcional das Guias de Remessa e transporte de resíduos emitidas pelo TPU

4.6.1 Planilha de Diagnostico dos Resíduos do TPU

Tabela 4.7.1. Planilha de Diagnostico resíduos do TPU (Local de produção, acondicionamento e armazenamento)

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
01	Resíduos de Papelões	20.01.01	Caís de Atracação	Papelão	Sólido	Granel; Caçamba	Caçamba interna; Área temporária de Resíduo.
02	Resíduos de varrição	20.03.03	Caís de atracação	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
03	Resíduos de Madeira (Ripas e pallets)	20.01.38	Caís de Atracação	Ripas, barrotes e pallets quebradas	Sólido	Granel; Contentor	Área temporária de Resíduo.
04	Resíduos de metais não ferrosos	16.01.18	Caís de Atracação	Retalhos de fitas de alumínio, sobras de cabos	Sólido	Granel; Contentor	Área temporária de Resíduo.
05	Resíduos plásticos (Filmes e embalagens de plásticos)	20.01.39	Caís de atracação	Saco plástico Plástico, Sacaria, filmes de plástico	Sólido	Granel; Caçamba	Caçamba interna; Área temporária de Resíduo.
06	Resíduos de Varrição contaminado	16.03.05	Caís de atracação	Fertilizante granulado, solo contaminado	Sólido	Granel; Caçamba	Caçamba interna; Área temporária de Resíduo.
07	Resíduos de alumínio	20.01.40	Cais de atracação	Latas vazias, embalagem descartáveis de alimento	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
08	Resíduos de varrição	20.03.03	Parque de armazenagem de contentores cheios	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
09	Resíduos de varrição	20.03.03	Parque de armazenagem de contentores vazios	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
10	Resíduos de varrição	20.03.03	Parque de armazenagem de carga geral e equipamentos	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
11	Resíduos de varrição	20.03.03	Parque de armazenamento de contentores Refree	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
12	Resíduos de varrição	20.03.03	Parque de armazenagem de Viaturas	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
13	Resíduos de varrição	20.03.03	Zona de Estiva	Terra	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
14	Resíduos de Papeis e Papelão	20.01.01	Administração (Parque dos Vazios)	Papel	Sólido	Caçamba	Caçamba interna; Área temporária de Resíduo.
15	Resíduos de varrição	20.03.03	Armazém 16	Terra, Pó	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
16	Resíduos de varrição contaminado	16.03.05	Armazém 16	Fertilizante granulado	Sólido	Granel; Caçamba	Caçamba interna; Área temporária de Resíduo.
17	Papel higiénico	20.01.01	Wc´s do Armazém 16	Resíduo sanitário	Sólido	Baldes sanitário com cobertura de plástico	Caçamba interna; Área temporária de Resíduo.
18	Resíduos de toners de impressora	08.03.17	Áreas Administrativa do Armazém 16	Toner de impressora usados	Sólidos	Ecoponto identificado toners usados	Armazenamento temporário no Arrm.19
19	Resíduo de Papel e papelão	20.01.01	Áreas Administrativa do Armazém 16	Papel de escritório	Sólido	Cestos de lixo com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
20	Lâmpadas Fluorescentes	20.01.21	Armazém 16; Áreas Administrativas do Armazém 16	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
21	Acumuladores de energia (Pilhas de Ac.)	20.01.33	Áreas Administrativa do Armazém 16	Aço, zinco, Manganês, Sódio, Potássio.	Sólidos	Cestos de lixo com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.
22	Resíduo de Papel e caixas de papelão	20.01.01	Áreas Administrativa do Armazém 19	Papel de escritório, caixas	Sólido	Cestos com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.
23	Lâmpadas Fluorescentes	20.01.21	Armazém 19; Áreas Administrativas do Armazém 19	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
24	Toners de impressora	08.03.17	Áreas Administrativa do Armazém 19	Toner de impressora usados	Sólidos	Ecoponto identificado toners usados	Armazenamento temporário no Arrm.19
25	Acumuladores de energia (Pilhas de Ac)	20.01.33	Áreas Administrativa do Armazém 19	Aço, zinco, Manganês, Sódio, Potássio.	Sólidos	Cestos com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.
26	Resíduos de varrição	20.03.03	Armazém 19	Terra, Pó	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.
27	Lâmpadas Fluorescentes	20.01.21	Armazém 19; Áreas Administrativas do Armazém 19	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área para recolha externa.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
28	Papel higiénico	20.01.01	Wc´s das Áreas Administrativas do Armazém 19	Resíduo sanitário	Sólido	Baldes sanitário com cobertura de plástico	Caçamba interna; Área temporária de Resíduo.
29	Resíduos Eletrónicos e Elétricos	20.01.35	Áreas Administrativas	Sucatas de componentes eletrónico e Elétrico	Sólido	Contentor de 20 pés para material em desuso	Contentor de 20 pés (BASE)
30	Acumuladores de energia (baterias)	16.06.04	Manutenção dos meios e equipamentos	Baterias	Sólido	Contentor de 20pés	Área de manutenção dos meios e equipamentos.
31	Resíduo têxtil contaminado (panos e estopas)	15.02.02	Manutenção dos meios e equipamentos	Estopas, panos de limpeza, luvas contaminadas com óleo e ou graxa	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
32	Resíduo perigoso de varrição	16.03.05	Manutenção dos meios e equipamentos	Terra, Pó	Sólido	Caçamba	Caçamba interna; Área temporária de Resíduo.
33	Resíduos de filtros	16.01.07	Manutenção dos meios e equipamentos	Filtros de óleo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
34	Lâmpadas Fluorescentes	20.01.21	Manutenção dos meios e equipamentos	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
35	Óleo lubrificante usado	13.02.04	Manutenção dos meios e equipamentos	Óleo lubrificante usado contaminado	Líquido	Bombonas plásticas e tambores metálicos	Área de manutenção dos meios e equipamentos
36	Resíduos de Pneus usados	16.01.03	Manutenção dos meios e equipamentos	Pneus usados	Sólido	Pilhas sobre o piso impermeabilizado	Área de manutenção dos meios e equipamentos

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Residuo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
37	Embalagens vazias contaminadas	15.01.11	Manutenção dos meios e equipamentos	Latas metálicas contaminadas, embalagens plásticas contaminadas com óleo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
38	Resíduos de metais ferrosos	16.01.17	Manutenção dos meios e equipamentos	Jantes e ringues obsoletos	Sólido	Sobre o piso impermeabilizado	Área de manutenção dos meios e equipamentos
39	Resíduo perigoso de varrição	16.03.05	Manutenção dos meios e equipamentos	Terra contaminada com óleo, graxa	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
40	Resíduo têxtil contaminado (panos e estopas)	15.02.02	Estocagem de Lubrificantes	Estopas, panos de limpeza, luvas contaminadas com óleo e ou graxa	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
41	Resíduos de metais ferrosos contaminados com óleo	17.04.09	Estocagem de Lubrificantes	Tambores contaminados com óleo	Sólido	Contentor de 20pés	Área de manutenção dos meios e equipamentos
42	Resíduo de papel e papelão contaminado	15.01.10	Estocagem de Lubrificantes	Papel de escritório e papelão contaminado com óleo	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
43	Resíduos plástico (embalagens vazias contaminadas)	15.01.11	Estocagem de Lubrificantes	Recipientes plásticos contaminados com óleo	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
44	Equipamento de protecção individual contaminado com óleo	15.02.02	Serralharia	Equipamento de protecção contaminado com óleo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
45	Resíduos de elétrodo	12.01.13	Serralharia	Retalhos de elétrodo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
46	Resíduos de metais não ferrosos	16.01.18	Serralharia	Retalhos de material de alumínio	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
47	Resíduos de metais ferrosos	16.01.17	Serralharia	Retalhos de sucata, ferramenta danificada	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
48	Discos de corte	16.01.17	Serralharia	Lixas, discos de corte	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
49	Resíduo perigoso de varrição	16.03.05	Lavagem dos meios	Lama contaminada	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
50	Resíduo têxtil contaminado (panos e estopas)	15.02.02	Lavagem dos meios	Estopas, panos de limpeza, contaminadas com óleo e ou graxa	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
51	Resíduo têxtil contaminado (panos e estopas)	15.02.02	Zona restrita para dos Geradores	Estopas, panos de limpeza, luvas contaminadas com óleo e ou graxa	Sólido	Tambor com identificação de lixo	Caçamba interna; Área temporária de Resíduo.
52	Resíduo perigoso de varrição	16.03.05	Zona restrita para dos Geradores	Terra contaminada com óleo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
53	Resíduos de filtros de óleo	16.01.07	Zona restrita para dos Geradores	Filtros de óleo	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
54	Resíduo de Papel, caixas de papelão	20.01.01	Áreas Administrativas de apoio à Portaria	Caixas, Papel de escritório	Sólido	Cestos de lixo com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.
55	Toners de impressora	08.03.17	Áreas Administrativas de apoio à Portaria	Toner de impressora usados	Sólidos	Ecoponto identificado toners usados	Armazenamento temporário no Arrm.19
56	Acumuladores de energia (Pilhas usadas)	16.06.04	Áreas Administrativas de apoio à Portaria	Aço, zinco, Manganês, Sódio, Potássio.	Sólidos	Cestos com cobertura de plástico	Tambor com cobertura; Caçamba interna; Área temporária de Resíduo.
57	Lâmpadas Fluorescentes	20.01.21	Áreas Administrativas da Portaria	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
58	Resíduo Plástico	20.01.39	Áreas Administrativas	Garrafas de Pet, recipientes de plásticos de solução higienizadora (20 e 5 L)	Sólido	Contentor identificado para acondicionar garrafas plásticas	Contentor de 20 pés, Sacos plásticos na Área Armazém 16.
59	Canetas de plástico	20.01.39	Áreas Administrativas	Plástico	Sólido	Cestos com cobertura de plástico	Caçamba interna; Área temporária de Resíduo.
60	Papel Higiénico	20.01.01	Wc´s da área da portaria	Resíduo Sanitário	Sólido	Cestos de lixo com cobertura de plástico	Caçamba interna; Área para recolha externa.
61	Resíduos de varrição	20.03.06	Parque de Estacionamento de Viaturas dos colaboradores	Terra, Pó	Solido	Caçamba	Caçamba interna; Área temporária de Resíduo.

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – TIPO E CLASSIFICAÇÃO							
Nº	**Resíduo**	**Código do Resíduo**	**Local de produção**	**Caracterização**		**Forma de Acondicionamento**	**Armazenamento**
62	Restos de Alimentos	20.01.08	Refeitório	Resíduos orgânicos	Sólido	Sacos de plástico /Baldes de lixo com cobertura	Caçamba interna; Área temporária de Resíduo.
63	Resíduo Plástico	20.01.39	Refeitório	Garrafas de Pet, copos descartáveis, luvas de plástico	Sólido	Caixas, Sacos plásticos	Sacos Plásticos; Área do Armazém 16
64	Papel toalha	20.01.01	Refeitório	Guardanapos de papel	Sólido	Cestos de lixo envolvidos com plástico	Caçamba interna; Área temporária de Resíduo.
65	Lâmpadas Fluorescentes	20.01.21	Refeitório	Vidro, Mercúrio, Argónio, Zinco	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
66	Resíduo de serviço de Saúde	18.01.01	Serviço de Saúde	Material infectado, objecto cortantes e perfurantes	Sólido	Caixa envolvida com saco, identificada como resíduo de saúde.	Sacos plástico; Caçamba interna; Área temporária de Resíduo.
67	Material não contaminado (Luvas, mascaras, tocas, seringas,)	18.02.03	Serviço de Saúde	Luvas, máscaras, tocas	Sólido	Balde especial identificado como resíduo de Tóxico.	Caçamba interna; Área temporária de Resíduo.
68	Papel e caixas de papelão	20.01.39	Serviço de Saúde	Caixas, Papel de escritório	Sólido	Cestos de lixo envolvidos com plástico	Caçamba interna; Área temporária de Resíduo.
69	Resíduos de jardinagem	20.02.01	Jardim do TPU	Resíduos orgânicos	Sólido	Tambor com a identificação de lixo	Caçamba interna; Área temporária de Resíduo.
70	Resíduo Plástico (pequenas embalagens	20.01.39	Áreas Administrativas	Sacos plástico	Sólido	Tambor com a identificação de lixo	Caçamba interna

Tabela 4.7.1.1. Planilha de Diagnostico resíduos do TPU (Quantintativo, Frequência de recolha, transporte e destino final)

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – QUANTIDADE E DESTINO FINAL					
Nº	**Resíduo**	**Quantidade produzida m³/Un/Recolha ou dia**	**Frequência de recolha**	**Transporte Externo**	**Destino Final**
01	Papel comum	0-0,2 m³/dia	Semanalmente	Terceirizado	Aterro sanitário
02	Caixas de Papelão (material de escritório)	0-0,0001m³/ dia	Semanalmente	Terceirizado	Reaproveitamento interno/ Aterro sanitário
03	Baterias	0 - 5 un/recolha	Semestral	Terceirizado	Reciclagem /Reciclagem externa
04	Caneta de Plástico	0 – 8 un/dia	Semanalmente	Terceirizado	Aterro sanitário
05	Restos de Alimentos	0 – 0,004m³/dia	Semanalmente	Terceirizado	Aterro sanitário
06	Embalagens de plásticos (Garrafas de pet)	0-3 un/dia	Ao atingir o limite pré-estabelecido	Terceirizado	Reciclagem /Reaproveitamento externo
07	Copos plástico	0 – 3 un/ dia	Semanalmente	Terceirizado	Aterro sanitário
08	Resíduos de varrição	0 – 0.58 m³/ dia	Semanalmente	Terceirizado	Aterro sanitário
09	Resíduo perigoso de varrição	0 – 0,47 m³/dia	Semanalmente	Terceirizado	Aterro sanitário
10	Lâmpadas Fluorescentes	0- 25 un/recolha	Trimestral	Terceirizado	Aterro sanitário
11	Fertilizantes	0 – 0,99 m³/recolha (Dependendo do tipo de operação do navio)	Diariamente	Terceirizado	Aterro sanitário
12	Resíduos de Madeira (Ripas e pallets)	0-3,7 m³/recolha (Dependendo do tipo de operação do navio)	Diariamente	Terceirizado	Reaproveitamento externo/ Aterro sanitário

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – QUANTIDADE E DESTINO FINAL					
Nº	**Resíduo**	**Quantidade produzida m³/Un/Recolha ou dia**	**Frequência de recolha**	**Transporte Externo**	**Destino Final**
13	Resíduos de metais não ferrosos e ferrosos	0 – 0,93m³/recolha (Dependendo do tipo de operação do navio)	Diariamente	Terceirizado	Reaproveitamento externo/ Aterro sanitário
14	Resíduos plásticos (Filmes e embalagens de plásticos)	0-0,02 m³/recolha (Dependendo do tipo de operação do navio)	Diariamente	Terceirizado	Aterro sanitário
15	Filtros de óleo (Motor, Geradores)	0-4 un/recolha	Mensalidade	Terceirizado	Aterro sanitário
16	Filtros de óleo (Hidráulico, Transmissão)	0-10 un/recolha	Anualmente	Terceirizado	Aterro sanitário
17	Resíduos de metais ferrosos (Bombas, Jantes)	0-4un/recolha	Anualmente	Terceirizado	Reaproveitamento interno
18	Cartuchos de impressora	0 – 45un/recolha	Trimestralmente	Terceirizado	Reciclagem Externa
19	Acumuladores de energia (Pilhas de Ac.)	0 – 15 un/recolha	Trimestral	Terceirizado	Aterro sanitário
21	Papel higiénico	0-0,003m³/recolha	Semanalmente	Terceirizado	Aterro sanitário
22	Resíduos Eletrónicos e Elétricos	0 – 10un/recolha	Anualmente	Terceirizado	Instalação da Base
23	Resíduo têxtil contaminado (panos e estopas)	0 – 0,00001 m³/recolha	Semanalmente	Terceirizado	Aterro sanitário

DIAGNÓSTICO DE RESÍDUOS SÓLIDOS – QUANTIDADE E DESTINO FINAL					
Nº	**Resíduo**	**Quantidade produzida m³/Un/Recolha ou dia**	**Frequência de recolha**	**Transporte Externo**	**Destino Final**
36	Resíduo de serviço de Saúde (Material não contaminado)	0-0.00001m³/recolha	semanalmente	Terceirizado	Aterro sanitário
37	Resíduo de serviço de Saúde (objectos cortantes e perfurantes)	0-0,004m³/recolha	Ao atingir o limite pré-estabelecido de 4L do recipiente	Terceirizado	Aterro sanitário
38	Podas de Jardim	0-0,04 m³/recolha	Variável	Terceirizado	Aterro sanitário
39	Resíduo de papel e papelão contaminado	0-0,00001m³/recolha	mensalmente	Terceirizado	Reaproveitamento interno/ Aterro sanitário
40	Resíduos de alumínio (latas vazias, embalagens descartáveis de alimentos)	0-0,00012m³/recolha	semanalmente	Terceirizado	Aterro sanitário

O inventário fotográfico de (1 à 6) evidência de forma amostral os tipos de resíduos gerados na instalação assim como as práticas para o acondicionamento e/ou armazenamento realizado actualmente.

4.6.2 Inventário Fotográfico dos tipos de resíduos produzidos no TPU

Foto 1. Caçamba de armazenamento de resíduos

Foto 2. Resíduos associados à carga (fitas metálicas)

Foto 3. Resíduos de operações do Cais

Foto 4. Ecoponto para acondicionar toners usados

Foto 5. Tambor com tampa para acondicionar resíduo

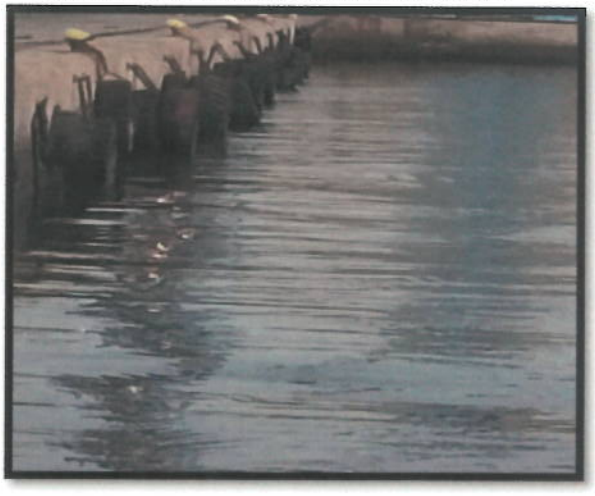


Foto 6. Reproveitamento de Pneus usados para defensas do Cais

5 PROCEDIMENTOS OPERACIONAIS

O PGRS/TPU tem como prioridade a prevenção e a minimização dos residuos produzidos, incentivando sempre para que todos para que todos os colaboradores estejam engajados nessa atitude.

5.1 Procedimentos de Gestão de Resíduos do TPU

Os procedimentos de Gestão de Resíduos do TPU visa estabelecer um circuito de comunicação eficaz entre a Direcção de Segurança Empresarial e o Operador de Residuos de modo a garantir o cumprimento do disposto na legislação e a correta gestão de residuos produzidos na instalação.

5.1.1 P1. Gestão de resíduos urbanos da Instalação do TPU

Objectivo: Fornecer uma visão geral do processo de gestão de resíduos na instalação do T.P.U desde a sua tipologia, acondicionamento, armazenamento até a recolha dos mesmos das instalações para o aterro sanitário ou seu reaproveitamento.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos efectuar o planeamento do serviço de recolha interna de residuos nos pontos de produção de forma a utilizar os meios e equipamentos necessários para a operação. Identificar a tipologia dos residuos, segregar, acondicionar e ou armazenar os residuos em local indicado e recipiente adequado tendo em conta ao volume e a identificação. Solicitar ao operador de gestão de residuos para o aterro sanitário a necessidade de recolha para o transporte externo dos residuos. Registar no mapa de controlo a saida de residuos e assegurar de que o transporte dos residuos está a ser feito de acordo condições definidas nomeadamente cobertura do contentor e preenchimento do mapa de controle e transporte de residuos. Solicitar o comprovativo de disposição final dos residuos ao operador e preencher a guia de remessa de residuos produzidos na instalação, assegurar a assinatura de todos os intervenientes e registar em mapa de inventario a quantidade de resíduo recolhido.

5.1.2 P2. Gestão de resíduos associados à Carga

Objectivo: Acompanhar o processo de recolha, acondicionamento e ou armazenamento de resíduos no Cais até a recolha dos mesmos das instalações para o aterro sanitário ou seu reaproveitamento.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos efectuar o planeamento do serviço de recolha de residuos associados à carga no Cais, após a recepção do plano de atracação de navio dada pela Direcção de Operações, de forma a utilizar os meios e equipamentos necessários para o inicio da operação. Assegurar a disponibilidade no Caís os meios de armazenamento de residuos de forma a facilitar a colocação dos residuos e não causar interferências com outras operações de carga e descarga simultâneas. Identificar a tipologia dos residuos, segregar e armazenar os residuos reaproveitáeis e não reaproveitáveis em local indicado. Solicitar ao operador de gestão de residuos para o aterro sanitário a necessidade de recolha dos residuos. Acompanhar e assegurar de que o transporte externo dos residuos está a ser feito de acordo condições definidas nomeadamente cobertura do contentor. Solicitar o comprovativo de disposição de residuos ao operador, preencher a guia de remessa de residuos produzidos na instalação, assegurar a assinatura de todos os intervenientes e registar em mapa de inventario a quantidade de resíduos recolhido.

5.1.3 P3. Armazenamento e recolha de óleo lubrificante usado

Objectivo: Assegurar o modo de acondicionamento e controlo do volume do resíduo de óleo usado, até à recolha dos mesmos das instalações com a finalidade de reciclagem.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de óleo lubrificante usado de acordo as condições definidas nomeadamente em recipientes apropriados à prova de vazamentos, alocados em paletas de contenção e localizados em área coberta, seca ventilada e com identificação do tipo do resíduo, controlar níveis de óleo usado armazenado e registar em mapa de inventario. Solicitar ao operador de gestão de residuos reciclados a necessidade de recolha dos residuos de óleo lubrificante usado. Acompanhar a recolha no ponto

de produção de acordo as condições definidas garantindo que não haja derrame ou fugas do óleo na ligação entre a mangueira da bombona e o reservatorio de recepção da viatura, preencher a Guia de remessa de recolha de resíduos de óleo lubrificante usado tendo em conta o volume e tipologia assegurando a assinatura de todos os intervenientes. O Operador remete a Guia de remessa de recolha de residuos para ao Departamento de Taxação para a valorização do resíduo. O inspector confirma a facturação de acordo a nota de pagamento do tipo de residuos e autoriza a saida dos residuos. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.4 P4. Armazenamento e recolha de Toners de impressoras usados

Objectivo: Assegurar o modo de acondicionamento e controlo do volume de resíduo de Toners de impressora usados no ecoponto, até à retirada dos mesmos das instalações com a finalidade de reaproveitamento.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de Toners de impressora usados de acordo as condições definidas nomeadamente no ecoponto para toners usados, controlar o limite máximo e registar em mapa de inventario. Solicitar ao operador de gestão de residuos reaproveitável a necessidade de recolha de toners de impressora usado. Acompanhar e assegurar a recolha de acordo as condições definidas assegurando que não haja derrame ou vazamento durante o trajecto, preencher a Guia de remessa de recolha de resíduos de toners usados tendo em conta a quantidade e tipologia assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.5 P5. Armazenamento e recolha de Pilhas e Baterias usadas

Objectivo: Assegurar o modo de acondicionamento e controlo das baterias usados, até à recolha das mesmas das instalações com a finalidade de reaproveitamento.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos das

baterias usadas de acordo as condições definidas nomeadamente em contentores apropriados à prova de vazamentos e localizados em área coberta, seca, ventilada e com identificação do tipo de resíduo, controlar o limite máximo de baterias usadas armazenadas e registar em mapa de inventario. Solicitar ao operador de gestão de residuos reaproveitável a necessidade de recolha de baterias usadas. Acompanhar a recolha de acordo as condições definidas assegurando que não haja derrame ou vazamento durante o trajecto, preencher a Guia de remessa de recolha de baterias usadas tendo em conta a quantidade e tipologia, assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.6 P6. Armazenamento e recolha de Madeiras usados

Objectivo: Assegurar o modo de acondicionamento e controlo das madeiras usados, até à recolha das mesmas das instalações com a finalidade de reaproveitamento interno ou externo.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de madeiras usadas de acordo as condições definidas nomeadamente em contentores com a identificação do resíduo, controlar o limite máximo de madeiras usadas armazenadas e registar em mapa de inventario. Caso haja necessidade de reaproveitamento interno de madeiras usadas, assegurar o seu tratamento, caso contrario solicitar ao operador de gestão de residuos reaproveitável a necessidade de recolha de madeiras usadas, acompanhar a recolha, preencher a Guia de remessa de recolha de madeiras usadas tendo em conta a quantidade e tipologia, assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.7 P7. Armazenamento e recolha de residuos de Plástico (Pet´s e filmes de plástico)

Objectivo: Assegurar o modo de acondicionamento e controlo dos resíduos de plástico (Pet´s e filmes de plástico), até à recolha das mesmas das instalações com a finalidade de reaproveitamento.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de plástico de acordo as condições definidas nomeadamente em contentores com a identificação do tipo de resíduo, controlar o limite máximo e registar em mapa de inventario. Caso haja necessidade de reaproveitamento interno de plasticos usados, assegurar o seu tratamento de acordo as condições definidas nomeadamente registo da finalidade, caso contrario, solicitar ao operador de gestão de residuos reaproveitavel a necessidade de recolha dos residuos de plástico. Acompanhar e assegurar a recolha, preencher a Guia de remessa de recolha dos residuos tendo em conta a quantidade e tipologia, assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.8 P8. Armazenamento e recolha de Pneus usados

Objectivo: Assegurar o modo de acondicionamento e controlo de pneus usados, até à recolha dos mesmos das instalações com a finalidade de reaproveitamento interno ou externo.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de pneus usados de acordo as condições definidas nomeadamente organizados e em área identificada, controlar o limite máximo e registar em mapa de inventario. Caso haja necessidade de reaproveitamento interno de pneus usados, assegurar o seu tratamento de acordo as condições definidas nomeadamente registo da finalidade, caso contrario solicitar ao operador de gestão de residuos reaproveitável a necessidade de recolha de pneus usados, acompanhar a recolha, preencher a Guia de remessa de recolha de pneus usados tendo em conta a quantidade e tipologia, assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.9 P9. Armazenamento e recolha de Tambores usados

Objectivo: Assegurar o modo de acondicionamento e controlo de tambores usados, até à recolha dos mesmos das instalações com a finalidade de reaproveitamento interno ou externo.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos de tambores usados de acordo as condições definidas nomeadamente organizados em área adequada e identificada, controlar o limite máximo e registar em mapa de inventario. Caso haja necessidade de reaproveitamento interno de tambores usados, assegurar o seu tratamento de acordo as condições definidas nomeadamente registo da finalidade, caso contrario solicitar ao operador de gestão de residuos reaproveitável a necessidade de recolha de tambores usados, acompanhar a recolha, preencher a Guia de remessa de recolha de pneus usados tendo em conta a quantidade e tipologia, assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.10 P10. Armazenamento de Lâmpadas usadas

Objectivo: Assegurar o modo de acondicionamento e controlo das Lâmpadas usadas, até à recolha na área de armazenamento da central de resíduos.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento dos resíduos das lâmpadas usadas de acordo as condições definidas nomeadamente em caixas resistentes protegendo-as contra choques e com identificação do tipo de resíduo, controlar o limite máximo de lâmpadas usadas armazenadas e registar em mapa de inventario. Solicitar ao operador interno de gestão de residuos a necessidade de armazenamento das lampadas usadas para o contentor da central de residuos.

5.1.11 P11. Armazenamento e recolha de residuos perigosos

Objectivo: Assegurar o modo de acondicionamento e ou armazenamento até à recolha para o exterior da instalações com a finalidade de incineração.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos perigosos de acordo as condições definidas nomeadamente em contentores resistentes a

choques e a quedas, localizados em área coberta, seca, ventilada e com identificação do tipo de resíduo, controlar o limite máximo do resíduo armazenado e registar em mapa de inventario. Solicitar ao operador de gestão de residuos para incineração a necessidade de recolha de residuos perigosos. Acompanhar a recolha, preencher a Guia de remessa de resíduos perigosos tendo em conta a quantidade e tipologia assegurando a assinatura de todos os intervenientes. Solicitar o comprovativo de disposição final dos residuos ao operador e registar em mapa de inventario a quantidade de resíduo recolhido.

5.1.12P12. Armazenamento e recolha de residuos ferrosos e não ferrosos

Objectivo: Assegurar o modo de acondicionamento e ou armazenamento dos resíduos ferrosos e não ferrosos até à recolha dos mesmos das instalações com a finalidade de reaproveitamento interno ou externo.

Procedimento:

O inspector da DSE deve junto do operador interno de gestão de residuos identificar a fonte de produção e assegurar o modo de acondicionamento e ou armazenamento dos resíduos ferrosos e não ferrosos de acordo as condições definidas nomeadamente organizados e em área adequada e identificada com o tipo de resíduo, controlar o limite máximo dos resíduos armazenados e registar em mapa de inventario. Caso haja necessidade de reaproveitamento, assegurar o seu tratamento de acordo as condições definidas nomeadamente registo da finalidade caso contrário solicitar ao operador de gestão de residuos metalicos para reaproveitamento a necessidade de recolha de residuos ferrosos e não ferrosos. Acompanhar a recolha, preencher a Guia de remessa de recolha tendo em conta a quantidade e tipologia assegurando a assinatura de todos os intervenientes. Registar em mapa de inventário a quantidade de resíduo recolhido.

5.1.13 P13. Procedimento para o registo da quantificação dos resíduos

Objectivo: Controlar e registar a quantidade de resíduos armazenados.

Procedimento:

O inspector da DSE deve realizar vistórias nas áreas de armazenamento temporário de resíduos e registar a quantidade, volume ou capacidade maxima de resíduos armazenados. Lançar na planilha de inventário tendo em conta a tipologia e a quantidade dos resíduos registados, caso

haja necessidade de recolha, solicitar o operador de gestão de resíduos a recolha dos mesmos caso contrário, assegurar o armazenamento de acordo as condições definidas.

5.1.14 P.14. Procedimento para a segregação e acondicionamento dos resíduos

Objectivo: Implementar acções de forma a reduzir ou eliminar a quantidade de residuos enviados para o aterro sanitário.

Procedimento:

O Inspector ambiental deve junto do operador interno de gestão de residuos identificar os tipos de resíduos produzidos em todas as áreas da instalação, segregar e acondiconar os residuos para reaproveitamento e ou outro tratamento em local indicado até a sua destinação final. Os residuos segregados e acondicionados devem ser disponibilizados em recipientes adequados ao volume tipo de residuos e identificados. A identificação dos recipiente pode ser por meio de cores ou etiquetas e a descrição do residuo.

5.1.15 P.15. Procedimento para o armazenamento temporário dos residuos sólidos

Objectivo: Assegurar o armazenamento dos resíduos de forma a proteger a saúde do trabalhador e o meio ambiente de acordo com os potenciais riscos que representam.

Procedimento:

O Inspector ambiental deve junto do operador interno de gestão de residuos assegurar que os recipientes com resíduos sejam contentores, caçambas, caixas, tambores, ecopontos, sacos plasticos ou outros devem ser identificados e armazenados em áreas bem ventiladas protegido contra intemperies, sobre o piso impermeabilizado e com identificação. Assegurar que sejam separados os resíduos perigosos e não perigosos e encaminhados para reaproveitamento, reciclagem ou disposição final. Assegurar que os locais de armazenamento temporário dos resíduos devem ser dotados de iluminação, sinalização, sistema de isolamento e piso impermeavél.

5.1.16 P.16. Procedimento para o transporte interno de resíduos

Objectivo: Assegurar a movimentação interna dos resíduos por empresas licenciadas pelo orgão ambiental de forma a proteger a saúde dos trabalhadores e o meio ambiente.

Procedimento:

O Inspector ambiental da DSE deve assegurar que a movimentação interna dos resíduos pelo operador de gestão de residuos deve atender as seguintes acções:

- Forma de manuseamento dos resíduos.
- Determinar vias ou rotas de movimentação dos resíduos.
- Uso de equipamentos compatíveis com o volume.
- Familiarizar os colaboradores da operadora de gestão dos resíduos com os equipamentos e riscos ambientais.
- Uso de Equipamento de protecção indicivual E.P.I.
- Determinar as áreas de riscos para equipamentos especiais.

5.1.17 P17. Procedimento para o transporte externo de resíduos

Objectivo: Assegurar o transporte externo dos resíduos para fora da instalação por empresas licenciadas pelo orgão ambiental de forma a proteger a saúde pública e o meio ambiente.

Procedimento:

O transporte externo de resíduos sólidos para fora fora da instalação do Terminal Polivalente da Unicargas deve ser feito por empresas contratadas, especializadas licenciadas pelo orgão ambiental e devem possuir veiculos e equipamentos licenciados para essa actividade de acordo ao estabelecido na legislação.

O Inspector ambiental da DSE deve assegurar que transporte externo para fora da instalação deve ser feito de modo a evitar danos ao meio ambiente e a saúde pública observando que:

- O equipamento de transporte seja adequado ao tipo de resíduo e as regulamentações permanentes.
- O estado de conservação do equipamento de transporte de resíduos não permita derrames ou vazamentos durante o trajecto.
- Durante o transporte os residuos estejem devidamente acondicionados e protegidos de intempéries.
- Deve ser assinada a folha de controle de saída de resíduos da Instalação.
- Em caso de resíduos perigosos deve ser acompanhado da Ficha de Segurança e rotulagem.

- Deve apresentar o comprovativo ou ticket de destino final dos residuos.
- Deve assinada a Guia de remessa para resíduos sólidos pelos intervenientes.

5.1.18 P18. Procedimento para destinação final dos residuos

Objectivo: Assegurar o destino correcto dos residuos produzidos na instalação do Terminal Polivalente da Unicargas de modo a proteger a saúde publica e do meio ambiente.

Procedimento:

Os resíduos produzidos na instalação do Terminal Polivalente devem ser destinados para diferentes fins de acordo as condições definidas nomeadamente reciclagem, reutilização, coprocessamento, incineração, aterro sanitário ou outros. No momento do envio dos resíduos o para o seu destino final devem ser registados na guia de remessa de residuos à quantidade e tipologia dos resíduos, data hora e local da operação, dados referentes ao meio utilizado para a recolha destino final e as assinaturas dos intervenientes na operação.
As empresas ou instituições de recepcção de residuos devem ser lincenciadas pelo orgão ambiental e autorizadas pelo Coordenador da Comissão de Gestão.

5.1.19 P.19. Procedimento para a Facturação dos resíduos para valorização

Objectivo: Assegurar o preenchimento da requisição de recolha de resíduos para valorização até à emissão da factura pelo Departamento de Taxação.

Procedimento:

O Operador de gestão de recolha de resíduos reúne toda a documentação inerente a recolha de resíduos para valorização, nomeadamente Guia de remessa de residuos sólidos e envia para a área de facturação. Na guia de remessa de residuos são preenchidos os dados referente à quantidade e tipologia dos resíduos, data hora e local da operação, dados referentes ao meio utilizado para a recolha, destino final e as assinaturas pelos intervenientes da operação. O Departamento de facturação verifica os dados preenchidos na guia de remessa pelo inspector ambiental da DSE e emite a factura junto do operador de gestão de resíduos de acordo ao procedimento de valorização de resíduos reaproveitáveis.
Os dados agregados na facturação são referentes as quantidades entregues no destino final e a tipologia de residuo.

5.1.20 P20. Acompanhamento da recolha de à bordo do navio

Objectivo: Acompanhar o processo de descarga de resíduos tendo por base a informação recebida através do documento de solicitação de descarga de resíduo dada pelo agente de navegação com a autorização da Autoridade Portuária e da Administração Geral Tributária-3RT.

Procedimento:

O inspector de ambiente da DSE deve receber a informação da necessidade de descarga de residuos a bordo do navio através do documento de solicitação de autorização de descarga de resíduo dada pelo agente de navegação, assegurar as assinaturas e carimbo da Policia fiscal e D.S.A alocadas no T.P.U. Informar ao agente e o seu operador de residuos contratado as medidas necessárias para a descarga dos resíduos nomeadamente operacionalidade dos equipamentos a bordo do navio, cobertura e resistência dos recipientes com residuos a serem desembarcados de forma a evitar a ruptura e derrames. Interditar o acondicionamento de resíduos nos recipientes. Acompanhar e assegurar-se de que a descarga está a ser feita de acordo as condições definidas, solicitar cópia do comprovativo de recolha de residuos à bordo dos navio, elaborar o relatório e registar no mapa de controlo a informação relativa a recolha de residuos a bordo dos navios.

5.2 Treinamento e Conscientização

No âmbito da minimização dos resíduos produzidos na instalação bem como da produção de posssiveis efeitos que possam causar danos ao ambiente e a saúde do trabalhador, o Terminal Polivalente da Unicargas tem adoptado as seguintes acções para a capacitação dos colaboradores do PGRS/TPU:

- Forma de utilização e preenchimento da Guia de remessa de recolha de resíduos do TPU;
- Forma de utilização e preenchimento do Mapa de Controle de transporte de Resíduos do TPU;
- Forma de operação nos pontos de acondicionamento de residuos;
- Preenchimento da Planilha do inventário de residuos;
- Uso de Equipamento de Protecção Individual E.P.I;
- Realização de acções preventivas e corretivas a serem executadas em caso de situações de gestão incorreta ou incidentes.
- Realização de induções de Higiene e Segurança;

5.3 Prevenção e Atendimento à Emergências

No âmbito da prevenção e atendimento a emergências são adoptadas as seguintes acções:

- O Inspector ambiental da DSE deve assegurar que os residuos produzidos na instalação do TPU, devem ser manuseados de forma a minimizar a possibilidade de fogo, explosão, derrames e vazamentos para a zona marinha, solo ou ar.

- O Inspector ambiental da DSE deve realizar vistorias periódicas nos pontos de produção, acondicionamento e armazenamento de resíduos.

- O Inspector ambiental da DSE deve assegurar que os residuos produzidos na instalação do TPU devem ser segregados e mantidos em locais adequados.

- O Inspector ambiental da DSE deve assegurar que todas as pessoas envolvidas no manuseio dos residuos da instalação do TPU, devem fazer o uso do Equipamento de Protecção Individual E.P.I, definido no Manual de Procedimento da Direcção de Segurança Empresarial.

- O Inspector ambiental da DSE deve encadear acções para conter situações de emergencias;

- As acções para contenção dos vazamentos e derrames devem ser alinhadas com o definido no Manual de Procedimentos da Direcção de Segurança Ambiental;

- O Inspector ambiental da DSE junto do operador interno de gestão de residuos, deve assegurar que o pessoal envolvido deve colocar o material derramado dentro de recipientes adequados.

- O Inspector ambiental da DSE junto do operador interno de gestão de residuos, deve assegurar a limpeza do local onde ocorreu o derrame bem como garantir a disponibilidade de recipientes e equipamentos adequados para o material recolhido.

- As acções de remediações da área contaminada deverão ser estabelecidas após vistoria do local pela equipa do ambiente da instalação do Terminal Polivalente da Unicargas.

- O Inspector ambiental da DSE deve após o termino da emergencia realizar a classificação dos residuos para descarte.

- O Inspector ambiental da DSE deve avaliar a causa e o efeito para que sejam estabelecidas as acções cooretivas aplicaveis caso ocorra alguma alguma falha no gerenciamento de residuos.

6 DEFINIÇÃO DE METAS E PROGRAMAS DE REDUÇÃO DA PRODUÇÃO DE RESIDUOS

- No âmbito da definição de metas para redução de produção de resíduos, o Terminal Polivalente da Unicargas tem contemplado as seguintes acções:

Nº	OBJECTIVOS AMBIENTAIS	METAS AMBIENTAIS À CURTO PRAZO	METAS AMBIENTAIS À MÉDIO PRAZO	METAS AMBIENTAIS À LONGO PRAZO
01	**Melhorar o desempenho ambiental da empresa**	Obter junto do Órgão Ambiental Nacional a aprovação do PGRS do TPU até Jun. 2023.	-	Obter junto do Órgão Ambiental Nacional a aprovação do PGRS da SEDE/Delegações até Jun. 2030.
		Obter junto do Órgão Ambiental Nacional a Licença de operação das actividades do TPU até Dez. 2023.	Implementação de Sistemas de Gestão Ambiental em todas as instalações até Dez.2026.	Obter a Certificação Internacional das Normas ISO 14.00:2015, Sistema de Gestão Ambiental até Jun.2030.
02	**Implementar controles de consumo e promover a redução de resíduos produzidos nas instalações da empresa**	Reduzir 9% da produção de resíduo de papel para o ano de 2023.	Implementar controles de produção de resíduos até Jun.2024.	-
		Reduzir 10% do resíduo enviado para o aterro sanitário para o ano de 2023	Implementar a recolha selectiva para residuos perigosos até Jun. 2024.	Reduzir 75% do resíduo enviado para o aterro sanitário para o ano de 2030.
03	**Reduzir o consumo de Energia Elétrica e a quantidade de lâmpadas fluorescentes**	Substituição de lâmpadas flourescentes por lâmpadas LED até 2023.	-	Instalação de Painéis Solares até 2030.
		Definir medidas para o controle de redução de consumo de energia elétrica para o ano de 2023.	-	Reduzir 30% do consumo de energia Elétrica até Dez. 2030.
04	**Implementar controles para os resíduos provenientes de fontes móveis**	Reduzir o número de camiões que acedem a instalação até 2024	Definir anualmente medidas para o controle de redução de emissões de CO2 e particulados para atmosfera.	Instalar sistemas de isolamento para o controle de emissões atmosfericas nos locais de descarga de carga a granel até 2030.
		Reduzir o número de movimento de máquinas e meios no interior da instalação		

Nº	OBJECTIVOS AMBIENTAIS	METAS AMBIENTAIS À CURTO PRAZO	METAS AMBIENTAIS À MÉDIO PRAZO	METAS AMBIENTAIS À LONGO PRAZO
05	**Melhoria das infraestruturas do sistema de saneamento das águas residuais da empresa.**	Executar anualmente mecanismos de controle e eliminação indevida de resíduos sólidos nas redes de drenagem da empresa até 2024	-	Elaborar até 2030, um estudo de avaliação e redefinição das metas dos serviços e tratamento das águas residuais das instalações.
06	**Envolver a comunidade em práticas sustentáveis e promover a sustentabilidade dos seus processos e serviços.**	Realizar campanhas de sensibilização para redução de lixo nas comunidades circunvizinhas até 2025 Sensibilizar a comunidade circunvizinha com relação a deposição inadequada dos resíduos nos coletores de lixo até 2024	Produzir 12 campanhas publicitárias sobre casos de sucessos de práticas sustentáveis dos processos e serviços da Unicargas até 2025.	-

- No âmbito da redução de produção de resíduos o Terminal Polivalente da Unicargas tem contemplado as seguintes acções:
  - ✓ Comunicação por meio digital (Uso emails digitais e plataformas de comunicação corporativa);
  - ✓ Impressão de documentos relevantes e necessários;
  - ✓ Reaproveitamento e reciclagem de residuos de pneus usados, torners usados, madeiras usadas, recipientes de plástico, baterias usadas, metais ferrosos e não ferrosos, oleo lubrificante usado, papel usado e papelão);
  - ✓ Uso de bebedores no interior nas áreas internas e externas;
  - ✓ Realização de campanhas de Limpeza no perimetro da orla portuária envolvendo trabalhadores e a população da circunvinzinhaça;
  - ✓ Armazenamento adequado de materiais pulverulentos;
  - ✓ Interdição de acesso de camiões com emissão de fumaças e particulados;
  - ✓ Interdição de acesso à instalação de contentores sujos e com residuos;
  - ✓ Realizar vistorias inspectivas periódicas nos pontos de produção, acondicionamento e

armazenamento e resíduos do TPU.

- ✓ Implementação de projectos ambientais sustentáveis;
- ✓ Manutenção e criação de áreas verdes ao longo do perimetro portuário;

Foto 5.4.1. e 5.4.6. Ilustra as acções de campanhas de limpeza realizadas no TPU

Foto 5.4.7. e 5.4.8. Ilustra as acções de projectos sustentaveis com resíduo reaproveitavel

Foto 5.4.9. Manutenção de áreas verdes

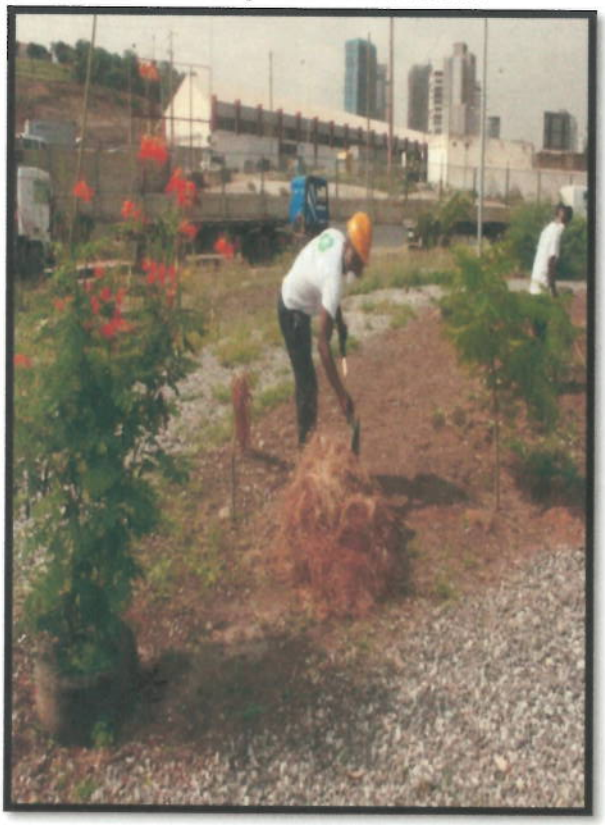


Foto 5.4.10. Controlo de vazamento

Foto 5.4.10. Indução de Higiene e Segurança

Foto 5.4.11. Cartilha de Alerta de Ambiente

7 MEDIDAS DE ADEQUAÇÃO

- Delimitação e cobertura do local especifico para acondicionar residuos perigosos provenientes da área das oficinas (óleo lubrificante usado e filtros)
- Delimitação fisica da área impermeabilizada de armazenamento temporário/central de residuos.
- Instalação de recipientes selectivos para acondicionar as lâmpadas fluorescentes usadas.
- Instalação de placas de sinalização na área de acondicionamento de baterias usadas.

8 ANEXOS

8.1 Anexos I. Impressos

8.1.1 Impresso nº1- Guias e ticket de Recolha e transporte de residuos sólidos enviados ao aterro sanitário. Períodos de 2019-2022.

8.1.2 Impresso nº2- Guias de Recolha e transporte reaproveitaveis e reciclaveis (Toners usados, óleo usado, madeiras usadas, pneus usados. Peridos de 2021-2022.

8.1.3 Impresso nº3- Check list de Auditorias internas das condiçoes de higiene da instalação do TPU. Peridos de 2019-2022.

8.1.4 Impresso nº4- Contrato de prestação de serviço de Limpeza e Recolha de Residuos Sólidos da Operadora Clean System/Envirobac.

8.1.5 Impresso nº5- Licença para exercicio de actividades de gestão de residuos dos operadores e parceiros.

9 CONCLUSÃO

A legislação ambiental representa um grande avanço e também um desafio para a sociedade e para as empresas a operarem em Angola, pois necessita da participação de todos os segmentos sociais para sua implementação e cumprimento.

Face ao exposto, com a elaboração e implementação do presente Plano de Gestão de Resíduos, do Terminal Polivalente da Unicargas, demonstra o seu cumprimento da imposição legal do artigo 7º do Decreto Presidencial nº 190/12 de 24 de Agosto, que aprova o "Regulamento de Gestão de Resíduos", bem como o seu comprometimento com as questões ambientais.

As operações de segregação, acondicionamento, identificação e transporte de resíduos continuarão a ser feitas somente por pessoal treinado e qualificado para o efeito.

A redução da produção de resíduos de acordo com a hierarquia do processo de gestão de resíduos, constitui não só um grande desafio para Direcção da empresa, como também para cada colaborador da empresa.

Com a efectiva implementação do presente plano, espera-se que possa haver melhorias quer a nível do cumprimento da legislação sobre gestão de resíduos, como também na protecção da saúde dos colaboradores.

Será garantida a manutenção das condições técnicas e de infraestruturas para a limpeza e recolha adequada dos resíduos a serem produzidos e o destino final dos mesmos, assim como o registo de saída dos resíduos produzidos.

O presente plano de Gestão de Resíduos irá auxiliar os responsáveis das áreas a tomarem as devidas precauções referente a gestão de resíduos e melhoria contínua das actividade de acordo com a legislação ambiental em matéria de resíduos e praticas internacionalmente aceites.

10 BIBLIOGRAFIA

- Decreto Presidencial que aprova o Estatuto Orgânico do Ministério do Ambiente (Decreto Presidencial n.º 119/10 de 13 de Setembro).
- Decreto Presidencial n.º 194/11 de 7 Julho-Responsabilidade por Danos Ambientais;
- Decreto nº 53/03 de 11 de Julho "Regulamento de Exploração dos Portos de Angola"
- Decreto Presidencial nº 194/12 de 21 de Junho "Regulamento para a prevenção e Controlo da Poluição das Águas Nacionais"
- Decreto Executivo n.º 17/13, sobre Gestão de Resíduos de Construção e Demolição;
- Decreto 117/20 de 22 de Abril;
- PGR do Terminal Polivalente da Unicargas.

ANEXOS

CROQUIS LOCALIZAÇÃO

O PRESENTE CROQUIS DE LOCALIZAÇÃO SERVIRÁ APENAS COMO DOCUMENTAÇÃO COMPLEMENTAR AO DOSSIER PARA EFEITOS LEGAIS ADMINISTRATIVOS

COORDENADAS GEOGRAFICAS					
PONTOS	LATITUDE	LONGITUDE	PONTOS	LATITUDE	LONGITUDE
P1	8°47'55.88"S	13°14'43.54"E	P3	8°47'57.50"S	13°15'0.34"E
P2	8°47'58.66"S	13°14'49.07"E	P4	8°48'2.88"S	13°15'1.13"E
P5	8°48'3.29"S	13°14'59.32"E	P6	8°48'7.30"S	13°14'59.75"E
P7	8°48'8.13"S	13°14'55.45"E	P8	8°48'3.74"S	13°14'54.74"E
P9	8°48'4.16"S	13°14'50.79"E	P10	8°48'8.66"S	13°14'51.14"E
P11	8°48'10.08"S	13°14'43.49"E	P12	8°48'2.66"S	13°14'39.14"E

ÁREA_REQUERIDA

PONTOS DE REFERÊNCIAS

0 900 1 800 3 600 5 400 7 200 Metros

REQUERENTE	UNICARGAS - Transporte Rodoviário e Gestora de Terminais Portuario	
DESC. E VERF.	GPL 1491/1380	ESCALA:1:9 182
DATA: Agosto/2023	Rua Kima Kienda II (EN 100), BairroPatrice Lumumba (Boavista), Distrito Urbano da Ingombota,Municipio de Luanda, Provincia de Luanda.	INGOMBOTA LUANDA

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136

Operadora de Terminal

Características Gerais – Infra-estrutura

Área Total	178.641 m²
Terraplenos	168.141 m²
Área de Armazenagem	10.500 m²
Nº de Armazéns	2
Cais Acostável	536 m
Profundidade Média	(- 10 m) ZH
Postos de Atracação	4

A UNICARGAS faz a gestão integral do Terminal Polivalente do Porto de Luanda onde manuseia contentores e carga geral. A produção média anual estimada é de 156.500 TEUS e de 244.500 TONS de Carga Geral.

Contamos nos nossos quadros com pessoal especializado em transporte marítimo, navegação, gestão portuária, segurança de instalações portuárias entre outras especialidades que permitem a UNICARGAS responder eficientemente as necessidades dos diferentes stakeholders que procuram os nossos serviços.

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ANGOJORDAN LDA,** com sede social na Província de Luanda, Distrito Urbano do N'gola Kiluange, Rua Farol das Lagostas, contribuinte fiscal n.º 5000231150, está autorizada a prestar serviço de recolha de resíduos ferrosos e não ferrosos, e óleos usados resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ZHONGAN HENGTAI- INDÚSTRIA, LDA,** com sede social na Província de Luanda, Município de Viana, KM 20, Casa n.º 67, contribuinte fiscal n.º 5600077445, está autorizada a prestar serviço de recolha de resíduos ferrosos e não ferrosos, resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

Transportadora de Cargas, Operadora de Terminais e Transitária
Comissão de Gestão

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **RECICLART – Comércio e Prestação de Serviços, LDA,** com sede social na Província de Luanda, Município de Viana, Rua 7, Casa n.º 301, Bairro Zango 3, contribuinte fiscal n.º 5417436062, está autorizada a prestar serviço de recolha de resíduos metálicos e não metálicos procedentes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

unicargas
Comissão de Gestão

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ENVIROBAC - Comércio Geral, Limitada** com sede social na Província de Luanda, Município de Luanda, Bairro Morro Bento, contribuinte fiscal n.º 5402134880, está autorizada a prestar serviço de recolha de resíduos sólidos, resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

CLEAN SYSTEM
LIMPEZA INDUSTRIAL E URBANA

Á
DIREÇCÃO DA UNICARGAS

S/Referência	N/Refêrencia	Data Expedição
	023/SC.GR/005	

ASSUNTO: Credencial.

Exmos Senhores…

A Clean System Lda. celebrou o contrato de prestação de serviços para limpezas e recolha de residuos urbanos. com a Unicargas, EP.

Nos termos do citado contrato, a Clean System Lda. tem a faculdade de subcontratar para tercerizar os serviços objecto do contrato inicial. o que. por meio desta credencial/Declaração o faz. a favor da empresa Enviroback Lda.

Para que se lhe não coloquem impedimentos, passamos a presente Declaração que vai assinada e autenticada com o carimbo a oleo, em uso nesta empresa.

DIRECÇÃO GERAL DA CLEAN SYSTEM EM LUANDA aos 19 de julho de 2023.

O DIRECTOR GERAL

Adilson Pinheiro

NIF nº 5417070041
Escritório: Rua B Av. Pedro de Castro Van-Dúnem Loy Futungo-Talatona | Luanda
Telemóvel: +244 911 650 602 Telef: +244 222 723 976 | +244 933 200 485 +244 996 784 261 | +244 996 784 261
Correio eletrónico: cleansystem00@hotmail.com

GABINETE DE INSPECÇÃO SEGURANÇA E AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº 31/DSE/2019

LOCAL DE CARREGAMENTO: T.P.U

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: MIDATO

LOCAL DE DESCARGA (DESTINO FINAL): ATERRO SANITÁRIO DA ELISAL

DATA DA OPERAÇÃO DE RECOLHA: 08 / 07 /2019

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Diversos	7 (Sete)

VIATURA MARCA: IVECO

MATRÍCULA: LD-17-04-EQ

COR: BRANCA

O RECEBEDOR

UNICARGAS, SEDE

Empresa de Limpesa e Saneamento de Luanda

Ticket de Particular

Ticket: 04101220181924-9

Data:10/12/2020

Hora: 18:19:24

PESAGEM SAÍDA(REAL)

Balança :ATERRO DOS MULENVOS

Empresa :ENVIROBAC

VEICULO

Matric.:LD3940HJ Codigo :...

Serviço :12

Localidade A

INGOMBOTA

UNICARGA-PORTO DE LUANDA

Peso Bruto...	22.680
Tara.....	13.920
Peso Liquido.	8.760
Resíduo	
Taxa(Kg)	4,00
Total	35.040,00

Operador SEBASTIÃO...

Copyright INFOCO 2016 Cópia Autorizada para a ELISAL SEBASTIÃO... 10/12/2020 18:33:48

de Limpesa e Saneamento de Luanda

Ticket de Particular

04101220181924-9

)/12/2020

8:19:24

EM SAÍDA(REAL)

:ATERRO DOS MULENVOS

a :ENVIROBAC

VEICULO

LD3940HJ Codigo :...

) :12

le A

3OTA

ŁGA-PORTO DE LUANDA

Bruto...	22.680
.....	13.920
Liquido.	8.760
luo	
Kg)	4,00
	35.040,00

Operador SEBASTIÃO...

vt INFOCO 2016 Cópia Autorizada para a ELISAL STIÃO... 10/12/2020 18:33:48

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

GABINETE JURÍDICO E INTERCÂMBIO

CERTIFICADO DE CONSULTORIA AMBIENTAL

N.º 6423196232

O Gabinete Jurídico e Intercâmbio do Ministério do Ambiente, atesta que foram cumpridas todas as formalidades legais conducentes ao Registo Técnico da Sociedade de Consultoria Ambiental DCBI-PRESTACAO DE SERVICOS E COMERCIO SU LDA., nos termos do Decreto Executivo nº 86/12, de 23 de Fevereiro de 2012, que aprova o Regulamento sobre o Registo Técnico de Sociedade de Consultoria Ambiental.

Emitida em,	Válida até,
05 de Maio de 2023	04 de Maio de 2024

Assinatura

Rui [illegible] Ferreira

RUI LEONEL BAPTISTA FERREIRA

(DIRECTOR DO GABINETE JURÍDICO E INTERCÂMBIO)

A autenticidade deste documento poderá ser verificada através dos passos a seguir:
1. Aceda ao Portal MINAMB (https://sia.minamb.gov.ao/validacaodocumentos)
2. Introduza o código CCONST-MzIwMDE5MDM= no campo "Código de Validação"
3. Clique em "Pesquisar"
Número do Certificado: 6423196232

6. Annex 6. Solid Waste and Effluent Management Plan of Luanda Port Company E.P (*Plano de Gestão de Resíduos sólidos e efluentes*)

LESPAMBIENTE

AO
PRESIDENTE DO CONSELHO DE ADMINISTRAÇÃO DA EMPRESA PORTUÁRIA DE LUANDA

LUANDA

ASSUNTO: Remessa do Dossier de Licenciamento Ambiental

Exmo Senhor.

A **Lespambiente Lda**, é uma empresa de Consultoria Ambiental de direito angolano, registrada no Ministério do Ambiente, com objectivo principal apresentar Soluções aos diversos problemas ambientais que surgem na sociedade e em diversos empreendimentos em funcionamento e a implantar a nível nacional.

Em virtude do contrato firmando entre a Empresa Portuaria de Luanda E.P e a Lespambiente Lda, em conformidade com Deliberação nº 35/68.00.01/2021, se deu inicio aos trabalhos de levantamento de campo no dia 06 de Junho de 2022, onde contempla a consulta documental, levantamento de dados técnicos, inquerito aos colaboradores responsáveis e registros fotográficos, na qual culminou com a elaboração de instrumentos de gestão ambiental.

Vimos pela presente, remeter o dossier referente ao trabalho de conformação as normas ambientais realizadas pela empresa de Consultora Ambiental, Lespambiente Lda.

Em conformidade com a Claúsula 4ª do Contrato estabelecido entre as partes, cumprindo com as obrigações, solicitamos a V/Exma que se digne ordenar o pagamento dos 45% do valor, correspondente a segunda percentagem, cujo a factura em anexo, remetemos.

Sem outro assunto de momento, seguro que merecerá a especial atenção de V/Exma, aproveitammos para reiterar votos de respeitosos cumprimentos e desejar atempadamente Festas Felizes.

Pelo que esperamos deferimento.

Atentamente.

Luanda, ao 09 de Dezembro de 2022.

LESPAMBIENTE LDA
Consultoria Ambiental

08 12 22
Melo

Lespambiente Lda
+244 923 571 954 – lespambiente@hotmail.com

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

AGÊNCIA NACIONAL DE RESÍDUOS

CERTIFICADO

Conformidade do Plano de Gestão de Resíduos

N.º 35/ 2023

A Agência Nacional de Resíduos, em conformidade com as competência conferidas pela alínea g) do n.º 1 do artigo 5.º do Decreto Presidencial n.º 181/14, de 28 de Julho, que aprova o Estatuto Orgânico da Agência Nacional de Resíduos;

Tendo sido cumpridas as disposições consignadas pelo artigo 7.º do Decreto Presidencial n.º 190/12, de 24 de Agosto, que aprova o Regulamento sobre a Gestão de Resíduos;

Certifica que foi aprovado o Plano de Gestão de Resíduos a favor de **EMPRESA PORTUÁRIA DE LUANDA - PLANO GEST. RES. E EFLUENTES DO PORTO DE LUANDA** Contribuinte Fiscal n.º **5410002237**, estabelecimento localizado no Bairro **Avenida 4 de Fevereiro** Distrito **Ingombotas**, Município **Luanda**, Província **Luanda**, em observância ao exposto nas disposições constantes nos diplomas supra mencionados.

Emitido em 10/2/2023 Válido até 10/2/2027

O(A) Presidente do Conselho de Administração

MEDIDAS DE MINIMIZAÇÃO DE RESÍDUOS

Emitido o Certificado de Conformidade do Plano de Gestão de Resíduos, devem ser cumpridas as medidas abaixo descritas durante a implementação do projecto:

- Submeter o contrato com uma operadora de gestão de resíduos perigosos e efluentes licenciada pela ANR;
- Priorizar as três primeiras etapas da hierarquia de gestão de resíduos (Prevenção, Redução e Reutilização) nas actividades a desenvolver;
- Criar uma área impermeabilizada, coberta com contentores devidamente identificados e com cores de valorização para o acondicionamento e segregação dos resíduos;
- Proceder a segregação dos resíduos de acordo a tipologia;
- Sempre que ocorrer situação anómala no que concerne a gestão de resíduos, comunicar a ANR no prazo máximo de 12 horas no endereço: agencianacionalderesiduos@anr.gov.ao; (nº1 e 2 do artigo 11º do 190/12;
- Promover campanhas de sensibilização sobre a recolha selectiva e valorização dos resíduos, na Comunidade aonde desenvolve a actividade;
- Realizar auditorias internas/externas de gestão de resíduos e avaliações pontuais periodicamente, para a supervisão do Plano de Gestão de Resíduos;
- Remeter à Agência Nacional de Resíduos anual um resumo (tipologia dos resíduos produzidos, quantidades, tratamento, valorização, destino final, fazendo remissão do manifesto dos resíduos descartados, quer seja ao aterro ou adquiridos por empresas de valorização devidamente identificadas;
- É crucial o respeito pelo prazo de renovação do Plano de Gestão de Resíduos, conforme orienta o nº4 do artigo 7º do Decreto Presidencial nº190/12 de 24 de Agosto, Regulamento sobre Gestão de Resíduos.

Observação: No decurso das suas actividades a empresa será alvo de acções periódicas de controlo por parte da Agência Nacional de Resíduos, conforme a alínea g) do artigo 6º, do Decreto Presidencial nº190/12 de 24 de Agosto, Regulamento sobre Gestão de Resíduos, devendo sempre colaborar com as entidades devidamente mandatadas.

O não cumprimento de qualquer das medidas supramencionadas, constitui infracção passível de aplicação de multas e sanções acessórias, que podem resultar na cassação do Certificado e, não isenta o infractor das responsabilidades civis e criminais, aplicáveis nos termos da lei.

Estrada da Samba, Condomínio Rosalinda,
Edifício 11B, 2º andar, porta C | Luanda-Angola
Email: agencianacionalderesiduos@anr.gov.ao
Telefone: +244 222 779 571

PLANO DE GESTÃO DE RESÍDUOS SÓLIDOS E EFLUENTES DA EMPRESA PORTUÁRIA DE LUANDA E.P

JULHO, 2022

PLANO DE GESTÃO DE RESÍDUOS E EFLUENTES DA EMPRESA PORTUÁRIA DE LUANDA E.P

Apresentação

De acordo a legislação em vigor (decreto 117 / 20 de 22 de abril) os projectos capazes de causar efeitos ao meio ambiente deverão ser sujeitos a um procedimento de Licenciamentos Ambiental.

O Presente plano de Gestão de Resíduos foi elaborado de acordo as directrizes do Decreto Presidencial 190/ 12 de 24 de Agosto, que regulamenta a Gestão de Resíduos, em concordância com o PESGRU.

O RESPONSÁVEL

(Director Técnico -Lespambiente)

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1. INTRODUÇÃO

A gestão correcta dos resíduos sólidos é de extrema importância para o meio ambiente, saúde pública e isenta as unidades fabris, as empresas, e todo projecto capaz de causar impactos negativos ao meio ambiente de multas aos órgãos de tutelas.

O presente documento refere-se ao plano de gestão de resíduos e efluentes do Porto de Luanda localizada em Luanda no distrito das Ingombotas.

O presente plano de gestão de resíduos foi elaborado no intuito do Porto de Luanda obter o certificado de gestão de resíduos, bem como manter o manejo correto de todos os resíduos gerados pela Empresa Portuária de Luanda EP, atendendo as legislações sobre gestão de resíduos vigente em Angola, garantindo assim a proteção da saúde pública e a dos funcionários em geral da mesma, bem como garantir a manutenção da qualidade ambiental no interior e em torno da empresa que lhe vai conferir a emissão do certificado.

Este plano de gestão de resíduos, descreve acções relativos à gestão dos resíduos sólidos, observadas durante a funcionalidade do Porto de Luanda, suas características contemplando os aspetos referentes à geração, segregação, acondicionamento, coleta, transporte, tratamento e destinação final dos resíduos.

A elaboração do Plano de gestão de Resíduos compreendeu a realização de um conjunto actividades que incluíram o diagnóstico ambiental do estado actual concernente ao tratamento de resíduos implantado pela unidade em estudo, a identificação dos focos de produção de resíduos existentes, bem como as políticas de modo a adequar as que se encontram em não conformidades, e reforçar aquelas que se encontram em conformidade.

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Para a realização do presente relatório o Porto de Luanda, contratou a Empresa de consultoria Lespambiente Lda., registada no Ministério do Ambiente no qual fez-se o levantamento de dados no campo, apoiados em fotografias, pesquisas bibliográficas e de outras fontes de dados secundários a realização efectiva do plano.

A Entidade licenciadora é a **Agência Nacional de Resíduos**.

Para a concretização do presente relatório **a Lespambiente Lda.,** contou com a participação de técnicos especialistas em diversas áreas com forme ilustra a tabela nº 1 abaixo.

1.1. EQUIPA RESPONSÁVEL PELA ELABORAÇÃO DO PGR

Tabela nº 1 – Equipa técnica responsável pelo Plano de Resíduos

NOME	ESPECIALIDADE	RESPONSABILIDADE
PINTO F. FIEL	Cordenação De Unidades Indústrias	Cordenador Geral
TÉRCIO MENDES	Gestão De Resíduos	Técnico Principal
PAULINO MVICA	Revisão Geral	Técnico Principal
GERTRUDES PEREIRA	Técnica Principal	Técnica Principal

2. ENQUADRAMENTO LEGAL

Tabela nº 2 – Descrição das referências legais usadas

Requisito legal/Normativo	**Descrição**
Decreto presidencial 190/ 12 de 24 de Agosto	Este diploma tem como objectivo estabelecer as regras geras relativas à produção, deposito no solo e no subsolo, lançamento para água ou atmosfera, ao tratamento, recolha, armazenamento e transporte de quaisquer resíduo, exceto os de natureza radioctiva ou sujeito a regulamentação especifica, de modo a prevenir ou minimizar os seus impactos negativos sobre a saúde das pessoas e no meio ambiente, sem prejuízo do

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	estabelecimento de regras que visam a redução, a reutilização , reciclagem , valorização e eliminação do resíduo.
Directiva 2006/ 12/ CE do Parlamento Europeu e do conselho de 5 de abril de 2006 relativo aos resíduos	Esta directiva estabelece conceitos e orientações gerais para acções de gestão de resíduos nos estados-membros da comunidade europeia.
Norma ISO 14001: 2004, Item 4:4,6: consolo operacional.	A organização deve identificar e planear as operações que estão associadas aos aspectos ambientais significativos identificados, consistente com a sua política ambiental e os seus objectivos e metas, de forma a garantir que essas operações sejam realizadas sob condições especificas
Lei das transgressões especificas nº 12/11 de fevereiro	O artigo 9º indica que põe em perigo o ambiente e o ordenamento do território e comete transgressões administrativa todo aquele que: a) Poluir o ambiente; b) Contribuir para emissão de poluentes causando prejuízo à qualidade de vida; c) Proceder ao desmatamento de áreas não autorizadas sem quaisquer actividade; d) Colocar resíduos nos leitos dos rios, mar, lagos, lagoas. e) Proceder ocupação de terrenos sem a prévia autorização da autoridade competente;

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2.1. OBJECTIVOS

O Plano de gestão de resíduos tem como objectivo principal a obtenção de certificado de gestão de resíduos para a Empresa Portuária de Luanda E.P, em questão, bem como dar orientações para manuseamento, a monitorização, armazenamento, transporte e destinação final dado aos resíduos produzidos no Porto de Luanda, em cumprimento da legislação ambiental vigor no país para obter o Certificado de Conformidade de Gestão de Resíduos na Agência Nacional de Resíduos, o órgão que tutela.

2.1.1. OBJECTIVOS ESPECÍFICOS

a) Identificar e classificar todos os tipos de resíduos a partir da fonte produtora, ou sectores e serviços envolvidos;
b) Prevenir e minimizar a produção de resíduos;
c) Implementar procedimento de triagem, deposição segura e transporte de resíduo no seu interior;
d) Providenciar que o manuseamento e recolha dos Resíduos deva ser efectuada apenas por pessoal habilitado;
e) Encaminhar os resíduos não perigosos, e os específicos para valorização (por exemplo reciclagem ou reutilização), sempre que possível;
f) Contratar empresas devidamente licenciada pela ANR, responsável a recolha o transporte externo, tratamento e destino final dos resíduos perigosos;

Para melhor alcançar os objectivos propostos, deve-se ter em conta os seguintes requisitos:

a) Definição das responsabilidades na gestão dos resíduos;
b) Definição do fluxo das operações, as normas de manuseamentos para cada tipo de resíduos e os procedimentos;
c) Realizações de contratos com fornecedores externos, quanto ao serviço de recolha, transporte e encaminhamento de resíduos.

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3. DESCRIÇÃO DA EMPRESA PORTUÁRIA DE LUANDA E.P

Esta secção faz uma apresentação da empresa Portuária de Luanda. Situada em Luanda no distrito urbano das Ingombotas, descrevendo as principais características tais como; topologia, disposição da área do Porto de Luanda, infraestrutura básica, força de trabalho e actividade exercida pela empresa, à um nível de detalhe suficiente para avaliar e caracterizar os principais impactos ambientes e socioeconómico relacionada com a produção e gestão dos resíduos resultante da presença da Empresa Portuária de Luanda E.P no local.

3.1. LOCALIZAÇÃO GEOGRÁFICA

De acordo com o levantamento do campo, bem como a consulta da documentação legal do terreno e croquis de localização, foi verificado que a EPL se localiza na província de Luanda no município de Luanda distrito urbano das Ingombotas. A área de jurisdição está definida na Lei nº9/98 de 18 de Setembro, delimitada por duas áreas marítima e terreste conforme ilustra a figura abaixo:

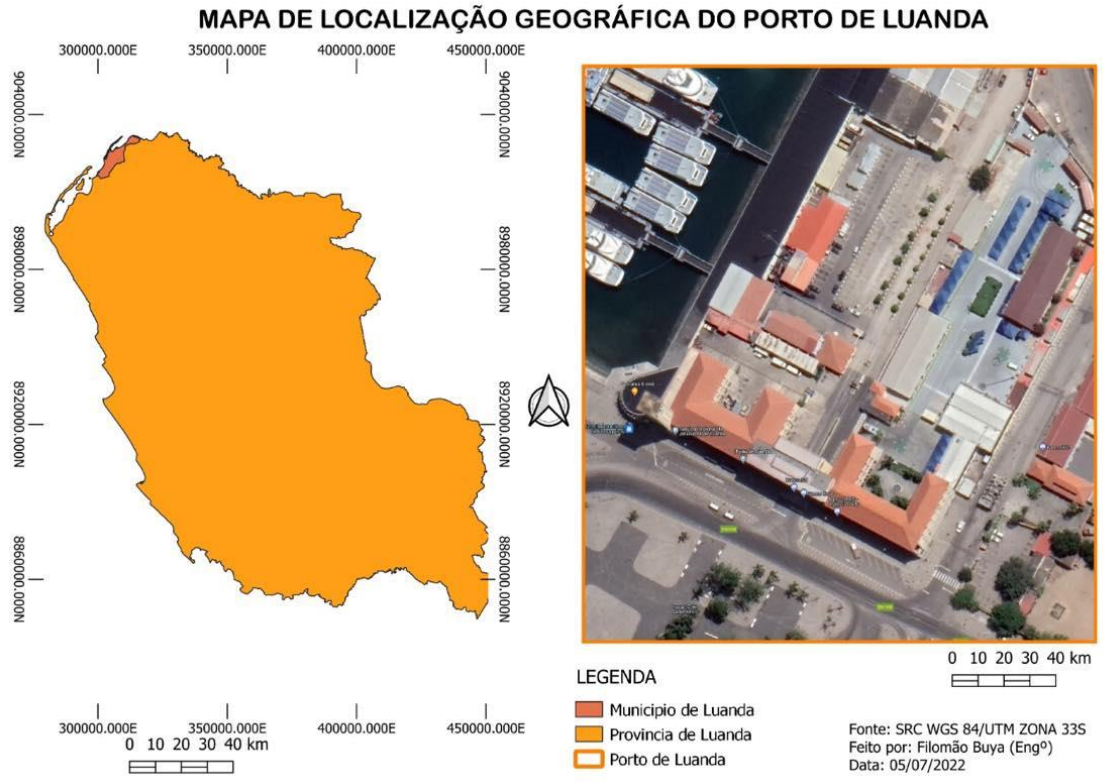

Fig. nº1: Mapa da província de Luanda, com destaque o município de Luanda-distrito urbano das ingombotas onde está localizada a empresa.

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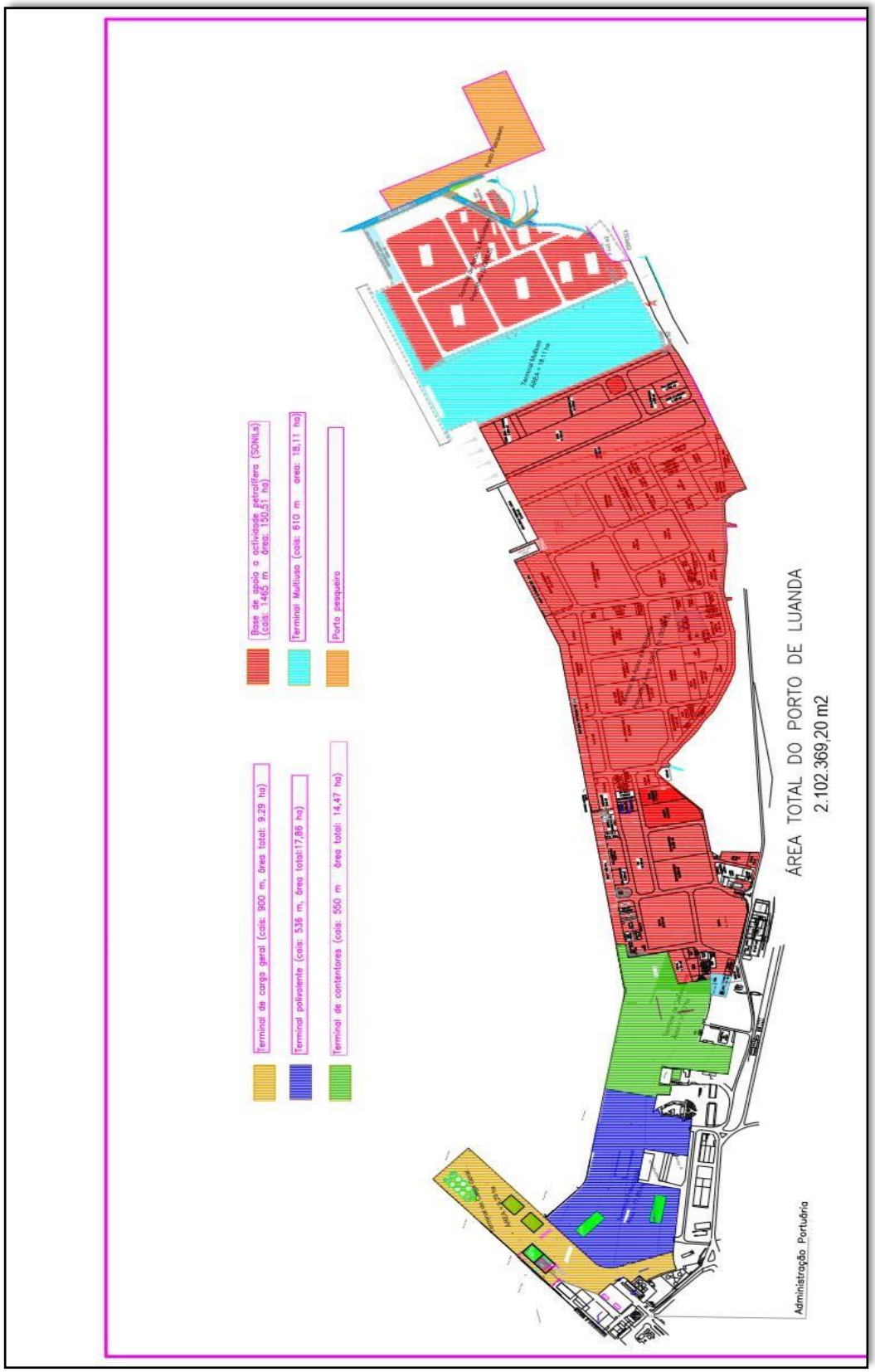

Fig. nº 2 - Layout do Porto de Luanda

3.2. DESCRIÇÃO DO ESTADO ACTUAL DA EMPRESA

O Porto de Luanda é uma empresa de importação e exportação, é um porto angolano e opera desde 25 de Janeiro de 1576. Ele é conectado ao centro da cidade de Luanda e ao distrito das Ingombotas. É uma empresa registada no direito angolano e existe á 446 anos, é uma empresa pública de grande dimensão, constituída por várias concessionárias, dotadas de personalidade jurídica, financeira e patrimonial. De acordo com o decreto nº 26/98 de 14 de Agosto que aprova o estatuto orgânico do Porto de Luanda, a empresa possui como órgãos sociais um conselho de administração (orgão de gestão), um conselho fiscal (fiscalizador da actividade) e um conselho consultivo (orgão de consulta e informação) que trabalham 8h por dia conforme orienta a lei geral do trabalho orienta, em termos de estrutura se adequam as exigências legais para projectos semelhantes.

3.2.1. ESTRUTURAS INSTALADAS E ÁREAS FUNCIONAIS

A presente estrutura instalada, bem como os equipamentos funcionais evidenciados neste plano de gestão de resíduos, vão de acordo com as recomendações efectuadas no levantamento de campo para a obtenção da licença de operação realizada no dia 6 de Junho do corrente ano no porto de Luanda, verificou-se na forma catalogada e fotografada, bem como, se usou como metodologia de colheita de evidências com os responsáveis de todos os sectores.

A empresa Portuária de Luanda contempla de 5 terminais concessionados e 1 de passageiros sob gestão do Porto de Luanda.

- **Terminal de Carga**: Terminal de Carga Geral (TCG), concessionado a Multiterminais, serve para o manuseamento de graneis líquidos e cereais. Possuí uma área de terraplenos de 72.190,20m^2 e um cais acostável de 900m com profundidade que variam entre (-6,00 m) ZH e (-10,50m) ZH. Foi construída no interior dessas instalações um moageiro.
- **Terminal dos contentores**: Concessionado a SOGESTER, uma sociedade constituída pela MAERSK e a gestão de fundos, ocupa uma área de 144.667,24m^2 de terraplenos e um cais acostável de 543 m com fundos que variam entre (-10,50) ZH e (-12,50m) ZH. Tem acesso um marítimo de emergência que interliga com outros terminais, e 2 terrestre sendo o principal com moro de vedação,

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delimitado pela via de interland do porto, com um total de 474 trabalhadores.

- **Terminal polivalente:** Está vocacionado para operar simultaneamente carga geral e contentores. Está sob gestão da empresa pública UNICARGAS. O terminal possuí uma área de 178.641m^2 de terraplenos e um cais acostável de 536m. Tem fundos de projectos de (-10,50m) ZH. Tem acesso um marítimo de emergência que interliga com outros terminais, e 1 terrestre principal com moro de vedação, delimitado pela via de interland do porto, tendo no seu quadro um total de 325 trabalhadores.
- **Terminal de apoio a actividade petrolífera-** Concessionada desde 2001 pela Sonangol, por um período de 20 anos, sendo a SONILS a operadora do mesmo. Tem uma área de 1.505.123m^2 e um cais acostável de 1.465 m com fundos de (-12, 50 m) ZH. Constitui o centro de serviços de apoio a indústria petrolífera e do gás. No terminal opera as principais companhias multinacionais produtoras de petróleo e gás.

  Possui um acesso marítimo, um de emergência e dois terrestre, que interliga com a via do porto com um moro de vedação. Tem no seu quadro de pessoal um total de 877 trabalhadores.
- **Terminal de multiuso**: Concessionada a SOPORTOS, está vocacionada para operar em simultâneo com o terminal de cargas e contentores. Ocupa uma área de 181.070,40m^2 de terraplenos, um cais acostável de 610 m, com uma profundidade média de (-12,50m) ZH. O terminal possuí 1 acesso marítimo, 1 acesso terrestre com via do interland do porto com um morro de vedação e um de interligação com outros terminais.
- **Terminal de passageiros:** Tem a finalidade para o embarque e desembarque de passageiros, onde alberga serviços comerciais e bancários, está sob gestão do Instituto Marítimo e Portuário de

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Angola. Tem uma área de 4.050m^2, com pontes cais com a capacidade cada uma acostagem de 2 navios do tipo Catamarã

- **Terminal de cabotagem:** Serve para fins comercial de cabotagem. O terminal de cabotagem possuí as seguintes instalações:

  - Uma frente acostável com 260 metros de comprimentos;

  - Um terrapleno com 27,650m^2;

  - Instalação para os serviços de pilotagem, reboque e amarração com 1.080m^2

  - Um armazém com área de 2.250m^2.

Em termos de estrutura instalada foram evidenciadas e catalogadas de acordo com o levantamento de campo, bem como; visualizada na planta da Empresa Portuária de Luanda E.P. A estrutura da EPL é constituída pelas seguintes áreas:

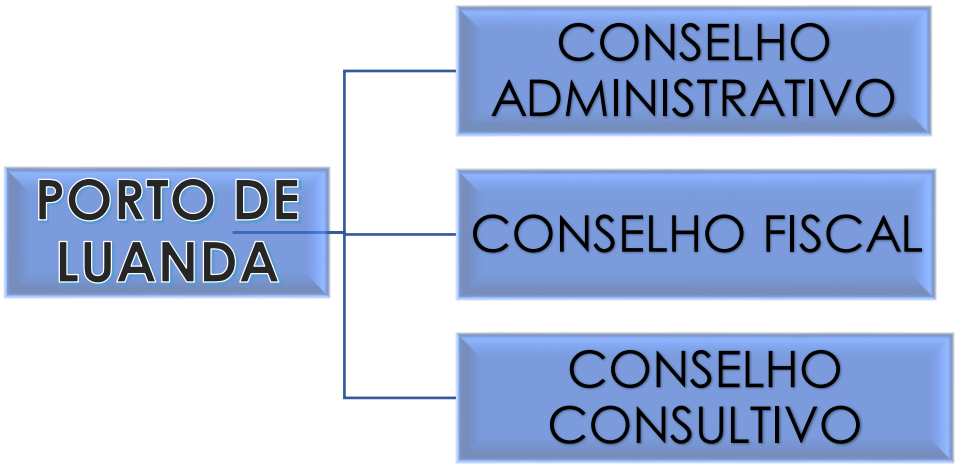

Fig. nº 3- Áreas administrativas, identificadas durante os levantamentos na EPL.

- **CONSELHO ADIMINISTRATIVO**

O Porto de Luanda., é uma empresa de grande porte, constituída por varais concessionarias, mas para o seu bom funcionamento a área administrativa da empresa é a compilação de diversos compartimentos

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que juntos trabalham, tratando assim todas burocracias envolvidas, controle de recursos humanos e matérias. A área administrativa é composta por: Gabinete dos Directores, área dos recursos humanos, área financeira, sala de reuniões, recepção.

- **ÁREA DOS GERADORES**

Nesta área é onde ficam os geradores, a empresa tem 5 geradores operacionais para o abastecimento elétrico quando não há energia da rede.

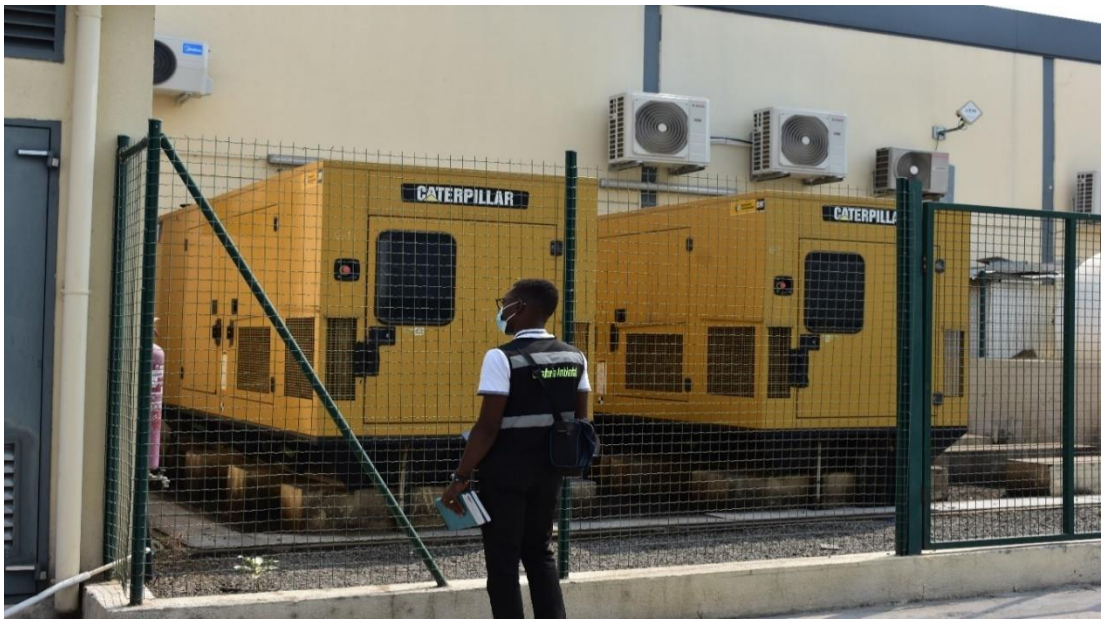

Fig. nº4 - Área dos geradores da empresa portuária de luanda

Fig.nº5 - Gerador da área do terminal dos contentores.

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Fig. nº6 - Área dos geradores inactiva no Porto de Luanda.

Fig. nº 7 - área de depósito do combustível dos geradores da empresa portuária de Luanda

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❖ ÁREA DOS CONTENTORES

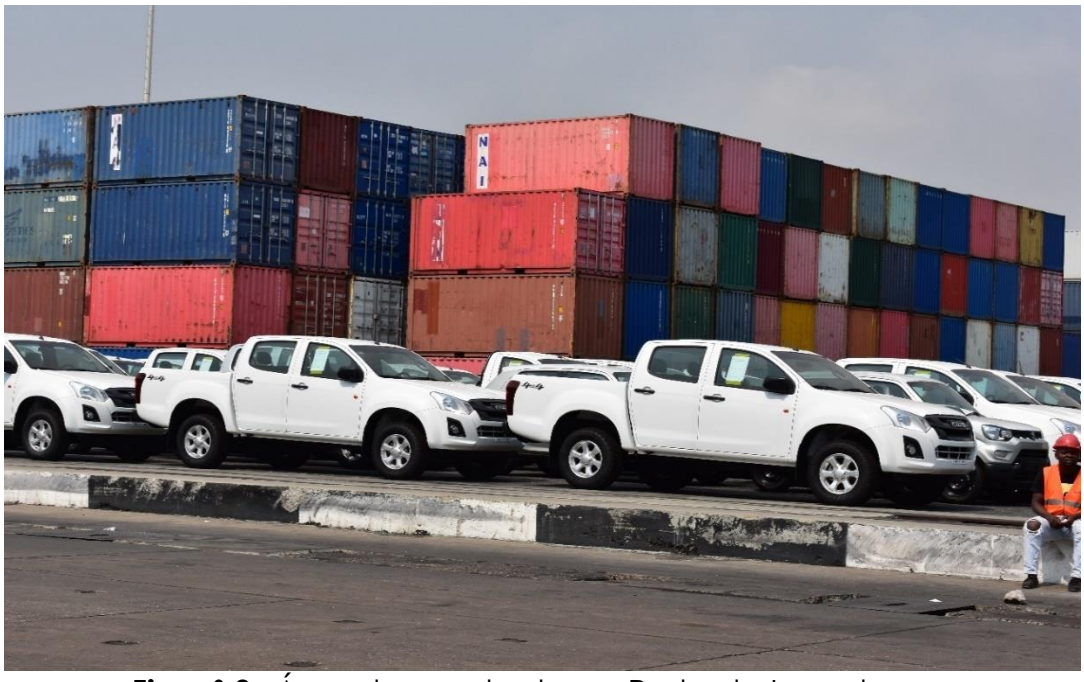

Fig. nº 8- Área dos contentores, Porto de Luanda.

❖ ABASTECIMENTO DE ENERGIA ELÉCTRICA NA EMPRESA PORTUÁRIA DE LUANDA

A energia eléctrica na empresa portuária é proveniente da ENDE (Empresa Distribuidora de Energia Eléctrica) para além dos geradores, e o seu controlo é feito mediante á um quadro de alta tensão.

Fig. nº 9 - Quadro geral de distribuição da energia na Empresa Portuária de Luanda E.P Lda.

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❖ ABASTECIMENTO DE ÁGUA NA EMPRESA PORTUÁRIA DE LUANDA

O abastecimento da água na empresa portuária de Luanda é feito pela EPAL, e a empresa conta com 5 reservatórios com a capacidade de 10 ml e tanques para o armazenamento.

Fig. nº 10 - Reservatórios de água activo no Porto de Luanda

3.3. RESÍDUOS GERADOS NA UNIDADE EM ANÁLISE.

Durante o funcionamento da empresa são gerados variedades de resíduos desde resíduos de cozinha, de refeitório, de serviço de bordo , resíduos orgânicos, resíduos químicos, metais, óleos e resíduos perigosos, cargas perdidas, mal condicionadas ou apreendidas; papel, papelão, vidros, plásticos e embalagens; resíduos sólidos contaminados com óleo, resíduos aquosos ou águas contaminadas com óleo; lâmpadas, pilhas e bactérias; resíduos de manutenção como estopas, serragem, panos; desperdícios no processo de cargas e descargas de grãos, acondicionamento de cargas e limpezas, matérias de escritório.

Os resíduos domésticos gerados na empresa portuária são depositados em recipientes de plásticos e posteriormente depositados nos contentores, a empresa portuária tem contratos com a empresa Port-Ambiente para a recolha dos resíduos.

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Fig. nº 11- Área do deposito de resíduos sólidos.

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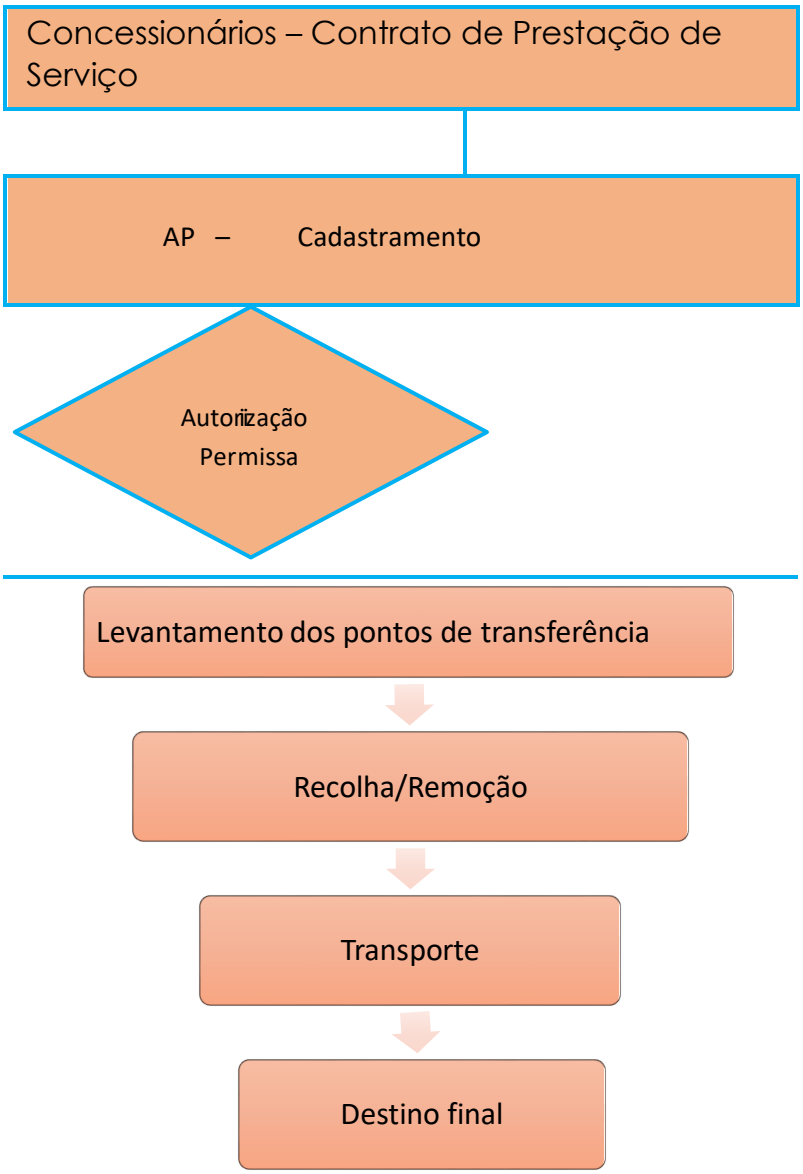
Segundo o plano de gestão ambiental da empresa portuária de luanda, a empresa passa pelo seguinte processo de recolha de resíduos no seu recinto:

PROCESSO DE RECOLHA DE RESÍDUOS NO RECINTO PORTUÁRIO



Legenda:

AP-Administração Portuária

PS-Prestadores de Serviços

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Análise swot do porto de luanda.
Fonte: Plano de Gestão Ambiental do Porto de Luanda

FORÇAS / EXITOS	FRAQUEZAS
1) Administração portuária sensibilizada para implementação de plano de gestão de resíduos no Porto de Luanda; 2) Implementação progressiva de acções de formação e educação ambiental no seio da comunidade portuária e áreas adjacentes; 3) Existências de vários prestadores de serviços para tratamentos de resíduos; 4) Existências empresa com equipamentos e meios de recolha, armazenamento e transporte apropriado de vários tipos de resíduos portuários.	I. Existências de lacunas na implementação de política e legislação na gestão dos resíduos portuários; II Os orçamentos deficitários dos órgãos afins em relação a matéria ambientais. III- Ausências de meios e equipamentos aos técnicos para desenvolver as suas actividades em pleno, usam técnicas de dedução; IV- Falta de ecopontos para segregação e triagem de resíduos.
OPORTUNIDADES	**AMEAÇAS**
1) Elevados investimentos na área e nas actividades portuárias; 2) Apoio do governo e das instituições que colaboram na cadeia portuária; 3) Existências de equipamentos e tecnologia muito avançada nas actividades no Porto de Luanda; 4) Promove estabilidade económica, social das instituições que operam na cadeia logística portuária.	II. Inexistências de um diploma que regulamenta, as taxas e uma legislação específica para os resíduos produzidos nos navios e no recinto portuário; III. Inexistências de infra-estruturas apropriadas recepção, tratamento de resíduos produzidos na área, segundo a OMI (Organização Marítima Internacional); IV. Défices na formação de pessoal em matérias de gestão ambiental; Ausência de Instalações para abastecimento de combustível.

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3.4. IDENTIFICAÇÃO DAS FONTES POLUIDORAS

De forma a identificar melhor as fontes de emissões de poluentes de todo projecto, faz-se uma abordagem abrangente em todo projecto na fase da planificação, exploração, e concepção do projecto e foi catalogado, no entanto as possíveis fontes de poluição na empresa identificadas são:

- Emissões de gases como monóxido de carbono (CO), dióxido de carbono (CO2), Ozônio (03), óxido nitrogênio (NOx) e dióxido de nitrogênio (NO2), Hidrocarbonetos (HC), entre gases presentes do escape dos automóveis que circulam na empresa. Esses gases apresentam um perigo para o meio ambiente pois aumento os gases presente na atmosfera causando o aquecimento global e o efeito estufa.
- Emissões de gases provenientes dos geradores, de acordo com o ambientalista "Domingos Fernandes, as emissões dos geradores dividem-se em dois grandes grupos, nomeadamente, às emissões próprias, isto é, inerente à combustão interna que se opera durante o funcionamento do motor, e indiretas, ou seja, aquelas relacionadas com o processo de produção de combustível".

Fig. n º 14 - Fonte de emissão de poluentes.

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- Emissões de Clorofluorcarbonetos, comumente chamados de CFC's, são haletos orgânicos formados por cloro, fluor e carbono, mediante o funcionamento dos ares condicionados nas salas administrativas. Esses compostos também são conhecidos como freons, são utilizados em sistemas de refrigeração e ares condicionados.
- Na década de 1970 descobriu-se que o grande responsável pela destruição da camada de ozônio era o uso desses fréons usados em refrigeradores e ares condicionados. Todos os equipamentos não só, os capazes de emitir poluentes ao meio ambiente devem ser periodicamente passar por um processo de manutenção e controlo para manter ou reduzir o nível de emissões e garantir o bom funcionamento do mesmo,com forme as fichas técnicas, de modo a proteger o meio ambiente e a saúde dos seres vivos.

3.5. EFLUENTES LIQUIDOS E GASOSOS RESULTANTE DA ACTIVIDADE

A empresa Portuária de Luanda Lda., tem como objectivo a montagem de sistema de refrigeração e ventiladores industriais e durante o processo dos exercícios de suas actividades, em termos do uso de equipamento que emitem efluentes gasoso é nulo, no entanto durante o seu exercício laboral há produção de efluentes líquidos ou águas resíduas resultantes do processo de limpeza/higienização da instalação.

As águas resíduas são encaminhadas em um sistema de drenagem específico instalado, que vai conduzir as águas resíduas do processo de limpeza até as fossas séptica onde as mesmas ficam armazenadas de forma temporárias e posteriormente serem descartadas na via pública sem o tratamento prévio.

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Fig nº 12- Escoamento das águas resíduas do Porto de Luanda.

4. MEDIDAS INTERNA DE GESTÃO DOS RESÍDUOS.

A gestão dos resíduos sólidos consiste em um conjunto de accões directas ou indirectas que envolvem várias etapas, recolhas, transporte, tratamento, e destino final ambientalmente correcta dos resíduos sólidos e dos dejetos, que devem estar em consonâncias com o Plano de Gestão dos Resíduos Sólidos Urbanos (PESGRU, 2012).

Na ausência de uma gestão de resíduo sólido funcional para o funcionamento da empresa portuária de Luanda, o presente capítulo será dotado de recomendações de atitudes a se ter em conta no processo de gestão interna dos resíduos de modo a cumprir com as normas legislativas angolanas estabelecidas.

O manuseio de Resíduo Sólido é entendido como o conjunto de accões de gestão dos mesmos em seus aspectos intra e extra empreendimento fabril, os mesmos devem seguir as seguintes etapas de acordo com as recomendações presentes em cada etapa:

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4.1. GESTÃO DOS RESÍDUOS COMUNS

Os resíduos comuns também conhecidos como resíduos sólidos urbanos, aqueles produzidos em habitação familiar proveniente de alimentos ou limpezas do lar, ou ainda aqueles produzidos em estabelecimento comercial com características de resíduos domiciliar.

Para os resíduos comuns produzidos no Porto de Luanda empresa de importação e exportação é recomendado o seguinte plano de gestão dos resíduos comuns:

- Segregação e acondicionamento: mesmos sendo o Porto de Luanda uma empresa de grande porte e productora de uma grande quantidade de resíduos urbanos durante o exercício de suas actividades laborais, os depósitos dos mesmos devem ser feitos nos depósitos plásticos ou metálicos, para tornar fácil o transporte pela equipa de limpeza bem como, facilitar no processo da limpeza e realizar a higienização periódicas dos depósitos sempre que necessário.
- Criar Ecopontos em vários pontos das empresas.
- Destino final: deve ser encaminhado para o aterro sanitário por uma empresa certificada pelo ANRS, caso não seja possível o seu reaproveitamento, uma vez que a empresa deve-se encontrar soluções ambientalmente corretas e aceitáveis.

4.2. GESTÃO DOS RESÍDUOS PERIGOSOS OU ESPECIAIS

Resíduo perigoso ou especiais é todo aquele apresenta significativo risco à saúde pública e a qualidade do ambiente devido as certas características. Ele pode ser inflamável, corrosivos, reativos, tóxicos, patogênicos, cancerígenos, teratogénicos (que podem interferir no embrião ou fecto) mutagénicos (que pode causar mutações).

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Pensando nas grandes consequências do descarte incorreto dos resíduos perigosos e no potencial de reaproveitamento de alguns o PESGRU, estabeleceu que determinados resíduos perigosos apos os consumos devem retornar a sua fábrica de origem ou sector comercial para serem reaproveitado.

A classe dos Resíduos considerados perigosos são:

- Agrotóxicos (incluí as embalagens)
- Pilhas e baterias
- Óleos lubrificantes
- Resíduos eletrónicos e seus componentes
- Lâmpadas florescentes, de vapor de sódio e mercúrio de luz mista

De acordo o levantamento efcetuado no campo foi verificado na empresa portuária de Luanda resíduos metálicos resultantes do processo de montagem do producto final. Foi verificado que a zona de manutenção dos geradores estava limpa e organizada livre de derrames e resíduos perigosos como os óleos lubrificantes.

Verificou-se também que os resíduos metálicos gerados no Porto de Luanda estão separados dos resíduos comuns, porem é recomendado que essa área esteja devidamente organizada, e sinalizada. Porem recomenda- se que o mesmo deve estar bem sinalizado e equipado com balde areia, caso de ocorrer um derrame tanto no processo da manutenção ou durante o funcionamento dos geradores.

Por serem considerados resíduos perigosos devem ser recolhidos por motoristas capacitada, que saibam como fazer adequado transporte dos resíduos sólidos industriais. A legislação proíbe que o resíduo meta seja jogado em terrenos e nas fontes de água (mares, rios, lagos), mesmo que o terreno pertença à indústria ou empresa, a lei proíbe o descarte nessas condições devido à poluição dos recursos naturais e o perigo que representam para os seres vivos, apesar de serem considerados resíduos com baixo risco de perigosidade.

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4.3. MONITORIZAÇÃO DO SISTEMA DE GESTÃO DOS RESÍDUOS

O monitoramento consiste na avaliações e acompanhamentos exaustivos e periódicos de todos os procedimentos inerentes ao sistema de gestão de resíduos da empresa, bem como na orientação dos seus funcionários para a adoção de postura, atitudes e decisões ambientalmente adequada no desenvolvimento de suas actividades no período laboral.

Visando o cumprimento do PGRS e atualização recomenda-se:

a) A indicação e nomeação de um responsável pelo monitoramento, com a responsabilidade de fazer cumprir as recomendações dispostas no presente PGRS, e verificar em toda empresa o comprometimento dos demais funcionários quanto à segregação, manuseio, transporte, e deposição correta dos resíduos;
b) A Actualização constante do responsável a respeitos dos serviços de colecta, manuseio, armazenamento, e disposição final dos resíduos, com vista no aperfeiçoamento do plano;
c) Realização de vistorias/ inspecções nos locais com maior ocorrência de poluição ou focos de produção de resíduos;
d) Acompanhar e avaliar os programas de recolhas, transporte, e tratamento dos resíduos e efluentes de modo a corrigir as acções que possam comprometer o PGRS;
e) Elaboração mensal de relatório de avaliação do sistema de gestão dos resíduos e efluentes líquidos.

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Aspectos a monitorar	ACÇÃO	PÉRIODO	RESPONSÁVEL
Depósitos de Resíduos	Verificação periódica dos depósitos de resíduo, e seu estado de conservação e necessidade de substituição bem como, sinalização dos mesmo	**Mensal**	Responsável pela área de manutenção ou monitoramento
Processo de Gestão	Verificar o cumprimento na integra do processo de segregação, condicionamento e transporte e destino final dos resíduos	**Semanal**	Responsável pela manutenção ou monitoramento
Gestão dos efluentes	Definir um plano de limpeza das fossas sépticas	**Sempre que necessário**	Responsável pela área de manutenção ou monitoramento
Área dos Geradores	Verificar as conformidades dessa área, tais como: deposito de área e contaminada, sinalização do mesmo, bem como um deposito para contaminantes	**Sempre que se efectuar manutenção nos geradores**	Responsável pela área de manutenção ou monitoramento
Operador de Limpeza	Verificar o processo de transporte dos resíduos, bem como a entrega de um manifesto de recolha e deposição dos resíduos no destino final onde são encaminhados	**Semanal**	Responsável pela área de manutenção ou monitoramento
Segurança e Emergia	Verificar a conformidade da instalação dos extintores, o kit dos primeiros socorros de modo a não faltar os medicamentos que mais se usa	**Mensal**	Responsável pela área de manutenção ou monitoramento
Área de armazenamento	Verificar as instalações se esta adequada á área de armazenamento dos resíduos, bem como a conservação dos depósitos de resíduos e sinalização dos mesmos.	**Trimestral**	Responsável pela área de manutenção ou monitoramento

5. ORGANIZAÇÃO INTERNA PARA RISCO DE INCÊNDIO E EXPLOSÃO

➢ Segurança no posto de trabalho

Manter os funcionários não limita -se apenas em evitar qualquer tipo de situações violentas que pode ocorrer e pôr em risco a vida dos funcionários, trata-se na verdade de mitigar ou mesmo erradicar qualquer situação que pode causar danos físicos, psicológicos aos funcionários

- **Local de Trabalho** -A instalação Portuária de Luanda apresenta disponibilidade de fácil locomoção, sem nenhum constrangimento para os funcionários e para todo pessoal que circula na instalação.

- **Posição de Trabalho** – Em algumas áreas funcionais da organização atendendo as atividades exercidas os funcionários ficam muito tempo em pé ou até mesmo estão sujeitos a estarem posicionados de maneira incorreta por isso é recomendado um descanso de pelo menos 2 minutos ou fazer uma rotação de pessoal para que o funcionário não fica exposto por muito tempo em posições que futuramente irão causar doença ao funcionário.
- **Iluminação da empresa** – Em todas áreas funcionais da organização a iluminação que nela incide é de caracter natural e artificial, de modo a garantir o funcionamento eficiente de todas as actividade no período laboral. Por tanto as fontes de iluminação artificial são devidamente orientadas e ajustadas a nível técnico para garantir que não haja nenhum incidente ou constrangimentos.
- **Riscos químicos** – existe contacto directo com as matérias durante o exercício das actividades, não existe contacto com gases tóxicos no decorrer nas actividades nem na instalação em geral. Existe ventilação ou circulação de oxigénio no interior da empresa, há exposição dos trabalhadores a poera e fumo durante a execução dos trabalhos. É recomendado o uso de máscaras e viseiras, de modo a garantir a proteção dos olhos, e evitar doenças cardiorrespiratórias.

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- **Riscos Biológicos**- Não existe contacto com bactérias ou fungos no decorrer das actividades, porem a existência desses organismos no refetório e nos Toalete é propensa é necessário que a higienização seja feita de forma constante e de corretamente.

- Não há indícios de radiações no decorrer das activiadades.

- Não há indícios de temperaturas extrema.

-Não há indícios de humidade.

- **Riscos Ergonómicos**

- Há possibilidade de monotonia

- Há possibilidade de postura incorreta

- Há possibilidade de levantamento de peso

- **Os primeiros Socorros e Combate à Incêndios**

Em termos de medicina no trabalho a Empresa Portuária, é assegurada pela empresa de seguro ENSA, porem a instalação no seu interior possuí um centro ou posto medico para os primeiros socorros em caso de acidentes de trabalho, está equipada com kits de primeiros socorros.

É importante realçar que dentre os vários departamentos que constituem a instalação, existe ainda o departamento de HSA, que tem o dever de manter os funcionários e a empresa em segurança, bem como preocupar-se com questões ambientais.Assim sendo, verificou-se que a unidade empresarial tem um programa de formação de aplicação de um plano de formação dos seus 5 funcionários em matéria relacionado á SHST (Saúde Higiene e Segurança no Trabalho) Ambiente, e combate a incêndios.

- **Protecção coletiva e individual** – Os equipamentos de protecção previnem os possíveis acidentes que possam acontecer no decorrer dos exercícios das activiadades laborais que consequentemente torna-se

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indispensável a sua utilização e disposição no interior da unidade empresarial.

Por tanto na empresa portuária de Luanda dispõe de seguintes equipamentos:

1) **Equipamento de protecção individual** – na área da serralharia é necessário o uso de equipamento de protecção individual para salvaguardar a integridade física dos funcionários. Constatou-se que a empresa dispõe de equipamentos como luvas, porem notou-se também a ausência de vários equipamentos de protecção nos funcionários tais como: abafadores de ruídos, capacetes, coletes refletores e muito mais na área da serralhar durante a execução das suas activadades laborais.

2) **Equipamentos de Proteccão Colectiva**- A unidade empresarial dispõe de vários tipos de equipamento de protecção colectiva tais como: sinalizadores, escadotes, equipamentos de transporte para levantar matérias pesados extintores.

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6. CONSIDERAÇÕES FINAIS

Tal como as outras empresas ou fabrica, a empresa de exportação e importação portuária de Luanda que são suscetíveis de causar impactos ao meio ambiente por intermedio de suas actividades devem estar sujeitos a um acompanhamento por parte das entidades responsável, de modo a proteger o meio ambiente. Durante o exercício das actividades a empresa portuária de Luanda produz-se resíduos metálicos e domésticos, sucatas, resíduos perigosos, expressa a necessidade de gestão de resíduos em toda área da empresa.

O plano de Gestão de Resíduo deve ser encarado com muita responsabilidade pela empresa, e implementada em todos os processos, pois é uma oportunidade de conhecer a fundo os possíveis impactos ambientais que a empresa em questão pode causar ao meio ambiente. A responsabilidade ambiental esta cada vez mais presentes não só em empresas de grande porte, além de permitir o cumprimento da legislação em vigor, favorece o posicionamento e o desenvolvimento da própria empresa ou indústria, dando oportunidades de investimentos exteriores.

A aplicação adequada do presente Plano de Gestão de Resíduo vai beneficiar a empresa Portuária de Luanda, a obter uma melhor gestão dos seus resíduos gerados durantes a executação das suas actividades, bem como funcionários capacitados para atender os eventuais acontecimentos relativo ao assunto.

No entanto fica patente que para o desenvolvimento e o crescimento não só económico de empresa é necessário que haja melhoria continua em todos os sectores ou processos, apesar do Porto de Luanda, por ser de grande porte é importante que tenha uma gestão disciplinada dos seus resíduos e uma equipa viradas as questões ambientais para fiscalizar e monitorar assuntos relacionados com as questões ambientais. A efectivaçaõ do presentes Plano de Gestão de Resíduo na sua integra presenta o primeiro grande passo para conformidade ambiental em relação a gestão dos resíduos para obtenção do certificado diante da Agência Nacional de Resíduos e melhoria do entorno da própria empresa em questão.

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7. BIBIOGRAFIA E SITES CONSULTADOS

GOVERNO DE ANGOLA. Decreto presidencial nº 190/12 de 24 de Agosto

Coelho, A (2001). Lei Base do Ambiente Anotada. Faculdade de Direito da Universidade Agostinho Neto Luanda 450 p.

GOVERNO DE ANGOLA. (2004). Lei da atividade industriais (lei 5/ 04 de 7 de setembro). Governo de Angola Luanda.

GOVERNO DE ANGOLA. (2010b). Decreto presidencial que aprova o estatuto orgânico do ministério do Ambiente (Decreto presidencial nº 119/10 de 13 de setembro). Governo de Angola Luanda.

GOVERNO DE ANGOLA. (2011b). Regulamento sobre responsabilidade por danos ambientais. (Decreto presidencial nº 194/11 de 7 de julho. Governo Angola Luanda

Plano Nacional de Gestão de Resíduos Sólidos 2011-2020 (Lisboa 2011). Cap1 página 1,2,3,14.

Consulta no : PLANO DE GESTÃO AMBIENTAL do Porto de Luanda página 19,20,21

https://www.researchgate.net Proposta de Plano de gerenciamento de resíduos de empresas metalúrgicas, 2022.

https://www.vgresíduos.com.br ´´Aprenda como elaborar o Plano de Gestão de Gerenciamento de resíduos Sólidos´´ 2022.

www.mma.gov.br/estruturas/253/.../253/publicação02022012041757pdf

Ministério do Meio Ambiente Plano Nacional de Resíduos Sólidos.

- ✓ *O QUE É GESTÃO DE RESÍDUOS SOLIDOS E QUAL SUA RELAÇÃO COM O TECNICO DE SEGURANÇA NO TRABALHO?*

7. Annex 7. Complaint form for the GRM

COMPLAINT FORM

Date of submission:	
Complainant's full name:: Note: you can remain anonymous if you prefer or request that we do not disclose your identity to third parties without your consent	First name_____ Last name _____ ❑ I wish to raise my complaint anonymously ❑ I ask not to reveal my identity without my consent
Complainant's contact information (if you wish to keep the suggestion anonymous, leave it blank)	(how would you like to be contacted, post, telephone or e-mail)
Preferred language for communication	
Fill in as an individual complaint or on behalf of a group or community. Note: your group or community can remain anonymous	❑ As an individual complaint ❑ Represent a group Name of the group or community _____
Description of the complaint: (What happened? Where did it happen? Who did it happen to? What is the result of the problem?)	
Date of Incident/Complaint	❑ Incident/single complaint (date _____) ❑ Happened more than once (how many times?_____) ❑ In progress (currently a problem)

Gray boxes to be filled in by the complaint handler

Complaint number::	
Complaint received by:	
Member of the team responsible for handling the complaint:	
Expected date of resolution:	
Evaluation of Complaint Significance Level (1-3)	*(if level 3 escalates to Project Manager/Director)*
Signature:	

ACTIONS TO ADDRESS COMPLAINTS

Delegation:			
Action	Person/entity responsible	When	Completed S/N/Dat
Response/Resolution:			
Strategy for communicating response:			
Approval:			
Date:	Filed by:		

CONCLUSION OF COMPLAINT

Is the complainant satisfied?	Y/N	Comments from the community liaison officer:			
Complainant's comments on the resolution:					
Complaint closed?	Y/N	Closing date	Complaint Submitted again?	Y/N	Date
Signature and role:					

8. Annex 8. Credentials

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

GABINETE JURÍDICO E INTERCÂMBIO

CERTIFICADO DE CONSULTORIA AMBIENTAL

N.º 1190840242

O Gabinete Jurídico e Intercâmbio do Ministério do Ambiente, atesta que foram cumpridas todas as formalidades legais conducentes ao Registo Técnico da Sociedade de Consultoria Ambiental SOAPRO, S.A., nos termos do Decreto Executivo nº 86/12, de 23 de Fevereiro de 2012, que aprova o Regulamento sobre o Registo Técnico de Sociedade de Consultoria Ambiental.

Emitida em,	**Válida até,**
16 de Janeiro de 2024	15 de Janeiro de 2025

Assinatura

Rui Leonel B. Ferreira

RUI LEONEL BAPTISTA FERREIRA

(DIRECTOR DO GABINETE JURÍDICO E INTERCÂMBIO)

REPÚBLICA DE ANGOLA MINISTÉRIO DO AMBIENTE GABINETE JURÍDICO E INTERCÂMBIO

A autenticidade deste documento poderá ser verificada através dos passos a seguir:
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3. Clique em "Pesquisar"

Número do Certificado: **1190840242**

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ANPG
AGÊNCIA NACIONAL DE PETRÓLEO, GÁS E BIOCOMBUSTÍVEIS

CERTIFICADO

Nº -- **5403011832/CL-ANPG/2022**

A ANPG certifica que a empresa

SOAPRO SA

Sita
Luanda, Angola,Av. 4 de Fevereiro, 82 – 1º,luanda,luanda,3866

Contribuinte Fiscal nº **5403011832**
Registo Comercial nº **1993-24362**

ESTÁ APTA A FORNECER BENS E SERVIÇOS AO SECTOR DE PETRÓLEO E GÁS EM ANGOLA.

Os bens e serviços certificados encontram-se descritos no verso do presente certificado.

Data de Início: **27/05/2022**

Data de Término: **26/05/2025**

DocuSigned by:
César Paxi Pedro
CE73BCD0432A4AA...

A Administração da ANPG

Este certificado é emitido nos termos do artigo 23º do Decreto Presidencial nº 271/20, de 20 de Outubro.

Business

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AGÊNCIA NACIONAL DE PETRÓLEO, GÁS E BIOCOMBUSTÍVEIS

CERTIFICADO

Nº -- **5403011832/CL-ANPG/2022**

9 BEM(S) E SERVIÇO(S) CERTIFICADOS PELA ANPG:

Modificação de unidade de produção existente (brownfield)
Serviços de gestão de projectos
Engenharia e Design
General engineering services
Fornecimento de Serviços de Engenharia e Modificações
Serviços de Suporte de Engenharia e Instrumentação
Serviços de gestão de projectos
Consultoria em impacto ambiental
Administração e Gestão de Projectos

Este certificado é emitido nos termos do artigo 23º do Decreto Presidencial nº 271/20, de 20 de Outubro.

Business

Certificado
Certificate

NÚMERO **2021/CEP.5859**
Number

O Sistema de Gestão da Qualidade da
The Quality Management System of

SOAPRO

Av. 4 de Fevereiro, 82, 1º Andar
LUANDA - ANGOLA

implementado na consultoria, auditoria e elaboração de projetos de engenharia, arquitetura e urbanismo. Avaliação imobiliária. Impactes ambientais – avaliação, estudos, auditorias, planos e acompanhamento. Gestão, planeamento, coordenação, fiscalização, consultoria e auditoria de obras de construção. Avaliação, revisão e coordenação de projetos de engenharia, arquitetura e urbanismo, cumpre os requisitos da norma

implemented in the consulting, audit and engineering, architecture and urbanism designs. Real estate evaluation. Environmental impact assessments - studies, audits and monitoring plans. Management, planning, coordination, supervision, consulting and audit of construction works project assessment, review and coordination on architecture, urbanism and engineering designs, meets the requirements of the standard

NP EN ISO 9001:2015

José Leitão
CEO

Emitido em 2021-07-17
Date of issue
Válido até 2024-07-16
Valid until

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COMISSÃO
DO MERCADO
DE CAPITAIS
REPÚBLICA DE ANGOLA

NIF 7403008227

CERTIDÃO

Certifico que a **SOAPRO, S.A,** com sede em Luanda, na Avenida 4 de Fevereiro, n.º 82, 1.º Andar, Distrito Urbano da Ingombora, com o NIF 5403011362, encontra-se devidamente registada nesta Comissão, sob o número **0015/PAI/DSOICE/CMC/04-18**, como **Perito Avaliador de Imóveis de Organismos de Investimento Colectivo Imobiliários (OICI)**, estando habilitada a avaliar imóveis integrados ou passíveis de integrar o património dos Organismos de Investimento Colectivo Imobiliários e sujeita à supervisão da Comissão do Mercado de Capitais, nos termos do **Regulamento n.º 1/14, de 31 de Janeiro de 2014 – Dos Peritos Avaliadores de Imóveis dos Organismos de Investimento Colectivo Imobiliários** e demais diplomas legislativos aplicáveis.

****

Para os devidos efeitos estão autorizados a actuar em seu nome, **Assunção Manuel Meneses da Costa**, registado sob o n.º **001-0015/DSOICE/CMC/04-18**, e **Nádia Vanessa Rodrigues Dolbeth e Costa**, registada sob o n.º **002-0015/DSOICE/CMC/04-18**

****

A presente Certidão, por mim assinada, é autenticada com selo branco em uso nesta instituição.**********

COMISSÃO DO MERCADO DE CAPITAIS, em Luanda, 17 de Abril de 2018.

O Presidente

Mário Gavião

COMISSÃO DO MERCADO DE CAPITAIS
REPÚBLICA DE ANGOLA

NIF 5000336025

Número de Registo
0015/PAI/DSOICE/CMC/04-18

CERTIDÃO DE REGISTO

Averbamentos e Anotações n.º 001

ALTERAÇÕES AOS ELEMENTOS DE REGISTO

Fica registada a inscrição dos Senhores **Tárcio Emanuel Gomes da Silva**, como Perito Avaliador de Imóveis de Organismos de Investimento Colectivo, pessoa singular, sob o n.º 003-0015/DSOICE/CMC/04-18 e **Marta Antónia Rodrigues de Sousa Oliveira**, como Perito Avaliador de Imóveis de Organismos de Investimento Colectivo, pessoa singular, sob o nº. 004/0015/DSOICE/CMC/04-18, ambos a actuarem, exclusivamente, por conta da SOAPRO, Lda.

Adicionalmente, fica excluído da Certidão, o registo da Sr.ª **Nádia Vanessa Rodrigues Dolbeth e Costa dos Anjos**, Perito Avaliador de Imóveis de Organismos de Investimento Colectivo, pessoa singular, sob o n.º 002-0015/DSOICE/CMC/04-18, que actuava, exclusivamente no interesse da SOAPRO, Lda.

****

COMISSÃO DO MERCADO DE CAPITAIS, em Luanda, 05 de Julho de 2022.

A Presidente

Maria Uini Baptista

Acreditación

ENAC
Entidad Nacional de Acreditación

Otorga la presente / Grants this

ACREDITACIÓN
351/EI565

a

ELITTORAL, ESTUDIOS DE INGENIERÍA COSTERA Y OCEANOGRÁFICA, S.L.N.E.

Según criterios recogidos en la norma UNE-EN ISO/IEC 17020, para las actividades de INSPECCIÓN definidas en el ANEXO TÉCNICO nº 351/EI565.

According to the criteria in the standard UNE-EN ISO/IEC 17020 for the inspection activities defined in the Technical Annex No 351/EI565.

Fecha de entrada en vigor / Coming into effect: 21/04/2017

D. José Manuel Prieto Barrio
Presidente

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Acreditación

ENAC
Entidad Nacional de Acreditación

Otorga la presente / Grants this

ACREDITACIÓN
103/LE268

a

INVESTIGACIÓN Y PROYECTOS MEDIOAMBIENTE, S.L. (IPROMA)

Según criterios recogidos en la norma UNE-EN ISO/IEC 17025, para las actividades de ENSAYO definidas en el ANEXO TÉCNICO nº 103/LE268.

According to the criteria in the standard UNE-EN ISO/IEC 17025 for the Testing activities defined in the Technical Annex No 103/LE268.

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CERTIFICADO DE REGISTO

Nº CR - 02.78.78/2023

Para efeitos do exercício da actividade de prestação de serviços no âmbito da Gestão da Qualidade, o Instituto Nacional das Infra-Estruturas da Qualidade, de harmonia com a alínea y), n.º1, artigo 13º, do Decreto Presidencial 95/21, de 20 de Abril, certifica que a entidade, abaixo mencionada, está registada neste Instituto, como provedora de serviços na área da Avaliação da Conformidade exclusivamente nos parâmetros neste indicado

ENTIDADE	ECOSAPIEN – Centro de Estudos Ambientais e Tecnólogicos
NIF	5417181900
ÂMBITO (S)	Laboratório de Ensaios
DOMINIO (S)	Físicos, Químicos e Microbiológicos
TIPO (S)	Alimentos e Água
GRANDEZA (S)	N/A
NORMA (S)	NA ISO/IEC 17025:2017
NÚMERO DE TÉCNICOS	03
CLASSIFICAÇÃO	D
VALIDADE	17/03/2024
OBSERVAÇÕES	1- O presente Certificado de Registo, não é um título de acreditação porém, serve como evidência de cadastro em conformidade com o nº3 do Decreto Executivo nº 55/08 de 17 de Abril. 2- A classificação é atribuída mediante o resultado da Auditoria de Diagnóstico às práticas do organismo acima referido, em comparação com os requisitos da norma de referência do âmbito.
EMISSÃO	**LA 17/03/2023**

A Directora Geral

Olga Mungadi Afonso Dicamba

Edifício Palácio do vidro
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Luanda - Angola

GOVERNO DE ANGOLA | MINDCOM Ministério da Indústria e Comércio

9. Annex 9. Stakeholder engagement findings report

مجموعة موانئ أبوظبي AD PORTS GROUP	AD Ports Group Project	TYPSA
PROJECT TITLE	**Contract No. 2800-302** **Title: Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola**	

DELIVERABLE 5 – STAKEHOLDER ENGAGEMENT REPORT

CONTRACTOR'S VERIFICATION STAMP

We, TYPSA Group, verify that this contractor's document:

- Has been produced and checked in accordance with contractor's quality assurance plan
- Is of a standard that will enable the employer to accept it in accordance with the contract
- Complies with all requirements of the contract

Following deviations to contract are referenced for which a dispensation has been accepted by the employer:

None

Other related letters/CTIs which document clarifications associated with this document are listed below:

None

Consultant/Contractor's Project Manager:

ANA BARÓ — 21.11.2024

Project Manager | Signature | Date

DOCUMENT STATUS STAMP

AD Ports Group | Code

☐	Code 1:	Work may proceed.
☐	Code 2:	Revise & Resubmit. Work may proceed subject to incorporation of comments indicated.
☐	Code 3:	Revise & Resubmit. Work may not proceed.
☐	Code 4:	Review not required. Work may proceed.

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Any review, comment or acceptance by employer under this contract with respect to any of contractor's documents shall not in any way be, or deemed to be, an approval of any works or an acceptance that the contractor's documents meet the requirements of the contract, as contractor has the sole responsibility for performing the works in accordance with the requirements of this contract.

Document Number: 2800-302-V3-0000-00023

Rev	Date	Reason For Revision	Prepared	Checked	Approved
003	21-Nov-2024	Issued for Approval			
002	01-Oct-2024	Issued for Approval			
001	23-Aug-2024	Issued for Approval			

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(1) Revisions are shown in italics. Deletions are hidden. Earlier additions revert to normal text in subsequent amendments
(2) The QA Manager reviews and the project Manager approves amendments by signature on the cover sheet to the document
(3) The document controller maintains a Register of the holders of this document
(4) Amendments to the document are distributed according to (1) above and this I reflected in the register

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AD PORTS GROUP

Environmental Consultancy Services for the Development of Unicargas Port in Luanda - Angola

Stakeholder Engagement Report

VOLUME I

November 2024

TYPSA has an Integrity Management System in place that has been ISO 37001 (Anti-bribery Management System) certified since 2019. Please consult our Corporate Integrity Policy statement and Code of Ethics at www.typsa.com/en/ethics-and-integrity/ where a communication channel is also available to forward complaints, questions, grievances or suggestions.

Quality control sheet

Document	EC1473-RP-LUANDA PORT_SEPreport-D03	
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Code	2800-302-V3-0000-00023_003	
Authors:	Signed:	Ana Baró
	Date:	21-November-2024
Verified	Signed:	Patricia Rullán
	Date:	21-November-2024
Recipient	TYPSA	
Submission to	ADP Group	
Notes		

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1. INTRODUCTION

AD Ports Group, a leading facilitator of global trade, logistics, and industry, has signed several agreements with Unicargas and Multiparques leading to securing a 20-year concession agreement (extendable for another 10 years) with the Luanda Port Authority for the operation and upgrade of the existing Unicargas multipurpose port terminal in Angola. The agreements with Unicargas and Multiparques, well-known logistics and transport companies in the country, saw the Group acquire an 81% stake in a joint venture (JV) that will operate the terminal, and a 90% stake in another joint venture that will serve the facility and the broader Angolan logistics market.

AD Ports Group as part of the Joint Venture ADPG LUANDA - OPERADOR DE TERMINAL, LDA with Unicargas and Luanda Port Authority, will be the responsible for upgrading and modernization the existing multipurpose facility of Unicargas Terminal in the province of Luanda to a modern container and Ro-Ro terminal, encompassing concession area (192,000 sqm), an upgraded quay wall; additional ship-to-shore cranes, gantry cranes and other state-of-the-art equipment; expanded draft (9.5 meters to 16 meters); and, modernized IT systems [1].

The present report corresponds to deliverable 5 of contract 2800-302 related to project *Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola*. This document constitutes the Stakeholder engagement findings report, in which stakeholder engagement activities and findings are reported, based on the process conducted.

The aim of the Unicargas Terminal rehabilitation project is to achieve maximum utilization of its capacity, which can effectively meet transportation and development expectations. This project for the rehabilitation and improvement of the Unicargas Terminal is a strategic decision rooted in various compelling factors and informed by the recent developments surrounding the concession agreement and the endorsements from key stakeholders.

Furthermore, the endorsements and statements from prominent authorities, including Minister of Transport of Angola, highlight the strategic significance and broader implications of the Project for Angola's economic development and maritime trade landscape. Minister's acknowledgment of the transformative potential of the strategic partnership between AD Ports Group and the Angolan government reflects a shared vision for modernizing infrastructure, expanding global trade access, and stimulating economic growth across Central-West Africa.

Moreover, the specific provisions outlined in the concession agreement, including the upgrade of the terminal to a container and Ro-Ro terminal, expansion of concession area, installation of modern equipment, and modernization of IT systems, further solidify the rationale for this Project. These provisions not only address existing infrastructure limitations and capacity constraints but also position the Unicargas Terminal as a state-of-the-art maritime facility capable of meeting the evolving demands of global trade and commerce.

[1] *https://www.adportsgroup.com/en/news-and-media/2024/04/23/ad-ports-group-agreement-to-operate-and-upgrade-the-multipurpose-port-terminal-in-angola*

In summary, the Project for the rehabilitation and improvement of the Unicargas Terminal is justified by its comprehensive scope, robust financial backing, strategic endorsements from key authorities, and alignment with the objectives outlined in the concession agreement. By prioritizing infrastructure modernization, operational efficiency, and sustainable development, the project represents a transformative opportunity to propel Angola's maritime industry forward, enhance global competitiveness, and foster socio-economic prosperity across the region.

As part of the ESIA activities, detailed assessments were presented concerning the potential environmental and social impacts of the Unicargas Terminal rehabilitation project, along with strategies to mitigate these impacts effectively. Additionally, the report outlined a framework for monitoring and evaluating the implementation of mitigation measures to ensure compliance with regulatory requirements and international best practices.

It is important to note that, according to the procedure established in Angolan legislation, it is the responsibility of the Ministerial Department in charge of the Environment Sector to conduct public consultations if deemed necessary for a project (article 8.1g of *Presidential Decree 117/20*). If the responsible Ministry official decides that a public consultation should be conducted, it is the Ministerial Department in charge of the Environment Sector itself that promotes and carries out the corresponding activities. Once the public consultation period has ended, the Ministry prepares, within the following eight days, a brief report specifying the steps taken, the participation recorded, and the conclusions to be drawn.

Since neither the project owner nor the consultancy accredited for the preparation of the ESIA is authorized to conduct this public consultation and given that the results of the environmental evaluation carried out by MINAMB have been issued as favorable for the issuance of the license without the need to carry out this public consultation, the outcome of a public consultation has not been included in this report.

Annex 10 contains the communications received from MINAMB, showing the acceptance of the project and the license issuance document, thus demonstrating that the contents of the ESIA are sufficient to prove compliance with national legislation according to the criteria of the Ministry of Environment.

2. PROJECT DESCRIPTION

In support of its objective of developing and expanding its operations internationally, AD Ports Group plans to further develop and upgrade the 'Unicargas Terminal' located in the Port of Luanda, Angola (Lat: -8.800274°; Long: 13.247499°). Located in the heart of the capital city of Luanda along the northern Atlantic coastline of Angola, the Port of Luanda serves as Angola's primary port, and its major industrial, cultural and urban center. The Port of Luanda also serves as a strategic gateway port supporting key trade in the region.

ADP Group intends to operate a multipurpose port terminal on this site. The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo.

The Project involves the design of approximately 192,000 m^2 yard area and associated facilities/buildings/support infrastructure of the Container and General Cargo/RoRo terminals, quay wall and the tie-ins with adjacent berths.

Figure 1. Project location

Following figures show the general location and the project location respectively.

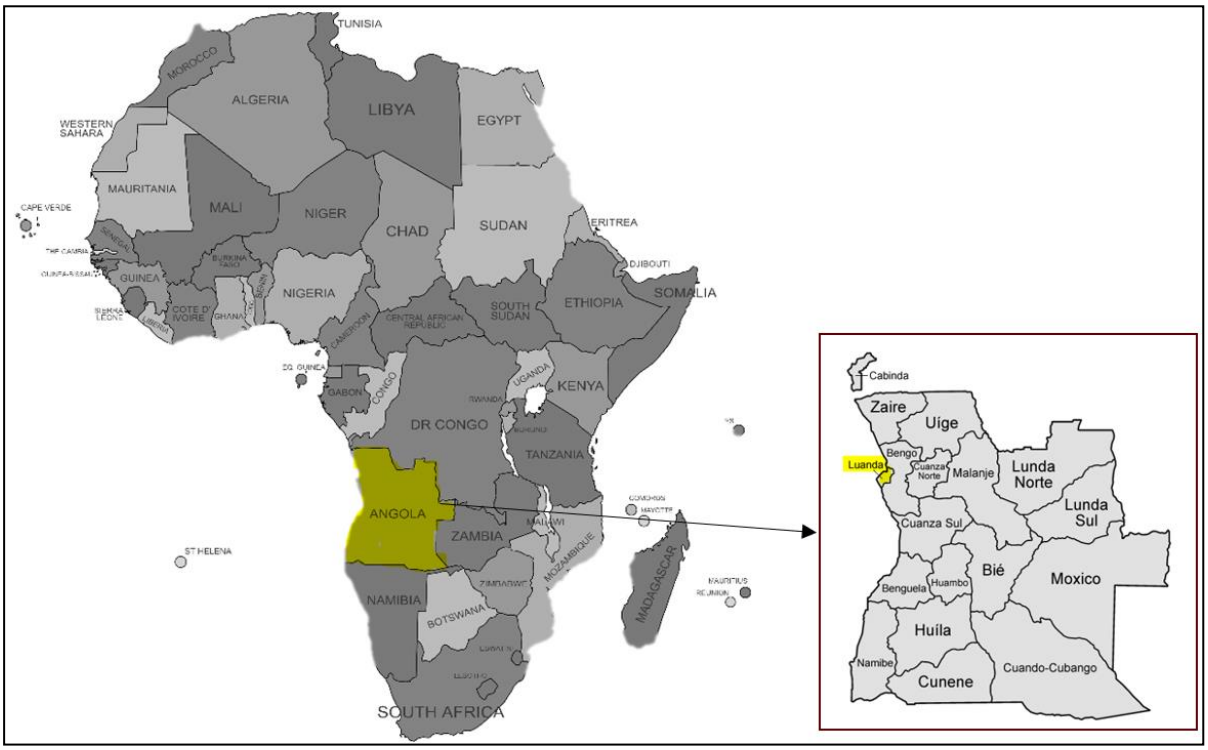
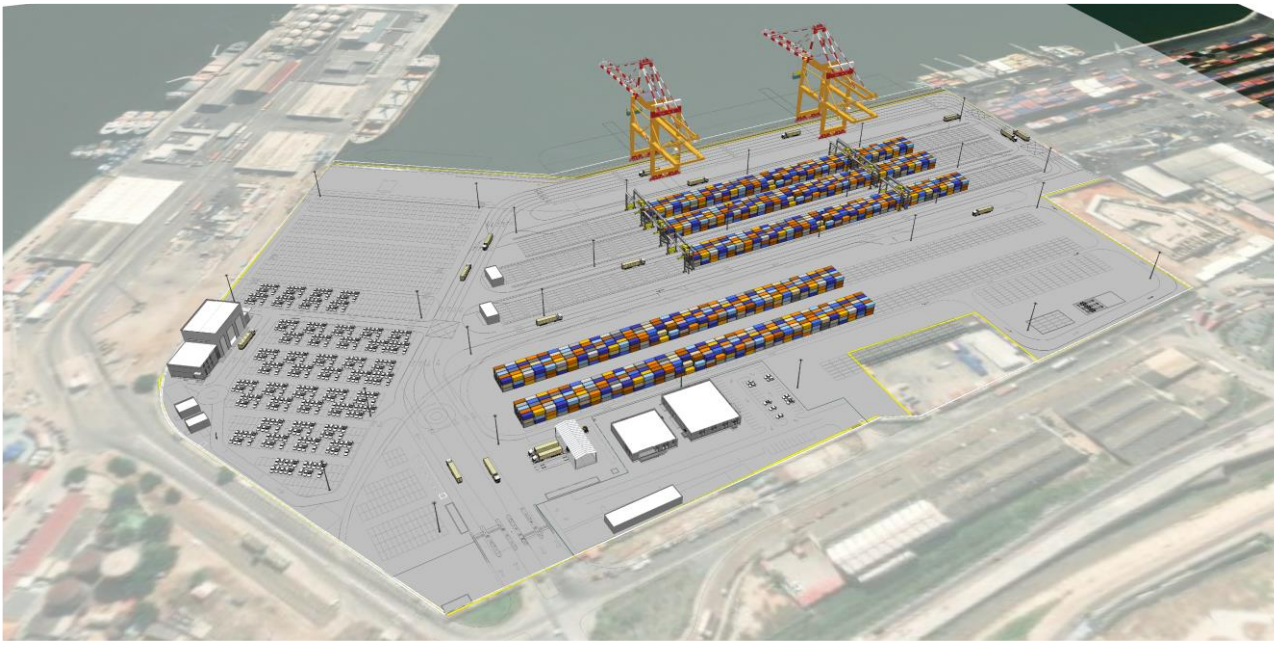


Figure 2. General location

Figure 3. Project location

The Project comprises of the further development and upgrade of both marine and topside elements of Unicargas Terminal, showing the following figures the project layout:



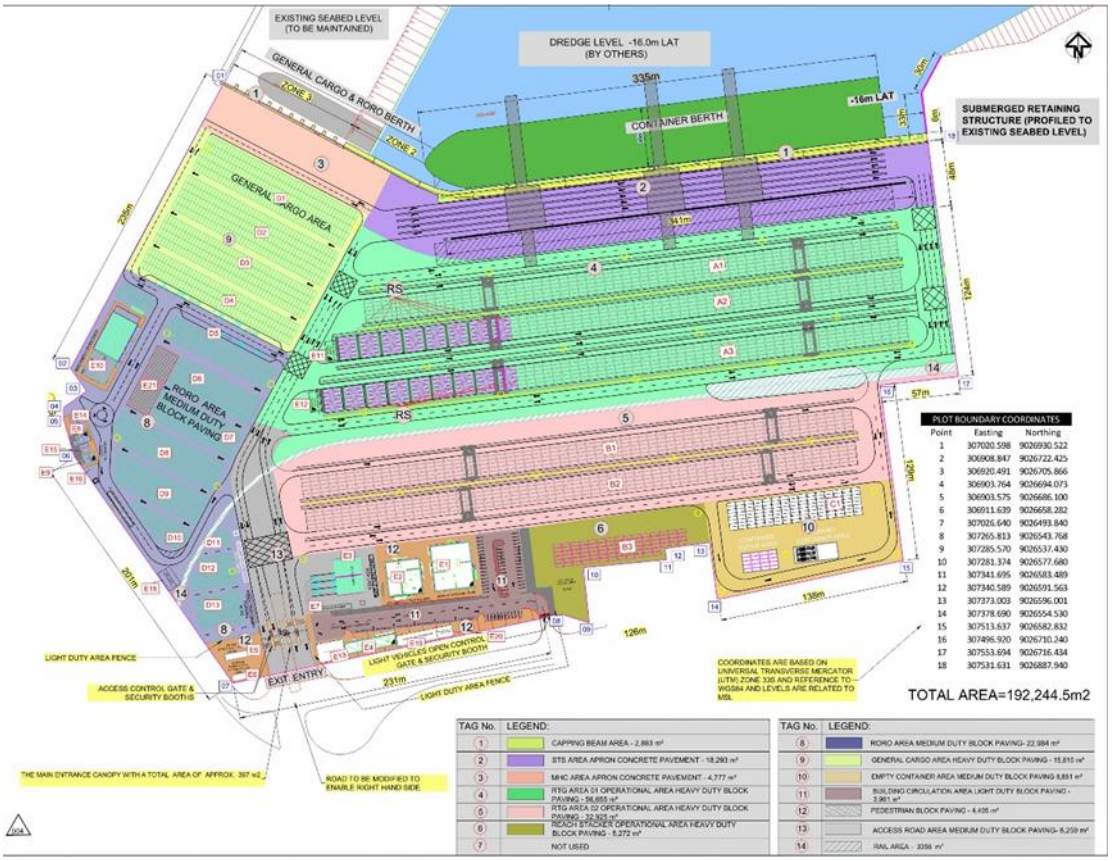


Figure 4. Preliminary Project layout (Master Plan)

The marine side of the project develops the design of:

- Container Berth of approximately 396 m length
- General Cargo/Ro-Ro Berth of approximately 138 m length
- All quay wall elements as the capping beam, furniture and associated infrastructures
- Tie-in details to the existing adjacent berths.

Regarding the necessary works to be carried out for the topside, it will be necessary to remove the current pavement of the Terminal Area (almost the entire plot), level the surface (although no deeper works are foreseen), demolish and remove all buildings/workshops/warehouses (which will require proper waste management), excavate for building foundations and cranes, dig ditches to accommodate utilities and required systems, install lighting, fencing, etc.

Prior to commencing any works, delineating the different working areas will help ensure that each area's limits are not exceeded, thus avoiding unnecessary disruptions/misunderstandings. Additionally, construction works will include typical building tasks: infrastructure and utilities work, electrical network and substations, pavement removal, and replacement.

So, the topside of the project develops the following:

- Terminal area preparation: remove current pavement from the Terminal area, level the surface, demolish and remove all buildings/workshops/warehouses.
- Foundation and crane excavation: excavate for building foundations and crane installation.
- Infrastructure installation: Install lighting, fencing, and other necessary infrastructure.

- Area delineation: delineate different working areas, to avoid exceeding boundaries and unnecessary disruptions.
- Construction tasks: execute building tasks including infrastructure and utilities work, installation of electrical network and substations and pavement removal and replacement.

3. LEGAL FRAMEWORK AND STANDARDS

The detailed analysis of national and international legislation applicable to the project, particularly to the development of the Environmental and Social Impact Assessment (ESIA) and its associated activities, is included in the project's ESIA. This document contains a summary of the national legislation and international standards most directly related to the development of the activities in the Stakeholder Engagement Plan, with the ESIA serving as a reference for more detailed information.

All regulations, codes and standards have been analyzed regarding all the activities involved in the project. If national laws differ from the measures established in the IFC and EHS standards and guidelines or the Equator Principles, the most stringent regulations will be followed as a reference in the project.

3.1. National Regulations

Referring to **National Regulation**, the following laws must be considered:

Law No. 5/98 - Environmental Framework Law

Dated June 19th, this law provides legal support for Environmental Protection in Angola, and establishes, in its Article 16, the Environmental Impact Assessment (AIA) as one of the main instruments of Environmental Management. For this purpose, it defines the concepts and basic principles of environmental protection, preservation, and conservation, promotion of quality of life, and rational use of natural resources, in accordance with the constitutional Law of the Republic of Angola.

Presidential Decree No 117/20 - General Regulation of Environmental Impact Assessment and Environmental Licensing Procedure

The Presidential Decree No 117/20 of 22 April 2020 approves the General Regulation for Environmental Impact Assessment and the Environmental Licensing Procedure. This Regulation, consisting of 53 articles divided into five Chapters and five Annexes, establishes requirements to perform any environmental activity, rules and procedures that regulate the environmental impact assessment of public and private projects and the environmental licensing procedure for activities that, by their nature, location or size, are likely to cause significant environmental and social impact.

According to this legislative regulation, three types of environmental licenses are distinguished, each of which involves an individual procedure:

- Installation Environmental License, a document issued by the entity responsible for environmental policy with the purpose of authorizing the implementation and alteration of the project, in accordance with the specifications contained in the executive project;
- Operation Environmental License, a document issued by the entity responsible for environmental policy, with the purpose of initiating the operation of the enterprise or the units, facilities, and systems

integral to the activity in the area of interest, after verifying compliance with all the requirements contained in the environmental impact assessment study;

- Deactivation Environmental License, a license required in case of the cessation of activities subject to the operation environmental license, to ensure that potential environmental liabilities are properly identified and addressed in accordance with current legislation.

It outlines:

- The mandatory project registration procedure using the Integrated Environment System (Sistema Integrado do Ambiente – SIA) - an online platform created by the Ministry of Environment (Article 6);
- The categorization of projects to be licensed (Article 7) and which are listed in annexes I, II, II, IV and V of the Decree;
- Decentralization from MINAMB to local administrations and provincial governments of competences, such as project evaluation, the issue of Environmental Licenses (Article 8), and project pre-evaluation for further categorization (Article 9);
- The inclusion of the mandatory Environmental Pre-Feasibility Study and Scope Definition (Estudo de Pré-Viabilidade Ambiental e Definição do Âmbito – EPDA), which is only required for Category A projects (Article 12);
- The minimum content required for the Simplified Environmental Study – SES (Estudo Ambiental Simplificado – EAS) is presented in Article 15 and the Terms of Reference for such documents must be submitted to the Provincial Environmental Department.
- The rules for public consultations are established in Article 16 and should be guided by the Public Consultation Regulations approved by Executive Decree No. 87/12 of 24 February.

Executive Decree No. 92/12 - Terms of Reference for Environmental Impact Studies

Executive Decree No. 92/12, dated March 1st, approves the Terms of Reference for the preparation of Environmental Impact Studies (EIA) and specifies their general content. This decree establishes that the EIA report must be prepared in accordance with the legislation on Environmental Impact Assessment (AIA) and includes three annexes providing guidelines on the information to be submitted to the Ministry.

Executive Decree No. 87/12 - Public Consultations for Projects Subject to Environmental Impact Assessment

Executive Decree No. 87/12, dated February 23rd, defines and establishes the objectives of public consultations for projects that require Environmental Impact Assessment (AIA). In cases where public consultation is required by the decision of the competent Ministry, before approving and issuing an Environmental License, Executive Decree No. 87/12 should be followed, which provides a detailed and comprehensive explanation of the objectives and requirements of public consultations.

Presidential Decree No. 194/11, dated July 7th

Establishes the responsibility regarding the risk and degradation of the environment based on the “polluter pays” principle in order to prevent and remedy environmental damage.

Presidential Decree No. 190/12 of August 24th

Establishes that all public and private entities that produce waste or carry out activities related to waste management shall prepare a Waste Management Plan (WMP) prior to the commencement of their activity, containing at least all information set out in Appendix I and II, respectively.

Executive Decree No. 17/13 of January 22nd

Establishes legal regulations relating to waste management resulting from the construction or demolition of buildings or landslides, briefly referred to as construction and demolition wastes, including its prevention and reuse and operations of collection, transport, storage, sorting, treatment, recovery, and disposal

Decree No. 53/03 of July 11th

"Regulation of the Operation of Angolan Ports" in its article 39 of chapter III, imposes responsibility on port operators for the cleaning of facilities as well as the removal of garbage, waste, or other materials resulting from the movement of goods.

Law 25/2011 of July 24th

Provides regulation against Domestic Violence. It establishes the legal regime for the prevention of domestic violence, protection, and assistance to victims and aims to:

a) Prevent, combat, and punish the perpetrators of acts of domestic violence;
b) Inform victims of domestic violence crimes about their rights;
c) Ensure swift and effective police and judicial protection for victims of domestic violence;
d) Establish specialized services for assisting victims of domestic violence within the competent authorities;
e) Encourage associations and other civil society organizations dedicated to preventing domestic violence;
f) Promote awareness policies in the areas of education, information, health, and social support;
g) Hold perpetrators of acts of domestic violence accountable administratively, civilly, and criminally;
h) Create counseling and temporary shelter spaces for those involved;
i) Discourage any act that, based on customs and practices, undermines the dignity of the human person;
j) Remove the perpetrator from the victim's proximity when necessary, given the seriousness of the situation;
k) Respond quickly, effectively, and integrative to emergency social services supporting the victim. Published in the I Series of the Official Gazette No. 133 of July 14, 2011, Page 2 of 9, proximity, affection, natural relationships, and education, particularly in:
    a) Kindergartens;
    b) Nursing homes for the elderly;
    c) Hospitals;
    d) Schools;
    e) Boarding schools for girls or boys;
    f) Equivalent spaces of relevant community or social interest

Presidential Decree No. 124/13 of August 28th

This Presidential Decree aims to regulate Law No. 25/11 of July 14, Against Domestic Violence. In attending to the victims, administrative entities must adhere to the following principles:

a) Dignified treatment: understanding and respect: to prevent unnecessary questions being asked to the victim or the aggressor that may violate the modesty or morality of those involved;
b) Non-discrimination: to ensure that both aggressors and victims are treated equally, without discrimination based on age, culture, sexual orientation, religious belief, or political affiliation, and also prevent questions that may create a feeling of discrimination among the subjects involved;
c) Professional secrecy: to prevent the entities responsible for conducting the process from making unnecessary comments or disclosures to third parties about the private life issues of those involved in the process;
d) Promptness in treatment: to ensure that the instruction of domestic violence processes is completed in the shortest possible time, taking into account the deadlines established in this Regulation

Presidential Decree No. 222/13 of December 24th

Approves the National Policy for Gender Equality and Equity and the respective Advocacy and Resource Mobilization Strategy for the Implementation and Monitoring of the Policy.

In this law, it is considered that strengthening the institutional and operational capacity to integrate gender issues at central, local, and institutional levels, including legislative and administrative actions on equality of rights between men and women, reinforces and values the condition of women, ensuring their exercise of full citizenship and their social and economic inclusion.

Likewise, women's emancipation and gender equality are the result of a complex process of removing barriers that often requires a thoughtful practice of positive discrimination in favor of women. Hence the engagement in the struggle for the inclusion of gender issues at all levels of development, which promote changes in attitudes and behaviors aimed at the structured and organized participation of women throughout the country.

In a country with an estimated population of about 20 million inhabitants, more than 50% of the population is female, 45% are of childbearing age, and 51% of this population are young people under 15 years old, where the construction of an equitable society is projected, the issue of gender equality and equity becomes a fundamental assumption. These indicators demonstrate, in quantitative terms, the weight of women as a productive force, potentially active population of the country, and the largest population in terms of demand for social services, such as education, training, health, and social protection. The weight and significant importance of this segment in society demonstrate that all interventions to reduce poverty, promote growth, build and consolidate a governance model that respects human rights and promotes sustainable development are only achievable if gender equity issues are taken into account in relationships. This fact is now recognized by the various development actors in Angola. Promoting this equality implies intervention in four dimensions:

i. Eliminating gender disparity and discrimination;

ii. Ensuring that Programs, Policies, and Development Plans take into account the needs and interests of women and men;

iii. Bringing men, women, and society as a whole into the process of changing attitudes and behaviors;

iv. Eliminating factors that constrain women's access and control over resources and decision-making bodies.

3.2. Other relevant policies

Constitutional requirements for environmental protection

As stated in the Handbook on Environmental Assessment Legislation in the SADC Region, a key aspect to consider when seeking to understand environmental policy and legislation of a country is whether its Constitution addresses citizens' right to health and wellbeing and the protection of the environment and life it supports.

First signed into law in 1992, the Constitution of the Republic of Angola (Lei Constitucional da República de Angola) was replaced in 2010 and provides the basis for the Environment Framework Law through Article 39.

Article 39 (Environmental rights):

1. Everyone has the right to live in a healthy and unpolluted environment and the duty to defend and preserve it.
2. The state shall take the requisite measures to protect the environment and species of flora and fauna throughout the national territory, maintain the ecological balance, ensure the correct location of economic activities and the rational development and use of all natural resources, within the context of sustainable development, respect for the rights of future generations and the preservation of species.
3. Acts that endanger or damage conservation of the environment shall be punishable by law.

In addition, Article 90(e) reads that the state shall promote social development by "ensuring that all citizens enjoy the benefits resulting from collective efforts in terms of development, specifically with regard to quantitative and qualitative improvements to standards of living." Article 15 recognizes that local communities have access to, and the use of land without prejudicing the possibility of expropriation for public use based on fair compensation in terms of the law.

The constitutional provisions mentioned above play a crucial role in promoting sustainable development, which encompasses enhancing both the well-being of individuals and the state of the environment. These Articles specifically address the preservation and safeguarding of natural resources, biodiversity, and a favorable environment. The objective is to sustain the natural ecological equilibrium and fulfill fundamental human necessities.

National Development Plan

The National Development Plan (2018-2022) recognizes that environmental issues are cross-cutting as reflected in the Angolan 2025 Long-Term Strategy and proposed Environmental Sustainability Policy which is intended to guide the environmental sector. The Environmental Sustainability Policy part of the PDN 2018-2022 encompasses four programs, namely: 1) climate change; 2) biodiversity and conservation areas; 3) marine spatial planning and ecosystem health; and 4) risk prevention and environmental protection.

Angola 2025: Long-Term Strategy (Estratégia de Longo Prazo)

Examines the notable difficulties encountered in Angola, including but not limited to very low human development, a fragile economic situation, institutional instability, insufficient health and education services, regional inequality, among others. It formulates strategic alternatives for the period leading up to 2025. The strategy takes into account potential expansion in different sectors and outlines key actions to achieve this growth.

Climate change

Angola has recently acknowledged escalating risks and climate variations, such as a rising frequency of record-setting hottest days, desertification, and heightened semi-arid conditions along the southern and coastal regions. Elevated temperatures are adversely affecting agriculture due to increased evaporation. In the medium term, institutional hurdles in addressing climate risks include a shortage of reliable data to facilitate a precise estimation of anticipated climate changes in specific regions of the country, as well as a lack of adaptive capacity and resilience. There is a need to facilitate the incorporation of climate change adaptation into pertinent new and existing policies, programs, and activities to enhance resilience and adaptation in the upcoming years.

Although Angola is a Party to the United Nations Framework Convention on Climate Change, the country has been slow to develop policies, plans and programs to combat this threat. The National Adaptation Program of Action (NAPA) was developed in 2011, but the first training on the National Adaptation Plan (NAP) was only held in July 2015. The Government of Angola has identified food security, infrastructure development, promotion of green areas and growth of industrial sectors as key development priorities for the country, to be mainstreamed within the NAP process.

Environmental Regulation of the port area

Establishes a set of rules aimed at protecting the environment during port activities, ensuring its preservation, particularly regarding health, water, soil, air, ecosystems, and atmosphere.

Gender Based Policy

In the context of Gender-Based policies, Angola has developed the document Gender Equality Diagnosis Angola 2022. This document is an initiative framed within the implementation of the “Technical Assistance for the Implementation of the EU-Angola Dialogue Facility” Project, which aims to deepen political dialogue in priority areas identified in the EU-Angola Joint Way Forward Agreement. The coordination of the EU-Angola Dialogue Facility includes the Ministry of Economy and Planning (MEP), the Ministry of Foreign Affairs (MIREX), and the Delegation of the European Union in Angola (DUE).

This action was developed at the initiative of the Delegation of the European Union in the Republic of Angola, in collaboration with the Ministry of Social Action, Family, and Women's Promotion (MASFAMU).

The overall objective of the diagnosis is to contribute to the effectiveness of the Dialogue and Cooperation between the European Union and Angola in priority areas of the Joint Way Forward. More specifically, it aims to analyze the situation of gender equality in Angola, in all its dimensions, to support the European Union, its Member States, the Government of Angola, and national and international development actors in integrating

gender issues into development programs and projects and to contribute to the achievement of the objectives of the EU Gender Action Plan III (GAP III).

The new EU Gender Action Plan (GAP III), approved in November 2020, guides the EU's external actions in favor of gender equality and women's empowerment. GAP III requires greater integration and transformation of the gender perspective in all sectors of European foreign policy, focusing on six priority intervention areas:

1. Ensuring the absence of all forms of gender-based violence
2. Promoting sexual and reproductive health and rights
3. Strengthening economic and social rights and empowering women and girls
4. Promoting equal participation and leadership
5. Integrating the women, peace, and security agenda
6. Responding to challenges and seizing opportunities offered by the green transition and digital transformation

3.3. IFC and other relevant Codes and Standards to be considered

3.3.1. IFC performance Standards

Regarding the codes and standards of the **International Finance Corporation (IFC)**, Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced.

Several cross-cutting topics such as climate change, gender, human rights, and water, are addressed across different Performance Standards listed below:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

Taking as reference the fields of application outlined in the document "World Bank Environmental and Social Framework." World Bank, Washington, DC (2016), and considering the typology and location of the project, the environmental and social standards listed below will be applicable to it:

Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.

Sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs). It applies to all projects supported by the Bank through Investment Project Financing.

Environmental and Social Standard 2: Labor and Working Conditions.

Recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. It promotes safety and health at work and the fair treatment, nondiscrimination and equal opportunity of project workers.

Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management.

Recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. Its main objectives are:

- To promote the sustainable use of resources, including energy, water and raw materials.
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To avoid or minimize project-related emissions of short and long-lived climate pollutants.
- To avoid or minimize generation of hazardous and non-hazardous waste.
- To minimize and manage the risks and impacts associated with pesticide use

Environmental and Social Standard 4: Community Health and Safety.

Recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

This ESS addresses potential risks and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in ESS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESS3.

Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Biodiversity often underpins ecosystem services valued by humans. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem service.

Other IFC Environmental and Social Standards

In addition, taking as reference the fields of application outlined in the document 'World Bank Environmental and Social Framework,' World Bank, Washington, DC (2016), and considering the typology and location of the project, environmental and social standards 5, 7, and 8 are not applicable, as explained and justified below:

- Environmental and Social Standard 5 - Land Acquisition and Involuntary Resettlement: as stated in Performance Standard 5 (IFC, 2012), *Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and individuals who use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use*. It is also stated that this Performance Standard *does not apply to impacts on livelihoods where the project is not changing the land use of the affected groups or communities*. The project involves the renovation of an existing and currently operational terminal, to be carried out within the grounds of the port facility, under the terms of a concession agreement. Therefore, it does not involve the use of land belonging to any groups or communities, nor the economic displacement of any stakeholder. Regarding the latter point, related to economic displacement, it is important to consider what is established in the following points:
  - The project to upgrade and develop the Unicargas Terminal will involve the temporary relocation of port operations to an alternative facility. This ensures that economic activities related to the port, including shipping and logistics, will not be interrupted. Therefore, there is no expected economic displacement of businesses that rely on these operations. The temporary facility will maintain the operational flow, thus avoiding any loss of income or employment for those dependent on the port activities.
  - Relevant communications have been made with the Ministry of Fisheries and Marine Resources, as well as the National Directorate of Fisheries and Fishery Resources. In particular, a response from the Ministry of Fisheries and Marine Resources indicated no objections to the project (refer to Annex 6 for additional information). This response suggests that the project, including its construction and operational phases, has been reviewed by relevant authorities without concerns being raised about adverse effects on local fisheries or fishing communities.
  - A deeper analysis has been conducted on the situation of the potential affected fishing communities, considering not only the possible impact of the project but also the potential impact of the dredging project as an associated facility. In this regard, it is important to note that the fishing activities in Luanda Bay are officially recognized as only subsistence fishing according to

Angolan law (Aquatic Biological Resources Law No. 6-A/04). Despite the importance of these activities for local livelihoods, they are often informal and not fully regulated, contributing to a lack of official data on the exact number of fishermen or the spatial extent of their operations.

It should also be considered that these are port waters, where there are usually police controls that force fishermen to interrupt their activities, urging them to fish in other locations. As indicated in document *Characterization of Small-Scale Fishing Activity in Luanda Bay (Angola)* (Faria et al. 2021), the predominant species targeted by fishermen (e.g., *Pomadasys jubelini, Mugil cephalus, Dentex spp.*, and various bivalves) and the fishing methods (line/hooks, trawl nets, and manual harvesting of bivalves) are mainly confined to the shallower and more inner areas of the bay. These areas are less likely to overlap with the deeper channels where dredging would occur. Moreover, the artisanal methods described in the study are adaptable and can be relocated temporarily if necessary. So, no economic displacement or significant disruption in fishing activities is considered to be caused by the project or it associated facilities.

- Environmental and Social Standard 7 - Indigenous Peoples: As stated in Performance Standard 7 (IFC, 2012), this ESS applies whenever Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities (as they may be referred to in the national context) are present in, or have collective attachment to a proposed project area, as determined during the environmental and social assessment. The project under this study is being developed in an area within the port of Luanda, which is a restricted access space with controlled entry where no indigenous peoples reside, thus this standard does not apply. Additionally, it must be noted that it is a rehabilitation project for an existing and currently operational port terminal.
- Environmental and Social Standard 8 – Cultural Heritage: As stated in Performance Standard 8 (IFC, 2012), the requirements of this ESS8 will apply to all projects that are likely to have risks or impacts on cultural heritage. As previously explained, this is a rehabilitation project for an existing and operational terminal, so it will not affect any potential cultural values in the area, which is within a restricted and controlled access space designated for port activities. There are no plans to occupy new spaces for the terminal's operation that could lead to new Cultural Heritage findings.

3.3.2. World Bank Operational Policies

The World Bank's Environmental and Social Safeguard Policies are considered a cornerstone of its support to sustainable poverty reduction projects. The policies require governments and private developers receiving funding from the World Bank to address certain environmental and social risks in order to receive Bank support for investment projects. As a rule, the WB policies include requirements that projects should include such as the need for environmental and social impact assessments, consulting with affected communities about the impacts that such projects would have, as well as the need for the livelihoods of affected people to be restored (i.e. either re-establish their pre-existing conditions or improve upon them). The effectiveness and overall positive impacts of projects and programs supported by the Bank has substantially increased as a result of the attention focused on these policies. Safeguard policies have often provided a useful platform for the participation of stakeholders in project design and have been an important instrument for building ownership among local populations.

The World Bank's key Operational Policies (OP) and associated Bank Procedures are critical to ensuring that potentially adverse environmental and social consequences are identified, minimized, and mitigated, and receive attention during the project preparation and approval processes.

The key objectives of the World Bank's environmental and social safeguard policies are the following:

- Environmental Protection: Ensure that Bank-financed projects avoid, minimize, and mitigate adverse environmental impacts on air, water, land, biodiversity, and cultural resources.
- Social Inclusion and Equity: Promote the inclusion of affected communities, including vulnerable and marginalized groups, in the decision-making process regarding project design, implementation, and benefits.
- Resettlement and Rehabilitation: Provide adequate compensation, assistance, and livelihood restoration for people displaced or adversely affected by Bank-supported projects.
- Indigenous Peoples: Recognize and protect the rights of indigenous peoples, respecting their cultures, traditions, and ancestral territories, and ensuring their free, prior, and informed consent in project planning and implementation.
- Labor and Working Conditions: Uphold labor standards and working conditions, ensuring fair treatment, safe working environments, and adequate remuneration for workers involved in Bank-funded projects.
- Community Health and Safety: Protect the health and safety of project-affected communities, minimizing risks associated with project activities and ensuring access to essential services and infrastructure.
- Stakeholder Engagement and Consultation: Facilitate meaningful consultation and engagement with stakeholders throughout the project cycle, fostering transparency, accountability, and active participation in decision-making processes.
- Biodiversity Conservation and Sustainable Resource Management: Conserve biodiversity, natural habitats, and ecosystems by integrating principles of sustainability and environmental management into project planning, implementation, and monitoring.
- Climate Change Resilience: Enhance the resilience of communities and ecosystems to climate change impacts, promoting adaptive measures, disaster risk reduction, and climate-smart development practices.
- Compliance and Accountability: Ensure compliance with environmental and social safeguard policies and standards, conducting regular monitoring, evaluation, and reporting to track project performance and address any non-compliance issues promptly.

3.3.2.1. World Bank Operational Policies to be considered for the Project

OP 4.01 Environmental Assessment

The specific OP triggered by activities under the Project is OP 4.01 (Environmental Assessment), in which point 1 states that "The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making".

The aim of OP 4.01 is to ensure that World Bank-financed projects are environmentally and socially sustainable and ensure better decision making through the integration of environmental and social impact considerations throughout the different phases of development project and actions (i.e. design, planning, and implementation). The main objectives of Environmental Assessment (EA) are to ensure the consideration of

environmental aspects (air, water, and land), human health and safety, social aspects (involuntary resettlement, local communities and cultural heritage), as well as consideration of trans-boundary and global environmental effects such as climate change. OP 4.01 is applicable whenever a proposed project or actions have the potential to cause negative environmental effects to the surroundings.

OP 4.04 Natural habitats

Although considered in this project, it must be stated upfront that the impacts of the project on important natural habitats are considered highlight unlikely as development activities of the project will be on already existing sites that will likely already have been transformed/impacted upon and will not experience any relevant transformation.

OP 4.10 Indigenous People and OP 4.12 Involuntary Resettlement

The term Indigenous People is no longer in use in Angola since March 2020. The substitute term is Ethno-Linguistic Minorities.

In regard to these social aspects, OP4.10 Ethno-linguistic Minorities and OP 4.12 Involuntary Resettlement **do not apply**, as the project is located in a currently operational port terminal within the delimited area of Luanda port. Only individuals involved in port activities have access to this area, with no populations residing within the confines.

3.3.3. World Bank Group Environmental Health and Safety Guidelines

In addition, **the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines)** are technical reference documents with general and industry-specific examples of good international industry practice. IFC uses the EHS Guidelines as a technical source of information. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

Environmental, Health, and Safety Guidelines for Ports, Harbors and Terminals are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors, as mentioned before. These guidelines are applicable to marine and freshwater ports, harbors, and terminals for cargo and passengers.

4. PURPOSE AND OBJECTIVES OF THE STAKEHOLDER ENGAGEMENT PLAN

Stakeholders are individuals or groups who are directly or indirectly affected by a project, as well as those who may have interests in the project and/or the ability to influence its outcome, either positively or negatively. These stakeholders can include locally affected communities or individuals and their formal and informal representatives, national or local government authorities, politicians, religious leaders, civil society organizations, groups with special interests, the academic community, or other businesses.

The Stakeholder Engagement Plan (SEP) is a strategic document designed to guide the process of engaging with stakeholders throughout the lifecycle of a project. The SEP serves as a crucial tool for managing communications and fostering relationships with stakeholders, ensuring that these relationships are constructive, responsive, and capable of effectively managing a project's environmental and social impacts. According to the IFC's PS1 (2012) standards, the SEP forms "the basis for building strong, constructive, and

responsive relationships that are essential for the successful management of a project's environmental and social impacts."

The SEP aims to define a technically and culturally appropriate approach to consultation and disclosure, improving decision-making processes and creating an atmosphere of understanding. This ensures that project-affected people and other stakeholders are actively involved in a timely manner and are provided with sufficient opportunities to voice their opinions and concerns, which may influence project decisions.

4.1. Key objectives and principles guiding the SEP

The SEP aims to:

- Understand the stakeholder engagement requirements of Angolan legislation.
- Provide guidance for stakeholder engagement that meets International Best Practice standards.
- Identify key stakeholders who are affected by or can influence the project and its activities.
- Determine the most effective methods, timing, and structures for sharing project information to ensure regular, accessible, transparent, and appropriate consultation.
- Develop a stakeholder engagement process that offers stakeholders opportunities to influence project planning and design.
- Establish formal grievance and resolution mechanisms.
- Define roles and responsibilities for implementing the SEP.
- Outline reporting and monitoring measures to ensure the effectiveness of the SEP, with periodic reviews based on findings.

Stakeholder engagement is informed by core principles that define the values underpinning interactions with stakeholders. These principles, based on International Best Practice, include:

- **Commitment:** Demonstrating the need to understand, engage, and identify the community early in the process.
- **Integrity:** Conducting engagement in a manner that fosters mutual respect and trust.
- **Respect:** Recognizing the rights, cultural beliefs, values, and interests of stakeholders and affected communities.
- **Transparency:** Responding to community concerns in a timely, open, and effective manner.
- **Inclusiveness:** Encouraging broad participation supported by appropriate opportunities.
- **Trust:** Achieving trust through open and meaningful dialogue that respects and upholds community beliefs, values, and opinions.

Regarding all the above, the following considerations have been made in the planning of the stakeholder engagement:

Time and resources: Building and maintaining trust-based relationships with stakeholders takes time and resources. Practitioners generally agree that relationships with stakeholders should be developed and nurtured from the outset, ensuring they grow and do not fade. Additionally, new stakeholders might emerge who also wish to be engaged. No willing stakeholder should be excluded from the engagement process. Some stakeholders may need to be educated about the concept of engagement itself, as well as on the complex issues requiring specialized and technical knowledge. These demands can increase the cost of

consultations needed to meet external expectations, often occurring at a time when a project lacks the internal capacity and resources to implement a broad engagement strategy.

Raising expectations: Stakeholders may develop unrealistically high expectations regarding the benefits they might receive from a project.

Securing stakeholder participation: Cultural norms and values can sometimes hinder stakeholders from freely participating in meetings. Often, there are conflicting demands within a community, making it challenging for a project to identify stakeholders who truly represent common interests. This issue can be mitigated by employing local consultants who are sensitive to local power dynamics. This requires project proponents to develop an awareness of the local context and to implement structures that support and foster effective stakeholder engagement.

Consultation fatigue: Moreover, there is evidence to suggest that stakeholders can easily become fatigued by consultation processes, especially when promises are unfulfilled, and their opinions and concerns are not taken into consideration. Often, stakeholders feel their lives are not improving because of a project, which can lead to consultation meetings being used as forums to voice complaints and grievances about the lack of development. This can be avoided by coordinating stakeholder engagement during the ESIA process and ensuring that practitioners do not make promises to stakeholders. Instead, the public consultation process should be used as an opportunity to manage expectations, challenge misconceptions, disseminate accurate project information, and gather stakeholder opinions, which are then fed back to the client and other project specialists.

4.2. Implementation and monitoring

The SEP should be implemented using the following components:

- **Activities:** Clearly outline the activities or interactions to be carried out with stakeholders (e.g., informing, presenting the project).
- **Objective:** Define the purpose of each communication or involvement activity, such as presenting specific project details or next steps.
- **Proposed Method:** Choose the appropriate communication method (e.g., individual meetings, posters, media outlets, social networks).
- **Target Audience:** Identify the specific focus groups within the stakeholder population for each communication.
- **Frequency:** Define the frequency and duration of planned activities.
- **Indicative Time and Location:** Schedule when and where the activities will occur, considering the project timeline.
- **Responsibility:** Assign specific responsibilities to entities involved in implementing the SEP.
- **Monitoring and Communication:** Establish how information obtained during activities will be monitored and communicated.

The SEP should be reviewed and updated throughout the project lifecycle to reflect the various stages of implementation and any changes to the project. This ensures that the SEP remains relevant and effective in managing stakeholder engagement.

5. PROJECT STAKEHOLDERS

5.1. Preliminary considerations

As stated in the Guidance note for IFC Performance Standard 1, stakeholder identification broadly involves the determination of the various individuals, groups or communities who may have an interest in the project or who may affect or be affected by the project. The process of stakeholder identification includes distinct steps, including:

(i) identifying individuals, groups, local communities and other stakeholders that may be affected by the project, positively or negatively, and directly or indirectly particularly those directly and adversely affected by project activities, including those who are disadvantaged or vulnerable;
(ii) identifying broader stakeholders who may be able to influence the outcome of the project because of their knowledge about the Affected Communities or political influence over them;
(iii) identifying legitimate stakeholder representatives, including elected officials, nonelected community leaders, leaders of informal or traditional community institutions, and elders within the Affected Community; and
(iv) mapping the impact zones by placing the Affected Communities within a geographic area, which should help the client define or refine the project's area of influence.

There may be norms, societal practices, or legal barriers that impede the full participation of persons of one gender (usually women, but potentially men) in consultation, decision-making, or sharing of project benefits. These legal and societal norms and practices may lead to gender discrimination or inequality. In projects with such issues the client may provide opportunities to enhance full participation and influence in decision-making through separate mechanisms for consultation and grievances, and developing measures that allow both women and men equal access to project benefits (such as land titles, compensation, and employment). Where deemed useful, it may include a separate women's consultative process.

5.2. Identification of stakeholders

Considering the initial analysis of the project's reference documents and the research conducted as part of the preparation of this Plan, a preliminary list of stakeholders has been defined. These stakeholders have been involved throughout the activities related to the project and have supported the identification of opportunities for creating shared value.

It should be noted that the list presented is dynamic and evolving. As further work is conducted to gather local perceptions and carry out fieldwork, new stakeholders recognized as relevant may be integrated into the list.

In this context, it is important to note that, in addition to governmental entities such as ministries, regional governments, or other public bodies that may be involved during the development of the stakeholder engagement plan, there are also companies that, due to their proximity to the project site and their involvement in port activities, are considered key stakeholders and directly affected parties. These entities are previously listed in the tables included in the following figures.

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003136, Web: www.unicargas.co.ao

Visto
Edivaldo Januário
Director de Segurança Empresarial

DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILANCIA

MAPA DE EMPRESAS PRESTADORAS DE SERVIÇOS NO TPU

Nº	EMPRESAS	NACIONAL/ESTRANGEIRA	SERVIÇOS	Nº DE TRABALHADORES	NACIONAIS	ESTRANGEIROS	TOTAL
01	Unicargas	Nacional	Gestora do Terminal	320	Nacionais	00	320
02	Lemuxus	Nacional	Segurança	51	Nacionais	00	51
03	Cantinho da Cley	Nacional	Catering	4	Nacionais	00	4
04	Maessa	Nacional	Estiva/ Eventuais	86	Nacionais	00	86
05	Grimaldi	Estrangeira	Agente de Navegação	6	Nacionais	00	6
06	Nalber	Estrangeira	Agente de Navegação	5	Nacionais	00	5
07	Marcarga	Nacional	Agente de Navegação	2	Nacionais	00	2
08	F. Logística	Nacional	Rep. Terminal Fayol	7	Nacionais	00	7
09	Clean Sisten	Nacional	Limpeza	30	Nacionais	00	30
10	Goldensea	Nacional	Estiva/Eventuais	101	Nacionais	00	101
11	Aronds	Nacional	Estiva/Eventuais	81	Nacionais	00	81
12	Posto S.M.E	Nacional	Emigração	5	Nacionais	00	5
13	Posto Fiscal	Nacional	Fiscal de Mercadoria	6	Nacionais	00	6
14	Posto D.S.A	Nacional	Verificador de processo	3	Nacionais	00	3
15	SIC	Nacional	Investigação Criminal	3	Nacionais	00	3
16	AGT	Nacional	Inspeção de Mercadoria	2	Nacionais	00	2
17	Multiparque	Nacional	Suporte Operacional	4	Nacionais	00	4
	Total	//	//	00	//	00	710

Luanda aos, 21 de Março de 2024

O CHEFE DE DEPARTAMENTO DE VIGILÂNCIA
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www.unicargas.co.ao
geral@unicargas.co.ao

Figure 5. Service providers at the Unicargas Port Terminal. Source: Unicargas

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003136, Web: www.unicargas.co.ao

Visto
Edivaldo Jambário
Director de Segurança Empresarial

DIRECÇÃO DE SEGURANÇA EMPRESARIA

DEPARTAMENTO DE VIGILÂNCIA

MAPA DE EMPRESAS ENVOLVENTE NO TERMINAL DA UNICARGAS

Nº	EMPRESAS
01	Edifício da Administração do Porto de Luanda
02	AGT
03	Terminal de Passageiro Catamará
04	Terminal da Multiparque
05	Terminal da Secil Marítima
06	Terminal da Sogester
07	Terminal da Sonils
08	Terminal da DP World
09	Terminal do Porto Pesqueiro

LUANDA, 21 DE MARÇO DE 2024.

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Figure 6. Surrounding companies at the Unicargas Terminal. Source: Unicargas

Classes of Stakeholders	Stakeholders (PT)	Stakeholders (EN)
Regional Institution	Gabinete Provincial de Luanda	Provincial Cabinet of Luanda
Regional Institution	Gabinete Provincial da Saúde	Provincial Health Office
Regional Institution	Gabinete Provincial das Infra-estruturas	Provincial Office of Infrastructure
Regional Institution	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos	Provincial Office of Environment and Solid Waste Management
Regional Institution	Gabinete Provincial da Educação	Provincial Office of Education
Local institution	Administração Municipal de Luanda	Municipal Administration of Luanda
Local institution	Administração do distrito Urbano de Sambizanga, Ingombota	Urban District Administration of Sambizanga, Ingombota
National Institution	Ministério do Ambiente	Ministry of Environment
National Institution	Ministério da Energia e Águas	Ministry of Energy and Water
National Institution	Direcção Nacional de Águas	National Water Directorate
National Institution	Ministério dos Transportes	Ministry of Transport
National Institution	Instituto Marítimo e Portuário de Angola	Angola Maritime and Port Institute
National Institution	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Ministry of Fisheries - Ministry of Fisheries and Marine Resources
National Institution	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	National Directorate of Fisheries and Fishery Resources Protection
National Institution	Instituto Nacional de Investigação Pesqueira	National Institute of Fisheries Research
Regional Institution	Porto de Luanda	Port of Luanda

Classes of Stakeholders	Stakeholders (PT)	Stakeholders (EN)
Private sector	Empresas dentro da área portuária mais próximas das áreas de intervenção	Companies within the port area closest to the intervention areas
Communities	Colaboradores/trabalhadores do Porto	Port employees/workers
Communities	Residentes na envolvente - Comunidades envolventes à área portuária	Residents in the surrounding area - Communities surrounding the port area
Education and training	Academia Portuária de Luanda	Port Academy of Luanda
Private sector	NESR Art Foundation	NESR Art Foundation
Culture and Heritage	Fortaleza do Penedo - Museu	Fortaleza do Penedo - Museum
Private sector	Clínica da Sagrada Esperança - SONILS	Sagrada Esperança Clinic - SONILS
Private sector	Medline - Assistência médica	Medline - Medical assistance
Private sector	CEEIA - Comunidade de empresas exportadoras e internacionalizadas de Angola	CEEIA - Community of Exporting and Internationalized Companies of Angola

Table 1. Stakeholders identified

Refer to Annex 1 for more information about entities.

6. INFORMATION DISCLOSURE

6.1. Preliminary considerations

As stated in the document *Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets*, published by IFC, disclosure is a formal-sounding term for making information accessible to interested and affected parties. Communicating such information in a manner that is understandable to all stakeholders is an important first (and ongoing) step in the process of stakeholder engagement. All other activities, from consultation and informed participation to negotiation and resolution of grievances, will be more constructive if stakeholders, including affected communities, have accurate and timely information about the project, its impacts, and any other aspects that may influence them.

Disclosure of relevant project information helps Affected Communities and other stakeholders understand the risks, impacts and opportunities of the project. Affected Communities should be provided with access to relevant information on the following issues:

- The purpose, nature, and scale of the project;
- The duration of proposed project activities;
- Any risks to and potential impacts on such communities and relevant mitigation measures;
- The envisaged stakeholder engagement process; and
- The grievance mechanism

The information should be in appropriate language(s), and accessible and understandable to the various segments of the Affected Communities. Disclosure and dissemination of information should be the basis of the consultation process. The timing and the method of disclosure may vary depending on national law requirements, the characteristics and needs of the Affected Communities, the type of assessment involved, and the stage of the project's development or operation but should be as early as possible.

6.2. Communication and consultation

Effective stakeholder engagement hinges on timely communication and consultation. Stakeholders form opinions about a project based on the information they receive. If information is scarce or delayed, stakeholders may rely on informal discussions or less credible sources, which can lead to the solidification of opinions before all relevant details are available. Therefore, it is crucial to provide stakeholders with relevant information at the most appropriate times to maximize their involvement, raise awareness, and incorporate their feedback.

Regarding this, the dissemination of information was aimed at two specific objectives:

- **Informing (information process):** keeping stakeholders informed about the project and the engagement to be implemented, while also creating interest and promoting more active local participation. The goal was not to provide overly technical information or delve into technical aspects of the project.
- **Listening and consultation (two-way process):** providing stakeholders with the opportunity to express concerns, identify advantages, share opinions and viewpoints about the project, as well as to contribute their experiences and ideas for the development of the local area.

To achieve both informing and listening, it is necessary to develop a set of key messages for each component of the overall project:

Project in general:

- Explain what the Improvement Project entails (informing stakeholders about the project).
- Identify the target municipality and district for the project (clearly presenting its location).
- Describe the components of the project (briefly presenting the project's components).
- Discuss potential environmental and social impacts during the different phases of the project and the respective mitigation measures (transparently presenting the expected impacts during the various improvement phases).

Stakeholders' involvement:

- Outline how stakeholders can participate in project development.
- Inform stakeholders where they can access project details.
- Highlight the importance of stakeholders' support during project implementation.

The responsible for carrying out stakeholder engagement activities are the following:

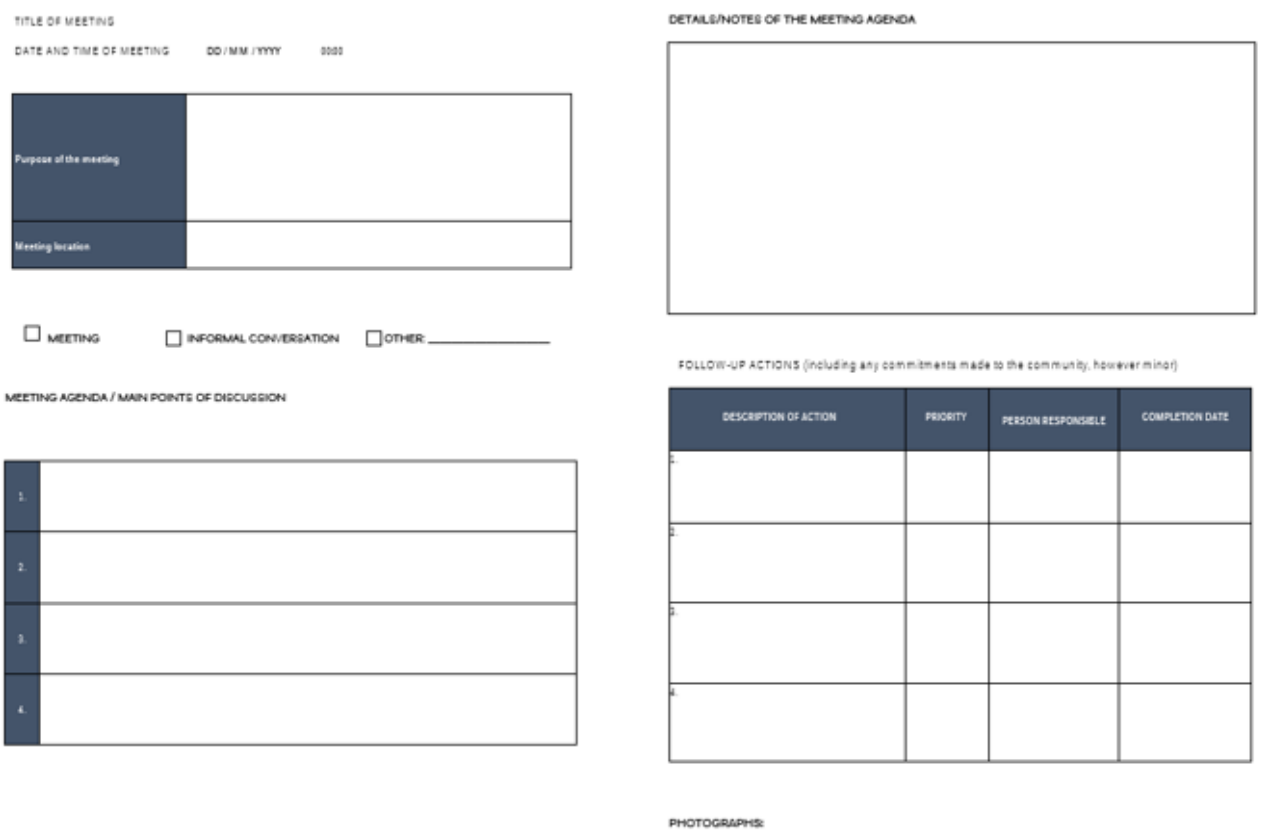
Entities	Responsibilities regarding stakeholder involvement
Project owner's representative	Appointment of a focal point for complaints management and socialization of complaint channels among stakeholders; Budgeting and ensuring that financial resources are made available in a timely manner for the planned activities;
Representative of the environmental consulting company	Coordination of the plan and timetable for implementing the stakeholder engagement plan; Consultation with stakeholders; Communication with stakeholders

Entities	Responsibilities regarding stakeholder involvement
Project Management Representative - Focal Point	Promotion of the Plan's activities; Registration and management of the complaints mechanism; Monitoring stakeholder engagement and reporting;
Entities involved	Stakeholder mobilization; Communication to stakeholders Socializing reports and information about the project;
Representative of a local community group or association	Mobilization of stakeholders Socialization of reports and information about the project; Communication with stakeholders

Table 2.- Entities responsible for carrying out stakeholder engagement activities

The communication strategy employed a combination of written and oral methods/tools, utilizing local language and easily understandable formats. Meetings and sessions were held near the project area, with careful consideration of factors such as working hours and accessibility for people with reduced mobility to ensure maximum stakeholder participation. All stakeholder comments were documented, reviewed, and summarized in minutes of meeting or reports, clearly demonstrating how the feedback was considered. Project documentation was made available in Portuguese, and attendance records and meeting minutes were accessible to stakeholders.

The following figure illustrates the template used for the Minutes of Meeting Report included in Annex 2:


TITLE OF MEETING

DATE AND TIME OF MEETING DD / MM / YYYY 0000

Purpose of the meeting

Meeting location

☐ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.

2.

3.

4.

DETAILS/NOTES OF THE MEETING AGENDA

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1.			
2.			
3.			
4.			

PHOTOGRAPHS:

Figure 7. Minutes of Meeting Report template

6.3. Methods of involvement

Various methods of involvement were employed to meet the different needs of stakeholders:

- Meetings: Formal meetings were scheduled with key authorities identified within the project scope, as well as with private sector organizations and associations, to gather their perceptions, concerns, suggestions, and opportunities related to the project.
- Focus Group Meetings: These meetings brought together stakeholders with similar interests or common characteristics to discuss specific topics, providing opportunities for input, different viewpoints, and open discussions on sensitive issues.
- Letters: Since Angolan legislation did not mandate a public information phase for Category B projects, letters containing project information, and details of upcoming meetings were sent to organizations and entities that may not have attended the informational meetings. This ensured that the informational process reached all identified stakeholders. All the letters sent are included in *Annex 6 Informational Letters*, as well as the responses from the entities that replied to the communication.

In addition to these stakeholder-oriented methods, broader communication strategies were employed to promote awareness about the project. A structured communication approach was used, encompassing written, visual, and social methodologies, including:

- Leaflets and Brochures: these provided brief descriptions and updates on the project, including site-specific actions. They were printed and distributed to stakeholders and posted at key locations. (See Annex 3)
- Digital presentation of the project: during the meetings, the necessary resources were provided to digitally project a presentation of the project, which helped to explain the project's implications, its potential effects, and the established grievance mechanism. (See Annex 4)

A key objective of Stakeholder Engagement was to identify people, communities, associations, and institutions affected by the project's development, including potentially vulnerable or marginalized groups. Ensuring all stakeholders were equally and adequately involved was essential for constructive and integrated development.

Regarding gender equality and fair participation, women's involvement in specific groups was ensured throughout the stakeholder engagement development. The engagement process also encouraged all vulnerable stakeholders to submit suggestions, complaints, or grievances, with timely responses and solutions provided as necessary.

It is important to note that since MINAMB did not consider it necessary to conduct a public consultation during the environmental processing procedure, and as previously explained, this activity falls under its responsibility according to Angolan national legislation, no related activities have been included in this report.

6.4. Engagement activities

The following table provides a summary of the various activities carried out in the context of developing the project's stakeholder engagement plan.

Activities	Objective	Proposed method	Target audience	Frequency	Indicative time and location	Responsibility	Monitoring and communication
Preliminary contact with Port entities	Present the project and gather information for the ESIA	Written communication and scheduled meetings	Luanda Port Authority and Unicargas	Single activity	28-30 November 2023	Environmental Consulting Company	Final report presenting key findings
Engagement with Authorities and Regulators	Present the project and gather technical insights and recommendations	Written communication and scheduled meetings when required	Stakeholders identified as National, Regional or Local Institutions.	Not applicable	Letters sent between 10/05/2024 and 24/06/2024 Meeting with: Luanda Provincial Health Office (08/07/2024) Ingombota District (15/07/2024) Sambizanga District (15/07/2024)	Environmental Consulting Company	Minutes of meeting Final report summarizing the contributions made
Engagement with stakeholders in and around the project area	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Written communication and previously scheduled meetings, including the sending of meeting agendas, project summaries,	Companies, associations and users of the Terminal	Single activity	Letters sent between 02/07/2024 and 11/07/2024 Meeting with companies - between the	Environmental consulting company / Focal Point responsible	Minutes of meeting Final report summarizing the contributions made

Activities	Objective	Proposed method	Target audience	Frequency	Indicative time and location	Responsibility	Monitoring and communication
		and the distribution of leaflets			period (18/06/2024 and 19/07/2024)		
Engagement with local communities in the neighborhoods surrounding the Project	Inform stakeholders about: - Planned activities; - Potential disturbances; - Grievance Mechanism; - Project Focal Point contacts.	Meeting scheduled in advance, including the sending of meeting agendas, project summaries, and the distribution of leaflets	Local community leaders	One meeting with each leader	Meeting with the Communities: Mata Gato Neighborhood (17/07/2024) Boavista Neighborhood (17/07/2024)	Environmental consulting Company	Minutes of Meeting Final report summarizing the contributions made

Table 3.- Strategic plan for stakeholder consultation

7. STAKEHOLDER ENGAGEMENT REPORT

7.1. Introduction

As indicated in previous sections, the methodology used in the stakeholder engagement process involved combining different strategies to engage all the project's stakeholders:

- Initial meetings with representatives from the Port Authority and Unicargas;
- Contacting regulators/authorities by letter;
- Scheduling face-to-face meetings with regulators/authorities;
- Conducting a presentation session with private companies in and around the project area;
- Contacting private companies identified as interested parties who did not attend the presentation session by letter;
- Scheduling face-to-face meetings with private companies upon request;
- Holding meetings with representatives of the surrounding communities.

7.2. Initial Stakeholder Engagement with Authorities

As indicated in Section 6, as a result of the meetings and activities of this initial stakeholder engagement, a report was issued, which is included as Annex 5 in Volume II of this document.

7.2.1. Assisting Team and Schedule

The team that visited the port facilities at the beginning of the activities to be carried out in the ESIA consisted of the following members: Ana Baró, Nuria Garrido and José Enrique Piñero from TYPSA, Nuno Gomes and Margarida Matos from SOAPRO.

The schedule and agenda followed during the trip were the following:

- Monday, 27th November 2023: arrival in Luanda
- Tuesday, 28th November 2023:
  - Meeting at the Port of Luanda
  - Visit of the study area
  - Meeting at SOAPRO offices
- Wednesday, 29th November 2023:
  - Meeting at the Port of Luanda
  - Visit to the Temporary Facility
- Thursday, 30th November 2023:
  - Meeting at the Port of Luanda

7.2.1.1. Tuesday, November 28th

Meeting at the Port of Luanda

It is important to highlight the difficulties that are commonly encountered in a country like Angola when trying to follow a set schedule.

Difficulties entering the port facility: Despite sending the documentation of the team in advance (names, passports, visas, and identification documents of local SOAPRO technicians), the visit was not registered. The

team waited on the street at the security control entrance to the port for about an hour. Eventually, with the assistance of the person representing DAR, who personally knew the director of the environment at SOAPRO accompanying TYPSA team, we were allowed entry. Later, we were informed that there had been a fire in an electrical control office, causing the problem. The fire occurred early in the morning, explaining the absence of some people at the meeting, but not the lack of communication or registration of our visit in the days leading up to it.

Meeting and Attendees: Once we gained access, we were directed to some offices where they were expecting us. We gathered in a room where two people, both technicians from the Port of Luanda, welcomed us. The Project Manager explained that TYPSA was responsible for conducting the ESIA for the renovation of the Unicargas terminal and that the purpose of the visit was to establish an initial contact with our counterparts at the port throughout the project and obtain reference information that could be useful for the studies.

There was no equipment in the room to connect the laptop or project anything. Therefore, we began explaining our work and asking them some questions about uncertainties and existing information. After only three questions, with no answers provided, they informed us that they were not the right people for the meeting as they were project technicians from the Port of Luanda. They suggested that we meet with the Safety and Environmental department. We explained that this was what we had requested, and they asked us to wait in the room to inform a supervisor, who arrived later and explained the fire incident, apologizing for not appearing. This person was the Engineering and Maintenance Director, who told us that he couldn't answer because he had not the information. He suggested that if we sent him the outline with all the questions, they could prepare for another day's appointment, but this time with the director of the port's environmental department. We agreed and requested two things: first, to allow us to visit the terminal immediately, once finishing the current meeting and second, to schedule the meeting with the director of the environment for the following Wednesday morning (the day after) followed by a visit to the temporary facility. He indicated they would do their best but saw the visit to the temporary facility as challenging. The attendees were the following:

- JOSÉ MUNANA – PORT OF LUANDA
- NASCIMENTO BERNARDO – PORT OF LUANDA
- REGINA POMPEU – DAR ANGOLA
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- NUNO GOMES – SOAPRO
- (JOSÉ QUIMBEZE - ENGINEERING AND MAINTENANCE DIRECTOR)

Visit to the Study Area

Subsequently, the two individuals who initially received us accompanied us to visit the Unicargas Terminal. We took photographs and observed the area. Below, there are various photos.

Figure 8. Entrance to the Unicargas Terminal

Figure 9. RoRo berth

Figure 10. Container berth

Figure 11. Machinery maintenance area

Figure 12. Alternative energy area

Meeting at SOAPRO Offices

In the afternoon, TYPSA team met at the SOAPRO offices, which are close to the port, discussing the scope of the collaboration we have agreed upon with them and clarifying some doubts they had about it.

7.2.1.2. Wednesday, November 29th

Meeting at the Port of Luanda

Meeting and Attendees:

This time, many people attended the meeting. Many of them did not even introduce themselves and simply sat around listening without participating. Everyone had TYPSA's paper with the questions printed, but only the Director of the Environmental Department of the port, Manuel Antonio, answered. (Refer to section 7.2.2 to see the questions and information). The attendees were the following:

- JOSÉ MUNANA – PORT OF LUANDA
- NASCIMENTO BERNARDO – PORT OF LUANDA
- MANUEL ANTONIO – ENVIRONMENTAL DIRECTOR
- JOSÉ DE SOUSA - UNICARGAS
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- MARGARIDA MATOS – SOAPRO

Information:

In some of the responses, he was very brief and did not delve into details. (Refer to section 7.2.2 to see the questions and information). He mentioned that they had many studies from different areas of the port, and we could consult them whenever we wanted, but he couldn't send them. He only allowed us to come and consult them in print and in person. Immediately, TYPSA team asked to make a new visit on Thursday (the next day) to see the documents. He agreed.

Visit to the Temporary Facility

Finally, they allowed the team to visit the temporary facility, although they raised many objections and had a lengthy discussion about whether to grant access or not. Below, there are various photos of the area.

Figure 13. Temporary facility area

Figure 14. Temporary facility area

7.2.1.3. Thursday, November 30th

Meeting at the Port of Luanda

Upon arrival, the Director of the Environment showed us a corporate video, introduced us to the security director who gave us a lecture, and explained safety rules in case of an emergency during the meeting. Finally, he placed five paper documents in front of us that we consulted for half an hour.

Some were quite old and not very useful. We explained that we would probably need more information and hoped he understood that consulting it on paper was not very effective. Finally, he agreed that we could make a formal request to allow us to consult documents online or to send us some in digital format.

Attendees:

- MANUEL ANTONIO – ENVIRONMENTAL DIRECTOR
- OSWALDO DA SILVA – SECURITY DIRECTOR
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- MARGARIDA MATOS – SOAPRO

7.2.2. Information gathered during meetings with the Port Authority

Among the activities involved in preparing the ESIA, some are key points concerning communication needs with the Port Authority, mainly related to campaign implementation. In general, the most relevant aspects related to the Port Authority include the following.

7.2.2.1. General Aspects

- Procedure and permits required to access the port premises
- Contact person
- Schedules and previous communication for entering the site

Regarding these points, they inform us that they can issue a pass valid for the duration of the works. To obtain this pass, ADP must send a letter through Unicargas, stating that an ESIA will be conducted and providing the list of companies and individuals who will need access to the port for this purpose. It should be specifically mentioned that the local supporting company will be SOAPRO, registered with the MINAM. This letter should be addressed to Edivaldo Januario, Director of Security and Environment.

7.2.2.2. Aspects related to ESIA activities

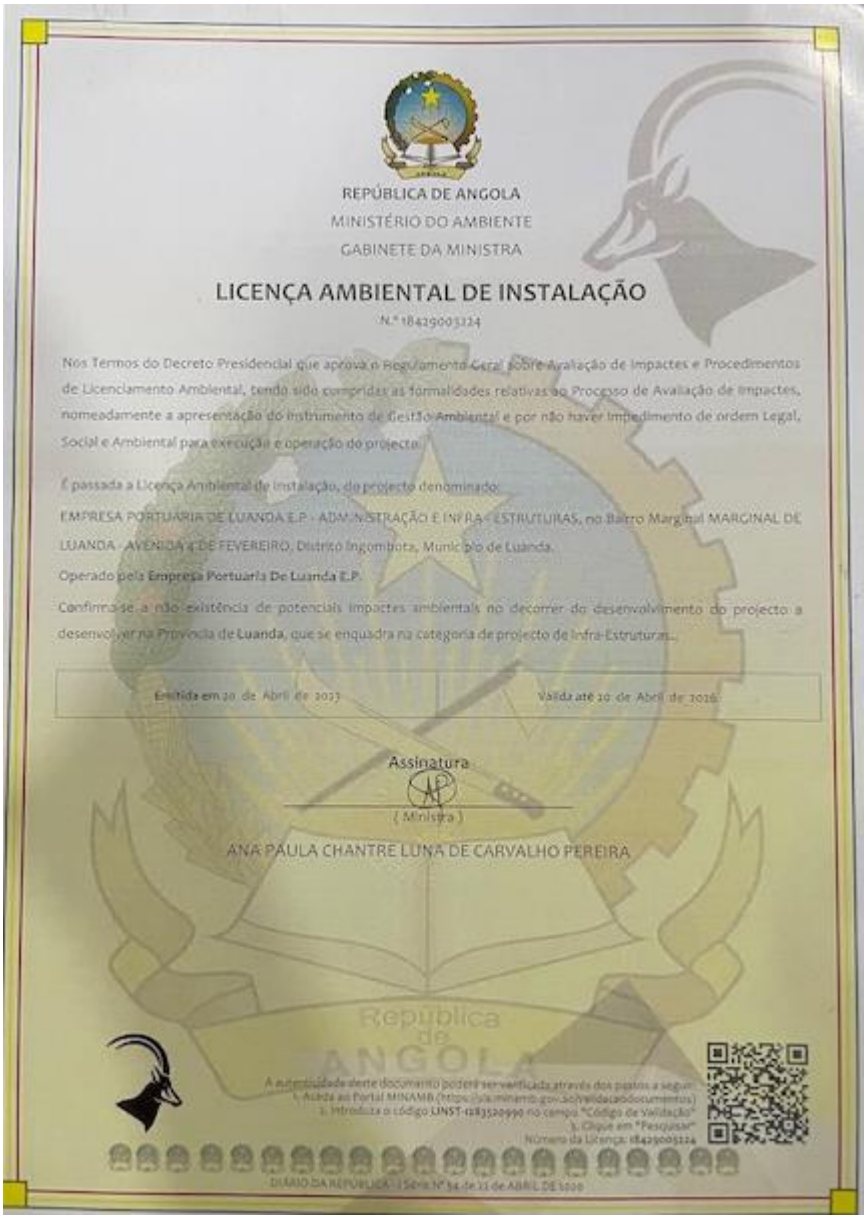
Water Quality

- Are periodic water quality analyses carried out in the port?
- Is there an annual report or documentation of port activities that publishes this data?
- Is there an inventory of potential discharges within the port basin?

They did not respond directly to each question, but they told us that they have environmental studies from past years that include data on turbidity, heavy metals, biological analyses, and others. The latest data report from the port corresponds to the year 2022 and will be published soon. They allow us to consult other studies, the most recent of which is from 2021 and corresponds to a monitoring plan carried out by DP World Luanda. Regarding the rest, the most recent was from 2015, a time when the current environmental legislation did not even exist. They said that the concessionaires of the port terminals usually create monitoring plans as part of the requirements of environmental licenses obtained in previous years.

They have an environmental license for facilities that has recently been renewed (April 2023) and is valid until April 2026. This license is associated with a series of measures to comply with, which they did not allow us to photograph but will probably provide if requested in writing. We do not know if this facility's environmental license includes measures that contemplate monitoring water or sediment quality.

Regarding discharges, they said that there is no official inventory. The situation is critical because wastewater is discharged without any treatment. Currently, there are two outfalls, but the discharges are without prior treatment. They presented a wastewater treatment project, but it has not been implemented yet.



REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE INSTALAÇÃO

N.º 18429003224

Nos Termos do Decreto Presidencial que aprova o Regulamento Geral sobre Avaliação de Impactes e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes, nomeadamente a apresentação do Instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para a execução e operação do projecto.

É passada a Licença Ambiental de Instalação, do projecto denominado:

EMPRESA PORTUÁRIA DE LUANDA E.P - ADMINISTRAÇÃO E INFRA-ESTRUTURAS, no Bairro Marginal MARGINAL DE LUANDA - AVENIDA 4 DE FEVEREIRO, Distrito Ingombota, Município de Luanda.

Operado pela Empresa Portuaria De Luanda E.P.

Confirma-se a não existência de potenciais impactes ambientais no decorrer do desenvolvimento do projecto a desenvolver na Província de Luanda, que se enquadra na categoria de projecto de Infra-Estruturas.

Emitida em 20 de Abril de 2023 | Valida até 20 de Abril de 2028

Assinatura

(Ministra)

ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

República de ANGOLA

Figure 15. Environmental license

Sediment Quality

- Is there knowledge of the baseline value of sediment pollution within the port?
- What is typically done with dredged material during maintenance dredging of port channels and access and maneuvering areas?

Marine sediments are analyzed when maintenance dredging works are conducted; this is not a periodic activity, and it is only conducted when deemed necessary, based on previous studies and subsequent assessments. From the year 2000 to 2023, there have been three maintenance dredging operations.

The dredged material is never discharged into deep waters; it is always used for port filling.

Biodiversity

- Are there known nesting areas for birds within the port FACILITIES?

- The maritime zone of the port and the entire bay is classified as a Likely Critical Habitat according to IFC criteria. Has this posed any problems in obtaining environmental licenses for previous port projects?

There are no known bird nesting areas. The birds observed in the area are those coexisting with the usual activities of the port, including the regular traffic of vehicles and people.

The marine area is a spawning ground for some fish species, and for this reason, it is analyzed more frequently. They mentioned a study that collects information on the conditions of the seabed. The Ministry of Fisheries has a marine research area that conducts studies in this zone, and some information can be obtained from it. (*)

(*) *Due to the significance of this statement regarding the biodiversity conditions of the bay, further inquiries were made, confirming that the spawning area is actually located in Mussulo Bay and not in the Port Bay. It was also found that the studies referenced were conducted by various entities from Angola and Portugal as part of a project analyzing Luanda Bay, aimed at providing information on an ecosystem-based approach. This approach is crucial for planning the future development of Luanda Bay to ensure that projects consider the implementation of mitigation measures to support the maintenance and recovery of ecosystems, enhance ecosystem health, and balance societal values derived from these ecosystems. The works and publications developed within the framework of this research project have been consulted, analyzed, and taken into account during the development of the project's ESIA.*

In none of the projects carried out in recent years have there been issues obtaining the environmental license due to potential impacts on biodiversity.

Climate Change

- Are there meteorological stations within the port?
- In previous studies conducted in Angola, we obtained climate change scenario data from various sources, with the most comprehensive being the World Bank Climate Change Knowledge Portal, which we consult regularly. Is there any source of climate change scenarios specifically focused on ports and coasts? (data on sea level rise, maritime climate, extreme waves, etc.)
- Have adaptation measures to climate change been necessary in recent projects?

They are not aware of recent studies, and they do not have meteorological stations located within the port area, nor have they needed to implement adaptation measures related to climate change. They mentioned that it is a port where the currents are of very low intensity, and they do not have problems with storms.

Port Traffic

- Are port activity data and statistics published annually?

They told us that everything regarding this matter could be consulted at the port web site.

Dredging project

- The dredging project, which involves deepening the access and maneuvering channel to a depth of 16 m, will undergo environmental processing?
- Have studies on the fines dispersion of these dredging works been conducted, including numerical modeling?
- Do other port dredging projects usually require environmental processing?

In this regard, they informed us that the deepening project for the access dredging does require environmental processing, but they do not have that information. They mentioned that DAR handles everything, as they are the ones undertaking the project and are aware of its requirements. They believe that numerical modeling will likely be required. They told us that on some occasions, other projects had carried out numerical modeling, but they did not have anything available to show us or allow us to review.

Temporary Facility

- What are the current uses of this area?
- Is it disused?
- Does it currently have a valid environmental license?
- What land use classification does it have? Are there any legal restrictions or requirements specific to the use of the land?
- Are there any known usage restrictions or environmental restrictions from possible previous processes or licenses?
- In port areas with low human and vehicle traffic, it is common for birds to use these areas as nesting sites. Are there any areas in that location where bird nesting has been observed?
- Are there any future development plans for the port or surrounding areas that might affect the Temporary Facility?

It is used as a storage facility. It does not have a current environmental license, as it is not necessary. As informed in the meeting the Port Authority only needs to request an environmental license for large projects. The area in question is within the full jurisdiction of the Port of Luanda.

The land use classification is port operation. The temporary facility is intended solely and exclusively for the exercise of port-related activities. There have not been observed usage restrictions due to environmental reasons so far, and there are no nesting or feeding areas for birds.

Regarding the last question, that area is part of the Master Plan of the Port of Luanda.

7.2.3. Findings from initial stakeholder engagement

- This is an area with controlled and restricted access, which is good news regarding potential social impacts of the works. There is no transit of people or vehicles not related to port activities.
- There are no bird nesting areas and there have usually been no reported problems in other works or projects due to potential impacts on birds or sensitive species.
- We have established contact with them, have their contact information, and some seemed receptive to both our interests and information needs.

- They informed us that for subsequent occasions, especially for the needs of entering the port area for surveys, we can request the issuance of a permanent pass for the duration of the project so that there is no problem with access.
- As mentioned earlier, it is possible that we may be able to obtain documents from which we can gather certain reference information.
- As a negative aspect, it is important to consider that it is a difficult-to-access and highly controlled area, so the available information is also restricted, greatly complicating the development of the work. That is why this visit has seemed important from the beginning of the work and the contacts obtained.

7.3. Stakeholder Engagement activities during ESIA Phase

Given that, according to national legislation, this project category does not require a public participation procedure, some of the institutions and official entities initially contacted by phone with the intention of arranging an in-person meeting to inform them about the project showed reluctance to meet, as they did not consider it necessary.

For this reason, and due to difficulties in arranging in-person meetings in most cases, letters were sent informing them about the project, including an informational brochure and offering the possibility of scheduling a meeting or providing any additional contact if further information was needed. The informational letters sent are included in Annex 6 of Volume II of this document.

As can be seen from the letters included in the aforementioned Annex, all the letters have acknowledgment of receipt from the receiving entity. The following table provides a summary of the entities contacted by letter, including the relevant dates and indicating those that responded specifically, either by announcing that they had no comments or by requesting an in-person meeting to obtain more information.

ENVIRONMENTAL IMPACT STUDY FOR THE UNICARGAS TERMINAL PROJECT
Correspondence checklist

Nº	Entity (PT)	Entity (EN)	Reference	Date of delivery	Date of reply	Comments
1	Administração Municipal de Luanda	Municipal Administration of Luanda	CE-LDA-AMB-E6736-P-00135-24-CG360	13/06/2024		
2	Gabinete Provincial da Educação	Provincial Office of Education	CE-LDA-AMB-E6736-P-00139-24-CG360	17/06/2024		
3	Gabinete Provincial da saúde	Provincial Health Office	CE-LDA-AMB-E6736-P-00142-24-CG360	13/06/2024		A meeting was held on July 8, 2024
4	Gabinete Provincial das Infra-estruturas	Provincial Office of Infrastructure	CE-LDA-AMB-E6736-P-00140-24-CG360	18/06/2024		
5	Distrito da Ingombota	Ingombota District	CE-LDA-AMB-E6736-P-00133-24-CG360	20/06/2024		A meeting was held on July 15, 2024
6	Governo Provincial de Luanda	Provincial Cabinet of Luanda	CE-LDA-AMB-E6736-P-00141-24-CG360	24/06/2024		
7	Administração do distritio Urbano de Sambizanga	Urban District Administration of Sambizanga	CE-LDA-AMB-E6736-P-00134-24-CG360	13/06/2024	-	A meeting was held on July 15, 2024
8	Ministério do Ambiente	Ministry of Environment	CE-LDA-AMB-E6736-P-00129-24-CG360	13/06/2024		
9	Direcção Nacional de águas	National Water Directorate	CE-LDA-AMB-E6736-P-00136-24-CG360	13/06/2024		
10	Ministério dos transportes	Ministry of Transport	CE-LDA-AMB-E6736-P-00132-24-CG360	13/06/2024	14/06/2024	
11	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Ministry of Fisheries - Ministry of Fisheries and Marine Resources	CE-LDA-AMB-E6736-P-00131-24-CG359	13/06/2024	02/08/2024	
12	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	National Directorate of Fisheries and Fishery Resources Protection	CE-LDA-AMB-E6736-P-00137-24-CG360	13/06/2024		

ENVIRONMENTAL IMPACT STUDY FOR THE UNICARGAS TERMINAL PROJECT
Correspondence checklist

Nº	Entity (PT)	Entity (EN)	Reference	Date of delivery	Date of reply	Comments
13	Ministério de Energia águas	Ministry of Energy and Water	CE-LDA-AMB-E6736-P-00130-24-CG360	13/06/2024		
14	Fortaleza do Penado - Museu	Fortaleza do Penedo - Museum	CE-LDA-AMB-E6736-P-00169-24-CG360	02/07/2024		
15	Porto de Luanda	Port of Luanda	CE-LDA-AMB-E6736-P-00166-24-CG360	02/07/2024		
16	CEEIA	CEEIA - Community of Exporting and Internationalized Companies of Angola	CE-LDA-AMB-E6736-P-00174-24-CG360	02/07/2024		
17	Medline - Assistência médica	Medline - Medical assistance	CE-LDA-AMB-E6736-P-00173-24-CG360	08/07/2024		
18	Sonils	Sonils	CE-LDA-AMB-E6736-P-00170-24-CG360	11/07/2024		A meeting was held on July 19, 2024.

Table 4.- Correspondence checklist

7.3.1. Consultation with Regulatory Bodies/Authorities

As shown in the table above, only two of the official regulatory entities responded to the informational letter with another letter. The Luanda Provincial Health Office, on the other hand, requested a face-to-face meeting by phone to obtain more information about the project.

Besides, given the need for engagement with the neighborhoods adjacent to the port, in addition to sending the letter, a specific request was made for a face-to-face meeting with the administrations of the Ingombota and Sambizanga districts. The purpose was to inform them about the project and to obtain the necessary information and authorization to contact the leaders of the nearby community neighborhoods directly.

7.3.1.1. Meeting with the Luanda Provincial Health Office

As mentioned above, following the contact by letter with the entities and regulators, the Luanda Provincial Health Office, in response to the communication dated June 13, 2024, requested a meeting for further clarification on the project. The meeting took place on July 8, 2024, and was attended by Joice Henriques from SOAPRO, the national consultancy registered with the Ministry. She was responsible for presenting the project and addressing any questions or concerns. The attendance register is included in Annex 8.

Figure 16. Photographic record of the meeting held on July 8, 2024. Provincial Health Office

The meeting began with a brief presentation of SOAPRO and Unicargas by Joice Henriques. This was followed by a presentation of the project, which explained the project's objectives, the stakeholder engagement process, and the grievance mechanism (see Annex 4).

After Joice Henriques' presentation, the attendees were given the opportunity to express their concerns, ask questions, or make suggestions regarding the project.

In this regard, there was a concern raised about the potential impact of the project on public health. The attendees expressed a desire to visit the project area to assess this issue firsthand. In response, it was noted

that a site visit to the Unicargas terminal could be arranged once approval from Unicargas management is obtained. Minutes of meeting are included in Annex 7 of Volume II of this document.

7.3.1.2. Meeting with the Sambizanga Urban District Administration

On July 15, 2024, a meeting was held with the Sambizanga district to provide a briefing on the project. The details of the meeting, including the attendance list and the photographic record, are documented and included as Annexes in the Volume II of this document (Annex 7 and Annex 8). The primary objectives of this meeting were to inform the district about the project and to obtain the necessary information and authorization to directly contact community leaders in the surrounding neighborhoods.

Figure 17. Photographic record of the meeting held on July 15, 2024. Sambizanga Urban District Administration

The meeting commenced with a brief introduction of SOAPRO and Unicargas by Engineer Margarida de Matos, from SOAPRO, the national consultancy registered with the Ministry. This was followed by a presentation on the project, where the project's objectives were outlined, and the processes for stakeholder involvement and the grievance mechanism were explained (see Annex 4).

In addition to providing information, the meeting aimed to identify contacts for representatives of the communities near the project area. After Ms. Margarida de Matos' presentation, attendees had the opportunity to express their concerns and make suggestions. Notably, Mr. Daniel Siamusseque, Deputy Administrator for the Technical Area, inquired about how the district could assist with the project. In response, it was noted that contacting the person responsible for Bairro do Bungo was one of the objectives of the meeting. However, it was clarified that Bairro do Bungo is under the jurisdiction of Ingombota, not Sambizanga, which was an important detail for the project's planning and community outreach.

Minutes of meeting are included in Annex 7 of Volume II of this document.

7.3.1.3. Meeting with the Ingombota Urban District Administration

On July 15, 2024, a meeting was held with the Ingombota Urban District Administration to provide a briefing on the project. The details of the meeting, including the attendance list and the photographic record, are documented and included as Annexes in the Volume II of this document (Annex 7 and Annex 8). The primary objectives of this meeting were to inform the district about the project and to obtain the necessary information and authorization to directly contact community leaders in the surrounding neighborhoods.

The meeting commenced with a brief introduction of SOAPRO and Unicargas by Engineer Margarida de Matos, from SOAPRO, the national consultancy registered with the Ministry. This was followed by a presentation on the project, where the project's objectives were outlined, and the processes for stakeholder involvement and the grievance mechanism were explained (see Annex 4).

Figure 18. Photographic record of the meeting held on July 15, 2024. Ingombota Urban District Administration

During the meeting, Architect Paulo Furtado, the Administrator of the Ingombota Urban District, expressed a willingness to assist with the project. It was explained that one of the objectives of the meeting was to acquire the contact details for the individuals responsible for the Boavista and Bungo neighborhoods. In response, Architect Furtado agreed to facilitate this request and committed to providing the contact information for these neighborhoods by the end of the day through Mr. Dinis Marques.

Minutes of meeting are included in Annex 7 of Volume II of this document.

7.3.2. Consultation with Companies in and around the Unicargas Terminal

7.3.2.1. Meeting at Unicargas' offices

The meeting with private companies (those in and around the Unicargas Terminal) took place on June 18, 2024 at Unicargas' offices, within the Port Authority of Luanda premises. The attendance list can be found in Annex 8.

During the meeting, the informational leaflet prepared for this purpose was distributed, which is included in Annex 3 of Volume II of this document. Using the digital presentation provided in Annex 4, a brief introduction was given, followed by Ludmila Campos, a representative from Unicargas, who provided a brief description of the project and its implementation schedule. Subsequently, Ângela Alves, a representative of SOAPRO, the

national environmental consultancy registered with the Ministry, presented the project, summarizing the analyses conducted, potential impacts, and the established mitigation measures. She also described the Stakeholder Engagement Plan and the grievance mechanism, highlighting the project's compliance with national and international requirements throughout the presentation.

Figure 19. Photographic record of the meeting held on June 18, 2024. Companies in and around the Unicargas Terminal

After the presentation, attendees were given the opportunity to express their concerns and questions. These are detailed in the minutes of the meeting, which are included in Annex 7 of Volume II of this document. In summary, the main concerns raised were related to certain design and logistical aspects of the project.

Clesne Antunes from CLE Catering inquired about the operational status of the terminal during the construction phase. It was clarified that the terminal would remain operational throughout the construction period, with ongoing activities continuing without interruption. Additionally, it was explained that arrangements had been made for nearby companies to use land allocated between DP World and Sonils, to facilitate continued operations during this time, and all customers were to be informed of any changes before the construction phase began.

Gelson Cristovão from Goldenan Shipping Agency expressed concerns regarding the ro-ro general cargo quay, which has a water depth of -9.0 meters. This depth was perceived as inadequate for the agency's needs and could potentially require finding alternative partners. In response, José de Sousa, Operations Director at

Unicargas, assured that while specific details could not be provided due to the ongoing nature of the project, this issue had been addressed, and there is no cause for concern. He emphasized that the needs of general cargo ships have been considered in the project planning.

7.3.2.2. Meeting with SONILS Company

SONILS is a leading Company of an Onshore Supply Base to the Oil & Gas located in Luanda Port in Angola (second biggest oil producer in Sub - Saharan Africa region) supporting logistically more than 60% of Angola´s daily production.

The company SONILS was contacted by letter on July 11, 2024, as noted in Annex 6: Informational Letters. In response, they requested an in-person meeting, which took place on July 19, 2024. Representing SOAPRO, the national environmental consultancy registered with the Ministry, Margarida Matos and Joice Henriques attended the meeting.

Figure 20. Photographic record of the meeting held on July 19, 2024. SONILS Company

The meeting commenced with a brief introduction of SOAPRO and Unicargas by Engineer Margarida de Matos. This was followed by a presentation on the project, where the project's objectives were outlined, and the processes for stakeholder involvement and the grievance mechanism were explained (see Annex 4).

After the presentation, attendees were given the opportunity to express their concerns and questions. These are detailed in the minutes of the meeting, which are included in Annex 7 of Volume II of this document.

During the meeting, Mr. Sil Airola, Head of the Projects and Infrastructures Department, inquired about whether the quay would be extended as part of the project. Ms. Margarida de Matos explained that the project focuses on modernizing the existing pier at the Unicargas Terminal. After carefully reviewing the informational leaflet, Mr. Airola and his colleague, Mr. Pedro, gained a clear understanding of the rehabilitation plans for the Unicargas Terminal. Mr. Airola then noted that due to their distance from the terminal, they anticipated no significant impacts from the rehabilitation project.

7.3.3. Consultation with surrounding communities

The meetings with the leaders of the Mata-Gato neighborhood community and the Boavista neighborhood community took place on July 17, 2024, with the aim of presenting the project to be developed at the Unicargas Terminal and distributing the leaflet included in Annex 3.

This meeting also sought to identify contacts for the project's Focal Point, so that the community leaders of the adjacent neighborhoods would be aware of the project's existence and know whom to contact to express their complaints, concerns, or issues throughout its lifecycle. After Margarida de Matos' explanation, the community representatives were given the opportunity to present their concerns, questions, or suggestions regarding the project.

7.3.3.1. Meeting with Bairro Mata-Gato Community

During the meeting, Mrs. Maria Varela, the Coordinator of the Mata-Gato Neighborhood, asked about the nature of the planned requalification. Ms. Margarida de Matos explained that the project would involve improvements to the existing maritime infrastructure and the installation of modern equipment at the Unicargas Terminal. Mrs. Varela then inquired whether the Mata Gato neighborhood would benefit from the terminal's redevelopment. Ms. de Matos clarified that, while the redevelopment would not directly impact the neighborhood due to its distance, the presence of construction staff might boost local food trade on a commercial level.

Mrs. Varela also expressed a desire to see local youth recruited for the project to provide them with opportunities and prevent them from going astray. Ms. de Matos explained that no recruitment was currently taking place, but that in the Environmental and Social Impact Assessment (ESIA), there is always a recommendation to hire local labor.

In an exchange of information, Ms. de Matos asked about the number of residents in the neighborhood, to which Mrs. Varela could not provide an exact answer, noting that only the Administration would have this data. However, she mentioned that the last census recorded approximately 600 residents. When asked about the prevalence of malaria, Mrs. Varela confirmed that there were many cases, attributing them to a ditch in the area.

Mrs. Varela, who has lived in the neighborhood for more than 10 years, also voiced other concerns, lamenting the poor conditions in the neighborhood, including the lack of schools for children, health centers, and job opportunities for young people.

Minutes of meeting are included in Annex 7 of Volume II of this document.

Figure 21. Photographic record of the meeting held on July 17, 2024. Community of Bairro Mata-Gato Neighborhood

7.3.3.2. Meeting with Boavista neighborhood Community

During the meeting, Mr. Mateus Miguel, the Coordinator of the Boavista Neighborhood, asked whether there was a questionnaire he needed to complete. Eng. Margarida de Matos explained that, at this stage, the Unicargas terminal project was being presented for informational purposes as part of the Stakeholder Engagement Plan to comply with international standards.

Mr. Mateus provided a detailed overview of the Boavista neighborhood, noting that it has a population of 37,000 residents divided into three sectors: Sectors A, B, and C, comprising a total of 11 blocks. He mentioned that Sector A, near the Unicargas terminal, consists of 4 blocks and faces some basic sanitation issues. Sector B has 3 blocks, and Sector C has 4 blocks. He highlighted that the neighborhood is considered an industrial zone due to the numerous industries situated nearby, thanks to its proximity to the provincial port. Mr. Mateus expressed concern about the neighborhood's inadequate conditions, particularly the insufficient number of schools and health centers. He also requested that, should there be a need to recruit new workers, the young people from the neighborhood be considered for these opportunities.

Minutes of meeting are included in Annex 7 of Volume II of this document.

Figure 22. Photographic record of the meeting held on July 17, 2024. Community of Boavista Neighborhood

8. GRIEVANCE REDRESS MECHANISM

8.1. Justification and objectives

Interactions with the communities will occur frequently during the different phases of the Project, and this includes several types such as those that may generate grievance (i.e. construction annoyance effects or maintenance labors during operations). A grievance is an issue, concern, problem, or claim (perceived or actual) that an individual or group or representative wants the company, or their contractors, to address and resolve.

Understanding and managing community and stakeholder issues and concerns is vital to the long-term successful relationship between the project owner and the communities. Unresolved community issues can affect the Project adversely. Therefore, it is important that a simple and effective grievance management process is established and implemented.

8.2. Legal Framework

Grievance Redress Mechanism is foreseen in IFC as a good practice to guide companies/organizations to deal with concerns and complaints from affected communities. Under the Performance Standard number 1, *Assessment and Management of Environmental and Social Risks and Impacts,* Grievance Mechanism is foreseen to receive and facilitate resolution of Affected Communities' concerns and grievances about environmental and social performances.

8.3. Actions and implementation schedule

As referred in the ESIA, several actions will potentially cause disturbances to communities (and general population) both during construction phase and operational phase. The main actions are listed below:

- All working activities that involve movement and operation of machinery, vehicles and equipment since will imply the emission of pollutant gases, dust and the increase of noise levels in the area and adjacent zones;
- Necessary traffic diversions, traffic increase in local roads and disruption to utilities during construction works will potentially affect local population.

These actions will impact mainly in the increase of disturbance to population, mainly local communities. To minimize those effects a set of mitigation measures have been designed, among which a Grievance Redress Mechanism -GRM- is foreseen. It is described as follows.

8.4. Description of the GRM

8.4.1. Objectives and basis

Interactions with the communities will occur frequently during the different phases of the Project, and this includes several types of interactions, including construction annoyance effects, inspections during operations, etc. Interactions between the Contractors and responsible for the project and the communities and other stakeholders may generate grievances. A grievance is an issue, concern, problem, or claim (perceived or actual) that an individual or group or representative wants the company, or their contractors, to address and resolve. The grievance mechanism designed for this project allows interested parties to submit complaints and comments free of charge.

Methodologies for resolving grievances are an effective means of addressing concerns and complaints to find solutions for communities, promoting constructive and healthy development that contributes to achieving a project's objectives.

Strong and reliable grievance mechanisms can help address problems proactively as they arise, thereby preventing damage to local community trust or the escalation of issues to irresolvable levels. Trust is essential for a grievance mechanism; individuals need assurance that their confidentiality will be protected and that they will not face retaliation for voicing their concerns and participating in the complaint resolution process. Furthermore, participation in a grievance mechanism is always voluntary, and community members must know that they can choose not to participate freely. It is also essential that all stakeholders, regardless of their size and influence, are informed that all complaints received, regardless of the project's stage, will be addressed through a single mechanism. This approach ensures legitimacy, reliability, transparency, and efficiency throughout the process.

Sometimes a simple complaint, if not addressed in a timely and proper manner, can escalate to a dispute. Understanding and managing community and stakeholder issues and concerns is vital to the long-term successful relationship between the project owner and the communities. Unresolved community issues can affect the Project adversely. Therefore, is important that a simple and effective grievance management process is established and implemented.

Grievance Mechanisms do not replace judicial or other non-judicial actions, however, when implemented effectively, these mechanisms offer an efficient, immediate and low-cost approach to resolving problems.

The GRM will provide guidance for the management of suggestions and complaints of the community and stakeholders throughout all Project phases. This protocol will allow to:

- Understand the stakeholder's perception of Project risks and impacts to adjust its measures and actions to address their concerns
- Inform affected stakeholders about the process which will be followed in response to grievances
- Address and redress stakeholder complaints
- Make available to the affected stakeholders an effective complaints mechanism
- Map stakeholder suggestions as an opportunity for continuous improvement; creating or changing an existing system and learning process

This protocol applies to any stakeholder (individuals, groups of individuals, communities, companies, institutions, NGOs, among others) affected by the activities of the Project or by the activities of contractors retained to undertake any work related to the Project. The GRM is thus a tool aimed at addressing grievances of stakeholders associated with the Project for its entire duration.

8.4.2. Principles

The grievance mechanism is governed by the following principles:

Safety: Any interested or affected stakeholder will feel safe and confident to raise a grievance or suggestion without fear of reprisal.

Accessibility and inclusive: The protocol will be readily available and easily accessed by any stakeholder.

ADPG will take all practicable steps to disseminate the mechanism and to remove potential constraints to access such as language, illiteracy and distance through, among other things, the utilization of local media and local languages to disseminate the mechanism. It will be accessible to all stakeholder groups in the project area, including disadvantaged or vulnerable groups, those less likely to have the means to express their concerns or opinions (e.g. women, the elderly, children, etc.).

Publicized: the mechanism will be publicized through engagement activities and information dissemination to ensure stakeholders are aware of and understand the process.

Timely: All grievances will be managed in a timely manner to avoid escalation to a dispute and cause major risks to the Project. Complaints will be addressed and received with feedback within an agreed timeframe in order to manage expectations.

Respect: The grievance resolution process will be in compliance with internationally recognized human rights standards, such as the Covenants on Economic, Social and Cultural Rights, Civil and Political Rights, Convention on the Elimination of All forms of Discrimination against Women (CEDAW), Convention of the Rights of Persons with Disabilities (CRPD), Committee on the Elimination of Racial Discrimination (CERD), and Convention on the Rights of the Child (CRC).

Transparency and Accountability: The grievance redress process and outcomes will be sufficiently transparent to meet public interest concerns without compromising the privacy or identity of individuals. They will likewise be and be perceived to be fair, independent and legitimate. Complaints will remain confidential and anonymous.

Predictability: The process will be consistently applied with clear timeframes for each stage and provide clarity on the types of process and outcomes that can and cannot be offered.

Recorded: Complaints and issues will be recorded and tracked.

8.4.3. Complaints and Suggestions

There are three main types of complaints and suggestions, namely:

- Individual: refers to a grievance or suggestion raised by an individual community member or stakeholder.
- Group: refers to grievance or suggestion raised by a specific group of people or stakeholders such as gender group, disability, professional association, etc.
- Community: refers to grievance or suggestion involving a whole community. These complaints may be made in a community meeting or by the community leader on behalf of the community explaining in this case the reason why this is a community complaint.

8.4.3.1. Complaints

The management of a complaint is more complex than dealing with a suggestion, and will follow the steps summarized below:

The methodology presented below establishes a set of 8 steps to be taken to resolve reported complaints and deadlines for concluding the complaint (refer to Table 5).

Step	Step Description	Deadline after receipt of complaint
1	Receive and register the complaint	24 hours
2	Classify	3 days
3	Recognize	7 days
5	Investigate and consult	20 days
5	Communicate resolution	22 days
6	Use external experts	1 month
7	Implement the response to resolve the complaint	1 month
8	Close the complaint	1 month

Table 5 - Steps in the Complaint Mechanism

Step 1 - Receive and register the complaint (deadline 24 hours)

All project stakeholders can submit complaints by:

- Filling in a written complaint form, available free of charge at the Port of Luanda or at the construction site. The form will be accompanied by a blank envelope. Once completed, the form should be placed inside the envelope and returned to a complaint box located at the Port of Luanda.
- Verbally to the Project's Focal Point for Complaints Management, by telephone, to a number to be made publicly available and within a fixed daily period of hours, by email, or to the community leaders who will liaise with the Project's Focal Point.

Regardless of their format, all complaints and issues, whether received verbally or in writing, will be formally registered by the complainant or the Project Focal Point using the Project Complaint Form, as shown in Annex 7 (Volume II). The complainant's contact details are optional, and anonymous complaints are valid. In

addition to complaints, requests, suggestions, and social issues can also be registered. A clear description of the incident or complaint and the problems is required.

Step 2 - Classify (within 3 days)

There must be an acknowledgement/confirmation that the complaint has been received, registered and elected for a response. Acknowledgment must take place no later than 3 days after receipt.

Complaints will be analyzed and assigned to different categories and according to 3 priority levels:

- Level 1 - Minimum Priority Complaint: a local, isolated and punctual complaint that can be dealt with limited effort. They are of a minor nature and do not threaten the prevailing situation in which the complaint is registered. They are usually generated and motivated by individual interests.
- Level 2 - Medium Priority Complaint: widespread and/or ongoing complaint, this could be an environmental issue, for example. It is widespread in nature, probably affecting more than one person, group or community. It has the potential, if not addressed, to turn into a serious social incident (e.g. noise, vibration and dust during construction).
- Level 3 - Critical Priority Complaint: potential for significant violation of applicable law, company policies and/or negative media attention, security of facility property, employees and stakeholders (e.g. abuse by security force).

Step 3 - Acknowledge (7-day deadline)

There should be an acknowledgement/confirmation that the complaint has been received, registered and elected to be responded to. Acknowledgment should take place no later than 7 days after receipt. This should be in written form and made available to the public in the same places where complaint forms are available to interested parties. Where possible, information will be provided on the next course of action, as well as an indicative timetable for resolution.

Step 4 - Investigate and consult (20 days)

The Focal Point must investigate the complaints and consult with the Project Coordinator and other relevant people in order to:

- Identify the actions required to resolve the complaint, as well as the person/party responsible. If unable to deal directly with the complaint, he or she will assign it to the appropriate employee, team or contractor for resolution. The identified individual or team will assist in the complaint resolution process.
- If necessary, support the identification of a suitable investigation team with the appropriate skills to investigate the issue raised and decide whether it is related to the project or more appropriately addressed by a third party (e.g. competent authority).
- Support the investigation, including (where appropriate) carrying out field visits, conducting consultations, checking files with the person concerned and company representatives.
- Investigate whether the incident that led to the complaint is a singular occurrence or likely to occur again.
- Identify activities, procedures, equipment and training to address and prevent recurrence.

- Make sure that any request made to a unit manager, who can help resolve the problem, is correctly delegated to him/her.
- Remain responsible for tracking complaints and problems, as well as ensuring that they are dealt with correctly.

Step 5 - Communicate the resolution (within 22 days)

The team responsible must communicate, within no more than 22 days and in writing, using non-technical language whenever possible. If the solution is accepted, it is implemented. If the complainant does not agree, an appeal process can be initiated.

Step 6 - Recourse to external experts (1 month)

If the complainant is not satisfied with the outcome, they can request an appeal process, with the complaint being reviewed again by an autonomous secondary team. Ultimately, if the complainant is still dissatisfied, they can go to court or to the World Bank mechanism (https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service).

Step 7 - Implement the response to resolve the complaint (1 month deadline)

If there is an agreement between the complainant and the person responsible for managing the mechanism, the response should be implemented within one month.

Step 8 - Close the complaint (1 month deadline)

When the response is satisfactory, the team responsible should document it and its resolution. It will also be necessary to obtain a written document from the previous complainant indicating their satisfaction with the response obtained.

The Focal Point and the responsible person/party identified for resolution must ensure that the recommended corrective measures are effectively implemented in an efficient and timely manner. The Focal Point must inform the interested parties of the progress of the corrective measures applied.

8.4.3.2. Suggestions

Suggestions are normally easier to deal with than complaints. The procedure will follow the steps indicated below:

- Presentation: The suggestion is presented using one of the communication channels (face to-face interaction, complaints and suggestion book, email or voice call..).
- Receipt and acknowledgement: Suggestion must be receipt and recorded into complaints and suggestion book and an acknowledgement letter to the affected person, should be delivered within 5 days.
- Answer: After due consideration of the suggestion, a letter indicating result/outcome should be prepared and delivered to the affected person.
- Closing: After delivery of the answer letter, the matter will be considered closed.

8.4.4. Procedures characteristics

A grievance within a 17 days period of the receipt of a complaint will be managed. Where an investigation takes longer than 17 days, the responsible will notify (in writing) the stakeholder in advance, indicating the reasons for the delay. If the complainant does not agree with the resolution proposal, and it isn't possible to reach an agreement on the issue resolution, the complainant may request that the complaint be escalated to Directors, who will review the process and communicate their decision to the complainant within 7 days. Where the complainant is not satisfied with the proposed resolution, he has the right to appeal to a third party, here proposed to be the Arbitration Committee.

The Arbitration Committee will analyze the case and arrive at a decision. Decisions made by this forum will be considered final regarding the scope of this grievance management protocol. If the complainant does not agree with the decision of the Arbitration Committee, they can escalate the issue to the judicial system. Information about their right of escalation and the appropriate judicial channel, or available World Bank grievance redress mechanisms, to direct their complaint will be provided to the complainant. However, this level of escalation is outside the scope of this management protocol.

8.5. Monitoring

Grievance Redress Mechanism shall be monitored since it is necessary to check if the protocol is working effectively or any issue shall be modified to improve its effectiveness. However, its monitoring might be different from the ones referred to other plans/programs as it will consist of the compliance with the procedures and measurement of solved/unsolved cases.

The GRM will last from the design phase, since several enquires shall be agreed with communities, until the end of the project's life, as during the whole operational phase any complaint/suggestion might be posed.

8.5.1. Monitoring Locations

No location applies to the GRM.

8.5.2. Monitoring Parameters

Monitoring the GRM must consist in checking the effectiveness of the procedure, assuring communities grievance/complains/suggestions are being addresses. The following parameters will be recorded:

- Number of grievance/complains/suggestions received, of which the total might be solved;
- Adjustment to the fixed times to manage the grievance/complains/suggestion;
- Number of times the Arbitration Committee has to analyze any case and decide;
- Number of times appropriate judicial channel or similar must be escalated.

8.5.3. Monitoring Frequency

Monitoring will be undertaken at least monthly during the construction phase. When the project will be operating, frequency will reduce to twice a year in the first five years and annually thereafter.

If the number of grievance/complains/suggestions increase suddenly in any working/operating period, monitoring frequency and reporting will also increase.

8.5.4. Monitoring responsible

The responsible of the GRM will be the person in charge of the Environmental Management Program, at least a senior member with the overall direction of the work. A minimum of 5 years of relevant experience will be required. The responsible person will be expected to promote and maintain the high standard required, regularly inform the client, including reporting agreed, and proposed any technique variation or complementary study required.

8.5.5. Sampling methods

Instead of sampling methods, when monitoring the compliance with the GRM procedure, time to solve the procedures and the number of procedures itself are the issues to check. Also, the necessity of external arbitration needs might be considered.

Monitoring actions	Description	Implementation Schedule
Periodic GRM monitoring	GRM procedures monitoring actions will be developed during both project phases.	Construction phase: monthly. Operational phase: biannual first 5 years, annual thereafter.
GRM monitoring in response to repetitive complaints	If GRM is not being efficient and repetitive complaints from the local population about any issue are registered, (i) simple immediate measures (such as stop the action which is causing the disturbance until a deeper investigation is made) will be implemented; and (ii) check the reason why the GRM is delayed or not properly functioning, to verify the effectiveness and define additional measures, if required.	When necessary

Table 6. Monitoring actions

8.6. Corrective actions

If exceedances of complaints from the local communities are lodged, or repetitive ones, the causes of such grievances will be identified and corrected. Exceedances may result from:

- Non-compliance with the Grievance Redress Mechanism;
- Delay on the appliance of the GRM.

In the event of non-compliances or delays, additional actions will be implemented, as required, to eliminate or minimize the negative effects. These additional actions will be defined case by case, depending on the assessment of the specific issues. The following are examples of possible ones and control actions that may be adopted:

- Analyze if GRM needs any modification on deadlines to attend properly the procedures once a grievance/complain/suggestion is received;
- Additional personnel to be dedicated to the GRM to avoid delays or unaddressed procedures.

After the implementation of the corrective actions, a monitoring campaign will be undertaken to verify the resolution of the non-compliances recorded.

Corrective actions	Description	Implementation Schedule
Act on non-compliances	If GRM non-compliances are recorded as a result of the proposed monitoring, the causes shall be identified and corrected, through the implementation of adequate modifications and actions to be identified based on the nature of the specific conditions that led to the recorded non-compliance. Following correction, monitoring will be undertaken to verify resolution.	Whenever necessary

Table 7. Corrective actions.

8.7. Reports

Documental records will be kept, to control the execution of this Grievance Redress Mechanism development. These documents will be prepared, archived and maintained by the environmental management team, to document the results of the program implementation.

Records of relevant events will be made following the occurrence and a monthly Performance Report will be prepared, reporting on the recorded events and performance indicators during construction phase. Additionally, in operational phase, biannual reports will be prepared during the first five years, and annual ones thereafter.

If frequency changes due to any larger episode of grievance/complains/suggestions, reports might also vary its occurrence.

9. STEPS AND GUIDELINES TO MANAGE STAKEHOLDER ENGAGEMENT DURING THE CONSTRUCTION AND OPERATION PHASES

The Stakeholder Engagement Plan developed during the ESIA phase should serve as the foundation for engagement activities during the construction and operation phases. Thanks to the information gathered during the ESIA phase, most potential impacts can be identified in advance, allowing for the establishment of a series of mitigation measures to be implemented during subsequent phases, including those addressing concerns raised by various stakeholders consulted during early stages.

9.1. Stakeholder engagement during construction phase

Once construction begins, it is essential to involve affected stakeholders in monitoring the anticipated impacts throughout the construction period. Engagement during construction is mainly about involving stakeholders in assessing whether mitigation measures are working as intended, to establish possible additional measures if deviations are detected from what was expected.

For this reason, it is crucial to keep the grievance mechanism active, addressing any complaints or suggestions diligently throughout the construction process. Based on the stakeholders identified in the previous phase, their concerns, and following the structure and steps set out in the grievance mechanism, the stakeholder engagement plan during the construction phase should include at least the following activities:

- Consider the list of stakeholders identified during the ESIA phase and analyze the possible existence of additional stakeholders, derived from truck routes transporting construction materials, potential material stockpile locations, or places outside the port facility where staff may be convened. It's important to note that once the project design is finalized and the scope of construction work is agreed upon with contractors, it will become much clearer which specific stakeholder groups will be affected by the various construction activities and when.
- Inform local stakeholders of the specific schedule of activities that may affect them in particular. There will be days when noise-generating activities are scheduled, days when dust-producing activities will occur, or specific dates when vessels may need to adapt their schedules to fit the mooring times at the temporary facility. If necessary, a periodic communication schedule may be established for key stakeholders regarding the progress of activities that directly affect them. Providing information in advance predisposes stakeholders to dialogue and understanding.
- Track the resolution of complaints received through the established grievance mechanism and respond diligently, especially concerning complaints that require immediate attention.
- Ensure the ability of the responsible parties within the contractor team to maintain cordial relationships with stakeholders to prevent risks arising from interactions between them. It is important to keep in mind that during construction, it is typically the contractors and subcontractors who have day-to-day contact with local stakeholders.

9.2. Stakeholder engagement during operation phase

While the phase with the highest risks and potential complaints or issues to address with stakeholders is the construction phase, it is important to maintain contact with stakeholders during the operation phase, even if less frequently, but in a way that ensures the continuity of relationships. Establishing a dynamic stakeholder engagement plan that can adapt to the potential emergence of new stakeholders, changes in concerns among existing ones, or new future interests is highly relevant. Taking these considerations into account, the main activities that should be included in the stakeholder engagement plan during the operation phase are the following:

- Properly manage the transition from construction to operation, ensuring the continuation of relationships established with various stakeholders during the construction phase. The transition to operations can be a time of uncertainty for local stakeholders, so it is important to communicate what changes are to be expected and what impacts, if any, this might have on local residents or Terminal users.
- Ensure the integration of ongoing stakeholder commitments into operations management systems, identifying, prior to the start of the transition, how the outstanding commitments for mitigation and project benefits will be integrated with the proposed or existing management and performance functions of the company during operations.
- Regularly communicate emergency preparedness and response plans, as stakeholder engagement during operations should be designed to maintain levels of awareness. This can be done by periodically conducting practice drills and simulations involving communities, and jointly reviewing and updating existing emergency response procedures.
- Keep the grievance mechanism operational. Once the construction period is over, the project is likely to experience a decrease in the number of complaints. This may be because the issues previously raised have now been resolved, or because the moment of maximum impact has passed, but it is important to keep the grievance mechanism active for receiving and addressing public concerns whenever they may arise throughout the life of the project.
- Evaluate the need to assess stakeholder perceptions, including through the establishment of a monitoring program. The benefits of third-party monitoring include increased transparency and trust between the company and stakeholders, as well as an objective assessment of environmental and social performance.
- Continue to disclose, consult, and report to stakeholders as needed, considering that ongoing disclosure of project information to stakeholders, as well as the nature and frequency of consultation activities and reporting during normal operations, should be commensurate with the extent of impacts and stakeholder concerns.

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AD PORTS GROUP

Environmental Consultancy Services for the Development of Unicargas Port in Luanda - Angola

Stakeholder Engagement Report

VOLUME II - ANNEXES

November 2024

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1. Annex 1. Stakeholders contact list

Category	Name	Contact
Regional Institution	Luanda Provincial Office	Telephone: 923 564 424 email: gplcomunicacao@gmail.com
Regional Institution	Provincial Health Office	Telephone: +244 222 371 158 / email: gabineteprovincialdasaudedeluandalda@gmail.com
Regional Institution	Provincial Infrastructure Office	https://luanda.gov.ao/ao/ministerios/governo-provincial-de-luanda-2/
Regional Institution	Provincial Environment and Solid Waste Management Office	https://luanda.gov.ao/ao/ministerios/governo-provincial-de-luanda-2/
Regional Institution	Provincial Education Office	https://luanda.gov.ao/ao/ministerios/governo-provincial-de-luanda-2/
Local institution	Luanda Municipal Administration	Telephone: + 244 223 922 97 Email: cacl@cidadeluanda.com
Local institution	Administration of the Urban District of Sambizanga, Ingombota	Telephone: +244 928 519 021
National Institution	Ministry of the Environment	Telephone: +244 923123456 email: info@minamb.gov.ao
National Institution	Ministry of Energy and Water	Telephone: +244 222 430 227 email: geral@minea.gov.ao email: serafim.dasilveira@minea.gov.ao
National Institution	National Water Directorate	Telephone: +244 949 386 389 Email: dna.aquisicoes@gmail.com
National Institution	Ministry of Transport	Telephone: (+244) 222311303 email: geral@mintrans.gov.ao
National Institution	Maritime and Port Institute of Angola	Telephone: +244 948 294 767
National Institution	Ministry of Fisheries - Ministry of Fisheries and Marine Resources	https://www.minpermar.gov.ao/contactos
National Institution	National Directorate of Fisheries and Protection of Fisheries Resources	Telephone: +244 239 873 237 Email: balcao.online@pescas.gov.ao
National Institution	National Institute for Fisheries Research	Telephone: 222309405/309732 email: iim@angola-minpescas.com
Regional Institution	Port of Luanda	Telephone: +244 226 431 121| +244 949 591 515 email: geral@portoluanda.co.ao
Private sector	Companies close to the project area	
Communities	Employees/workers of Luanda Port	
Communities	Communities surrounding the port area	
Education and training	Luanda Harbour Academy	Telephone: +244 939 051 006
Private sector	Fundação NESR Arte	email: info@nesrartfoundation.com
Culture and Heritage	Penedo Fortress - Museum	
Private sector	Clínica Sagrada Esperança - Sonils Base (Luanda Port)	Telephone: 937 794 722 | 916 018 727| 222 008 862 email: posto.medico@sonils.co.ao
Private sector	Medline - Medical assistance	Telephone: +244 942 641 203 email: geral@medline-angola.com
Private sector	CEEIA - Community of Exporting and Internationalized Companies of Angola	Telephone: +244 944 180 907 email: ceeia2018@gmail.com

2. Annex 2. Minutes of Meeting Report Template

TITLE OF MEETING

DATE AND TIME OF MEETING **DD / MM / YYYY** **00:00**

Purpose of the meeting	
Meeting location	

☐ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	
2.	
3.	
4.	

DETAILS/NOTES OF THE MEETING AGENDA

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1.			
2.			
3.			
4.			

PHOTOGRAPHS:

3. Annex 3. Leaflet for communications

DESENVOLVIMENTO DO TERMINAL PORTOÁRIO DA UNICARGAS EM LUANDA, ANGOLA

LOCALIZAÇÃO DO TERMINAL UNICARGAS:

O Projecto está localizado no Porto de Luanda, Província e Município de Luanda, Distrito Urbano da Ingombota, Angola
(Lat: - 8.800274°; Long: 13.247499°).

- Localizado no coração de Luanda, a capital de Angola, ao longo da costa atlântica norte, o Porto de Luanda é o principal porto de Angola e o seu principal centro industrial, cultural e urbano.
- Além disso, o Porto de Luanda actua como um porto estratégico de entrada, apoiando o comércio fundamental na região.

ENQUADRAMENTO DO PROJECT:

O desenvolvimento do projeto do Terminal da Unicargas visa desenvolver e melhorar as infra-estruturas marítimas e de superfície existentes para apoiar e aumentar a procura do actual cais de contentores e do terminal de carga geral/rodoviário.

O projecto envolve a conceção de aproximadamente 192.000 m^2 de área de estaleiro e instalações/edifícios associados/infra-estruturas de apoio dos terminais de contentores e de carga geral/rodo, parede do cais e ligações com os cais adjacentes.

A vertente marítima do projecto envolve a modernização do cais existente no Terminal Unicargas, com um comprimento total de 536 metros. O cais melhorado será composto por duas secções:

- Cais de contentores: Esta secção terá uma profundidade de água de -16,0 metros LAT para acomodar navios de contentores até 335 metros de comprimento. Será equipada com vigas de guindaste para suportar guindastes STS (Ship-to-Shore).
- Cais de Carga Geral/Ro-Ro: Esta secção mantém uma profundidade de água de -9,0 metros LAT para acomodar navios de carga geral até 133 metros de comprimento.

A actualização da parede do cais englobará todos os elementos necessários para uma funcionalidade adequada, bem como os pormenores de ligação aos cais adjacentes existentes.

A parte superior do projecto desenvolve-se:

- Preparação da área do Terminal: remover o pavimento actual da área do Terminal, nivelar a superfície, demolir e remover todos os edifícios/oficinas/armazéns.
- Escavação das fundações e da grua: escavação das fundações dos edifícios e instalação da grua.
- Instalação de infra-estruturas: Instalação de iluminação, vedações e todas as infra-estruturas de serviços públicos.
- Delimitação das diferentes áreas de trabalho.
- Construção de edifícios e elementos de topo, incluindo trabalhos de infra-estruturas de serviços públicos, rede eléctrica e subestações e pavimentação de pátios e estradas internas.

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مجموعة موانئ أبوظبي
AD PORTS GROUP
unicargas
HOARO

ENGLISH VERSION (not used in the meetings)

DEVELOPMENT OF UNICARGAS PORT IN LUANDA, ANGOLA

UNICARGAS TERMINAL LOCATION:

The Project is located in the Port of Luanda, Province and Municipality of Luanda, Urban District of Ingombota, Angola
(Lat: - 8.800274°; Long: 13.247499°).

- Located in the heart of Luanda, the capital city of Angola, along the northern Atlantic coastline, the Port of Luanda serves as Angola's primary port and its major industrial, cultural, and urban center.
- Additionally, the Port of Luanda acts as a strategic gateway port, supporting key trade in the region.

PROJECT FRAMEWORK:

The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo.

The Project involves the design of approximately 192,000 m^2 yard area and associated facilities/buildings/support infrastructure of the Container and General Cargo/RoRo terminals, quay wall and the tie-ins with adjacent berths.

The marine side of the project involves upgrading the existing berth at Unicargas Terminal of a total length of 536 meters. The upgraded berth will consist of two sections:

- Container Berth: This section will have a water depth of -16.0 meters LAT to accommodate container vessels up to 335 meters in length. It will be equipped with crane beams to support STS (Ship-to-Shore) cranes.
- General Cargo/Ro-Ro Berth: This section maintains a water depth of -9.0 meters LAT to accommodate general cargo vessels up to 133 meters in length.

The quay wall upgrade will encompass all necessary elements required for proper functionality as well as the tie-in details to the existing adjacent berths.

The top side of the project develops:

- Terminal area preparation: remove current pavement from the Terminal area, level the surface, demolish and remove all buildings/workshops/warehouses.
- Foundation and crane excavation: excavate for building foundations and crane installation.
- Infrastructure installation: Install lighting, fencing, and all utilities infrastructure.
- Area delineation of different working areas.
- Construction of buildings and topside elements including infrastructure utilities work, electrical network and substations and pavement of yards and internal roads.

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مجموعة موانئ أبوظبي
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4. Annex 4. Digital presentation for meetings

18 JUNHO 2024

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Plano de Envolvimento das Partes Interessadas

Projecto de Reabilitação do Terminal da Unicargas

SOAPRO

PROJECTAMOS O FUTURO JUNTOS | DESDE 1989

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Agenda da Reunião

01 Apresentação das actividades

02 Cronograma de actividades

03 Plano de Envolvimento das Partes Interessadas

04 Impactes e riscos ambientais e sociais

05 Apresentação do mecanismo de reclamações

06 Apresentação do ponto focal

SOAPRO PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

ENQUADRAMENTO DO PROJECTO/ APRESENTAÇÃO DAS ACTIVIDAES

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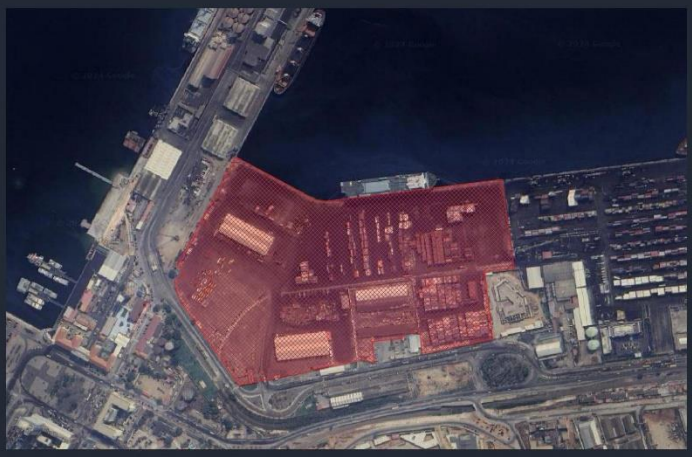
SOAPRO PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / LOCALIZAÇÃO DO PROJECTO

O desenvolvimento do projecto do Terminal da Unicargas visa desenvolver e melhorar as infra-estruturas marítimas e de superfície existentes para apoiar e aumentar a procura do actual cais de contentores e do terminal de carga geral/rodoviário.



Localizado no coração de Luanda, ao longo da costa atlântica norte, o Porto de Luanda é o principal porto de Angola e o seu principal centro industrial, cultural e urbano.

Além disso, o Porto de Luanda actua como um porto estratégico de entrada, apoiando o comércio fundamental na região.

O projecto envolve a concepção de aproximadamente 192.000 m^2 de área de estaleiro e instalações/edifícios associados/infra-estruturas de apoio dos terminais de contentores e de carga geral/ro-ro, parede do cais e ligações com os cais adjacentes.

VERTENTE MARÍTIMA

- Envolve a modernização do cais existente no Terminal Unicargas, com um comprimento total de 536 metros. O cais reestruturado será composto por duas secções:
- **1º Cais de contentores:** Esta secção terá uma profundidade de água de -16,0 metros LAT para acomodar navios de contentores até 335 metros de comprimento. Será equipada com vigas de guindaste para suportar guindastes STS (Ship-to-Shore).
- **2º Cais de Carga Geral/Ro-Ro:** Esta secção mantém uma profundidade de água de -9,0 metros LAT para acomodar navios de carga geral até 133 metros de comprimento.

A actualização da parede do cais englobará todos os elementos necessários para uma funcionalidade adequada, bem como os pormenores de ligação aos cais adjacentes existentes.

PARTE SUPERIOR

- Preparação da área do Terminal: remover o pavimento actual da área do Terminal, nivelar a superfície, demolir e remover todos os edifícios/oficinas/armazéns.
- Escavação das fundações e da grua: escavação das fundações dos edifícios e instalação da grua.
- Instalação de infra-estruturas: Instalação de iluminação, vedações e todas as infra-estruturas de serviços públicos.
- Delimitação das diferentes áreas de trabalho.
- Construção de edifícios e elementos de topo, incluindo trabalhos de infra-estruturas de serviços públicos, rede eléctrica e subestações e pavimentação de pátios e estradas internas.

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

CRONOGRAMA DAS ACTIVIDADES

ATIVIDADES	INÍCIO	FIM	COMENTÁRIOS
DESIGN	QUARTO TRIMESTRE 2023	SEGUNDO TRIMESTRE 2024	EM CURSO
ESTUDO DE IMPACT AMBIENTAL	QUARTO TRIMESTRE 2023	SEGUNDO TRIMESTRE 2024	EM CURSO
CONTRATOS PARA AS OBRAS DA PARTE MARÍTIMA	TERCEIRO TRIMESTRE 2024	TERCEIRO TRIMESTRE 2026	Execução para breve
CONTRATOS PARA AS OBRAS DA PARTE TERRESTRE	TERCEIRO TRIMESTRE 2024	TERCEIRO TRIMESTRE 2026	Execução para breve
EQUIPAMENTOS	SEGUNDO TRIMESTRE 2024	TERCEIRO TRIMESTRE 2026	Execução para breve

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / PROCESSO DE ENVOLVOLVIMENTO DAS PARTES INTESSADAS - OBJECTIVOS

Objectivos do processo

Informar as partes interessadas sobre o objectivo, a natureza, a escala e a duração do Projecto, e também garantir que compreendam os riscos, os impactes e as oportunidades relacionados com o projecto;

Proporcionar às partes interessadas oportunidades suficientes para exprimirem as suas opiniões, preocupações ou sugestões relativamente ao projecto e aos seus impactes, e abordá-las atempadamente, permitindo que essas preocupações influenciem as decisões do projecto e os ajustes necessários.

Como se procedeu à identificação das partes interessadas?

- Foi definida uma lista preliminar de partes interessadas para o projecto, tendo em conta os vários âmbitos disponíveis (ambiental, social, económico etc..).

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / IDENTIFICAÇÃO DOS STAKEHOLDERS

Classes de Stakeholders	Stakeholders	Categoria
Instituição Regional	Gabinete Provincial de Luanda	Regulador e autoridades
Instituição Regional	Gabinete Provincial da Saúde	Regulador e autoridades
Instituição Regional	Gabinete Provincial das Infra-estruturas	Regulador e autoridades
Instituição Regional	Gabinete Provincial do Ambiente e Gestão de Resíduos Sólidos	Regulador e autoridades
Instituição Regional	Gabinete Provincial da Educação	Regulador e autoridades
Instituição Local	Administração Municipal de Luanda	Regulador e autoridades
Instituição Local	Administração do distrito Urbano de Sambizanga, Ingombota	Regulador e autoridades
Instituição National	Ministério do Ambiente	Regulador e autoridades
Instituição National	Ministério da Energia e Águas	Regulador e autoridades
Instituição National	Direcção Nacional de Águas	Regulador e autoridades
Instituição National	Ministério dos Transportes	Regulador e autoridades
Instituição National	Instituto Marítimo e Portuário de Angola	Regulador e autoridades
Instituição National	Ministério das Pescas - Ministério das Pescas e Recursos Marinhos	Regulador e autoridades
Instituição National	Direcção Nacional de Pescas e Protecção dos Recursos Pesqueiros	Regulador e autoridades
Instituição National	Instituto Nacional de Investigação Pesqueira	Regulador e autoridades
Instituição Regional	Porto de Luanda	Directamente Afectado
Sector Privado	Empresas dentro da área portuária mais próximas das áreas de intervenção	Directamente Afectado
Comunidades	Colaboradores/trabalhadores do Porto	Directamente Afectado
Comunidades	Residentes na envolvente - Comunidades envolventes à área portuária	Directamente Afectado
Educação e treinamento	Academia Portuária de Luanda	Indirectamente afectado
Sector Privado	NESR Art Foundation	Indirectamente afectado
Cultural	Fortaleza do Penedo - Museu	Indirectamente afectado
Sector Privado	Clínica da Sagrada Esperança - SONILS	Indirectamente afectado
Sector Privado	Medline - Assistência médica	Indirectamente afectado
Sector Privado	CEEIA - Comunidade de empresas exportadoras e internacionalizadas de Angola	Indirectamente afectado

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

IMPACTES E RISCOS AMBIENTAIS E SOCIAIS

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INFORMAÇÃO PRELIMINAR

Campanhas de campo

- **Qualidade do Ar**: Os resultados revelam que os níveis dos parâmetros considerados para a qualidade do ar excedem o limite recomendado pela OMS (Organização Mundial da Saúde).
- **Ruído e Vibrações**: No geral, os resultados indicam que os níveis de ruído em todos os pontos dentro da área do porto estão geralmente acima dos limites recomendados pela OMS para áreas industriais/comerciais. Isso sugere que as actividades industriais dentro do porto estão contribuindo para os níveis elevados de ruído.
- **Solo**: Com base nas informações coletadas, o Terminal da Unicargas contém vários pontos que são uma fonte potencial de contaminação: actividade de máquinas pesadas, veículos estacionados, armazenamento de produtos / substâncias, etc. Em vários pontos de amostragem de solo, foram observados derrames de hidrocarbonetos, bem como substâncias químicas e matéria orgânica devido à ruptura de um contêiner.
- **Sedimentos Marinhos**: De acordo com as campanhas de colecta de amostras de sedimentos e análises posteriores realizadas, todos os parâmetros estão dentro dos intervalos usuais de áreas portuárias.
- **Qualidade da Água Marinha**: De acordo com os resultados obtidos na pesquisa da qualidade da água, os valores de turbidez permanecem dentro da faixa recomendada em todas as estações. Em relação a Óleos e Gorduras, deve-se notar que foram encontrados traços dessas substâncias em quase todas as estações amostradas. Foi detectado um gradiente negativo bastante evidente no percentual de oxigênio dissolvido disponível na coluna d'água.
- **Campanha Ecológica**: O terminal da Unicargas é uma área altamente antropogênica, onde não há muitos indivíduos nem espécies listadas como criticamente ameaçadas ou vulneráveis dentro do local ou nos arredores mais próximos.

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / IMPACTES DO PROJECTO/ FASE DE CONSTRUÇÃO

AVALIAÇÃO DE IMPACTE AMBIENTAL

Fase de construção

- **Qualidade do Ar**: Poeira e emissões causam impacte negativo moderado nas populações locais e trabalhadores.
- **Ruído e Vibrações**: Impacte negativo moderado das actividades de construção.
- **Riscos de Poluição do Solo**: Impactes negativos moderados próximos aos acampamentos de construção.
- **Sedimentos Marinhos**: Impactes negativos menores na flora e fauna bêntica devido ao aumento de sólidos em suspensão, com uma perda directa menor da morfologia do leito marinho.
- **Qualidade da Água Marinha**: Impactes negativos menores a moderados devido ao aumento de sólidos em suspensão.
- **Impacte Socioeconômico Positivo durante a Construção**: Estimula o crescimento econômico local através da contratação de empresas locais.
- **Paisagem**: Degradação temporária durante a construção, seguida por melhoria geral pós-reabilitação.

Fase de operação

- **Emissões de Motores a Diesel**: Impacte negativo moderado a médio prazo.
- **Ruído das Atividades Terrestres**: Impacte negativo moderado contínuo.
- **Impacte Socioeconômico Positivo**: Melhora a competitividade global e a prosperidade regional, beneficiando a economia e a força de trabalho locais

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / RISCOS O PROJECTO

			Factors										
			Ambiente físico					Biodiversidade		Socioeconômico			Paisagem
			Qualidade do Ar	Ruído e Vibrações	Qualidade da Água Marinha	Sedimentos Marinhos	Solo	Biodiversidade	Áreas protegidas / Habitats naturais	População (incluindo receptores sensíveis)	Saúde e segurança (ocupacional)	Setores econômicos e emprego	Paisagem
Fase	Construção	Demolições de Edifícios	-	-	P	P				-	-		-
		Remoção de pavimentos superficiais e nivelam	-	-	P	P	-			-	-		-
		Construção de edifícios e outros elementos	-	-						-	-		+
		Repavimentação da superfície e instalação de sistemas de infraestrutura	-	-						-	-		+
		Reabilitação e reparo do cais		-	-	-		-			-		-
		Trabalhos de limpeza subaquática		-	-	-		-			-		
		Preparação de acampamento de construção, armazenamento de materiais e produção de resíduos	-	-	P		P						-
		Trânsito de veículos e máquinas	-	-	-		-			-	-		
		Presença de trabalhadores						-				+	
	Operação	Operação do novo terminal	-	-	-			-		-	-	+	+
		Operação de carga/descarga e transporte	-	-	P		P	-		-	-	+	-
		Trabalhos de manutenção	-	-	P	P	P	-		-	-		
		Presença de trabalhadores de manutenção						-				+	

+ Impact is considered positive
- Impact is considered negative
P Potential impact considered
No impact considered

RESUMO E CONCLUSÕES

- O EIA foi desenvolvido levando em consideração tanto as regulamentações Nacionais quanto os padrões Internacionais.
- Para implementar o projecto em harmonia com o meio ambiente, foi realizado um estudo de impacte ambiental e social, no qual os impactes potenciais são analisados e medidas são estabelecidas para preveni-los, mitigá-los ou corrigi-los.
- Tanto durante a fase de execução quanto na fase operacional, o projecto implementará as medidas de mitigação estabelecidas, bem como o protocolo de monitoramento necessário para determinar sua eficácia e avaliar a necessidade de medidas adicionais.
- Diante de tudo isso, este projecto representa um avanço para o sistema de desenvolvimento do país, pois ao buscar o desenvolvimento e otimização do Terminal da Unicargas, os interessados podem apoiar o crescimento sustentável, melhorar a eficiência operacional e minimizar os efeitos ambientais adversos no Porto de Luanda.

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

APRESENTAÇÃO DO MECANISMO DE RECLAMAÇÕES

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / MECANISMO DE RECLAMAÇÃO

Consideração importante:

Os mecanismos de reclamação não substituem as acções judiciais ou outras acções não judiciais. No entanto, quando aplicados eficazmente, estes mecanismos oferecem uma abordagem eficiente, imediata e de baixo custo para a resolução de problemas

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / MECANISMO DE RECLAMAÇÃO - ETAPAS

ETAPAS DO MECANISMO DE RECLAMAÇÃO

1. Receber e registar a queixa
2. Classificar
3 dias
3. Reconhecer
7 dias
4. Investigar e consultar
20 dias
5. Comunicar a resolução
22 dias
6. Recurso a peritus externos
1 mês
7. Implementar a resposta de modo a resolver a reclamação
1 mês
8. Encerrar a reclamação
1 mês

SOAPRO STAKEHOLDER CONSULTATION AND ENGAGEMENT PLAN / METODOLOGIA

Data de Submissão:	
Nome completo do queixoso: Nota: pode permanecer anónimo se preferir ou solicitar que não divulgue a sua identidade a terceiros sem o seu consentimento	Nome próprio _____ Sobrenome _____ ❑ Desejo levantar a minha queixa anonimamente ❑ Solicito não revelar a minha identidade sem o meu consentimento
Informações de contacto do queixoso (se desejar manter a sugestão anónima deixe-a em branco)	(como deseja ser contactado, correio, telefone ou e-mail)
Língua preferida para a comunicação	
Preenchimento como uma reclamação individual ou em nome de um grupo ou comunidade. Nota: o seu grupo ou comunidade pode permanecer anónimo	❑ Como uma queixa individual ❑ Representar um grupo Nome do grupo ou comunidade _____
Descrição da Queixa: (O que aconteceu? Onde aconteceu? Com quem aconteceu? Qual é o resultado do problema?)	
Data do Incidente/Reclamação	❑ Incidente/queixa única (data _____) ❑ Aconteceu mais do que uma vez (quantas vezes? _____) ❑ Em curso (atualmente com problema)

SOAPRO PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS

APRESENTAÇÃO DO PONTO FOCAL

PLANO DE ENVOLVIMENTO DAS PARTES INTERESSADAS / PONTO FOCAL

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PLANO DE ENVOLVIMENTO DA PARTES INTERESSADAS

Projecto de Reabilitação do Terminal da Unicargas

PROJECTAMOS O FUTURO JUNTOS

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5. Annex 5. Report on the initial meetings with the Port Authority and Unicargas

Contract No./Title: 2800-302 - Environmental Consultancy Services for Unicargas Port in Luanda – Angola

مجموعة موانئ أبوظبي AD PORTS GROUP	AD Ports Group Project	TYPSA
PROJECT TITLE	**Contract No. 2800-302** **Title: Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola**	

DELIVERABLE 1 - ENVIRONMENTAL PERMIT APPLICATION

CONTRACTOR'S VERIFICATION STAMP

We, TYPSA Group, verify that this contractor's document:

- Has been produced and checked in accordance with contractor's quality assurance plan
- Is of a standard that will enable the employer to accept it in accordance with the contract
- Complies with all requirements of the contract

Following deviations to contract are referenced for which a dispensation has been accepted by the employer:

None

Other related letters/CTIs which document clarifications associated with this document are listed below:

None

Consultant/Contractor's Project Manager:

ANA BARÓ — 23.09.2024

Project Manager | Signature | Date

DOCUMENT STATUS STAMP

AD Ports Group | Code

☐	Code 1:	Work may proceed.
☐	Code 2:	Revise & Resubmit. Work may proceed subject to incorporation of comments indicated.
☐	Code 3:	Revise & Resubmit. Work may not proceed.
☐	Code 4:	Review not required. Work may proceed.

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Any review, comment or acceptance by employer under this contract with respect to any of contractor's documents shall not in any way be, or deemed to be, an approval of any works or an acceptance that the contractor's documents meet the requirements of the contract, as contractor has the sole responsibility for performing the works in accordance with the requirements of this contract.

Document Number: 2800-302-V3-0000-00001

Rev	Date	Reason For Revision	Prepared	Checked	Approved
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(1) Revisions are shown in italics. Deletions are hidden. Earlier additions revert to normal text in subsequent amendments
(2) The QA Manager reviews and the project Manager approves amendments by signature on the cover sheet to the document
(3) The document controller maintains a Register of the holders of this document
(4) Amendments to the document are distributed according to (1) above and this I reflected in the register

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AD PORTS GROUP

Environmental Consultancy Services for the Development of Unicargas Port in Luanda - Angola

Environmental Permit Application

September 2024

TYPSA has an Integrity Management System in place that has been ISO 37001 (Anti-bribery Management System) certified since 2019. Please consult our Corporate Integrity Policy statement and Code of Ethics at www.typsa.com/en/ethics-and-integrity/ where a communication channel is also available to forward complaints, questions, grievances or suggestions.

Quality control sheet

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1. INTRODUCTION

The present report constitutes deliverable 1 of contract 2800-302 related to project *Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola*. This document should include the documentation required by Angolan legislation for the registration of the project on the platform of the environmental assessment system, which is the first step to initiate the processing. The required information is detailed below, along with the data requested:

ENTREPENEUR

- Identification
  - Tax Identification Number (NIF): 5002047810
  - Taxpayer Name: ADPG LUANDA - OPERADOR DE TERMINAL, LDA
  - Type of person: Company
- Contact
  - Email: geral@unicargas.co.ao
  - Commercial telephone: +244 934 910 601 / +244 919737789 / +244 995747042
- Company Operations
  - Number of employees: 70-100 people per shift
  - Operating hours: 24 hours
  - Operating period: All over the year; 30 years concession
  - Operational description of the company (specify the activity as per the Official Gazette): Port operations of containers and general cargo (Unicargas Terminal)

PROJECT DATA

- Identification
  - Name of the project: Development of Unicargas Port in Luanda, Angola
  - Investment currency: USD
  - Investment project value: equivalent in AKZ to 148,240,000.00 USD (One hundred forty-eight million two hundred forty thousand United States dollars)
  - Activity: industry sector and specific activity: Port sector - terminal operations. Logistics and freight forwarding activities
- Address
  - Province: Luanda
  - Municipality: Luanda
  - District/commune: 1229
  - Address: Largo 4 de Fevereiro, Luanda 1229
- Installation Data
  - Soil conditions (urban/native vegetation) : Urban and port activities related ones
  - Unit of measurement (m2/Ha): m2
  - Total land area: 178,641 m2. Managed by Unicargas
  - Occupied area: 178,641 m2 of which 10.500 m2 are warehouses
  - Area characteristics: Port facilities
  - Geographic coordinates: 8º48'4.06" S, 13º14'49.4"E

- Responsible party
  - NIF: 000146360LA031
  - Taxpayer Name: Joaquim Nazaré Pimentel da Piedade
  - Type of person: Coordinator of the Management Commission
- Responsible party contacts
  - Email: Joaquim.piedade@unicargas.co.ao
  - Telephone: +244 923 345 121

SUPPLEMENTARY INFORMATION

- Water use
  - Origin: from Port Authority
  - Quantity (m3/day): 10 m3/day
  - Description of water use: for office and canteen use
- Machinery and equipment
  - 2+2 STS cranes
  - 6 Rubber Tyred Gantry (RTG) Cranes
  - Reach Stackers

FILES

- Certificate of GP's compliance with land use regulations *(Annex 4)*
- Commercial registry certificate *(Annex 4)*
- Location sketch on cartographic base (refer to Annex 3)
- Declaration of investment value or investment registration certificate *(Annex 4)*
- Physical layout of equipment (layout)
- Public deed of the company *(Annex 4)*

ATTACHMENTS

- Commercial registry certificate *(Annex 4)*
- Location sketch (refer to Annex 3)
- Surface right *(Annex 4)*
- Investment declaration *(Annex 4)*

The project was registered on the MINAMB platform (SIA) on August 14, 2024 and acceptance of the project registration was communicated by MINAMB on August 29, 2024. Evidence is included in *Annex 4 – Documents related to the project registration in the MINAMB*.

In the present document, information and analysis about the temporary facility is also included, gathered during the site visit conducted as the starting point of the project activities.

2. PROJECT DESCRIPTION

In support of its objective of developing and expanding its operations internationally, AD Ports Group plans to further develop and upgrade the 'Unicargas Terminal' located in the Port of Luanda, Angola (Lat: -8.800274°; Long: 13.247499°). Located in the heart of the capital city of Luanda along the northern Atlantic coastline of Angola, the Port of Luanda serves as Angola's primary port, and its major industrial, cultural and urban center. The Port of Luanda also serves as a strategic gateway port supporting key trade in the region.

ADP Group intends to operate a multipurpose port terminal on this site. The development of the Unicargas Terminal project seeks to further develop and upgrade existing marine and topside infrastructure to support and grow demand for the existing Container Berth and Roro/General Cargo. The Project comprises of the further development and upgrade of both marine and topside elements of Unicargas Terminal, including the following works:

Marine side:

- Rehabilitation and repair of existing quay wall located along the Container Berth providing the depth of -16m LAT, which requires the deepening of the berth and consequently a new quay wall structure including all other elements required for the port operations such as crane infrastructure.
- Rehabilitation and repair of existing quay wall and capping beam located along the General Cargo / Ro-Ro Berth, while maintaining the same depth.

Top side:

- Apron area
- Paving areas for different types of purposes
- Rehabilitation work for all terminal areas
- Rehabilitation of the existing warehouses into offices, workshops and other required facilities (or development of new ones)
- Installation of new switching station, reefer substation, data center and pumps stations
- Installation of new offices (portacabins) and associated infrastructure and utilities
- Removal of existing weighbridge and replacement thereof with new (at a new location near existing terminal entry / exit)
- Modification and upgrade of entry/ exit gate area of the terminal
- Installation and upgrade of existing utilities including potable water, fire water, storm water, sewer, PSS network, MV/LV network etc.

Figure 1 and Figure 2 show the location and the project layout respectively.

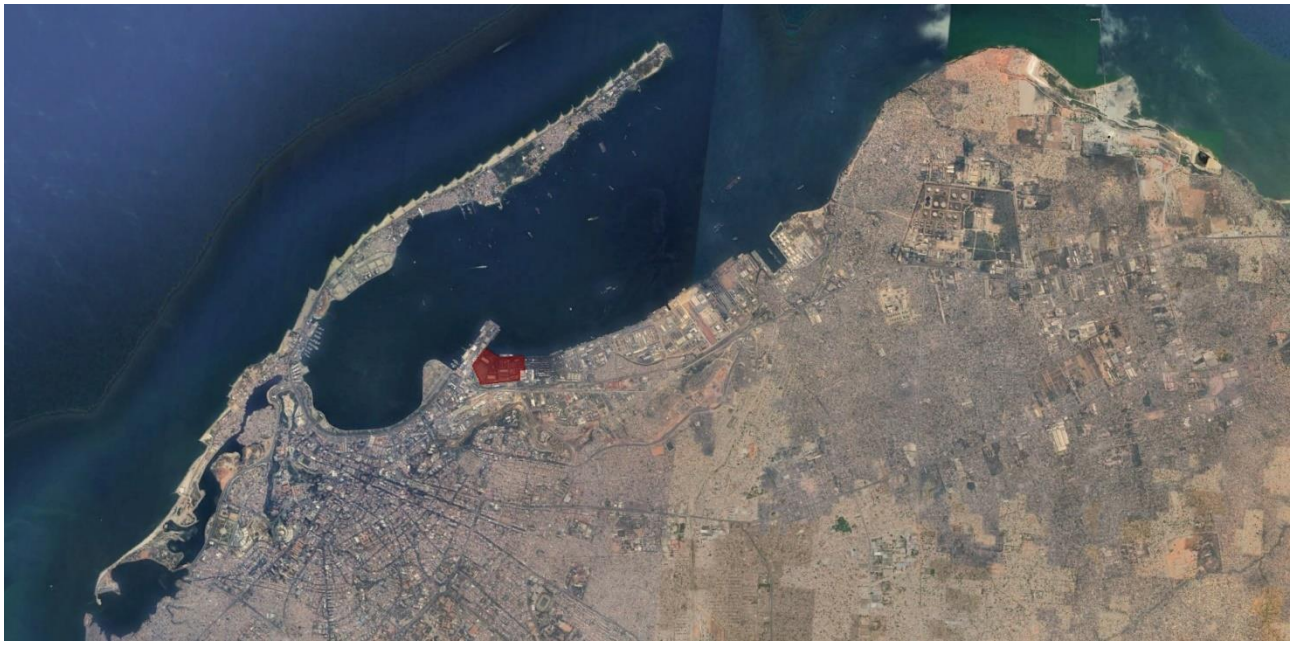

Figure 1. Project location

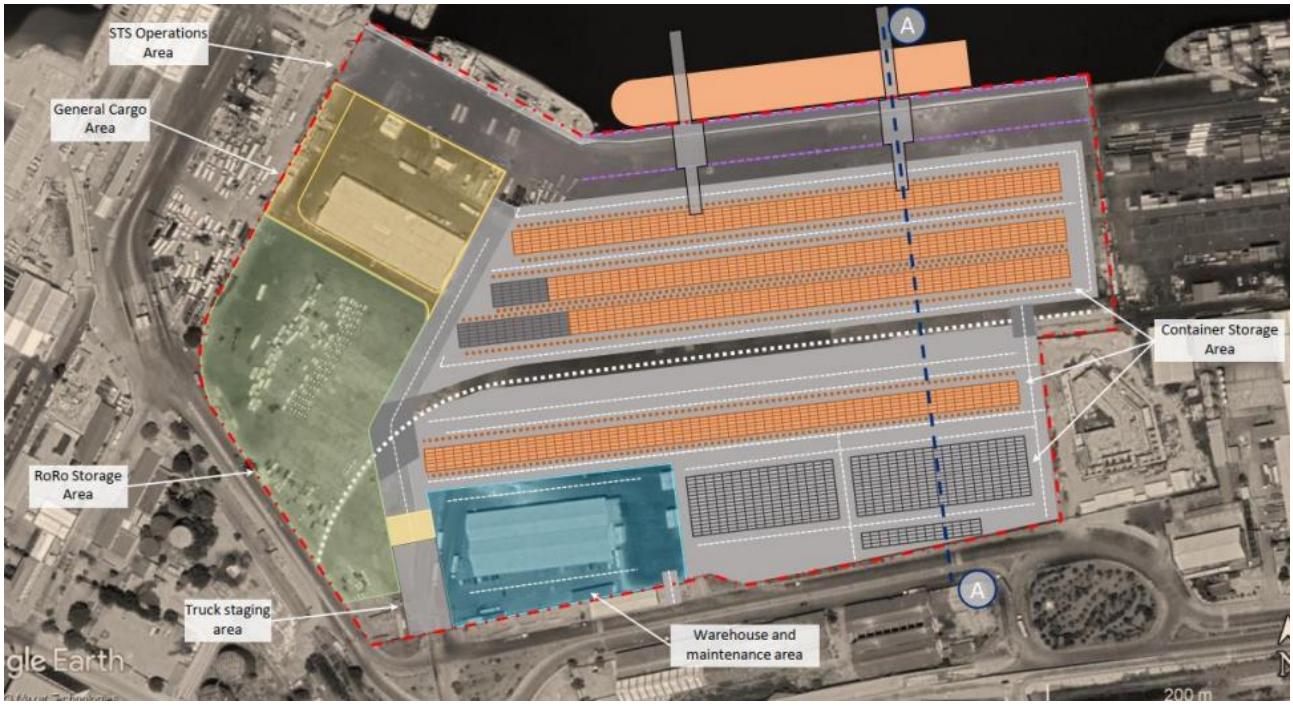

Figure 2. Indicative Project layout

In addition to the aforementioned tasks, there is a need for capital dredging operations to increase the depth of the turning basin and approach channel adjacent to the Unicargas Terminal, aiming for a depth of -16.0 m. It is important to note that the responsibility for executing the capital dredging works lies outside the scope of AD Ports Group activities and will be undertaken by external entities. Nevertheless, it should be acknowledged that these capital dredging works may be deemed an affiliated facility to the project in accordance with IFC Performance Standards.

3. LEGAL FRAMEWORK AND STANDARDS

The ESIA is to be carried out in accordance with:

- National Laws & Regulations.
- Any International Conventions and Treaties relating to the environment to which the host country is a party.
- IFC Performance Standards 2012;
- IFC World Bank Group Environmental, Health and Safety General Guidelines (2007);
- World Bank EHS Guidelines for Ports, Harbors and Terminals;
- OECD Common Approaches;
- Equator Principles 4, 2020 and associated guidance on climate change risk assessment, human rights assessment, biodiversity best practice
- All relevant host country laws, regulations and permits that pertain to environmental and social issues

For the activities included in this initial deliverable, related to commencing the environmental processing procedure through project registration on the ministry's platform, Angolan legislation is applicable. Therefore, the summary of this legislation is provided below, with other international standards and requirements deferred to subsequent reports.

All regulations, codes and standards would be analyzed regarding all the activities involved in the project. In the event that national laws differ from the measures established in the IFC and EHS standards and guidelines or the Equator Principles, the most stringent regulations will be followed as a reference in the project.

3.1. National Regulations

Referring to **National Regulation**, the following laws have to be considered:

Law No. 5/98 - Environmental Framework Law

Dated June 19th, this law provides legal support for Environmental Protection in Angola, and establishes, in its Article 16, the Environmental Impact Assessment (AIA) as one of the main instruments of Environmental Management. For this purpose, it defines the concepts and basic principles of environmental protection, preservation, and conservation, promotion of quality of life, and rational use of natural resources, in accordance with the constitutional Law of the Republic of Angola.

Presidential Decree No 117/20 - General Regulation of Environmental Impact Assessment and Environmental Licensing Procedure

The Presidential Decree No 117/20 of 22 April 2020 approves the General Regulation for Environmental Impact Assessment and the Environmental Licensing Procedure. This Regulation, consisting of 53 articles divided into five Chapters and five Annexes, establishes requirements to perform any environmental activity, rules and procedures that regulate the environmental impact assessment of public and private projects and the environmental licensing procedure for activities that, by their nature, location or size, are likely to cause significant environmental and social impact.

Executive Decree No. 92/12 - Terms of Reference for Environmental Impact Studies

Executive Decree No. 92/12, dated March 1st, approves the Terms of Reference for the preparation of Environmental Impact Studies (EIA) and specifies their general content. This decree establishes that the EIA report must be prepared in accordance with the legislation on Environmental Impact Assessment (AIA) and includes three annexes providing guidelines on the information to be submitted to the Ministry.

Executive Decree No. 87/12 - Public Consultations for Projects Subject to Environmental Impact Assessment

Executive Decree No. 87/12, dated February 23rd, defines and establishes the objectives of public consultations for projects that require Environmental Impact Assessment (AIA). In cases where public consultation is required by the decision of the competent Ministry, before approving and issuing an Environmental License, Executive Decree No. 87/12 should be followed, which provides a detailed and comprehensive explanation of the objectives and requirements of public consultations.

Other relevant legal provisions for this project

- Presidential Decree No. 83/22, dated April 12th, regarding the Approval of the Fee Table for the Issuance and Renewal of Environmental Licenses for Environmental Impact Assessment;
- Dispatch No. 2746/13, dated December 6th, which determines that any Company submitting Environmental Impact Studies for assessment by the competent Directorate of the Ministry of the Environment must attach the identifying data and recognized qualifications of the Technicians, Specialists, or Consultants who prepared the respective Study, as well as proof of the Project's investment value for calculation purposes leading to the issuance of the Installation or Operation License, under the Regulation on the Technical Registration of Environmental Consultancy Companies, approved by Executive Decree No. 86/12, dated February 23rd;
- Dispatch No. 2745/13, dated December 6th, which establishes the formation of a Commission for each case of Environmental Licensing Impact Study, coordinated by the National Director for Environmental Impact Assessment and Prevention, indicating the entities that comprise it;
- Executive Decree No. 86/12, dated February 23rd, which regulates the technical registration of environmental consultancy firms;
- Presidential Decree No. 194/11, dated July 7th, which approves the regulation on responsibility for environmental damage. It establishes liability for risk and environmental degradation based on the "polluter-pays" principle, to prevent and repair environmental damage.
- Decree No. 1/10, dated January 13th, which decrees environmental audits for public or private activities that are likely to cause significant environmental damage.

3.2. Framework of International Legislative Reference

At the international level, Angola is a signatory to several multilateral environmental agreements (treaties, conventions, and regional and international protocols), with a focus on environmental matters.

Instruments indicated below are noteworthy in this regard:

Climate Change

- United Nations Framework Convention on Climate Change: Ratified by Angola in 1998 through Resolution No. 13/98 on August 28th, which entered into force in Angola on August 28th, 1998

(Resolution No. 13/98). Establishes the basis for international cooperation on technical and policy matters related to global warming.

- Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol: Ratified by Angola in 2000, committing to participating in the defense of the ozone layer.
- Kyoto Protocol: Ratified by Angola in 2007, committing to reducing greenhouse gas emissions.

Natural Risks

- United Nations Convention to Combat Desertification: Ratified by Angola in 2000 through Resolution No. 12/00 on May 5th, establishes the basis for international cooperation on policy matters related to combating the global problem of soil degradation.

Water Resources

- Revised SADC Protocol on Shared Watercourses: Signed by Angola on August 7th, 2000, with the objective of cooperation, coordination, and sustainable development of shared water resources in the SADC region and their utilization.

Ecology

- Convention on Biological Diversity (CBD): Ratified by Angola in 1997 through Resolution No. 23/97 on July 4th, subsequently developing its National Biodiversity Strategy and Action Plan (NBSAP). Establishes the basis for international cooperation on policy matters related to the need to reconcile nature conservation with development concerns, based on principles of equality and shared responsibilities.
- SADC Protocol on Wildlife Conservation and Law Enforcement: Signed by Angola on August 18th, 1999, envisioning the conservation and sustainable use of wildlife, excluding forestry and fisheries resources, and the effective enforcement of related laws.
- Convention on the Conservation of Migratory Species of Wild Animals: Ratified by Angola in 2003 through Resolution No. 14/03 on April 15th, establishing the basis for international cooperation on policy matters related to endangered species.
- African Convention on the Conservation of Nature and Natural Resources: Signed by Angola (Resolution No. 5/2014 on January 20th), with the objective of protecting the environment, promoting the conservation and sustainable use of natural resources, harmonizing policy coordination in this domain, creating ecologically sustainable, economically sound, and socially acceptable development programs and strategies.
- Convention on Wetlands of International Importance (Ramsar Convention): In the process of proposed accession by the Angolan Government (approved for accession by the National Assembly in 2013), the Ramsar Convention declares the importance of designated national wetlands due to their biological and economic value and their role in maintaining ecosystems and biodiversity.

Human Development

- Millennium Declaration (MD): Adopted by Angola in September 2000, establishing the basis for countries to commit to ensuring global sustainability.

Cultural Heritage

- Convention Concerning the Protection of the World Cultural and Natural Heritage: Ratified on November 7th, 1991, by Angola, outlining the duties of member states regarding the identification of potential sites and their role in protecting and preserving World Cultural and Natural Heritage. By signing the Convention, each country commits to conserving not only classified World Heritage sites within its own territory but also protecting its national heritage.

Other Conventions

- Stockholm Convention on Persistent Organic Pollutants: Ratified by Angola in 2006, aiming to protect human health and the environment from persistent organic pollutants by promoting their elimination through the prohibition of the production and use of the set of POPs.

4. SITE VISIT

4.1. Assisting Team and Schedule

The team that visited the port facilities at the beginning of the activities to be carried out in the ESIA consisted of the following members: Ana Baró, Nuria Garrido and José Enrique Piñero from TYPSA, Nuno Gomes and Margarida Matos from SOAPRO.

The schedule and agenda followed during the trip were the following:

- Monday, 27th November 2023: arrival in Luanda
- Tuesday, 28th November 2023:
  - Meeting at the Port of Luanda
  - Visit of the study area
  - Meeting at SOAPRO offices
- Wednesday, 29th November 2023:
  - Meeting at the Port of Luanda
  - Visit to the Temporary Facility
- Thursday, 30th November 2023:
  - Meeting at the Port of Luanda

4.1.1. Tuesday, November 28th

Meeting at the Port of Luanda

It is important to highlight the difficulties that are commonly encountered in a country like Angola when trying to follow a set schedule.

Difficulties entering the port facility: Despite sending the documentation of the team in advance (names, passports, visas, and identification documents of local SOAPRO technicians), the visit was not registered. The team waited on the street at the security control entrance to the port for about an hour. Eventually, with the assistance of the person representing DAR, who personally knew the director of the environment at SOAPRO accompanying TYPSA team, we were allowed entry. Later, we were informed that there had been a fire in an electrical control office, causing the problem. The fire occurred early in the morning, explaining the absence

of some people at the meeting, but not the lack of communication or registration of our visit in the days leading up to it.

Meeting and Attendees: Once we gained access, we were directed to some offices where they were expecting us. We gathered in a room where two people, both technicians from the Port of Luanda, welcomed us. The Project Manager explained that TYPSA was responsible for conducting the ESIA for the renovation of the Unicargas terminal and that the purpose of the visit was to establish an initial contact with our counterparts at the port throughout the project and obtain reference information that could be useful for the studies.

There was no equipment in the room to connect the laptop or project anything. Therefore, we began explaining our work and asking them some questions about uncertainties and existing information. After only three questions, with no answers provided, they informed us that they were not the right people for the meeting as they were project technicians from the Port of Luanda. They suggested that we meet with the Safety and Environmental department. We explained that this was what we had requested, and they asked us to wait in the room to inform a supervisor, who arrived later and explained the fire incident, apologizing for not appearing. This person was the Engineering and Maintenance Director, who told us that he couldn't answer because he had not the information. He suggested that if we sent him the outline with all the questions, they could prepare for another day's appointment, but this time with the director of the port's environmental department. We agreed and also requested two things: first, to allow us to visit the terminal immediately, once finishing the current meeting and second, to schedule the meeting with the director of the environment for the following Wednesday morning (the day after) followed by a visit to the temporary facility. He indicated they would do their best but saw the visit to the temporary facility as challenging. The attendees were the following:

- JOSÉ MUNANA – PORT OF LUANDA
- NASCIMENTO BERNARDO – PORT OF LUANDA
- REGINA POMPEU – DAR ANGOLA
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- NUNO GOMES – SOAPRO
- (JOSÉ QUIMBEZE - ENGINEERING AND MAINTENANCE DIRECTOR)

Visit to the Study Area

Subsequently, the two individuals who initially received us accompanied us to visit the Unicargas Terminal. We took photographs and observed the area. Below, there are various photos, and in Annex 1, a complete photographic report of the visit is included.

Figure 3. Entrance to the Unicargas Terminal

Figure 4. RoRo berth

Figure 5. Container berth

Figure 6. Machinery maintenance area

Figure 7. Alternative energy area

Meeting at SOAPRO Offices

In the afternoon, TYPSA team met at the SOAPRO offices, which are close to the port, discussing the scope of the collaboration we have agreed upon with them and clarifying some doubts they had about it.

4.1.2. Wednesday, November 29th

Meeting at the Port of Luanda

Meeting and Attendees:

This time, many people attended the meeting. Many of them did not even introduce themselves and simply sat around listening without participating. Everyone had TYPSA's paper with the questions printed, but only the Director of the Environmental Department of the port, Manuel Antonio, answered. (Refer to section 5 to see the questions and information). The attendees were the following:

- JOSÉ MUNANA – PORT OF LUANDA
- NASCIMENTO BERNARDO – PORT OF LUANDA
- MANUEL ANTONIO – ENVIRONMENTAL DIRECTOR
- JOSÉ DE SOUSA - UNICARGAS
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- MARGARIDA MATOS – SOAPRO

Information:

In some of the responses, he was very brief and did not delve into details. (Refer to section 5 to see the questions and information). He mentioned that they had many studies from different areas of the port, and we could consult them whenever we wanted, but he couldn't send them. He only allowed us to come and consult them in print and in person. Immediately, TYPSA team asked to make a new visit on Thursday (the next day) to see the documents. He agreed.

Visit to the Temporary Facility

Finally, they allowed the team to visit the temporary facility, although they raised many objections and had a lengthy discussion about whether to grant access or not. Below, there are various photos, and in Annex 1, a complete photographic report of the visit is included.

Figure 8. Temporary facility area

Figure 9. Temporary facility area

4.1.3. Thursday, November 30th

Meeting at the Port of Luanda

Upon arrival, the Director of the Environment showed us a corporate video, introduced us to the security director who gave us a lecture, and explained safety rules in case of an emergency during the meeting. Finally, he placed five paper documents in front of us that we consulted for half an hour.

Some were quite old and not very useful. We explained that we would probably need more information and hoped he understood that consulting it on paper was not very effective. Finally, he agreed that we could make a formal request to allow us to consult documents online or to send us some in digital format.

Attendees:

- MANUEL ANTONIO – ENVIRONMENTAL DIRECTOR
- OSWALDO DA SILVA – SECURITY DIRECTOR
- ANA BARÓ – TYPSA
- NURIA GARRIDO TYPSA
- ENRIQUE PIÑERO – TYPSA
- MARGARIDA MATOS – SOAPRO

5. INFORMATION GATHERED DURING MEETINGS WITH THE PORT AUTHORITY

Among the activities involved in preparing the ESIA, some are key points concerning communication needs with the Port Authority, mainly related to campaign implementation. In general, the most relevant aspects related to the Port Authority include the following.

5.1. General Aspects

- Procedure and permits required to access the port premises
- Contact person
- Schedules and previous communication for entering the site

Regarding these points, they inform us that they can issue a pass valid for the duration of the works. To obtain this pass, ADP must send a letter through Unicargas, stating that an ESIA will be conducted and providing the list of companies and individuals who will need access to the port for this purpose. It should be specifically mentioned that the local supporting company will be SOAPRO, registered with the MINAM. This letter should be addressed to Edivaldo Januario, Director of Security and Environment.

5.2. Aspects related to ESIA activities

5.2.1. Water Quality

- Are periodic water quality analyses carried out in the port?
- Is there an annual report or documentation of port activities that publishes this data?
- Is there an inventory of potential discharges within the port basin?

They did not respond directly to each question, but they told us that they have environmental studies from past years that include data on turbidity, heavy metals, biological analyses, and others. The latest data report from the port corresponds to the year 2022 and will be published soon. They allow us to consult other studies, the most recent of which is from 2021 and corresponds to a monitoring plan carried out by DP World Luanda. Regarding the rest, the most recent was from 2015, a time when the current environmental legislation did not even exist. They said that the concessionaires of the port terminals usually create monitoring plans as part of the requirements of environmental licenses obtained in previous years.

They have an environmental license for facilities that has recently been renewed (April 2023) and is valid until April 2026. This license is associated with a series of measures to comply with, which they did not allow us to photograph but will probably provide if requested in writing. We do not know if this facility's environmental license includes measures that contemplate monitoring water or sediment quality.

Regarding discharges, they said that there is no official inventory. The situation is critical because wastewater is discharged without any treatment. Currently, there are two outfalls, but the discharges are without prior treatment. They presented a wastewater treatment project, but it has not been implemented yet.

REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE INSTALAÇÃO

N.º 18429003224

Nos Termos do Decreto Presidencial que aprova o Regulamento Geral sobre Avaliação de Impactes e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes, nomeadamente a apresentação do Instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para execução e operação do projecto.

É passada a Licença Ambiental de instalação, do projecto denominado:

EMPRESA PORTUARIA DE LUANDA E.P - ADMINISTRAÇÃO E INFRA-ESTRUTURAS, no Bairro Marginal MARGINAL DE LUANDA - AVENIDA 4 DE FEVEREIRO, Distrito Ingombota, Município de Luanda.

Operado pela Empresa Portuaria De Luanda E.P.

Confirma-se a não existência de potenciais impactes ambientais no decorrer do desenvolvimento do projecto a desenvolver na Província de Luanda, que se enquadra na categoria de projecto de Infra-Estruturas.

Emitida em 20 de Abril de 2023 | Valida até 20 de Abril de 2028

Assinatura

(Ministra)

ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

Figure 10. Environmental license

5.2.2. Sediment Quality

- Is there knowledge of the baseline value of sediment pollution within the port?
- What is typically done with dredged material during maintenance dredging of port channels and access and maneuvering areas?

Marine sediments are analyzed when maintenance dredging works are conducted; this is not a periodic activity, and it is only conducted when deemed necessary, based on previous studies and subsequent assessments. From the year 2000 to 2023, there have been three maintenance dredging operations.

The dredged material is never discharged into deep waters; it is always used for port filling.

5.2.3. Biodiversity

- Are there known nesting areas for birds within the port FACILITIES?
- The maritime zone of the port and the entire bay is classified as a Likely Critical Habitat according to IFC criteria. Has this posed any problems in obtaining environmental licenses for previous port projects?

There are no known bird nesting areas. The birds observed in the area are those coexisting with the usual activities of the port, including the regular traffic of vehicles and people.

The marine area is a spawning ground for some fish species, and for this reason, it is analyzed more frequently. They mentioned a study that collects information on the conditions of the seabed. The Ministry of Fisheries has a marine research area that conducts studies in this zone, and some information can be obtained from it.

In none of the projects carried out in recent years have there been issues obtaining the environmental license due to potential impacts on biodiversity.

5.2.4. Climate Change

- Are there meteorological stations within the port?
- In previous studies conducted in Angola, we obtained climate change scenario data from various sources, with the most comprehensive being the World Bank Climate Change Knowledge Portal, which we consult regularly. Is there any source of climate change scenarios specifically focused on ports and coasts? (data on sea level rise, maritime climate, extreme waves, etc.)
- Have adaptation measures to climate change been necessary in recent projects?

They are not aware of recent studies, and they do not have meteorological stations located within the port area, nor have they needed to implement adaptation measures related to climate change. They mentioned that it is a port where the currents are of very low intensity, and they do not have problems with storms.

5.2.5. Port Traffic

- Are port activity data and statistics published annually?

They told us that everything regarding this matter could be consulted at the port web site.

5.2.6. Surveys

- Guarantee the acceptance of the ATA book (Admission Temporaries/Temporary Admission) by national customs for oceanographic equipment.
- There are some analyses required by IFC regulations for which it is not easy to find accredited laboratories in Angola. When we have undertaken similar projects in other countries facing the same challenges, we have sent the samples abroad for analysis. In this regard, we will need:
- Closely coordinate with Authority Port and know about special requests for scheduling campaigns to avoid undesirable delaysReceive support during field tasks in the port and surrounding areas, where the characterization and baseline work will take place, to prevent interruptions.

- Provide assistance by authorizations to avoid problems in the departure and shipment of samples to laboratories outside Angola (all samples and boxes containing them will be properly labeled).

None of those present at the meeting knew what the ATA book is nor had ever heard of it.

They told us that none of this would be a problem and that we could manage the previously mentioned permanent pass to facilitate access. On the other hand, when we were consulting the documents they allowed us to see the next day, we realized that the analysis of water and sediment samples had been carried out by two laboratories in Luanda. We asked, and they told us that there were two accredited laboratories. We need to verify this.

5.3. Dredging project

- The dredging project, which involves deepening the access and maneuvering channel to a depth of 16 m, will undergo environmental processing?.
- Have studies on the fines dispersion of these dredging works been conducted, including numerical modeling?
- Do other port dredging projects usually require environmental processing?

In this regard, they informed us that the deepening project for the access dredging does require environmental processing, but they do not have that information. They mentioned that DAR handles everything, as they are the ones undertaking the project and are aware of its requirements. They believe that numerical modeling will likely be required. They told us that on some occasions, other projects had carried out numerical modeling, but they did not have anything available to show us or allow us to review.

5.4. Temporary Facility

- What are the current uses of this area?
- Is it disused?
- Does it currently have a valid environmental license?
- What land use classification does it have? Are there any legal restrictions or requirements specific to the use of the land?
- Are there any known usage restrictions or environmental restrictions from possible previous processes or licenses?
- In port areas with low human and vehicle traffic, it is common for birds to use these areas as nesting sites. Are there any areas in that location where bird nesting has been observed?
- Are there any future development plans for the port or surrounding areas that might affect the Temporary Facility?

It is used as a storage facility. It does not have a current environmental license, as it is not necessary. As informed in the meeting the Port Authority only needs to request an environmental license for large projects. The area in question is within the full jurisdiction of the Port of Luanda.

The land use classification is port operation. The temporary facility is intended solely and exclusively for the exercise of port-related activities. There have not been observed usage restrictions due to environmental reasons so far, and there are no nesting or feeding areas for birds.

Regarding the last question, that area is part of the Master Plan of the Port of Luanda.

6. TEMPORARY FACILITY

In parallel with the development of the Unicargas Terminal, ADP Group intends to bring the adjacent plot of land (referred to as the "Temporary Facility") into full operation. The Temporary Facility will be used to berth and operate Container and General Cargo vessels currently operating in the Unicargas area while the Unicargas Terminal is under construction.

The objective is to carry out the minimum work necessary to develop the Temporary Facility to a functional state. The planned activities for this development are limited to topside works, including:

- Clearing the area, grading, leveling and surface compaction
- Providing a temporary gatch layer, approximately 150-200mm thick
- Investigating the existing buildings and its potential use
- Utilities (sewage, telecom/PSS, and power)
- Gates and ISPS fence
- Providing Open type porta cabin

According to the information obtained in the meetings held during the site visit, the temporary facility is an area reserved exclusively for port activities, with a land use classification of Port Operation, currently functioning as a storage facility. It does not hold a specific environmental license because it is not required as it is within the full jurisdiction of the Port of Luanda; its control and decisions regarding its use depend solely on the Port Authority. In this regard, an official request for use must be made, and the port has the authority to grant permission.

From the photographs taken during the visit, the ones considered most interesting are those of the temporary facility because they give an idea that, despite being in use and active, if there are not many requests for specific uses, it can have a lot of free and available space. This is the case depicted in the following photographs, where it can be verified that the current use is of a tank from the oil terminal, occupying only a part, leaving a large area available for other uses.

Figure 11. Tanks in the temporary facility

Figure 12. Free space in the temporary facility

Next to the currently free surface, there are areas where some vegetation can be observed. However, as explained in the meetings and mentioned earlier, the temporary facility is under the absolute jurisdiction of the port. Therefore, it is not expected that they request any type of permit, even when they have to clear certain areas for different uses.

Figure 13. Some vegetation in the temporary facility

Figure 14. Vegetation in the temporary facility

It can be seen in the following photographs that they are preparing the land in an area that shows some vegetation.

Figure 15. Preparing the ground

Figure 16. Preparing areas in the temporary facility

Another aspect to consider in evaluating the possible requirement for environmental processing for the use of the temporary facility is wildlife. In port areas with extensive machinery-free zones, various installations, diverse storage, and infrequent transit of people or vehicles, the presence of bird nests and breeding areas is common. As shown in the photographs taken during the site visit presented in this section and those included in Annex 1, no nests or areas frequented by birds in the vicinity for breeding or feeding purposes are detected. All areas of the port facility, including the temporary facility area, are anthropized zones intensively dedicated to port activities, which has prevented them from becoming nesting areas for local birds over the past decades. This was confirmed by the technical staff consulted during the meetings held in the various visits conducted.

Considering all the provided information and based on TYPSA's experience, it is not foreseeable that a parallel environmental processing or the request for a specific environmental license for the use of the temporary facility will be necessary. The adopted criterion depends fundamentally on the type of activities requested to be carried out in the mentioned area. However, as explained earlier, it is an area whose use and permits fall under the jurisdiction of the port of Luanda, and the director of the environment of the port authority expressed that it is not considered necessary beforehand.

7. KEY FINDINGS

- This is an area with absolutely controlled and restricted access, which is good news regarding potential social impacts of the works. There is no transit of people or vehicles not related to port activities.
- There are no bird nesting areas and there have usually been no reported problems in other works or projects due to potential impacts on birds or sensitive species.
- We have established contact with them, have their contact information, and some seemed receptive to both our interests and information needs.
- They informed us that for subsequent occasions, especially for the needs of entering the port area for surveys, we can request the issuance of a permanent pass for the duration of the project so that there is no problem with access.
- As mentioned earlier, it is possible that we may be able to obtain documents from which we can gather certain reference information.
- As a negative aspect, it is important to consider that it is a difficult-to-access and highly controlled area, so the available information is also restricted, greatly complicating the development of the work. That is why this visit has seemed important from the beginning of the work and the contacts obtained.
- Regarding the Temporary Facility, considering all the provided information and based on TYPSA's experience, it is not foreseeable that a parallel environmental processing or the request for a specific environmental license for the use of the temporary facility will be necessary. The adopted criterion depends fundamentally on the type of activities requested to be carried out in the mentioned area. An official request for use must be made, and the port has the authority to grant permission.

1. Annex 1. Photographic Report

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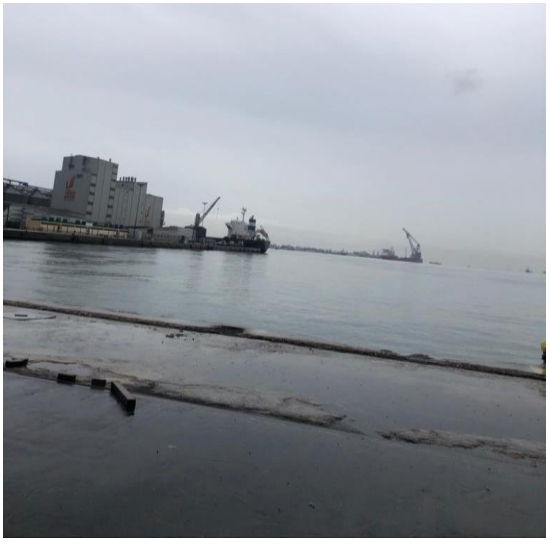
1. MEETINGS

2. UNICARGAS TERMINAL

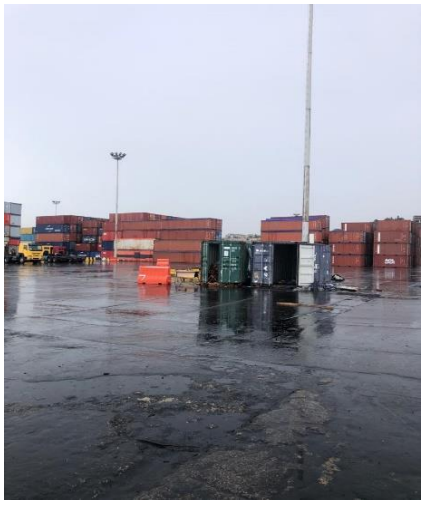
Overview from right to left

TP1 RoRo berth



Large boat area

TP2. Container berth

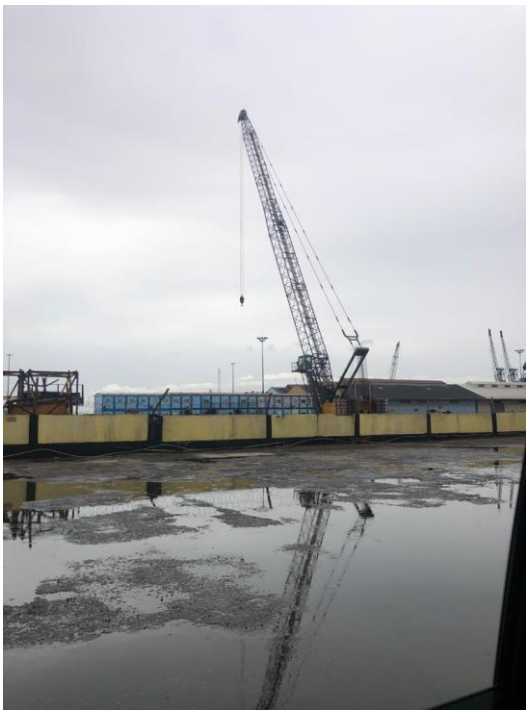


Machinery washing area

Machinery maintenance area

Alternative Energy Zone

Wall that separates the Unicargas Terminal from the Multi-Terminal

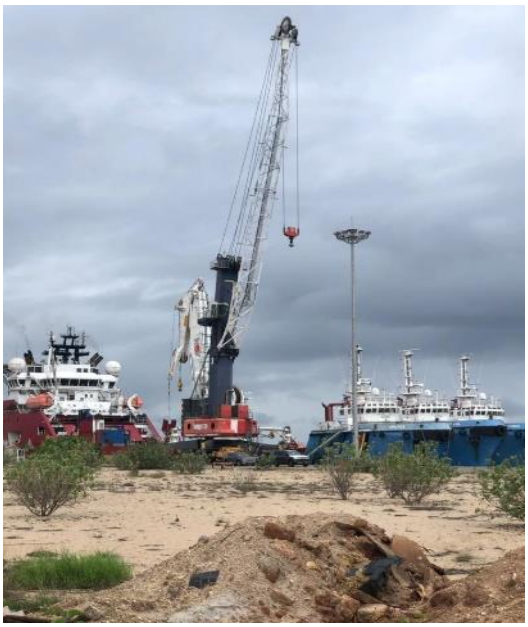


Warehouse for special cargo storage (which cannot be exposed to sun or rain)

Reserved area for car parking

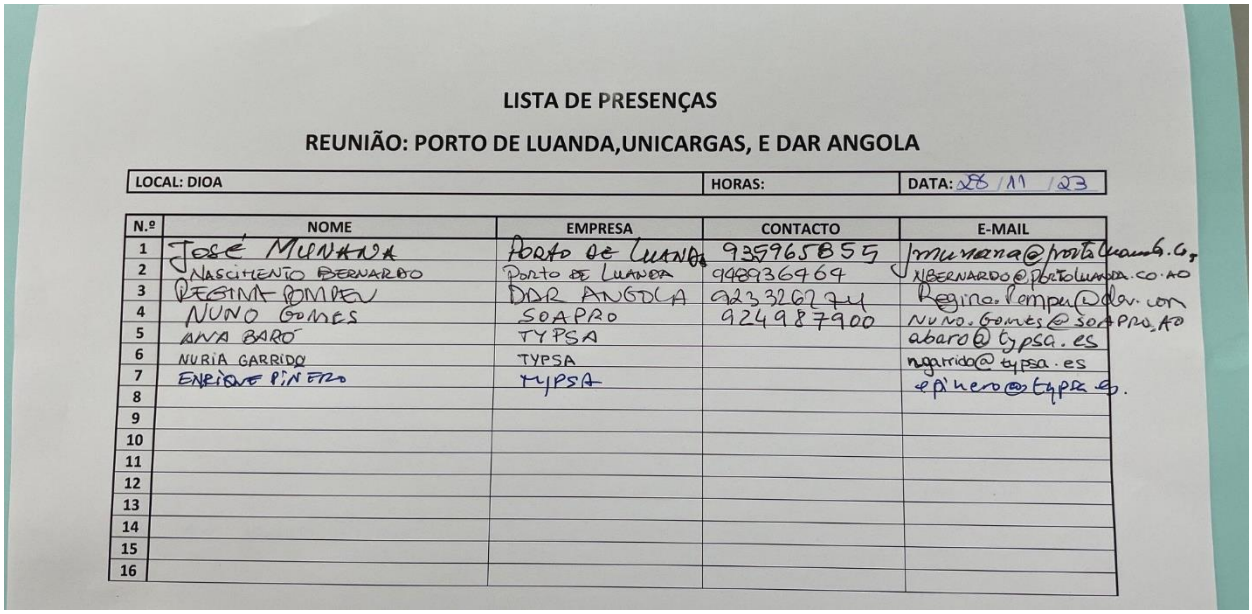
3. TEMPORARY FACILITY

unicargas



Vegetation

2. Annex 2. Signature Sheets



LISTA DE PRESENÇAS

REUNIÃO: PORTO DE LUANDA,UNICARGAS, E DAR ANGOLA

LOCAL: DIOA	HORAS:	DATA: 28/11/23

N.º	NOME	EMPRESA	CONTACTO	E-MAIL
1	José Munana	Porto de Luanda	935965855	jmunana@portoluanda.co.ao
2	Nascimento Bernardo	Porto de Luanda	948936964	NBernardo@portoluanda.co.ao
3	Regina Pompeu	DAR Angola	923326274	Regina.Pompeu@dar.com
4	Nuno Gomes	SOAPRO	924987900	Nuno.Gomes@soapro.ao
5	Ana Baro	TYPSA		abaro@typsa.es
6	Nuria Garrido	TYPSA		ngarrido@typsa.es
7	Enrique Piñero	TYPSA		epiñero@typsa.es
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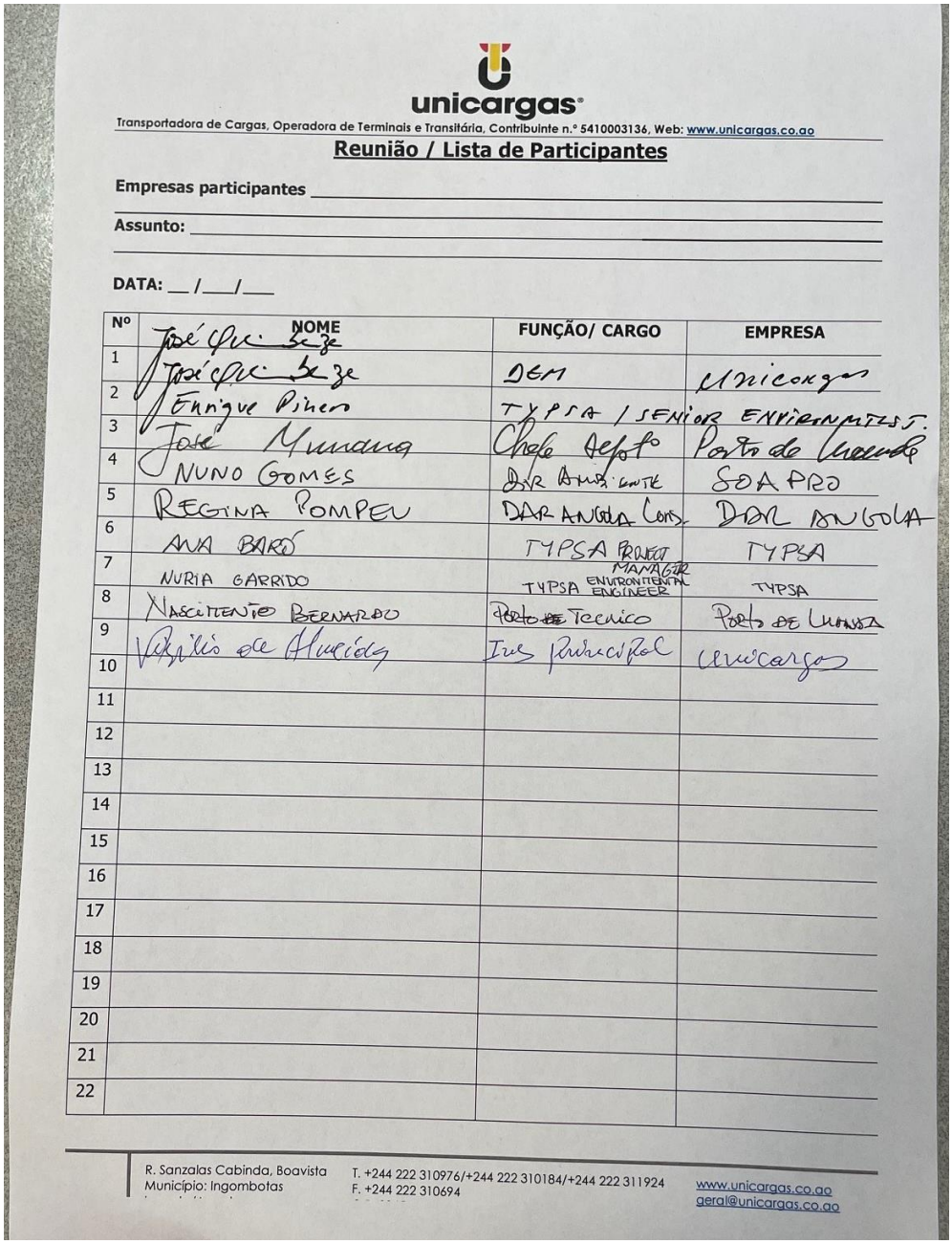
15				
16				



unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136, Web: www.unicargas.co.ao

Reunião / Lista de Participantes

Empresas participantes _____

Assunto: _____

DATA: __/__/__

Nº	NOME	FUNÇÃO/ CARGO	EMPRESA
1	José Quiteze	DEM	Unicargas
2	Enrique Pinero	TYPSA / SENIOR ENVIRONMENTAL	
3	José Munanga	Chefe Depto	Porto de Luanda
4	NUNO GOMES	DIR ADJ. CMTE	SOARES
5	REGINA POMPEU	DAR ANGOLA Cons.	DAR ANGOLA
6	ANA BARÓ	TYPSA PROJECT MANAGER	TYPSA
7	NURIA GARRIDO	TYPSA ENVIRONMENTAL ENGINEER	TYPSA
8	Nascimento Bernardo	Porto de Tecnico	Porto de Luanda
9	Vitalino de Almeida	Ins Principal	Unicargas
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21			
22			

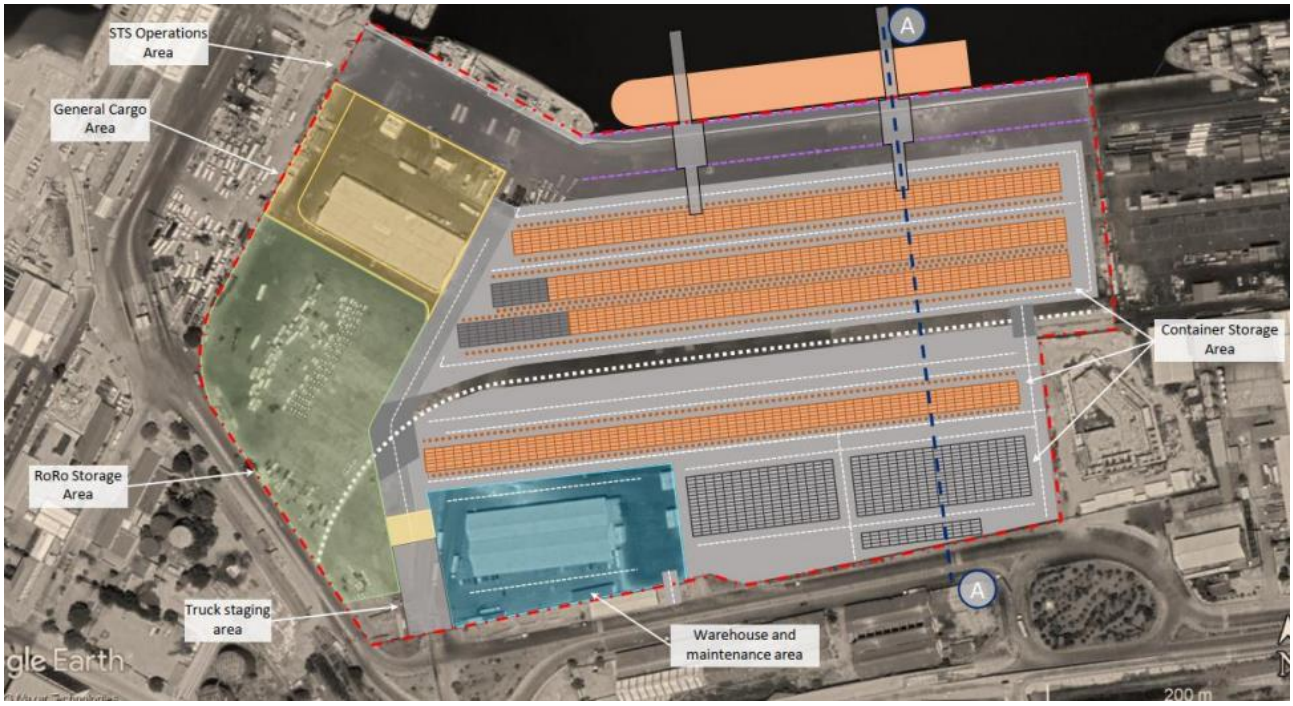
R. Sanzalas Cabinda, Boavista
Município: Ingombotas

T. +244 222 310976/+244 222 310184/+244 222 311924
F. +244 222 310694

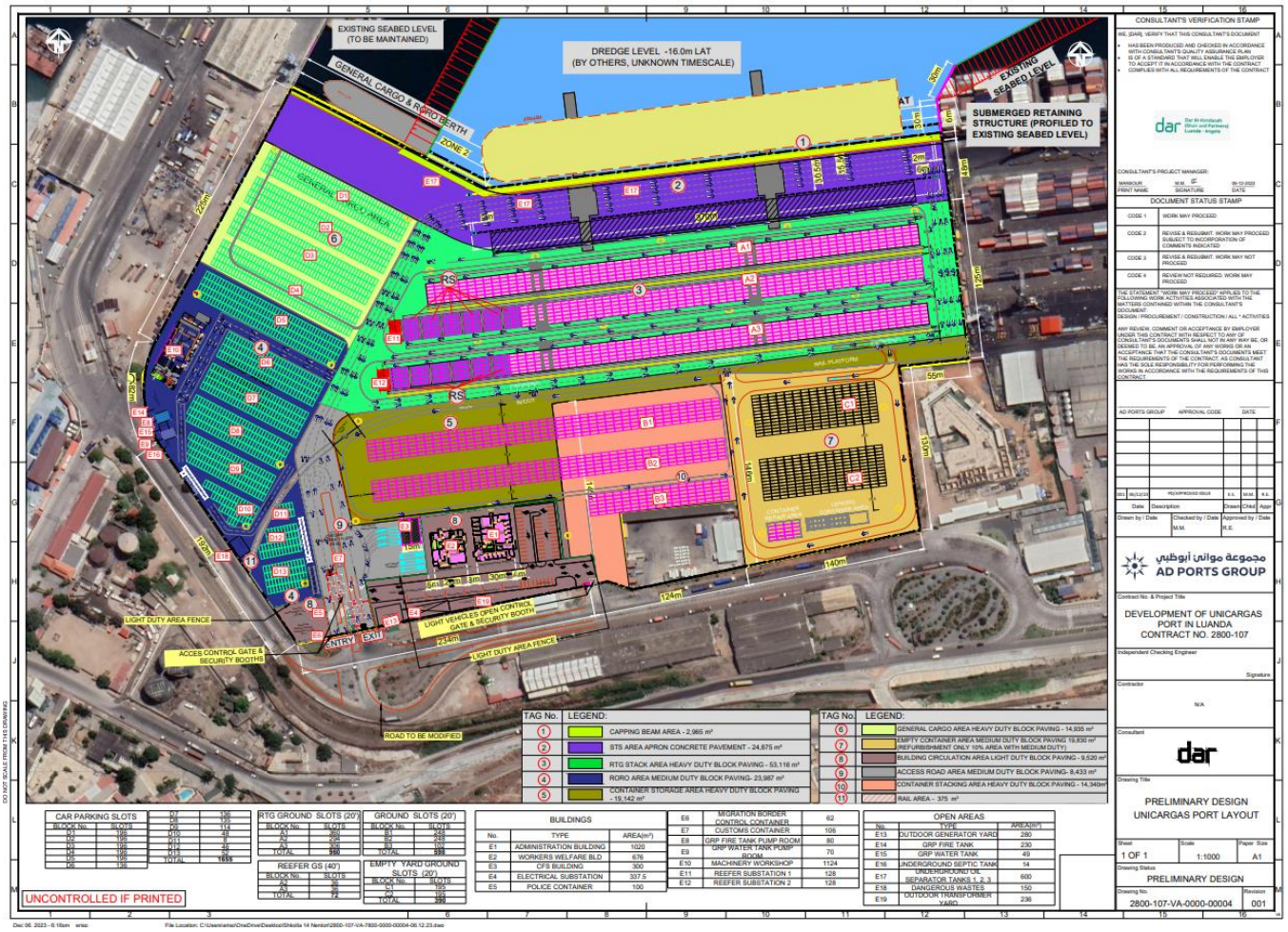
www.unicargas.co.ao
geral@unicargas.co.ao

3. Annex 3. Location Sketch

Project location



Indicative Project layout


EXISTING SEABED LEVEL (TO BE MAINTAINED)
DREDGE LEVEL -16.0m LAT (BY OTHERS, UNKNOWN TIMESCALE)
GENERAL CARGO & RORO BERTH
ZONE 2
SUBMERGED RETAINING STRUCTURE (PROFILED TO EXISTING SEABED LEVEL)
EXISTING SEABED LEVEL
LIGHT DUTY AREA FENCE
ACCES CONTROL GATE & SECURITY BOOTHS
LIGHT VEHICLES OPEN CONTROL GATE & SECURITY BOOTH
ROAD TO BE MODIFIED
CONSULTANT'S VERIFICATION STAMP
DOCUMENT STATUS STAMP
DEVELOPMENT OF UNICARGAS PORT IN LUANDA
CONTRACT NO. 2800-107
PRELIMINARY DESIGN
UNICARGAS PORT LAYOUT
2800-107-VA-0000-00004
001

4. Annex 4. Documents related to the project registration in the MINAMB

1. NIF AND RELATED DOCUMENTS

REPÚBLICA DE ANGOLA
MINISTÉRIO DAS FINANÇAS
ADMINISTRAÇÃO GERAL TRIBUTÁRIA

COMPROVATIVO FISCAL DE REGISTO DE CONTRIBUINTE
Registo de Pessoa Colectiva ou Entidade Equiparada

Nos termos do Decreto Presidencial nº 245/21 de 4 de Outubro.

Serve o presente documento para comprovar o registo de Pessoa Colectiva ou Entidade Equiparada com os seguintes dados:

Número de Identificação Fiscal (NIF): 5002047810

Nome: ADPG LUANDA - OPERADOR DE TERMINAL, LDA

Designação Comercial: ADPG LUANDA - OPERADOR DE TERMINAL, LDA

Domicílio Fiscal: TERMINAL POLIVALENTE DO PORTO DE LUANDA

Residência Fiscal: RESIDENTE

Tipo de Contribuinte Colectivo: EMPRESA

Repartição Fiscal: 04.01 - 1ª REPARTIÇÃO FISCAL

Data de Registo em Cadastro: 22-07-2024

Exmo. Contribuinte,

1. A atribuição do Número de Identificação Fiscal (NIF) corresponde ao registo da pessoa singular ou colectiva no Registo Geral de Contribuintes. Este registo faz surgir na sua esfera jurídica um conjunto de obrigações fiscais, principais e acessórias, de pagamentos de impostos e a prestação de declarações, caso desenvolva ou não alguma actividade económica prevista no Classificador de Actividades Económicas do Sistema Nacional de Estatística.

2. O endereço electrónico e número de telefone indicados são associados ao perfil de acesso ao portal de contribuinte e estes, por sua vez, correspondem ao domicílio fiscal electrónico do contribuinte e servem para efeitos de notificação. Ainda que o contribuinte não aceda ao seu domicílio fiscal electrónico, considera-se notificado decorrido que esteja 1 (um) dia após a disponibilização do acto tributário no seu domicílio fiscal electrónico.

3. A informação utilizada no registo de início de actividade que se revele provisória deve ser actualizada no prazo de 60 (sessenta) dias, sob pena de multa ou suspensão do NIF nos termos do artigo 75.º do Código do Imposto Industrial (CII), sem prejuízo do previsto no Código Geral Tributário.

4. Após a atribuição do NIF, e antes de realizar qualquer actividade económica, deverá apresentar a respectiva declaração de início de actividade nos termos do artigo 11.º do Código do Imposto Industrial (CII) e do artigo 43.º do Código do Imposto Sobre o Valor Acrescentado (CIVA), ambas são feitas por via de modelo 6.

5. Com a apresentação da declaração acima referida, fica o contribuinte obrigado ao cumprimento de todas as disposições legais decorrentes da legislação tributária em vigor no país. Estas obrigações terminam ou se suspendem no momento em que o contribuinte apresente a declaração de cessação ou de suspensão de actividade.

6. Sempre que haja alguma alteração atinente à informação prestada, o contribuinte é obrigado a proceder à actualização dos dados no Registo Geral de Contribuintes, sob pena de aplicação das sanções previstas nos termos do Código Geral Tributário, do artigo 75.º do CII e do artigo 70.º do CIVA.

7. Os contribuintes que exercem actividades económicas devem emitir facturas ou documentos equivalentes sempre que transmitirem bens ou prestarem serviços, nos termos previstos no Regime Jurídico das Facturas e Documentos Equivalentes.

8. Para mais informações relacionadas ao seu cadastro, consulte o calendário fiscal para estar ao corrente das obrigações.

Calendário Fiscal
Principais Impostos

MESES	Imposto Industrial	Imposto sobre a Aplicação de Capitais	Imposto de Selo	Imposto Sobre o Rendimento do Trabalho	Imposto de Valor Acrescentado	Impostos Predial Urbano		Outros Impostos
						Património	Renda	
Janeiro	A	A	A	A	A	A	A	
Fevereiro	B	B	A	B	A	-	B	
Março	A	B	A	A	A	-	B	
Abril	C	B	A	A	A	-	B	
Maio	C	B	A	A	A	-	B	
Junho	D	B	A	A	A	-	B	
Julho	A	B	A	A	A	B	C	
Agosto	E	B	A	A	A	-	B	
Setembro	A	B	A	A	A	-	B	
Outubro	A	B	A	A	A	-	B	
Novembro	A	B	A	A	A	-	B	
Dezembro	A	B	A	A	A	-	B	

9. Os contribuintes enquadrados no Regime Geral de tributação do IVA são ainda obrigados a submissão do ficheiro SAF-T (AO) do tipo facturação e do tipo Aquisição de bens e serviços, nos termos do Decreto Presidencial n.º 312/18, de 21 de Dezembro, que aprova o Regime Jurídico de Submissão Electrónica dos Elementos Contabilísticos.

OBRIGAÇÕES DO CONTRIBUINTE EM SEDE DO IMPOSTO INDUSTRIAL (ii)	
A	1. Regime Geral - Entrega do imposto industrial retido, no âmbito de um serviço contratado no mês anterior.
B	2. Regime Geral - Apresentação da Declaração Modelo 5 de opção pelo Regime de Tributação de Grupos de Sociedades.
C	3. Regime Geral - Apresentação da Declaração Modelo 1 do imposto Industrial, Liquidação e o Pagamento da parcela definitiva do respetivo imposto referente ao exercício anterior.
D	4. Regime Geral - Entrega o Dossier de Preços de Transferência para Grandes Contribuintes.
E	5. Regime Geral - Liquidação e Pagamento da parcela provisória do Imposto Industrial.
F	6. Regime Simplificado - Apresentação do modelo de Declaração Simplificada (Contabilidade organizada) ou o Livro de Registo de Compra e Venda e Serviços Prestados (sem contabilidade organizada). Liquidação e Pagamento do imposto definitivo.
G	7. Regime Simplificado - Submissão do requerimento à Repartição Fiscal de domicílio para adesão ao Regime Geral.
H	8. os contribuintes do Regime Geral ou Regime Simplificado que substituírem os seus fornecedores na emissão de facturas têm até 5 dias para entregar o imposto retido na fonte.

OBRIGAÇÕES DO IMPOSTO PREDIAL (IP)	
A	1. Liquidação e pagamento do Imposto Predial sobre a detenção do Imóvel.
B	2. Liquidação e pagamento do Imposto Predial devido pelo arrendamento do imóvel, quando não há lugar à retenção na fonte.
C	3. Liquidação e pagamento do Imposto Predial devido pelo arrendamento do imóvel, quando há lugar a retenção na fonte.
D	4. Liquidação e pagamento do Imposto Predial pela Transmissão gratuita de imóvel.
E	5. Liquidação e pagamento do Imposto Predial pela Transmissão onerosa de imóvel.
F	6. Submissão da Declaração dos rendimentos obtidos pelo arrendamento do imóvel (pelo senhorio) referente ao exercício anterior.

OBRIGAÇÕES DO IMPOSTO ESPECIAL AO CONSUMO (IEC)	
A	1. Liquidação, pagamento do Imposto e Submissão Electrónica da declaração no Portal do Contribuinte.

OBRIGAÇÕES DO IMPOSTO SOBRE OS VEÍCULOS MOTORIZADOS (IVM)	
A	1. Liquidação e pagamento do Imposto sobre os veículos Motorizados referentes ao exercício anterior.

OBRIGAÇÕES DO IMPOSTO SOBRE O RENDIMENTO DO TRABALHO (IRT)	
A	1. Grupo A (trabalhadores por conta de outrem) - Entrega do Imposto retido na fonte pela entidade patronal e da folha do processamento de salário, referente ao mês anterior.
B	2. Grupo B (profissional Liberal) - Entrega do imposto retido na fonte referente a um serviço contratado e pago no mês anterior.
C	3. Grupo C - Entrega do imposto pelo titular do rendimento, naquelas situações em que o facto realizado não está sujeito a retenção na fonte.
D	4. Os contribuintes do Grupo B ou C que substituírem os seus fornecedores na emissão de facturas, no âmbito da autofacturação, tem até 5 dias para entregar o imposto retido na fonte.
E	5. Entrega da Declaração anual - Modelo 2 do IRT Grupo A pela entidade patronal.
F	6. Entrega da Declaração anual - Modelo 2 do IRT Grupo B, C pela entidade beneficiária do serviço.
G	7. Grupo B - Entrega da Declaração anual - Modelo 1 pelo titular do rendimento.
I	8. Grupo C - Entrega da Declaração anual pelo titular do rendimento.

IMPOSTO SOBRE VALOR ACRESCENTADO (IVA)	
A	1. Regime Geral - Submissão da Declaração da Declaração Modelo 7, do anexo de fornecedores, do ficheiro SAFT, a liquidação e pagamento do imposto.
B	2. Regime Simplificado - Submissão da Declaração do Regime Simplificado, a liquidação e pagamento do imposto.
C	3. Regime Simplificado - Submissão do ficheiro SAFT e mapa de fornecedores no Portal do contribuinte.
D	4 Regime de Exclusão - Submissão do mapa de fornecedores no Portal do Contribuinte caso tenha adquirido um bem ou serviço no mês anterior a um contribuinte do Regime Geral.

IMPOSTO DE SELO (IS)	
A	1. Pagamento do Imposto de Selo dos factos sujeitos ao Imposto, realizados no mês anterior.
B	2. Entrega da Declaração Anual do Imposto sobre os actos, contratos e factos sujeitos a imposto, realizados no ano anterior.

10. Em caso de dúvida, deverá deslocar-se à uma Repartição Fiscal/Estância Aduaneira ou contactar os canais de comunicação da AGT:

- Central de Apoio ao Contribuinte: (+244) 923 16 70 10
- Canais Electrónicos: www.agt.minfin.gov.ao ; info.agt@minfin.gov.ao ; https://portaldocontribuinte.minfin.gov.ao ; http://agtsigt.minfin.gov.ao/saft
- Repartição ou Posto Fiscal mais próximo;

SISTEMA DE SEGURANÇA SOCIAL
INSS INSTITUTO NACIONAL DE SEGURANÇA SOCIAL

Nova Palavra-Passe Portal

Contribuinte

ADPG LUANDA - OPERADOR DE TERMINAL, LDA

NIF

5002047810

Inscrição do INSS

01.006421118-55

Nova Palavra Passe

s5dwi3o1

A palavra passe aqui informada só será válida no 1º acesso ao portal, pois em seguida será exigido ao utilizador que altere a palavra passe por uma de sua preferência.

SISTEMA DE SEGURANÇA SOCIAL | 3S
INSS INSTITUTO NACIONAL DE SEGURANÇA SOCIAL

Bem vindo,
Manuel Bartolomeu

Sair

Menu Favoritos

Sessão Expira em 59:47m

Detalhes de Pessoa Colectiva

Nome

ADPG LUANDA - OPERADOR DE TERMINAL, LDA

Situação da Inscrição

Activo

Inscrição no INSS

01.006421118-55

Data da Inscrição

01/08/2024

Identificação

Actividade

Natureza Jurídica

33 - SOCIEDADE POR QUOTAS

10 - SOCIEDADES COMERCIAIS

1 - PESSOAS COLECTIVAS DE DIREITO PRIVADO

Actividade

N - ACTIVIDADES ADMINISTRATIVAS E DOS SERVIÇOS DE APOIO

82 - ACTIVIDADES DE SERVIÇOS ADMINISTRATIVOS E DE APOIO PRESTADOS ÀS EMPRESAS

829 - ACTIVIDADES DE SERVIÇOS DE APOIO PRESTADOS ÀS EMPRESAS, N.E.

Data Início Actividade

Trabalhadores Desde

Informações de Vínculos

Contactos

Morada

Responsáveis

Dados Bancários

Histórico de Alterações

Histórico de Motivos de Alterações

Fechar

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Versão 4.10.0.0

ANGOLA MAPTSS

IMPRENSA NACIONAL LOJA SEDE
5401010486

PAGO
Em Guarda ao Serviço do Estado do Cidadão

R. Henriques de Carvalho n.2 Cid de
1306 Angol -
Tel: 222 331

Cli.:VD
ADPG LUANDA OPERA.TERMINAL,LDA
5002047810
Luanda

Factura FT VD.24INO/10222
Venda-a-Dinheiro
Data: 2024-07-24
Moeda: AKZ

Rec. por Multibanco 1 140,00

Cod. do Artigo - Descricao	Quant.	X	Preco	IVA	Total
5PUB01 Publicacao Constitucion	1	X	1 000,00	14,0	1 140,00

Cred. Devolucoes	:	0,00
Total Iliquido	:	1 000,00
Total Descontos	:	0,00
Total IEC/Contrib.	:	0,00
Total de IVA	:	140,00
Total	:	1 140,00

IVA

Taxa	Incidencia	Valor	Motivo
14,00	1 000,00	140,00	

ECsq-Processado por programa validado n.. 41/AGT/2019 | Os bens e/ou servicos foram colocados a disposicao na data 2024-07-24

MUITO OBRIGADO

2. PUBLIC DEED OF THE COMPANY

REPÚBLICA DE ANGOLA

MINISTÉRIO DA JUSTIÇA E DOS DIREITOS HUMANOS

DIRECÇÃO NACIONAL DE IDENTIFICAÇÃO, REGISTOS E NOTARIADO

DELEGAÇÃO PROVINCIAL DA JUSTIÇA E DOS DIREITOS HUMANOS

QUINTO CARTÓRIO NOTARIAL DE LUANDA - DV

========== **C E R T I D Ã O** ==========

=====Que, com início a folhas **"8V" á "9"** do Livro de Notas para escrituras diversas do Livro número **"04"** do Quinto Cartório Notarial de Luanda – Dolce Vita, se encontra lavrada a escritura do teor seguinte;==========

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QUINTO CARTÓRIO NOTARIAL - DOLCE VITA
Talatona Dolce Vita

Documento emitido em 7/17/2024 9:08:53 AM

REPÚBLICA DE ANGOLA
MINISTÉRIO DA JUSTIÇA E DOS DIREITOS HUMANOS
DIRECÇÃO NACIONAL DE IDENTIFICAÇÃO, REGISTOS E NOTARIADO
DELEGAÇÃO PROVINCIAL DA JUSTIÇA E DOS DIREITOS HUMANOS
QUINTO CARTÓRIO NOTARIAL DE LUANDA-DOLCE VITA

======***ESCRITURA PÚBLICA DE CONSTITUIÇÃO DA SOCIEDADE COMERCIAL "ADPG LUANDA- OPERADOR DE TERMINAL, LDA."*****=====

===== No dia dezasseis de Julho do ano de dois mil e vinte e quatro, em Luanda e no Edifício Kilamba, 20° Andar, Avenida 4 de Fevereiro, Marginal de Luanda, onde fui expressamente rogado para o acto, perante mim **SEBASTIÃO BAMBA DOMINGOS**, Notário, Licenciado em Direito do referido Cartório e a seu cargo, compareceram como outorgantes: =====

===== **PRIMEIRO: JOAQUIM NAZARÉ PIMENTEL DA PIEDADE**, casado, natural do Kilamba Kiaxi, Província de Luanda, residente habitualmente no Distrito Urbano do Rangel, Bairro Vila Alice, Rua Tomás Vieira da Cruz N.° 5, titular do Bilhete de Identidade n.° 000146360LA031, emitido pela Direcção Nacional de Identificação, Registos e Notariado em Luanda, aos 05 de Dezembro de 2018, que outorga na qualidade de Coordenador da Comissão de Gestão da **UNICARGAS – EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A,** com sede social em Luanda, matriculada na Conservatória de Registo Comercial de Luanda sob o n.° 1079/1996, com o NIF: 5410003136.==========

===== **SEGUNDA: MARLENE CARLA DA MATA CORTE REAL FERNANDO**, casada, natural da Ingombota, Província de Luanda, residente habitualmente no Bairro Patrice Lumumba, Avenida Comandante Valódia N.° 12 6° APT A, titular do Bilhete de Identidade n.° 000344613LA037, emitido pela Direcção Nacional de Identificação, Registos e Notariado em Luanda, aos 25 de Setembro de 2020, que outorga na qualidade de Procuradora na sociedade **ADP TERMINALS**

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LUANDA, LTD, sociedade devidamente constituída e legalmente existente nos termos das Leis dos Emirados Árabes Unidos, com sede social em Building N.º 280, Taweelah, Abu Dhabi, Emirados Àrabes Unidos, registada sob o número 1,105.==========

===== Verifiquei a identidade dos outorgantes pelos mencionados documentos de identificação, a qualidade em que intervêm os Outorgantes em face das Actas deliberativas que no fim menciono e arquivo;==========

=====E pelos Outorgantes foi dito: ==========

===== Que, pela presente escritura, as suas representadas constituem entre si uma Sociedade Comercial denominada ***"ADPG LUANDA-OPERADOR DE TERMINAL, LDA"***, com sede social no Terminal Polivalente do Porto de Luanda, Luanda, Angola.==========

===== Que a referida Sociedade tem como objecto social o estipulado no artigo quarto do seu estatuto e possui o capital social no montante de **Kz. 60.000.000,00** (Sessenta Milhões de Kwanzas), dividido e representado por duas quotas, sendo uma no valor nominal de Kz.6.000.000,00 (Seis Milhões de Kwanzas) representativa de 10% (Dez por cento), pertencente á sócia **UNICARGAS – EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A** e outra quota com o valor nominal de Kz. 54.000.000,00 (Cinquenta e quaro Milhões de Kwanzas) representativa de 90% (Noventa por cento) pertencente á sócia **ADP TERMINALS LUANDA, LTD**.==========

=== Que, esta sociedade vai reger-se pelo respectivo estatuto, que faz parte integrante desta escritura, que é, um documento elaborado em separado nos termos e para os efeitos do número dois do artigo setenta e oito do código do notariado, com a redacção que lhe foi dada pelo artigo cinquenta e cinco da Lei n.º 1/97 de 17 de Janeiro, cujo conteúdo eles outorgantes têm perfeito conhecimento, pelo que é dispensada a sua leitura;==========

=====Assim o disseram e outorgaram. ==========

=====Instruem este acto:==========

===== a) Certificado de Admissibilidade, emitido pelo Ficheiro Central de Denominações Sociais, aos 08 de Abril de 2024;==========

===== b) Documento Complementar referido atrás; ==========

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===== c) Certidão Comercial da sociedade UNICARGAS – EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A.==========

===== d) Deliberação Unânime por Escrito dos accionistas da sociedade UNICARGAS – EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A.==========

=====e) Despacho Presidencial n.º 96/24, Publicado em Diário da República I Série- N.º 74 de 22 de Abril de 2024.==========

===== f) Escritura Pública de Transformação da sociedade Unicargas U.E.E para sociedade anônima.==========

===== g) Acta Deliberativa da sociedade ADP TERMINALS LUANDA, LTD.==========

===== h) Documentos Legais da sociedade ADP TERMINALS LUANDA, LTD.==========

===== i) Documento de Identificação dos Outorgantes; ==========

===== Aos outorgantes e na presença fiz, em voz alta, a leitura desta escritura, a explicação do seu conteúdo e a advertência da obrigatoriedade do registo do acto no prazo de noventa dias, a contar da presente data. ==========

OS OUTORGANTES

1º

X Joaquim M. da Piedade

2ª

X Marlene Corte Real

O NOTÁRIO

SEBASTIÃO BAMBA DOMINGOS

Sebastião Bamba

Assinado digitalmente por Sebastião Bamba

Data 16/07/2024
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DOCUMENTO COMPLEMENTAR

Documento complementar elaborado em separado nos termos e para os efeitos do n.º 2 do artigo 78.º do Código do Notariado, com a redacção que lhe foi dada pelo artigo 55.º da Lei n.º 1/97, de 17 de Janeiro.

ESTATUTOS DA

ADPG LUANDA - OPERADOR DE TERMINAL, LDA.

CAPÍTULO I
(Denominação, Forma, Sede, Duração e Objecto)

ARTIGO 1.º
(Forma e Denominação)

A Sociedade adopta a forma de sociedade por quotas e a denominação ADPG Luanda - Operador de Terminal, Lda. ("Sociedade").

ARTIGO 2.º
(Sede)

1. A sede da Sociedade situa-se no Terminal Polivalente do Porto de Luanda, Luanda, Angola.
2. A Gerência poderá, a todo o tempo, deliberar a transferência da sede da Sociedade para qualquer outro local em Angola.
3. A Sociedade poderá, mediante deliberação da Gerência, criar e extinguir filiais, sucursais, delegações, escritórios de representação, agências ou outras formas de representação social, em Angola ou no estrangeiro.

ARTIGO 3.º
(Duração)

A Sociedade durará por um período de tempo indeterminado.

ARTIGO 4.º
(Objecto Social)

1. O objecto da Sociedade consiste na gestão e operação do terminal polivalente do Porto de Luanda.
2. A Gerência poderá definir as actividades específicas compreendidas no âmbito do objecto da Sociedade que a mesma está autorizada a prosseguir.
3. Mediante deliberação da Assembleia Geral, a Sociedade poderá adquirir participações, maioritárias ou minoritárias, no capital de outras sociedades angolanas ou estrangeiras, em qualquer ramo de actividade.
4. Mediante deliberação da Assembleia Geral, a Sociedade poderá dedicar-se a qualquer outra actividade industrial, comercial ou de prestação de serviços não proibida por lei.

CAPÍTULO II
(Capital Social)

ARTIGO 5.º
(Capital Social)

O capital social da Sociedade, integralmente realizado em dinheiro, é de Kz. 60.000.000,00 (sessenta milhões de Kwanzas), e corresponde à soma das 2 (duas) quotas, conforme o seguinte:

(a) Uma quota no valor de Kz. 6.000.000,00 (seis milhões de Kwanzas), representativa de 10% (dez por cento) do capital social, pertencente à sócia UNICARGAS – EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A. ("UNICARGAS"); e

(b) Uma quota no valor de Kz. 54.000.000,00 (cinquenta e quatro milhões de Kwanzas), representativa de 90% (noventa por cento) do capital social, pertencente à sócia ADP Terminals Luanda Ltd. ("ADP").

ARTIGO 6.º
(Prestações Suplementares e Empréstimos)

1. Mediante deliberação da Assembleia Geral, poderão ser exigidas à sócia ADP prestações suplementares em dinheiro até ao montante em Kwanzas equivalente a USD 25.000.000,00 (vinte e cinco milhões de Dólares dos Estados Unidos da América).
2. A Sociedade não concederá nenhum empréstimo, nem avançará quaisquer fundos ou créditos similares aos sócios.

ARTIGO 7.º
(Prestações Acessórias)

Mediante deliberação da Assembleia Geral, poderão ser exigidas à sócia ADP prestações acessórias, em dinheiro ou em espécie, remuneradas ou não, e com as características que possam ser definidas pela Assembleia Geral, até ao montante em Kwanzas equivalente ao montante do capital social da Sociedade.

ARTIGO 8.º
(Aumento de capital)

1. O capital social da Sociedade pode ser aumentado, em dinheiro ou em espécie, mediante deliberação da Assembleia Geral, aprovada por unanimidade.
2. Em cada aumento de capital em dinheiro, os sócios têm direito de preferência na subscrição do montante do aumento, na proporção do valor das respectivas quotas à data da deliberação de aumento de capital.

ARTIGO 9.º
(Cessão de Quotas)

1. A cessão de quotas entre os sócios e entre os sócios e uma Sociedade do Grupo é livre e não está sujeita a quaisquer restrições, nomeadamente as previstas nos números seguintes.
2. A cessão total ou parcial de quotas a terceiro está sujeita ao consentimento escrito da Sociedade, bem como ao direito de preferência dos sócios não envolvidos na cessão, nos termos dos números seguintes.
3. O consentimento escrito da Sociedade depende:
   (a) De o cessionário (i) não ser um concorrente directo da Sociedade e/ou de qualquer um dos sócios; (ii) estar em boa situação financeira; e/ou (iii) não ser uma Entidade Sancionada;
   (b) De o cessionário assumir todas as obrigações do cedente perante a Sociedade; e
   (c) De o cessionário acordar por escrito em vincular-se a todos os direitos e obrigações do cedente, inerentes à sua qualidade de sócio, incluindo as resultantes de quaisquer garantias prestadas ou outras obrigações relevantes, tais como acordos parassociais existentes, e outorgar quaisquer documentos tidos por necessários ou convenientes para concluir tais compromissos.
4. O sócio que pretenda ceder a totalidade ou parte da sua quota deverá notificar previamente por escrito o outro sócio e a Sociedade por correio electrónico, informando (i) o nome do comprador proposto; (ii) qual(ais) a(s) quota(s), ou parte(s), que pretende ceder, (iii) o preço proposto para a cessão, (iv) as condições de pagamento, e (v) quaisquer outros termos e condições relevantes da transmissão proposta.
5. O outro sócio deverá exercer o seu direito de preferência no prazo de 30 (trinta) dias após a data da recepção da mensagem electrónica referida no n.º 4. *supra*, mediante notificação escrita ao cedente e à Sociedade, declarando que irá adquirir a quota em questão, confirmando o preço e as condições de pagamento, assim como outras condições propostas, e estabelecendo um prazo de formalização da cessão da quota em questão não superior a 60 (sessenta) dias após o prazo de 30 (trinta) dias para o exercício do direito de preferência. O preço da cessão da quota deverá ser pago na data da cessão ou noutra data que seja acordada. A quota será cedida, mediante o seu pagamento, livre de quaisquer ónus ou encargos de qualquer natureza.
6. No prazo de 30 (trinta) dias após a recepção da mensagem electrónica referida no Artigo 9.5 *supra*, a Sociedade deverá informar se consente na cessão proposta, mediante notificação escrita ao cedente e aos outros sócios. Caso a Sociedade recuse o seu consentimento à cessão da quota, a recusa de consentimento da Sociedade deve ser acompanhada por uma proposta de aquisição ou de amortização da mesma.
7. Se o sócio não cedente decidir não exercer o seu direito de preferência, ou no caso de a Sociedade não manifestar por escrito a sua oposição à cessão proposta no prazo previsto no Artigo 9.6. *supra*, o cedente terá

o direito de, nos 30 (trinta) dias subsequentes ao termo desse prazo, transmitir ao potencial cessionário identificado na mensagem electrónica referida no Artigo 9.4. *supra* a quota em causa, por um preço não inferior e em termos e condições que não sejam mais favoráveis do que os constantes da citada mensagem electrónica.

8. Decorrido o prazo de 30 (trinta) dias sem que a quota tenha sido cedida, o não exercício do direito de preferência pelos demais sócios deixa de produzir quaisquer efeitos e o cedente deverá dar novamente cumprimento ao disposto nos números anteriores, caso pretenda transmitir a referida quota.

9. Para efeitos dos presentes estatutos, nomeadamente do presente Artigo, os seguintes termos terão os significados que de seguida lhes são atribuídos:

   (a) "Sociedade do Grupo" significa qualquer pessoa, sociedade, parceria, ou qualquer outra entidade ou associação que, directamente ou indirectamente, através de um ou mais intermediários, controle, esteja sob o controlo comum ou seja controlada por qualquer um dos sócios. Para efeitos do presente Acordo, a "relação de controlo" deverá ser interpretada em conformidade com o conceito de "influência dominante" definido no Código dos Valores Mobiliários Angolano.

   (b) "Entidade Sancionada" significa qualquer indivíduo, pessoa colectiva, entidade ou organização que: (i) esteja incluído em listas de pessoas designadas de acordo com as Sanções; ou (ii) seja directa ou indirectamente detido ou controlado (conforme estes termos são interpretados ao abrigo das Sanções relevantes), ou actue em nome de pessoas, entidades ou organizações referidas em (i); ou (iii) esteja constituído ao abrigo das leis de qualquer País Sancionado.

   (c) "Sanções" significa todas as leis, regulamentos, regras, códigos, ordens, autorizações, licenças, decretos, directivas, estatutos, relacionados com sanções económicas e financeiras, embargos comerciais, controlos de exportação e leis semelhantes impostas, administradas ou aplicadas por órgãos governamentais ou executivos da União Europeia, Estados Unidos da América, República de Angola, Emirados Árabes Unidos, Reino Unido e/ou Conselho de Segurança das Nações Unidas.

   (d) "País Sancionado" significa um país, estado, território ou região que esteja sujeito a restrições económicas ou comerciais abrangentes ao abrigo das Sanções.

ARTIGO 10.º
(Ónus e Encargos)

1. Os sócios não constituirão nem autorizarão que seja constituído qualquer ónus, penhor ou outro encargo sobre as suas quotas, salvo se autorizado pela Sociedade, mediante deliberação da Assembleia Geral ou aprovado pela Gerência para garantia de financiamento externo à Sociedade.

2. O sócio que pretenda constituir quaisquer ónus, penhor ou outro encargo sobre a sua quota, deve notificar a Sociedade por escrito, por mensagem electrónica enviada para o endereço de correio electrónico indicado no Artigo 28, dos respectivos termos e condições, incluindo informação detalhada da transacção subjacente.

3. A reunião da Assembleia Geral ou a Gerência, consoante o caso, será convocada no prazo de 30 (trinta) dias a contar (i) da data de recepção da mensagem electrónica referida no Artigo 10.2 *supra* ou (ii) da obtenção de qualquer autorização necessária junto de uma entidade pública.

CAPÍTULO III
(Exclusão ou Exoneração e Amortização ou Aquisição de Quotas)

ARTIGO 11.º
(Exclusão e Amortização ou Aquisição)

1. A Sociedade poderá proceder à exclusão de um sócio mediante a verificação de uma das seguintes situações ("Causas de Exclusão"): (i) início de procedimento de falência ou insolvência contra esse sócio (voluntário ou involuntário) e, em caso de procedimento involuntário se o mesmo não for arquivado no prazo de 15 (quinze) dias; (ii) ordens de arresto, execuções ou qualquer outra cessão involuntária da quota; (iii) se uma quota for empenhada (excepto na medida em que o penhor da quota seja permitido por força destes Estatutos) ou arrestada e não tenha sido imediatamente desonerada; ou (iv) se uma quota for vendida judicialmente ou vendida em violação das normas relativas ao consentimento prévio da Sociedade e ao direito de preferência dos restantes sócios.

2. No caso de a Sociedade proceder à exclusão de um sócio em virtude da verificação de uma Causa de Exclusão, a Sociedade deverá amortizar a quota, adquiri-la ou fazê-la adquirir por outro sócio ou por terceiro.

3. O sócio que fique sujeito a uma Causa de Exclusão deverá efectuar imediatamente uma notificação por escrito após a verificação dessa Causa de Exclusão. A notificação deverá conter todas as informações relevantes relativas à Causa de Exclusão, incluindo, no caso de cessão da quota, as condições propostas e a identificação do cessionário proposto (caso exista).

4. A deliberação de amortização ou aquisição da quota deve ser aprovada pela Assembleia Geral, no prazo de 45 (quarenta e cinco) dias a contar da notificação referida no n.º 3. *supra* ou da data em que um Gerente tenha tomado conhecimento da ocorrência de alguma Causa de Exclusão. A deliberação deverá ser notificada ao sócio. Caso a Assembleia Geral opte pela aquisição da quota, a respectiva escritura pública deverá ser outorgada no prazo de 30 (trinta) dias a contar da data da deliberação da Assembleia Geral. A quota será vendida livre de quaisquer ónus ou encargos de qualquer natureza e mediante o pagamento integral do preço de aquisição.

5. O preço da amortização ou aquisição será definido por comum acordo do sócio e da Sociedade ou do sócio e do comprador, consoante a quota seja amortizada ou adquirida, aplicando o método do fluxo de caixa actualizado e tendo em conta os suprimentos ou garantias a transmitir em conjunto com a quota em questão, no prazo de 30 (trinta) dias a contar da notificação de amortização. Na ausência de comum acordo, os sócios deverão submeter a questão a uma Empresa de Contabilidade Aprovada, não podendo a mesma (ou a sua empresa afiliada) ser auditora da Sociedade ou a auditora principal de qualquer sócio envolvido excepto se os sócios acordarem diversamente e, com base nos princípios definidos no presente artigo, solicitar que a empresa de contabilidade aprovada determine o valor de mercado justo.

6. A Empresa de Contabilidade Aprovada deve apresentar a sua determinação no prazo de 30 (trinta) dias a contar da data da submissão, sendo essa determinação vinculativa.

7. Os custos da avaliação serão suportados pela Sociedade ou pelo comprador consoante a quota seja amortizada ou adquirida.

8. Caso a Sociedade não disponha de fundos suficientes para pagar o valor atribuído à quota amortizada, os mesmos poderão ser disponibilizados à Sociedade por qualquer um dos restantes sócios.

9. Para efeitos do presente Artigo, "Empresa de Contabilidade Aprovada" significa uma empresa de contabilidade licenciada para exercer actividade em Angola e afiliada à Deloitte, à Ernst & Young, à KPMG ou à Price Waterhouse Coopers, ou aos sucessores legais de qualquer uma das empresas acima referidas.

ARTIGO 12.º
(Exoneração e Amortização ou Aquisição)

1. Qualquer sócio tem direito a exonerar-se da Sociedade mediante a verificação de uma Causa de Exclusão e da não concretização por parte da Sociedade do dever de amortizar, adquirir ou fazer adquirir a quota por outro sócio ou por terceiro ("Causa de Exoneração").

2. Verificando-se uma Causa de Exoneração, o sócio que queira usar desta faculdade notificará a Sociedade por escrito da sua verificação e da sua intenção de amortizar a quota, no prazo de 60 (sessenta) dias a contar do conhecimento da Causa de Exoneração. No prazo de 30 (trinta) dias a contar da data da notificação do sócio por escrito a Sociedade amortizará a quota, procederá à sua aquisição ou fará com que seja adquirida por outro sócio ou por terceiro.

3. A deliberação de amortização ou aquisição da quota deve ser aprovada pela Assembleia Geral. Se a Assembleia Geral optar pela aquisição da quota, a mesma será vendida mediante a outorga da competente escritura de cessão. A quota será vendida livre de quaisquer ónus ou encargos de qualquer natureza e mediante o pagamento integral do preço.

4. Se a Sociedade não amortizar, adquirir ou fizer adquirir a quota por outro sócio ou por terceiro, o sócio poderá ceder a sua quota a um terceiro sem o consentimento prévio da Sociedade ou requerer a dissolução da Sociedade.

5. O preço da amortização ou aquisição será definido por comum acordo do sócio e da Sociedade ou do sócio e do comprador, consoante a quota seja amortizada ou adquirida, aplicando o método do fluxo de caixa actualizado e tendo em conta os suprimentos ou garantias a transmitir em conjunto com a quota em questão, no prazo de 30 (trinta) dias a contar da notificação de amortização. Na ausência de comum acordo, os sócios deverão submeter a questão a uma Empresa de Contabilidade Aprovada, não podendo a mesma (ou a sua empresa afiliada) ser auditora da Sociedade ou a auditora principal de qualquer sócio envolvido excepto se os sócios acordarem diversamente e, com base nos princípios definidos no presente artigo, solicitar que a empresa de contabilidade aprovada determine o valor de mercado justo.

6. A Empresa de Contabilidade Aprovada deve apresentar a sua determinação no prazo de 30 (trinta) dias a contar da data da submissão, sendo essa determinação vinculativa.

7. Os custos da avaliação serão suportados pela Sociedade ou pelo comprador consoante a quota seja amortizada ou adquirida.

8. Caso a Sociedade não disponha de fundos suficientes para pagar o valor atribuído à quota amortizada, os mesmos poderão ser disponibilizados à Sociedade por qualquer um dos restantes sócios.

9. Para efeitos do presente Artigo, "Empresa de Contabilidade Aprovada" significa uma empresa de contabilidade licenciada para exercer actividade em Angola e afiliada à Deloitte, à Ernst & Young, à KPMG ou à Price Waterhouse Coopers, ou aos sucessores legais de qualquer uma das empresas acima referidas.

CAPÍTULO IV
(Órgãos Sociais)

ARTIGO 13.º
(Disposições Gerais)

Os órgãos da Sociedade são a Assembleia Geral de sócios e a Gerência.

SECÇÃO I
(Assembleia Geral)

ARTIGO 14.º
(Composição da Assembleia Geral)

A Assembleia Geral é constituída por todos os sócios da Sociedade.

ARTIGO 15.º
(Reuniões e Deliberações)

1. A Assembleia Geral reúne ordinariamente pelo menos uma vez por ano, nos primeiros 3 (três) meses depois de findo o exercício anterior, e extraordinariamente sempre que tal se mostre necessário.

2. As reuniões deverão ser convocadas por qualquer Gerente ou, se este não o fizer, por qualquer sócio, por meio de carta registada com aviso de recepção e anúncio publicado no jornal de maior tiragem no lugar da sede da Sociedade, com a antecedência mínima de 30 (trinta) dias. Da convocatória deverá constar a ordem de trabalhos, o dia, a hora e o local da reunião.

3. As reuniões da Assembleia Geral poderão ter lugar sem que tenha havido convocatória, desde que todos os sócios estejam presentes ou representados e tenham prestado o seu consentimento para a realização da reunião e tenham acordado em deliberar sobre determinada matéria.

4. As reuniões da Assembleia Geral poderão ser dispensadas quando os sócios aprovarem deliberações unânimes por escrito ou deliberações por voto escrito. No caso das deliberações aprovadas por voto escrito, os sócios manifestarão por escrito:

   (a) O seu consentimento para que seja aprovada uma deliberação por voto escrito; e

   (b) A sua concordância quanto à deliberação em questão.

5. Os sócios podem aprovar deliberações segundo as formas previstas na lei, incluindo:

   (a) Deliberações aprovadas em Assembleia Geral regularmente convocada nos termos estabelecidos no n.º 2 *supra*;

   (b) Deliberações aprovadas em reunião universal da Assembleia Geral realizada sem convocatória nos termos estabelecidos no n.º 3 *supra*;

   (c) Deliberações unânimes por escrito nos termos estabelecidos no n.º 4 *supra*; e

   (d) Deliberações aprovadas por voto escrito sem reunião da Assembleia Geral, nos termos estabelecidos no n.º 4 *supra* e na lei.

6. As reuniões da Assembleia Geral serão realizadas na sede social da Sociedade ou em qualquer outro local que seja indicado na convocatória.

7. Se necessário, as reuniões da Assembleia Geral podem realizar-se por teleconferência ou videoconferência, desde que sejam garantidas condições técnicas adequadas e que cada sócio, ou o seu representante, possam ouvir e ver mutuamente os outros sócios presentes, e todos os sócios assinem a acta da reunião.

8. Em primeira convocatória, a Assembleia Geral apenas pode deliberar validamente quando todos os sócios estiverem presentes ou representados. Em segunda convocatória, a Assembleia Geral pode deliberar validamente, independentemente do quórum de sócios presentes ou representados.

9. As deliberações da Assembleia Geral são aprovadas validamente por maioria simples dos votos representativos do capital social, salvo quando a lei aplicável ou os presentes Estatutos exijam maioria qualificada.

10. As deliberações sobre as seguintes matérias apenas podem ser adoptadas com o voto por unanimidade dos sócios:

    a) Procedimento de fusão, cisão, cessação ou transformação ou dissolução, encerramento da actividade e/ou liquidação da Sociedade;
    b) Alteração do nome e sede da Sociedade; e
    c) Aumentos do capital social.

11. Qualquer sócio que esteja impedido de comparecer a uma reunião pode fazer-se representar por outra pessoa, munida de carta de representação, identificando o sócio representado e o âmbito dos poderes conferidos.

12. Será lavrada uma acta de cada reunião, que incluirá a ordem de trabalhos e uma descrição sumária das discussões, deliberações aprovadas, resultados da votação e outros factos relevantes que mereçam ser registados. A acta será assinada por todos os representantes dos sócios que tenham comparecido à reunião.

SECÇÃO II
(Gerência)

ARTIGO 16.º
(Composição)

1. A Sociedade será administrada e representada por uma Gerência, composta por 5 (cinco) Gerentes, 4 (quatro) dos quais designados pela sócia ADP, e 1 (um) designado pela sócia UNICARGAS.

2. Os Gerentes exercerão os seus mandatos por períodos renováveis de 3 (três) anos ou até que renunciem ou até que a Assembleia Geral delibere a sua substituição.

3. Os Gerentes poderão ser remunerados ou não, conforme deliberado em Assembleia Geral.

ARTIGO 17.º
(Poderes)

A Gerência terá todos os poderes para gerir os assuntos da Sociedade e prosseguir o seu objecto social, contanto que tais poderes e autoridade não sejam da competência exclusiva da Assembleia Geral, por força da lei aplicável ou destes Estatutos.

ARTIGO 18.º
(Reuniões e Deliberações)

1. A Gerência reunirá ordinariamente sempre que necessário. As reuniões da Gerência serão realizadas na sede da Sociedade, excepto se a maioria dos Gerentes decidir reunir noutro local.

2. As reuniões da Gerência serão convocadas por qualquer Gerente, por carta, mensagem electrónica ou fax, com a antecedência mínima de 5 (cinco) dias relativamente à sua data. Cada aviso convocatório para uma reunião da Gerência deve conter a data, hora, lugar e a ordem de trabalhos da reunião.

3. As reuniões da Gerência podem realizar-se sem convocatória prévia, desde que no momento da votação todos os gerentes estejam presentes ou representados nos termos permitidos pela lei aplicável e pelos presentes Estatutos.

4. As reuniões da Gerência podem ser dispensadas quando os Gerentes aprovem deliberações unânimes por escrito.

5. As reuniões da Gerência podem ser conduzidas por meios telemáticos, desde que sejam garantidas condições técnicas adequadas e todos os Gerentes que participem nessa reunião consigam ver-se e ouvir-se mutuamente, e desde que todos os Gerentes da Sociedade assinem a acta da reunião.

6. Os gerentes podem aprovar deliberações nos seguintes termos:

   (a) Deliberações aprovadas em reunião da Gerência regularmente convocada nos termos estabelecidos no n.º 2 *supra*;

   (b) Deliberações aprovadas em reunião universal da Gerência reunida sem convocatória nos termos estabelecidos no n.º 3 *supra*;

   (c) Deliberações unânimes por escrito nos termos estabelecidos no n.º 4 *supra*.

7. A Gerência só pode deliberar validamente quando pelo menos 2 (dois) Gerentes estejam presentes. Qualquer Gerente que esteja impedido de comparecer a uma reunião pode fazer-se representar por outro Gerente, munido de carta de representação, identificando o Gerente representado e o âmbito dos poderes conferidos. Se dentro de meia hora após a hora agendada para a reunião da Gerência não estiver presente o número de Gerentes necessário à formação do quórum, a reunião deverá ser adiada para a mesma hora e local no quinto dia útil após a data original da reunião.

8. As deliberações da Gerência são validamente aprovadas por maioria simples.

9. Será lavrada uma acta de cada reunião, que incluirá a ordem de trabalhos e uma descrição sumária das discussões, deliberações aprovadas, resultados da votação e outros factos relevantes que mereçam ser registados. A acta será assinada por todos os membros da Gerência que tenham comparecido à reunião.

ARTIGO 19.º
(Director-Geral)

1. A Gerência poderá designar um Director-Geral, o qual será responsável pela gestão corrente da Sociedade, e a quem serão conferidos os poderes e competências que venham a ser determinados pela Gerência.

2. Poderá ser definida uma remuneração para o Director-Geral, conforme seja deliberado pela Gerência.

ARTIGO 20.º
(Forma de Obrigar)

A Sociedade obriga-se da seguinte forma:

(a) Assinatura de 3 (três) Gerentes; ou

(b) Assinatura do Director-Geral, no âmbito dos poderes que lhe forem conferidos pela Gerência; ou

(c) Assinatura de 1 (um) ou mais procuradores, nos termos e no âmbito das respectivas procurações.

CAPÍTULO V
(Exercício e Contas do Exercício)

ARTIGO 21.º
(Exercício)

O exercício da Sociedade corresponde ao ano civil.

ARTIGO 22.º
(Contas do Exercício)

1. A Gerência deverá preparar e submeter à aprovação da Assembleia Geral, o relatório anual de gestão e as contas de cada exercício da Sociedade.

2. As contas do exercício deverão ser submetidas à Assembleia Geral nos 3 (três) meses seguintes ao final de cada exercício.

3. A pedido de qualquer dos sócios, e a expensas da Sociedade, as contas do exercício serão examinadas por auditores independentes de reputação internacionalmente reconhecida, conforme deliberado pela Assembleia Geral, abrangendo todos os assuntos que, por regra, estão incluídos neste tipo de exames. Cada sócio terá

direito a reunir-se isoladamente com os referidos auditores e a rever detalhadamente todo o processo de auditoria e documentação de suporte.

CAPÍTULO VI
(Dissolução e Liquidação)

ARTIGO 23.º
(Dissolução)

A Sociedade dissolve-se nos casos previstos na lei aplicável ou por deliberação por unanimidade da Assembleia Geral, aprovada de acordo com os presentes Estatutos e a lei Angolana.

ARTIGO 24.º
(Liquidação)

1. A liquidação será extrajudicial, conforme seja deliberado pela Assembleia Geral.
2. A Sociedade poderá ser imediatamente liquidada, mediante a transmissão de todo o seu activo e passivo a favor de um ou mais sócios, desde que devidamente autorizada pela Assembleia Geral e obtido acordo escrito de todos os credores.
3. Se a Sociedade não for imediatamente liquidada nos termos do n.º 2. *supra*, e sem prejuízo de outras disposições legais imperativas, todas as dívidas e passivo da Sociedade (nomeadamente, todas as despesas incorridas com a liquidação e quaisquer empréstimos em situação de incumprimento) serão pagas ou reembolsadas antes que possam ser transferidos quaisquer fundos aos sócios.
4. A Assembleia Geral poderá aprovar por unanimidade que os activos remanescentes sejam distribuídos em espécie pelos respectivos sócios.
5. O produto da liquidação será distribuído entre os sócios conforme for determinado pela Assembleia Geral, na proporção da sua participação social na Sociedade.

CAPÍTULO VII
(Disposições Finais)

ARTIGO 25.º
(Inspecções, Auditorias e Informação)

1. Sem prejuízo de outros direitos e obrigações estabelecidos na lei aplicável, os sócios e os seus representantes devidamente autorizados têm o direito de acesso integral e irrestrito aos Gerentes, funcionários executivos e trabalhadores da Sociedade e o direito de, a expensas suas:
   (a) examinar e copiar, assistidos ou não por contabilistas independentes certificados, os livros, registos e contas da Sociedade, bem como as suas operações e actividades;
   (b) exigir que a Sociedade lhes preste a informação financeira e respectiva documentação de suporte com o detalhe e frequência que sejam razoavelmente solicitados pelos sócios;
   (c) exigir que a Sociedade prepare as suas contas, na forma e datas que sejam razoavelmente solicitadas pelos sócios;
   (d) inspeccionar os escritórios, propriedades e bens tangíveis da Sociedade.
2. O sócio deverá notificar a Sociedade da realização do exame ou inspecção, mediante aviso escrito, com 14 (catorze) dias de antecedência em relação ao dia do exame ou inspecção.
3. A Sociedade deverá cooperar totalmente, facultando para o efeito o acesso aos livros e registos da Sociedade.

ARTIGO 26.º
(Contas Bancárias)

1. A Sociedade deve abrir e manter, em nome da Sociedade, uma ou mais contas separadas para todos os fundos da Sociedade, num ou mais bancos, conforme for determinado pela Gerência em cada momento.
2. A Sociedade não pode misturar fundos de qualquer outra pessoa ou entidade com os seus fundos próprios. A Sociedade deve depositar nas suas contas bancárias todos os seus fundos, receitas brutas de operações,

contribuições de capital, adiantamentos e recursos de empréstimos. Todas as despesas da Sociedade, reembolsos de empréstimos e distribuições de dividendos aos sócios devem ser pagos através das contas bancárias da Sociedade.

3. Nenhum pagamento poderá ser feito a partir das contas bancárias da Sociedade sem autorização e/ou assinatura de 3 (três) Gerentes, do Diretor Geral ou de 1 (um) ou mais procuradores no uso dos poderes que lhe tenham sido atribuídos pela Gerência.

ARTIGO 27.º
(Dividendos)

1. Os dividendos serão distribuídos aos sócios conforme for determinado pela Assembleia Geral, na proporção da sua participação social na Sociedade.
2. A não distribuição aos sócios de resultados distribuíveis anualmente está sujeita a deliberação aprovada por ¾ dos votos correspondentes ao capital social.
3. As perdas serão partilhadas pelos sócios até ao montante pago por cada um deles para subscrever as suas quotas do capital social da Sociedade.
4. Os sócios poderão deliberar sobre a distribuição de dividendos antecipados, conforme permitido pela lei angolana.

ARTIGO 28.º
(Comunicações)

1. Salvo estipulação diversa nos presentes Estatutos, todas as comunicações e notificações entre a Sociedade e os sócios e entre estes últimos deverão ser entregues em mão ou remetidas por correio registado, para as moradas e ao cuidado das seguintes pessoas:

   (a) Para a Sociedade:

   Endereço: Terminal Polivalente do Porto de Luanda
   Luanda
   República de Angola
   À atenção de:
   Email:

   (b) Para a sócia UNICARGAS:

   Endereço: Rua Sanzalas Cabinda, Bairro da Boavista, Município da Ingombota, Luanda, Angola
   À atenção de: Sr. Joaquim Nazaré Pimentel Piedade, Coordenador da Comissão de Gestão
   Email: joaquim.piedade@unicargas.co.ao

   (c) Para a sócia ADP:
   Endereço: AD Ports Group Headquarters, Gate 1, next to Zayed Port, Al Mina Street
   Endereço postal: P.O. Box 54477, Abu Dhabi, Emirados Árabes Unidos
   À atenção de: Sr. Mohamed Eidha Tannaf AlMenhali, Regional CEO – Africa
   Email: International.office@adports.ae e mohamed.eidhaalmenha@adports.ae

2. A Sociedade e os sócios poderão alterar a qualquer momento os elementos constantes do n.º 1. *supra*, sem necessidade de alterar os presentes Estatutos, contanto que para o efeito notifiquem os restantes sócios e a Sociedade na forma prescrita.
3. Qualquer novo sócio que venha a suceder, no todo ou em parte, a qualquer sócio fundador nas respectivas quotas, deverá, no prazo de 8 (oito) dias a contar da outorga da respectiva escritura de cessão de quotas, notificar a Sociedade e os demais sócios do seu endereço e da identidade de uma pessoa para efeitos deste Artigo 28.

ARTIGO 29.º
(Lei Aplicável)

Os presentes Estatutos regem-se pela lei angolana.

ARTIGO 30.º
(Disposição Transitória)

1. Nos termos do artigo 21.º, n.º 1, alínea c) da Lei das Sociedades Comerciais, no momento do registo dos presentes Estatutos, a Sociedade assume de pleno direito os direitos e obrigações decorrentes dos contratos/negócios jurídicos celebrados antes da celebração da escritura de constituição, os quais são especificados abaixo e aqui são expressamente ratificados:

   (a) Acordo de Cessão celebrado por e entre a Unicargas – Empresa de Transporte Rodoviário de Cargas, S.A., a ADP Terminals Luanda Ltd. e a Empresa Portuária de Luanda, E.P, em 23 de Abril de 2024.

2. A aceitação e ratificação pela Sociedade dos contratos / negócios jurídicos indicados no número 1 produzem efeitos retroativos à data da sua celebração.

Joaquim M. P. da Piedade

Marlene Corte Real

O Notário

REPÚBLICA DE ANGOLA
MINISTÉRIO DA JUSTIÇA E DOS DIREITOS HUMANOS
DIRECÇÃO NACIONAL DE IDENTIFICAÇÃO, REGISTOS E NOTARIADO
QUINTO CARTÓRIO NOTARIAL DA COMARCA DE LUANDA -DV

==========Está conforme.==========
===É certidão que fiz extrair e vai conforme ao original.==========
===Luanda aos 17 de Julho de 2024.==========

A NOTÁRIA ADJUNTA

JOICE KATILA DIAS DOS SANTOS ARAGÃO MATIAS

Conta nº
Emolumento-----3.938.00
Selo do Acto--------100,00
Total----------4038,00
Registada sob nº 1998/

Joice Matias

Assinado digitalmente por Joice Matias
Data 17/07/2024
Hora 09:08:53.219
Notária Adjunta
4f6768c9-d8ae-4a45-b89a-0f0584bd1b6a

QUINTO CARTÓRIO NOTARIAL - DOLCE VITA
Talatona Dolce Vita

Documento emitido em 7/17/2024 9:08:53 AM

3. COMMERCIAL REGISTRATION

REPÚBLICA DE ANGOLA

MINISTÉRIO DA JUSTIÇA E DOS DIREITOS HUMANOS

Direcção Nacional dos Registos e do Notariado

Conservatória do Registo Comercial de Luanda

C E R T I D Ã O

a) Que a cópia apensa a esta CERTIDÃO está conforme o original;

b) Que foi requerida sob apresentação nº 0044.240731 em 2024-07-31;

c) Que foi extraída dos registos respeitantes à sociedade comercial denominada ADPG LUANDA - OPERADOR DE TERMINAL, LDA, com o NIF 5002047810, registada sob o número 2024.998;

d) Que ocupa as folhas rubricada(s) por mim, leva(m) o selo branco desta Conservatória;

Por ser verdade se passa a presente CERTIDÃO, que depois de revista e consertada assino.

Conservatória do Registo Comercial de Luanda aos 31-07-2024 12:18:45

P/A CONSERVADOR(A) Cecília Cassova

rec p2

SOCIEDADE

REPÚBLICA DE ANGOLA
MINISTÉRIO DA JUSTIÇA E DOS DIREITOS HUMANOS

CONSERVATÓRIA DO REGISTO COMERCIAL

Matrícula
998 / 2024

Matrícula - Averbamentos - Anotações

" ADPG LUANDA - OPERADOR DE TERMINAL, LDA " ;***

Identificação Fiscal: 5002047810;***

****

recif3

Matrícula - Averbamentos - Anotações

AP.11/2024-07-26 Contrato de Sociedade

Refª Electrónica: f50c99ab-89b9-475f-966f-2b032cdc094e.446e534c-5790-4ad6-8a30-cd5207cdef0c

SEDE: Luanda, no Terminal Polivalente do Porto de Luanda.

OBJECTO: Gestão e operação do terminal polivalente do Porto de Luanda.

CAPITAL: Kz. 60 000 000,00 (Sessenta Milhões de Kwanzas).

SÓCIOS E QUOTAS: 1º UNICARGAS - EMPRESA DE TRANSPORTE RODOVIÁRIO DE CARGAS, S.A., com sede em Luanda, Junto a ex- Jata Bungo, com uma quota no valor nominal de Kz. 6 000 000,00 (Seis Milhões de Kwanzas); 2º ADP TERMINALS LUANDA LTD, com sede em Building Nº 280, Taweelah, Abu Dhabi, Emirados Árabes Unidos, com uma quota no valor nominal de Kz. 54 000 000,00 (Cinquenta e Quatro Milhões de Kwanzas).

GERÊNCIA: 1. Será administrada e representada por uma gerência, composta por 5 (Cinco) Gerentes, 4 (Quatro) dos quais designados pela sócia ADP, e 1 (Um) designado pela sócia UNICARGAS; 2. Os Gerentes exercerão os seus mandatos por período renováveis de 3 (três) anos ou até que renunciem ou até que Assembleia Geral delibere a sua substituição.

FORMA DE OBRIGAR: a) Assinatura de 3 (Três) gerentes; ou b) Assinatura do Diretor-geral, no âmbito dos poderes que lhe forem conferidos pela gerência; ou c) Assinatura de 1 (Um) ou mais procuradores, nos termos e no âmbito das respectivas procurações.

Conforme Escritura Pública, Lavrada no Quinto Cartório Notarial de Luanda – DV, Fls 8V – 9V, do Livro 04, datada de 16 de Julho de 2024.

Assinado Electrónicamente por Lundinho Agostinho

O/a
Lundinho Agostinho recif

4. INVESTMENT DECLARATION

مجموعة موانئ أبوظبي
AD PORTS GROUP

DECLARAÇÃO

ADPG LUANDA - OPERADOR DE TERMINAL, LDA, pessoa colectiva n.º 5002047810, com sede social no Terminal Polivalente do Porto de Luanda, no Municipío de Ingombota, Angola, neste acto representada pelo seu CEO para a Região da África, Sr. Mohamed Eidha Tannaf AlMenhali, portador do bilhete de passaporte n.° AA0437990, passado pelo 19/11/2023 de Abu Dhabi, nascido aos on 13/09/1979, residente em Abu Dhabi, declara que o valor do Investimento do Projecto da Desenvolvimento do Terminal Portoário da Unicargas em Luanda, Angola, no município de Ingombota, é o equivalente em AKZ a 148.240.000,00 USD (cento e quarenta e oito milhões duzentos e quarenta mil dólares dos Estados Unidos).

Assinatura,
Mohamed Eidha Tannaf AlMenhali
CEO para a Região da África
AD Ports Group

DECLARATION

ADPG LUANDA - OPERADOR DE TERMINAL, LDA, corporate entity no. 5002047810, headquartered at Multipurpose Terminal of the Port of Luanda, Distrito Urbano da Ingombota, Luanda, Angola, hereby represented by its Regional CEO for the Africa region, Mr. Mohamed Eidha Tannaf AlMenhali, bearer of passport no. AA0437990, issued by Abu Dhabi on 19/11/2023, born on 13/09/1979, residing in Abu Dhabi, declares that the Investment value of the Development of the Unicargas Port Project in Luanda, Angola, in the municipality of Ingombota, is equivalent in AKZ to 148,240,000.00 USD (One hundred forty-eight million two hundred forty thousand United States dollars).

Signature
Mohamed Eidha Tannaf AlMenhali
CEO for the Africa Region
AD Ports Group

5. CONCESSION AGREEMENT

CÓPIA

PORTO DE LUANDA E.P.

Terminal Polivalente

Contrato de Concessão entre o Porto de Luanda, EP e Unicargas

CÓPIA

CONTRATO DE CONCESSÃO PORTUÁRIA PARA A EXPLORAÇÃO DO TERMINAL POLIVALENTE DO PORTO DE LUANDA

Entre:

• A **Empresa Portuária de Luanda – Empresa Pública**, com sede em Luanda no Largo 4 de Fevereiro, doravante designada por **Concedente**, neste acto representada pelo Presidente do Conselho de Administração, o senhor **Sílvio Barros Vinhas**, devidamente habilitado pelo decreto nº 35/99 de 19 de Novembro, do Conselho de Ministros,

E

• **A Empresa de Transporte Rodoviário de Cargas, Unidade Económica Estatal**, abreviadamente designada por **UNICARGAS** com sede em Luanda junto ao ex-JASTA (zona do Bungo), doravante designada por **Concessionária**, neste acto devidamente representada pelo senhor **Eduardo Veloso**, na qualidade de Director Geral,

é celebrado o presente Contrato de Concessão Portuária nos termos e condições dos seguintes artigos:

CÓPIA

CAPÍTULO I
Disposições Gerais

Artigo 1º
(Definições)

Para efeitos do presente Contrato, as palavras ou expressões, adiante referidas, terão os seguintes e exclusivos significados:

a) **AUTORIDADE PORTUÁRIA** – Empresa Portuária de Luanda – EP, tal como se encontra definida no seu estatuto orgânico, ou qualquer dos seus representantes;

b) **BASES GERAIS DA CONCESSÃO** – Decreto nº 52/97 de 18 de Julho, que constitui as bases gerais para a adjudicação das concessões de serviço público;

c) **CESSÃO OU TRESPASSE DA CONCESSÃO** - Contrato por meio do qual a Concessionária, mediante autorização prévia da Concedente, transfere para um terceiro a posição que detém no contrato de concessão;

d) **CONCESSÃO** - Acto pelo qual a Empresa Portuária de Luanda – EP, enquanto Autoridade Portuária e mediante Contrato Administrativo, atribui, a favor da **Concessionária**, o uso dominial da parcela de domínio público portuário a que se reporta o Anexo I e a exploração, sob o regime de serviço público, de actividades e serviços conexos com a movimentação de cargas, mediante o pagamento de uma renda, bem como da obrigatoriedade da **Concessionária** investir na referida parcela;

e) **CONCESSIONÁRIA** – Entidade que explora um Terminal mediante um Contrato de Concessão celebrado com a Empresa Portuária de Luanda - EP;

f) **ESTABELECIMENTO DA CONCESSÃO** – O conjunto das infraestruturas, instalações e equipamentos fixos afectos pela Concedente ao terminal, bem como os que foram incorporados ou instalados pela Concessionária;

CÓPIA

g) **EXPLORAÇÃO** – Actividade comercial portuária;

h) **PORTO** – Parte da área de jurisdição da Empresa Portuária de Luanda – EP, afecta às operações comerciais;

i) **TERMINAL PORTUÁRIO** – Recinto portuário vedado, de serviço público, anexo a uma muralha ou obra de arte acostável, incluindo um ou mais postos de acostagem, explorado na sua totalidade por uma única entidade.

Artigo 2º
(Normas aplicáveis)

Em tudo o que for omisso e desde que a vontade das Partes o não consiga suprir, o presente Contrato rege-se pelas leis em vigor em Angola e, em especial, pela lei nº 9/98 de 18 de Setembro e pelo Decreto nº 52/97 de 18 de Julho.

Artigo 3º
(Natureza jurídica do Contrato)

O presente contrato é um Contrato Administrativo com valor de título executivo para efeitos judiciais.

CAPÍTULO II
Da Concessão

Artigo 4º
(Objecto, âmbito e regime da Concessão)

1. A concessão tem por objecto principal a atribuição do direito de exploração, em regime de serviço público, do Terminal Polivalente do Porto de Luanda – EP, implicando a construção das respectivas infraestruturas, instalações e equipamentos.

2. O serviço público traduz-se na obrigatoriedade de prestação generalizada dos serviços a todos os potenciais utilizadores e na

CÓPIA

sujeição ao correspondente controlo por parte da **Concedente** e de outras autoridades com competência na área portuária.

3. O serviço público concedido consiste na exploração técnica e comercial do terminal, devendo a **Concessionária**, para o efeito, desenvolver as seguintes acções:

a) Executar todas as operações de carga, descarga, manutenção e armazenagem, ligadas ao navio e à mercadoria, providenciando todos os meios técnicos e humanos;

b) Fazer a manutenção dos terraplenos, instalações e equipamento de acordo com as modalidades previstas no artigo 20º.

c) Assegurar, no recinto do Terminal, o cumprimento das disposições legislativas e regulamentares em vigor, nomeadamente das relativas às instalações, gestão da água e da protecção do meio ambiente.

4. A exploração do serviço concedido exclui as actividades respeitantes à movimentação e segurança dos navios (estacionamento, atracação e desatracação), as quais são da responsabilidade da Autoridade Portuária, que pelos serviços prestados cobrará, aos armadores, as taxas constantes do seu Regulamento de Tarifas.

5. É vedado à **Concessionária** efectuar as operações descritas no número antecedente.

6. A **Concessionária** obriga-se a ampliar ou modificar as infra – estruturas, equipamentos e instalações, cuja construção ou instalação constitui seu encargo contratual, se durante o período da concessão tal for considerado necessário para fazer face à evolução do tráfego ou de outras circunstâncias relevantes ligadas à exploração do serviço público, após realização de estudos de viabilidade técnico – económica e concertação com a Concedente.

CÓPIA

7. As condições em que se fará essa ampliação ou modificação serão objecto de acordo, caso a caso, entre a **Concedente** e a **Concessionária**.

Artigo 5º
(Área da concessão)

1. A área correspondente ao Terminal Polivalente está assinalada no desenho nº 1 constante do **anexo I**, que faz parte integrante do presente contrato.

2. As características da parcela sobre a qual recai a concessão são as seguintes:

a) Possui uma área total de 178 641 m2;

b) Está limitada a Norte com o Cais, a Oeste com o Terminal de Carga Geral e a Rua de Cintura do Porto, a Sul com a mesma rua e com as oficinas do Porto de Luanda, a Leste com o Terminal de Contentores e a área do Forte do Penedo.

3. A área da concessão foi demarcada e medida pelos serviços da Administração do Porto de Luanda – EP e será verificada pela **Concessionária** no acto da respectiva entrega, da qual se lavrará auto.

4. A **Concessionária** efectuará a vedação da área da Concessão em conformidade com os seus planos e instalará os correspondentes acessos de acordo com os planos de investimento constantes do **anexo II**.

5. A área da Concessão será entregue livre de qualquer poluição, recaindo sobre a **Concedente** os encargos com a sua supressão.

Artigo 6º
(Infraestruturas, Equipamentos e instalações Portuárias)

1. A **Concedente** põe à disposição da **Concessionária**, livre de ónus ou encargos:

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a) Infraestruturas Marítimas constituídas por:

- Cais acostável com 536 de comprimento e com uma profundidade média de (- 10 m) ZH.

- Áreas marítimas de estacionamento e manobra de jurisdição do Porto de Luanda – EP.

b) Infraestruturas terrestres, livres e desimpedidas, nomeadamente, de pessoal de entidades terceiras, mercadorias, sucatas e equipamentos inoperacionais que não sejam aceites pela Concessionária, serão constituídas por:

- Área de terraplenos de 168 141 m2;

- Área de Armazéns de 10 500 m2;

2. A gestão e manutenção das infraestruturas marítimas é da responsabilidade da **Concedente** que, em contrapartida da sua utilização por parte da **Concessionária**, cobrará as taxas referidas no artigo 45º.

3. Se a manutenção das infraestruturas for requerida devida a má utilização por parte da **Concessionária,** será esta responsável pela sua reparação.

4. A **Concessionária** efectuará a vedação da área da Concessão em função da implantação da linha do caminho de ferro e em conformidade com os seus planos e instalará os correspondentes acessos de acordo com o Plano de Investimento constante do **anexo II** e do layout do Terminal.

5. Os terrenos, terraplenos e instalações, postos à disposição da **Concessionária** pelo Porto de Luanda – EP, não pressupõe, em caso algum, transferência de propriedade ou constituição de direitos reais.

6. As obras, instalações e equipamentos referidos no ponto 4, serão construídos, conservados e operados pela **Concessionária** e a suas expensas, mediante projecto e plano de trabalhos a aprovar

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pela **Concedente** com base nos projectos e especificações submetidos a consulta.

Artigo 7º
(Objectivos do tráfego do terminal)

1. Para garantir o desenvolvimento da actividade do terminal, a **Concessionária** deverá atingir os objectivos de tráfego e de qualidade dos serviços constantes do **anexo III (a e b),** em função dos quais deverá dimensionar o equipamento e as instalações.

2. Se a evolução do mercado e a procura de novos serviços exigirem uma revisão dos objectivos consignados, esta só poderá efectivar-se, a pedido escrito da Concessionária, desde que não afecte a economia do contrato e tenha o prévio consentimento, por escrito, do Conselho de Administração do Porto de Luanda – EP.

3. Para a materialização dos objectivos de tráfego, a Concessionária pode impor, ao recebedor, tráfegos indirectos e armazenagem, sempre que os meios do recebedor sejam insuficientes ou inadequados, nos termos do Regulamento de Exploração do Terminal.

CAPÍTULO III
Da Concessionária

Artigo 8º
(Deliberações da Concessionária a aprovar pela Concedente)

1. Carecem de aprovação pela **Concedente**, para além de outras especialmente previstas no presente Contrato, as deliberações da **Concessionária** que tenham por fim ou efeito:

a) a alteração do objecto social da Empresa;

b) a transformação, fusão, cisão ou dissolução da sociedade;

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c) a admissão de novos sócios e a alteração do capital social;

d) o trespasse, a subconcessão ou cedência, por qualquer título, da exploração do terminal a terceiros;

e) a alteração do quantitativo das tarifas a aplicar pela execução dos serviços prestados no âmbito da concessão;

f) a interrupção ou cessação de qualquer das actividades, em que se desdobra o serviço público concedido.

2. As deliberações referidas no número anterior, ter-se-ão por aprovadas se a **Concedente** não se pronunciar no prazo de 30 (trinta dias) a contar da data do registo da entrada da respectiva documentação.

Artigo 9º
(Actos da Concessionária)

1. Os actos da **Concessionária**, independentemente da forma, devem ser estabelecidos dentro do respeito pelas disposições do presente Contrato.

2. Todo o acto que engaje a **Concessionária** para além do prazo da Concessão deve merecer, antes da sua conclusão, do acordo formal da **Concedente**.

Artigo 10º
(Contabilidade)

1. A **Concessionária** deve registar únicamente, na contabilidade da concessão, as operações conformes ao objecto do presente contrato, e organizar a sua contabilidade de acordo com as regras em vigor.

2. A **Concessionária** deve ter, de forma distinta e actualizada, a contabilidade e informações que dizem respeito ao Contrato de Concessão Portuária.

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3. Se a **Concessionária** exercer uma ou mais actividades conexas com o objecto do presente contrato, deve ter, sem prejuízo das disposições regulamentares existentes sobre a matéria, uma ou várias contabilidades distintas, de cada actividade, de acordo com as seguintes condições:

a) As contas de exploração devem ser distintas;

b) Os princípios de contabilização e imputação dos custos devem ser claramente definidos.

4. A **Concessionária** deve estar habilitada a fornecer, a pedido da **Concedente**, uma contabilidade para cada uma das actividades que desenvolve.

Artigo 11º
(Contas, Orçamento e Relatório Anual)

1.Sem prejuízo das obrigações impostas pelas disposições legislativas e regulamentares em vigor, a Concessionária deve remeter, à **Concedente,** até 31 de Março de cada ano, os seguintes documentos:

a) As contas do exercício precedente, auditadas por sociedade licenciada para tal e respectivo relatório acompanhadas do correspondente controlo do orçamento do ano em causa;

b) O orçamento relativo ao exercício seguinte e, se for o caso, as rectificações acompanhadas de:

- Um plano que defina de forma abrangente, para os 5 anos seguintes, as contas de resultado e os quadros de financiamento previsional que permitam apreciar as condições para o estabelecimento do equilíbrio financeiro para o futuro, tendo em conta os investimentos que figurem no plano estratégico definido no artigo nº 13º;

- Pontualização da situação da gestão com a separação dos custos e das receitas das diferentes prestações

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do exercício precedente, a fim de permitir uma orientação para a definição da política tarifária;

- Relatório anual sobre a actividade desenvolvida no terminal.

Artigo 12º
(Controlo da Concessão)

1. A exploração dos serviços concessionados está submetida ao controlo da **Concedente**.

2. A **Concessionária** deve fornecer os documentos e esclarecimentos necessários à realização das inspecções ou auditorias, nos termos da lei.

Artigo 13º
(Plano Estratégico)

1. A **Concessionária** deverá elaborar, no prazo de 90 (noventa) dias após a entrada em vigor do presente Contrato, um plano que defina os objectivos estratégicos, bem como os principais eixos de desenvolvimento da concessão e o programa de investimentos.

2. O plano estratégico deverá ser submetido à apreciação da **Concedente** e, uma vez aprovado, fará parte integrante do presente Contrato.

3. Se as condições, que estiveram na base da elaboração do plano estratégico, tiverem evoluído de forma significativa ao longo do prazo da concessão, a **Concessionária** pode submeter à apreciação da **Concedente** um plano modificado.

4. As eventuais modificações do plano estratégico inicial serão anexas ao presente Contrato, dele fazendo parte integrante.

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Artigo 14º
(Licenciamento)

1. A **Concessionária** deverá estar licenciada para o exercício das actividades concessionadas, quer pela **Concedente** quer por outras entidades que para o efeito sejam competentes, não podendo iniciar a actividade sem que tal requisito se mostre preenchido.

2. Na falta de licença, por facto imputável à Concessionária, a Autoridade Portuária, sem prejuízo dos fundamentos da rescisão contratual ou doutras sanções aplicáveis, poderá ordenar a suspensão da actividade enquanto não for sanada a irregularidade.

3. A **Concessionária** é responsável, perante a Autoridade Portuária ou terceiras entidades, pelos prejuízos decorrentes da suspensão da actividade, ordenada nos termos do número anterior.

Artigo 15º
(Bens da Concessionária)

1. Os bens da **Concessionária** que, de harmonia com o Contrato, integram o estabelecimento da concessão, não poderão ser alienados sem que fique assegurada a respectiva substituição, caso seja necessária, e garantida a operacionalidade da exploração.

2. Das alienações referidas no número anterior deverá ser dado conhecimento à **Concedente**.

Artigo 16º
(Règime Fiscal)

A **Concessionária** fica sujeita ao regime fiscal vigente na Lei Angolana.

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Artigo 17º
(Obrigações das Partes)

Para além de outras obrigações decorrentes da lei e do presente Contrato:

1. A **Concedente** obriga-se a:

a) Garantir, à **Concessionária,** a estabilidade e o equilíbrio financeiro do contrato e o gozo de todos os direitos inerentes à concessão;

b) Manter o Contrato vigente durante o prazo estabelecido no artigo 34º e permitir que a **Concessionária** use e possua a área da concessão conforme o estabelecido no presente Contrato;

c) Emitir as licenças, aprovações, autorizações e consentimentos, do foro da **Concedente**, de forma atempada e sem dilação;

d) Envidar esforços, junto das autoridades competentes, para a emissão de outras licenças determinadas por lei, para a execução das obras que integram o conteúdo das obrigações para o exercício dos direitos da **Concessionária**;

e) Não interferir ou permitir a interferência injustificada no uso da área da concessão de acordo com os Regulamentos em vigor;

f) Garantir à **Concessionária,** aos seus trabalhadores e agentes o livre acesso à área da concessão;

g) Enviar uma notificação à **Concessionária**, em tempo oportuno, sobre qualquer obra de reparação ou manutenção dos acessos, se essas obras tiverem influência no acesso à área da concessão ou interferirem com as actividades da **Concessionária;**

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h) Fiscalizar e proceder a vistorias sobre as obras autorizadas, sem que para isso perturbe o seu andamento;

i) Não transferir ou outorgar, total ou parcialmente, os seus direitos sobre o presente Contrato, sem o consentimento prévio e escrito da **Concessionária**;

j) Assegurar todas e quaisquer permissões, licenças, aprovações, autorizações ou consentimentos dos órgãos governamentais que sejam necessários ou apropriados para o desempenho das suas obrigações;

k) Assegurar a protecção ecológica nos terrenos circunvizinhos dos ocupados pela **Concedente** e defender e proteger a **Concessionária** de reclamações feitas por terceiros por danos que possam resultar dessas fontes;

l) Assegurar que os direitos da **Concessionária** não sejam limitados por órgãos governamentais ou terceiros, através de exigências de planeamento, arquitectura ou outras restrições com relação à terra, estruturas construídas ou direitos de uso;

m) Tomar medidas para prevenir que qualquer actividade executada nas áreas adjacentes da concessão causem danos a esta ou a torne inadequada para o uso permitido;

n) Proceder à remoção atempada da sucata e guindastes e desencadear todas as demais acções por forma a que o **Concessionário** possa concluir pontualmente as obras que contratualmente são devidas, sendo responsável pelos danos que cause ao **Concessionário** pela inexecução das suas obrigações ou execução defeituosa ou pelos encargos em que, por força daquela situação, o **Concessionário** incorra;

o) Pôr à disposição do **Concessionário,** em termos a acordar, os guindastes descritos no **anexo IV** e garantir a sua plena operacionalidade durante o período mínimo de

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cinco anos, contados a partir da data de recepção, pela **Concessionária,** de cada guindaste.

2. A **Concessionária** obriga-se a:

a) Assegurar a prestação dos serviços objecto do presente Contrato, operando com a maior segurança e eficiência, segundo técnicas actualizadas, por forma a garantir serviços de qualidade;

b) Dispor de meios materiais e humanos adequados à boa prestação do serviço;

c) Organizar o serviço por forma a não fundamentar reclamações dos utentes;

d) Participar activamente nas acções de combate à poluição marítima e a incêndios, nos termos e condições previstas nos planos de emergência que envolvem meios disponíveis no Porto de Luanda;

e) Manter a ligação ao sistema informático da **Concedente**, nomeadamente no tocante à aplicação informática de gestão portuária, em utilização pela comunidade portuária, em níveis a estabelecer ;

f) Usar a área dominial de acordo com os usos permitidos;

g) Fazer a manutenção de estradas, instalações de esgotos, linhas eléctricas, encanamentos para a água e iluminação da área da concessão, bem como responsabilizar-se pela limpeza geral das áreas sob seu controlo;

h) Pagar a renda dominial dentro do prazo, forma e períodos estabelecidos no artigo 45º do presente Contrato;

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i) Apresentar, no prazo de 6 meses após o início da execução do presente Contrato, um projecto integral ou projectos parciais, relativamente às obras de construção civil e de vedação, acessos à área de concessão, incluindo as necessárias em matéria de saneamento básico;

j) Realizar as obras, por sua conta e risco, de acordo com os projectos superiormente aprovados e com a legislação em vigor no domínio urbanístico, ambiental e ecológico;

k) Permitir o exercício de fiscalização e vistoria das obras por parte da **Concedente** ou de terceiras entidades indicadas ou requeridas pela **Concedente;**

l) Celebrar contratos com os fornecedores de serviços de água, energia e telefone;

m) Obter todos os consentimentos e licenças de que a **Concedente** não seja responsável;

n) Não transferir para terceiros responsabilidades próprias que assumir perante a **Concedente,** sem a prévia autorização desta;

o) Prestar as cauções adiante especificadas.

CAPÍTULO IV
Do Estabelecimento

Artigo 18º
(Estabelecimento da Concessão)

1. O estabelecimento afecto à concessão é constituído pelas infra-estruturas terrestres, equipamentos e instalações definidos no Artigo 6º.

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2. Todo o estabelecimento da concessão, incluindo o que for construído e instalado a expensas da **Concessionária** (equipamento fixo e móvel, edifícios e outras instalações e utensílios), está sujeito ao regime de impenhorabilidade e inalienabilidade, só podendo entrar no comércio jurídico privado mediante desafectação originada em acto da **Concedente** ou do Estado.

Artigo 19º
(Registo do Estabelecimento)

1. Os bens que integrem o estabelecimento e constituem domínio afecto pela Autoridade Portuária à concessão, deverão constar de registo actualizado que identifique as suas características técnicas e funcionais, designadamente o seu estado de conservação e operacionalidade.

2. A **Concessionária** deverá manter actualizado o registo dos bens integrados na concessão, com indicação dos respectivos valores e data de aquisição.

3. Na falta de registo a que se refere o número anterior, os bens presumem-se propriedade ou domínio da Autoridade Portuária.

CAPÍTULO V
Conservação, Manutenção e Desenvolvimento da Concessão

Artigo 20º
(Plano de Investimentos)

1. A **Concessionária** dará cumprimento ao plano de investimentos da concessão, dividido em duas fases, cada uma delas contemplando um capítulo para obras e instalações fixas e outro para equipamentos, nos termos que se identificam, caracterizam e calendarizam no Plano de Investimentos referido no número 2 do presente artigo, e que consta do **anexo II** ao presente contrato. A execução da primeira fase é obrigatória e a sua não execução ou incumprimento do prazo, sem justa causa, determina a rescisão do Contrato de Concessão.

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2. A **Concessionária,** dentro do prazo de 90 (noventa) dias contados a partir da entrega da área concessionada, deverá apresentar o projecto geral e executivo, programa de execução e o orçamento previsional das obras da primeira fase do Plano de Investimentos, que poderá constituir um projecto único ou um conjunto de vários projectos.

3. O projecto, ou conjunto de projectos, deverá ser submetido à apreciação da **Concedente** e se o mesmo for considerado insuficiente ou modificativo do Plano de Investimentos, a **Concessionária** deverá completá-lo ou corrigi-lo em conformidade.

4. As obras da segunda fase, poderão igualmente dividir-se em vários projectos, devendo a **Concessionária** apresentá-los para aprovação da **Concedente.**

5. Para execução das obras e instalação de equipamentos, a **Concessionária** deverá obedecer aos seguintes prazos:

a) A **Concessionária** dará início às obras da primeira fase dentro do prazo de 4 (quatro) meses, devendo ficar integralmente concluídas no prazo de 3 (três) anos, prazos estes contados a partir do dia seguinte à assinatura do auto de entrega do estabelecimento da concessão e da emissão das licenças previstas no nº 1 do artigo 22º. No mesmo prazo de 3 (três) anos deverão também ficar instalados todos os equipamentos previstos na primeira fase do Plano de Investimentos;

b) A **Concessionária** no prazo de 5 (cinco) anos deverá concluir os investimentos previstos para a segunda fase do Plano de Investimentos, prazos estes contados a partir do dia seguinte à assinatura do auto de entrega do estabelecimento da concessão;

c) Caso a **Concessionária,** por facto que lhe seja imputável, não conclua as obras ou não instale os equipamentos da primeira fase dentro do prazo, a **Concedente** poderá fixar novo prazo, com imposição de uma sanção até 2,5% do valor dos investimentos correspondentes às obras ou equipamentos em atraso.

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Artigo 22º
(Projectos e Licenças de Obras)

1. A execução de quaisquer obras pela **Concessionária** fica sujeita a emissão de licença pela **Concedente,** a cuja aprovação devem ser submetidos, para esse efeito, os respectivos projectos.

2. Os projectos serão considerados tácitamente aprovados e as correspondentes obras autorizadas se, no prazo de 30 (trinta) dias úteis após a recepção dos projectos, a **Concedente** não se pronunciar.

3. A licença de obras, a ser concedida na data da aprovação das mesmas, não dispensa autorizações ou aprovação doutras entidades que, para o efeito, sejam legalmente competentes.

4. A execução, pela **Concessionária,** de obras e instalações sem autorização prévia, será sancionada nos termos previstos no artigo 49º. Sem prejuízo do aqui exposto, a **Concedente** poderá obrigar a **Concessionária** a proceder à respectiva demolição ou remoção, e caso esta não o faça dentro do prazo que lhe for concedido, serão as mesmas efectuadas a expensas da **Concessionária.**

Artigo 23º
(Qualidade das Obras e dos Equipamentos)

1. Nas obras e apetrechamento da concessão, a **Concessionária** garante fazer a aplicação de materiais, tratamento e métodos de trabalho, de harmonia com as melhores soluções técnicas utilizadas em actividades congéneres.

2. A **Concessionária** é obrigada a conservar as obras, instalações e equipamentos da concessão em perfeito estado de utilização, limpeza e arranjo, inclusivamente do ponto de vista estético, realizando por sua conta, as reparações e substituições que sejam necessárias. Para o efeito, a **Concessionária** fica obrigada a submeter à aprovação da **Concedente** , até 30 de Novembro de

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cada ano, um plano anual de manutenção, tanto das instalações fixas como dos equipamentos.

Artigo 24º
(Vistoria)

1. Concluídas as obras previstas no plano de investimentos, a **Concessionária** solicitará, por escrito à **Concedente,** o reconhecimento e verificação das obras, lavrando-se o correspondente auto. Do mesmo modo se procederá quanto aos equipamentos correspondentes à primeira fase do plano de investimentos.

2 .Sempre que o entenda necessário pode a **Concessionária** solicitar à **Concedente** a vistoria às obras e equipamentos referidos nos artigos antecedentes, a qual não poderá ser recusada, salvo se for manifesta a carência de fundamento. O relatório de vistoria deve ser enviado pela **Concedente** à **Concessionária**, no prazo de quinze dias contados a partir da data da sua recepção, considerando-se como aprovados e de boa qualidade se dentro daquele prazo a EPL não levantar nenhuma objecção escrita.

3. As despesas ocasionadas pela vistoria efectuada nos termos do número 2 deste artigo serão inteiramente suportadas pela **Concessionária.**

4. A **Concedente** poderá acompanhar a execução das obras do modo que entender mais adequado, para verificar se estas se ajustam aos projectos aprovados. Caso se observem irregularidades, a **Concedente** poderá determinar a paralização dos trabalhos e/ou a sua correcção.

O não acatamento, injustificado, da ordem dada pela **Concessionária,** constitui violação grave do contrato para os efeitos do artigo 40º.

5. Sem prejuízo do estabelecido nos números anteriores, a **Concedente** poderá inspeccionar em qualquer momento o estado de conservação das obras, instalações e equipamentos e ordenar as

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reparações que devem ser realizadas. Se a **Concessionária** as não efectuar no prazo que lhe for estabelecido, a **Concedente** poderá impôr uma sanção pecuniária, em valor que não exceda um trimestre da renda fixa ou conceder-lhe uma prorrogação do prazo para a execução dos trabalhos.

CAPÍTULO VI
Da Exploração

Artigo 25º
(Obrigações do Serviço Público)

1. Compete à **Concessionária,** dentro dos limites estabelecidos pela Lei e pelo Contrato, regular o exercício das actividades e do serviço público dentro da área de concessão, quer sejam prestados por si quer por terceiros, devidamente autorizados.

2. São obrigações, do serviço público, da **Concessionária:**

a) Projectar, construir, montar e pôr a funcionar o estabelecimento da concessão na parte em que lhe impuser o presente Contrato;

b) Fazer funcionar, regular e contínuamente, nos termos da lei e do Contrato, o estabelecimento da concessão;

c) Prestar aos utentes os serviços que integram o objecto da concessão;

d) Assegurar que os serviços prestados, no âmbito da concessão, sejam realizados com a maior segurança, eficiência, economia e qualidade, segundo técnicas actualizadas e procurando uma relação qualidade/custo compatível com as condições de exploração do terminal.

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Artigo 26º
(Regulamento de Exploração)

1. A **Concessionária** submeterá à aprovação da **Concedente**, no prazo de 90 (noventa) dias a contar da data da assinatura do presente Contrato, um Regulamento de Exploração com base no decreto nº 53/03 de 11 de Julho que aprovou o Regulamento de Exploração dos Portos, onde conste as normas procedimentais inerentes à realização das operações, à prestação dos serviços e à utilização da área da concessão, à limpeza do terminal, remoção de lixos, ao combate a incêndios e a situações de emergência, bem como os relacionados com a higiene e segurança do pessoal.

2. A pedido da **Concessionária** ou por iniciativa da **Concedente**, o Regulamento de Exploração poderá ser revisto, sempre que necessário, para a melhoria dos serviços.

3. Nos casos omissos e em situações de dúvida que não possam ser supridas pelas regras de interpretação dos actos Administrativos, aplicar-se-á o Regulamento de Exploração dos Portos de Angola.

4. O Regulamento de Exploração, depois de aprovado pela **Concedente,** deverá ser facultado a todos os potenciais utentes, ficando a **Concessionária** obrigada a tê-lo patente, pelo menos, nas suas instalações e no sistema informático da **Concedente.**

5. O Regulamento de Exploração, bem como as regras técnicas de prestação do serviço e as relações entre a **Concessionária** e os utentes, devem conformar-se com as leis e regulamentos, respeitantes às matérias que interessam à prestação do serviço público concessionado.

6. Quando a modificação do Regulamento de Exploração seja determinada pela **Concedente,** por motivo justificado e ouvida a **Concessionária**, esta terá direito a indemnização, correspondente e proporcional e à reposição do equilíbrio económico e financeiro do contrato de concessão se daquelas

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alterações lhe poder resultar diminuição de receitas ou aumento de custos.

Artigo 27º
(Tarifário)

1. As tarifas respeitantes à execução dos serviços a prestar pela **Concessionária**, bem como as suas revisões, carecem, para poderem ser aplicadas, da prévia aprovação da **Concedente.** As tarifas a aplicar pela **Concessionária** não devem ser superiores às preceituadas no Regulamento de Tarifas dos Portos de Angola em vigor.

2. O Regime Tarifário proposto, para aprovação, deverá seguir a estrutura do tarifário em vigor, na parte aplicável.

3. Após a aprovação pela **Concedente,** as tarifas passarão a fazer parte do Regulamento de Exploração do Terminal Polivalente, como anexo.

4. As taxas relativas a serviços que não constem do Regulamento de Tarifas dos Portos de Angola , serão objecto de negociação entre a Concedente e a Concessionária e constarão de listagem a incluir pela Concessionária no tarifário a submeter à aprovação da **Concedente**.

5. As taxas em vigor não poderão ser revistas mais de uma vez por ano, a não ser que ocorram razões de carácter excepcional que justifiquem uma redução deste período.

6. A **Concessionária** deve dar o mesmo tratamento aos usuários portuários que utilizam, nas mesmas condições, as instalações e serviços da concessão, de acordo com a regulamentação em vigor, reservando-se o direito de não prestar serviços a clientes com dívidas.

7. As tarifas, bem como as modalidades de cobrança, devem ser do conhecimento dos usuários, competindo à **Concessionária** a sua comunicação através dos meios apropriados.

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8. As tarifas serão divulgadas, para além de outros meios, pelo sistema informático da **Concedente**.

9. A revisão das tarifas será proporcional à revisão das rendas e o respectivo regime deverá garantir o equilíbrio económico e financeiro da exploração e competitividade com outros terminais que sejam concorrentes.

Artigo 28º
(Dados Estatísticos e Informação)

1. No exercício da sua actividade, a **Concessionária** é obrigada a prestar, trimestralmente e sempre que solicitada pela **Concedente**, todos os elementos informativos e dados estatísticos, de produção e financeiros, necessários ao exercício das atribuições da **Concedente.**

2. A **Concessionária** deverá, também, proporcionar à **Concedente,** bem como a outras entidades que tenham legitimidade para os solicitar, todos os elementos informativos relativos à exploração da concessão.

3. O Regulamento de Exploração do terminal, especificará, com o detalhe técnico julgado adequado, os termos em que deverão ser prestadas as informações

Artigo 29º
(Dever Ecológico e de Protecção Ambiental)

No exercício da sua actividade e no controlo das actividades exercidas por terceiros, cuja vigilância ou superintendência lhe caiba, nos termos do Contrato de Concessão, deve a **Concessionária** adoptar procedimentos que previnam ou minimizem a poluição do ambiente, designadamente:

a) Acatar e fazer cumprir os regulamentos em vigor para salvaguarda e protecção do meio ambiente;

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b) Efectuar ou solicitar, às entidades competentes, inspecções ou estudos para aferir a regularidade ambiental das actividades, das instalações e do funcionamento dos equipamentos na área da concessão;

c) Participar à **Concedente** ou às entidades que para o efeito sejam competentes, quaisquer ocorrências anómalas de natureza poluente ou com efeitos negativos sobre o meio ambiente.

Artigo 30º
(Segurança)

1. É obrigação da **Concessionária** tomar medidas e instalar equipamentos contra incêndios, bem como adoptar os meios e dispositivos adequados para a prevenção de danos pessoais e materiais, devendo submeter à aprovação da **Concedente** um Plano de Segurança, tendo em conta o constante do **anexo V**, abrangendo toda a área da concessão, bem como os serviços e actividades nele instalados.

2. Quando a ausência de medidas referidas no número anterior ponha em risco a segurança de pessoas ou bens, a **Concedente** poderá ordenar a suspensão das actividades afectadas por tal omissão, sendo a **Concessionária** responsável pelos prejuízos financeiros daí decorrentes.

3. A Concessionária dará conhecimento atempado à **Concedente** de quaisquer acidentes verificados na área da Concessão.

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CAPÍTULO VII
Do Pessoal da Concessão
Artigo 31º
(Pessoal e Regime de Trabalho)

1. A **Concessionária** deverá absorver preferencialmente o pessoal activo da **Concedente** que actualmente aí funciona, identificados na lista constante do **anexo VI,** livre de ónus ou encargos, passando o pessoal então admitido a pertencer aos seus quadros.

2. A **Concessionária** dará conhecimento à **Concedente** do seu quadro de pessoal, submetendo à sua aprovação o regime de trabalho adoptado no Terminal, que deverá ser adaptado às necessidades do serviço objecto da concessão.

3. A **Concessionária** deverá apresentar, no prazo de 6 meses, um plano de reconversão da força de trabalho existente, observando-se os procedimentos legais sobre a matéria. Nos seis meses subsequentes apresentará um estudo para análise conjunta com a **Concedente** sobre a adesão dos trabalhadores que integram o quadro da **Concessionária** a um fundo de pensões.

4. A **Concedente** comparticipará com a **Concessionária** nas despesas resultantes da reconversão do quadro de pessoal, sempre dentro do princípio da equidade.

5. O pessoal utilizado na exploração do terminal pertencerá aos quadros da **Concessionária**, devendo possuir habilitações e formação adequadas para a realização do serviço que lhe for cometido.

6. No período correspondente ao último quinto do prazo da concessão, a admissão ou despedimento de trabalhadores, não determinados por razões disciplinares, carecem do consentimento da Autoridade Portuária.

7. O terminal deverá criar as condições que garantam uma higiene do seu pessoal no local de trabalho, de acordo com as normas vigentes.

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Artigo 32º
(Revisão da Concessão)

) período correspondente ao último quinto do prazo, as Partes oderão acordar a revisão de condições da concessão de modo a lvaguardar a renovação do apetrechamento e a conservação e peracionalidade dos meios fixos, visando a continuidade dos erviços concessionados.

Artigo 33º
(Vigilância da área Concessionada)

onstitui dever da **Concessionária** exercer a vigilância sobre toda a área da concessão, prestando à **Concedente** informação portuna sobre ocorrências anómalas e participar às autoridades udiciais os actos ilícitos ou ilegais de que tenha conhecimento.

CAPÍTULO VIII
Duração da Concessão

Artigo 34º
(prazo da Concessão)

1. O presente Contrato de Concessão é celebrado pelo prazo de 20 vinte) anos, considerando-se iniciado a partir da data de entrega da concessão.

2. Decorrido o prazo da concessão, poderá a **Concedente** acordar com a **Concessionária** o estabelecimento de um novo regime de exploração, mediante novo contrato, por um ou mais períodos de cinco anos, desde que se mostrem cumpridas as seguintes condições:

a) Realização das obras previstas no Plano de Investimentos;

b) Realização dos investimentos tal como definido no Plano de Investimentos;

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c) Cumprimento de todas as obrigações constantes do Contrato, especialmente as relativas ao pontual pagamento das rendas.

3. O Contrato referido no número anterior deverá ser solicitado pela **Concessionária** à **Concedente**, com antecedência de um ano sobre o termo do prazo inicial, comprovando a verificação dos pressupostos que, para esse efeito, são exigidos nos termos do número anterior.

Artigo 35º
(Transmissão da Concessão)

1 É vedado à **Concessionária** celebrar contratos com terceiros que impliquem, no todo ou em parte, directa ou indirectamente, a transmissão da exploração dos serviços portuários, salvo quanto ao disposto no número seguinte.

2. A **Concedente,** a pedido da **Concessionária**, se tal for de interesse público a declarar pelo Ministério de Tutela, poderá autorizar a transferência referida no ponto 1, observando-se, nesse caso, o seguinte:

a) A transmissão só poderá ser feita a pessoa colectiva constituída e registada nos termos da lei Angolana;

b) A nova **Concessionária** ficará sub-rogada nos direitos e obrigações decorrentes do Contrato de Concessão;

c) A nova **Concessionária** ficará obrigada a prestar a caução de exploração, em substituição da que tenha sido prestada pela anterior, sob pena de o acto ser considerado inválido nos termos da lei;

d) Quer a anterior **Concessionária** quer a nova, ficam solidáriamente responsáveis para com a **Concedente** pelas obrigações derivadas de factos ocorridos antes da cessão.

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3. São nulos e de nenhum efeito os contratos que tenham sido celebrados com desrespeito pelo disposto nos números antecedentes.

Artigo 36º
(Exploração da Concessão)

1. A **Concessionária** deve explorar, directamente e em seu nome, o terminal objecto do presente contrato.

2. Contudo poderá, após prévio consentimento da **Concedente**, confiar a um terceiro a execução de uma parte ligada à gestão do terminal. Neste caso, a **Concessionária** será responsável, perante a **Concedente** ou terceiros, pelo cumprimento de todas as obrigações impostas pelo presente Contrato.

Artigo 37º
(Oneração de Bens e Direitos)

1.É vedado à **Concessionária** onerar por qualquer forma, sem consentimento escrito da **Concedente,** os direitos ou bens que integram o estabelecimento da concessão.

2.A constituição de direitos reais de garantia sobre o estabelecimento da concessão depende do prévio consentimento escrito da **Concedente,** não podendo ultrapassar, na sua duração, 2/3 do prazo pelo qual o Contrato ainda vigorar.

CAPÍTULO IX
Extinção da Concessão

Artigo 38º
(Causas da Extinção)

1. Sem prejuízo de outras causas de cessação dos contratos, estabelecidas na lei geral, a presente concessão portuária extingue-se nos casos seguintes:

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a) Termo do prazo da concessão;

b) Rescisão por incumprimento grave ou cumprimento defeituoso da **Concessionária;**

c) Resgate por razões de interesse público fundamentado, a declarar nos termos da Lei.

2. Finda a concessão pelo decurso do prazo ou por rescisão, com justa causa, reverterão gratuitamente para a **Concedente** todas as instalações e equipamentos fixos que nessa data constituam o estabelecimento da concessão e tenham sido custeados pela **Concessionária**, os quais lhe serão entregues livres de qualsquer ónus ou encargo, em estado de bom funcionamento, conservação e segurança, levando-se em consideração a sua depreciação usual, não podendo a **Concessionária** reclamar indemnização alguma ou invocar, com qualquer fundamento, o direito de retenção.

3. A **Concessionária** terá direito a ser indemnizada do custo das obras, instalações e equipamentos fixos que construir ou montar no decurso do prazo da concessão, diminuído da amortização entretanto efectuada, desde que essas obras, instalações ou equipamento não estejam previstos no Plano de Investimento, ou outros que tenham sido préviamente autorizados, pela **Concedente**, com aprovação do respectivo custo e período de amortização.

4. Para os efeitos dos pontos 2 e 3 será lavrado auto.

Artigo 39º
(Termo do Contrato)

1. O Contrato de Concessão caduca no termo do respectivo prazo, extinguindo-se a partir dessa data as relações contratuais entre as Partes.

2. Sem prejuízo do referido no número anterior, subsistem as garantias prestadas para cobertura do bom cumprimento do contrato ou doutras responsabilidades da **Concessionária,** enquanto se não mostrarem integralmente cumpridas.

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3. No caso de extinção da concessão por decurso do prazo a Concessionária terá o direito de ser indemnizada em relação aos valores ainda não amortizados.

Artigo 40º
(Rescisão)

1. Sem prejuízo doutros efeitos decorrentes da lei e do contrato, para situações de incumprimento contratual, a violação grave das obrigações constantes do presente contrato, insanável ou não sanada, importa o direito de rescisão do contrato.

2. A **Concedente** terá o direito de rescindir o contrato nos seguintes casos:

a) Desvio do objecto da concessão;

b) Interrupção injustificada da exploração;

c) Cessação de pagamento das rendas;

d) Dissolução da **Concessionária**;

e) Subconcessão, cedência ou substituição por terceiros no exercício dos direitos da concessão, quando tais situações não estejam previstas no contrato ou não tenham sido autorizadas;

f) Oneração ou alienação não autorizadas dos direitos ou bens da concessão;

g) Oposição reiterada à fiscalização das obras e actividades da concessão, seja pela **Concedente** seja por outras entidades legalmente competentes;

h) Desobediência reiterada a determinações legítimas da **Concedente**, quando se mostrem ineficazes outras sanções;

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i) Inexecução culposa, dentro dos prazos previstos, das obras ou instalação de equipamentos correspondentes ao Plano de Investimentos;

j) Não acatamento das decisões judiciais transitadas em julgado

k) Se durante 24 (vinte e quatro) meses consecutivos, por causas imputáveis à **Concessionária,** o tráfego for inferior a 30% do tráfego total previsto para o terminal.

3. A rescisão do contrato terá que ser justificada e fundamentada por escrito e apenas será declarada depois de préviamente ouvida a Parte faltosa e lhe ter sido concedido o prazo de 30 (trinta) dias para proceder à correcção da situação de incumprimento e esta o não fizer.

Artigo 41º
(Resgate)

1. A **Concedente** poderá proceder ao resgate da concessão por razões de interesse público, desde que tenha decorrido, pelo menos, metade do prazo do contrato, mediante indemnização da **Concessionária.**

2. A intenção de proceder ao resgate deverá ser comunicada à **Concessionária** com antecedência mínima de um ano sobre a data em que o mesmo produzirá efeitos.

3. A **Concessionária** terá direito a uma justa indemnização cujo valor corresponderá à actualização dos cash flow líquidos previstos até ao termo da concessão, à taxa Libor (um ano). Para efeito do cálculo dos cash flow previstos considera-se que a média aritmética dos últimos três anos será igual aos valores projectados até ao final da Concessão.

4. A **Concedente** assumirá, a partir da data do resgate (um ano após o aviso previsto no número 2 deste artigo) todos os direitos e obrigações da Concessionária e a titularidade das suas relações jurídicas no âmbito da Concessão, nomeadamente nos aspectos

referentes à exploração, pessoal contratado e todas as obrigações contraídas pela Concessionária anteriormente à data da notificação do resgate, com vista a assegurar a exploração normal do serviço.

5. A **Concedente** poderá assumir os compromissos contraídos pela **Concessionária** após a notificação do resgate, desde que resultem de acordo entre as Partes.

Artigo 42º
(Sequestro)

1. A **Concedente** poderá a título temporário ou provisório, tomar conta da exploração do terminal quando se der ou estiver eminente a cessação ou interrupção total ou parcial da exploração ou se mostrarem graves deficiências na respectiva organização e funcionamento ou no estado geral das instalações e do equipamento susceptíveis de comprometer a regularidade da exploração.

2. Quando se verificar o disposto na medida sancionatória prevista no número anterior, a **Concessionária** suportará os encargos resultantes da manutenção dos serviços e as despesas extraordinárias necessárias ao estabelecimento da normalidade da exploração, quando não puderem ser cobertos pelas taxas correspondentes.

3. Logo que cessem as razões de sequestro e a **Concedente** julgue oportuno, a **Concessionária** será avisada para retomar, no prazo que lhe for fixado, a normalidade da exploração.

4. Se a **Concessionária** não quiser ou não puder retomar a exploração ou, quando o tiver feito, continuarem a verificar-se graves deficiências na organização e funcionamento do terminal, a **Concedente** poderá declarar a imediata rescisão do Contrato.

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CAPÍTULO X
(Suspensão da Concessão)

Artigo 43º
(Casos de Força Maior)

1. Para os efeitos do presente contrato, tem-se como casos de força maior os eventos imprevisíveis cuja ocorrência não é evitável por acção das Partes e que ocasionem efeitos negativos directos sobre os direitos e obrigações assumidos pelas Partes neste Contrato.

2. A superveniência de eventos com o alcance e natureza acima referidos exonera, a Parte que invocar força maior, do cumprimento das obrigações decorrentes do presente contrato, mas apenas nos casos e na medida restritiva em que tais ocorrências hajam impedido o seu cumprimento pontual e atempado.

3. A Parte que invocar força maior deverá notificar a outra, por escrito e fundamentadamente, descrevendo os factos ou actos de força maior, respectiva prova, bem como os efeitos reais directamente resultantes, devendo a carta ser remetida dentro dos oito dias imediatamente a seguir ao seu conhecimento da ocorrência de força maior, salvo se a força maior for disso causa de impedimento.

4. As Partes, de boa fé, deverão envidar esforços para minorar ou remover os efeitos de força maior.

5. Se o caso de força maior ou as suas consequências se mantiverem por um período igual ou superior a 180 (cento e oitenta) dias consecutivos, qualquer das Partes poderá pôr termo ao contrato de concessão, desde que para o efeito faça um pré-aviso de 30 (trinta) dias.

6. Em caso de força maior e não havendo lugar ao termo da concessão, esta prorrogar-se-á automáticamente pelo período igual ao que durar a força maior.

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CAPÍTULO XI
Encargos da Concessão

Artigo 44º
(Caso de guerra e de Emergência Grave)

1. Em caso de guerra ou emergência grave a **Concedente** reserva-se o direito de gerir e explorar o serviço nas condições das leis aplicáveis.

2. Durante o período em que a **Concedente** exercer esse direito suspende-se, em relação a todo o objecto da concessão, o prazo a que se refere o **artigo 34º.**

Artigo 45º
(Renda da Concessão)

1.A **Concessionária** deverá pagar à **Concedente** uma renda anual que, embora única, se decompõe nos elementos que abaixo se referem:

a) **Renda fixa** é fixada da seguinte forma:

Ano 0 e Ano 1 – USD 1 300 000, 00 (um milhão e trezentos mil dólares)

Ano 2 – USD 1 400 000,00 (um milhão e quatrocentos mil dólares)

Ano 3 – USD 1 500 000,00 (um milhão e quinhentos mil dólares)

Ano 4 – USD 1 500 000,00 (um milhão e quinhentos mil dólares)

Ano 5 – USD 1 700 000,00 (um milhão e setecentos mil dólares)

Do ano 5 até ao final do contrato o valor da renda é de USD 1 700 000,00

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b) **Renda variável:**

b.1) 20% das taxas portuárias máximas de movimentação, tal como discriminadas nas tabelas V, VII e VIII, do Regulamento de Tarifas (Anexo III do Caderno de Encargos).

2. Para efeitos de cálculo da renda variável, a **Concessionária** deverá enviar à **Concedente** o manifesto da carga movimentada pelo terminal, com periodicidade mensal, dentro dos 5 dias seguintes ao mês a que disser respeito. Estes elementos deverão ser facultados pela **Concessionária** de forma automática, sem necessidade de solicitação prévia por parte da **Concedente.**

3. A renda anual será liquidada, pela **Concessionária,** do seguinte modo:

a) A renda fixa será liquidada mensalmente, entre os dias 1 e 15 do mês a que disser respeito;

b) A renda variável será liquidada, entre os dias 1 e 15 do mês seguinte ao da facturação;

c) O pagamento deverá ser feito mediante transferência bancária para conta a indicar pela **Concedente** ou por cheque visado.

4. Durante o prazo de execução das obras de reparação do Cais, o valor da renda fixa sofrerá uma redução proporcional à área imobilizada.

5. Caso a **Concessionária** deixe de pagar, de forma reiterada, a renda variável no prazo estabelecido na alínea b) do ponto 3 deste artigo, a **Concedente** fará prevalecer o seu direito através do desconto directo.

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Artigo 46º
(Actualização da Renda em moeda Nacional)

1. A renda fixa é paga em moeda nacional e actualizar-se-á na data de pagamento, em função da taxa de câmbio oficial.

2.As rendas variáveis serão pagas em moeda nacional. As rendas variáveis referentes a serviços facturados e recebidos em dólares dos Estados Unidos da América, serão objecto de actualização na data de pagamento.

3.Se porventura na liquidação de uma factura se verificar uma diferença entre o valor pago e o real, será emitida uma factura adicional.

Artigo 47º
(Outras Taxas)

A renda da concessão não dispensa o pagamento de outras taxas ou encargos previstos no regulamento de tarifas do Porto, aplicáveis às actividades da **Concessionária** e cujo valor não tenha sido considerado no conjunto da renda.

Artigo 48º
(Encargos a Terceiros)

São da responsabilidade da **Concessionária** as taxas ou encargos de outra natureza, inerentes à utilização dos bens e ao exercício das actividades concessionadas, que legalmente sejam exigíveis por outras entidades.

Artigo 49º
(Sanções)

1. A **Concessionária** fica sujeita a penalidades financeiras, quando incorra em situações de incumprimento, sendo as multas graduadas em função da gravidade do referido incumprimento.

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2. Para os efeitos do número anterior, o limite mínimo e máximo das sanções será fixado no Regulamento de Exploração do Terminal.

3. A intenção de aplicação de uma multa, será comunicada à concessionária que, no prazo de 30 (trinta) dias, poderá recorrer da decisão, justificando a causa do incumprimento.

4. As multas, uma vez aplicadas, após a resolução de qualquer recurso interposto pela **Concessionária,** tornam-se imediatamente eficazes, com dispensa de qualquer outra formalidade.

Artigo 50º
(Caução)

1. Para assegurar a satisfação de taxas ou outros encargos devidos à **Concedente,** a **Concessionária** depositará na tesouraria da Administração do Porto de Luanda - EP, no prazo de 30 (trinta) dias contados a partir da assinatura do presente contrato, uma caução global no contravalor de USD 1 972 250,00, assim formada:

a) **Caução de obras e instalações** – equivalente a 5% do valor das obras e instalações fixas previstas no Plano de Investimentos do Caderno de Encargos – USD 736 250,00;

b) **Caução do equipamento** – equivalente a 5% do valor da Primeira fase do Plano de Investimento para os equipamentos da concessão – USD 471 000,00;

c) **Caução de exploração e obrigações gerais** – equivalente a um semestre da renda fixa é determinada da seguinte forma:

- Ano 0 ..... USD 650 000,00
- Ano 1 ..... USD 650 000,00
- Ano 2 ..... USD 700 000,00
- Ano 3 ..... USD 750 000,00
- Ano 4 ..... USD 750 000,00
- Ano 5 ..... USD 850 000,00

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Do ano 5 até ao final do Contrato o valor da caução é de 850 000,00. A caução será revista trimestralmente na proporção em que o for a respectiva renda.

2. A caução será reconstituída no prazo de trinta dias após aviso da **Concedente** nesse sentido, sempre que dela seja levantada qualquer garantia nos termos e pela forma prevista neste contrato

3. A caução poderá ser substituída por garantia bancária.

Artigo 51º
(Seguros)

1. A **Concessionária** deverá constituir e manter contratos de seguro contra riscos inerentes à sua actividade, em seguradora nacional com dimensão adequada, assegurando a cobertura de danos materiais contra todos os bens que integram o estabelecimento da concessão, bem como a responsabilidade civil por acidentes de trabalho ou danos pessoais de qualquer natureza, cujo capital não poderá ser inferior ao contravalor de USD 1 000 000,00.

2. Para efeitos de financiamento do Plano de Investimentos, a **Concessionária** poderá, segundo os princípios constantes de qualquer acordo de financiamento bancário, atribuir ou criar seguros sobre:

a) Os seus direitos e interesses no âmbito do Contrato de Concessão;

b) Quaisquer direitos que possam vir a ser adquiridos de acordo com os termos do contrato de financiamento;

c) Quaisquer reclamações e/ou contingências e/ou reclamações futuras pela **Concessionária,** no âmbito do Contrato de Concessão.

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CAPÍTULO XII
Fiscalização

Artigo 52º
(Acção fiscalizadora)

1. A área da concessão, os serviços da **Concessionária** e quaisquer actividades exercidas, por ela ou por terceiros, estão sujeitos à fiscalização por parte da **Concedente** e pelas entidades que para o efeito sejam competentes.

2. Sempre que tal se mostre estritamente necessário, a **Concessionária** deverá proporcionar instalações privativas para os serviços de fiscalização da **Concedente** e das autoridades marítima, aduaneira e sanitária.

3. A **Concedente** poderá efectuar as visitas de inspecção que considere oportunas às instalações e dependências da concessão e destacar as pessoas que considere necessárias para controlar a aplicação correcta das normas de exploração vigentes.

4. A **Concedente** poderá efectuar a expensas suas, por si ou por terceiros, auditorias aos procedimentos relacionados com o meio ambiente.

Artigo 53º
(Acesso às Instalações)

1. A **Concessionária** não pode impedir ou dificultar o acesso dos agentes da **Concedente** às instalações da concessão, desde que devidamente identificados, devendo colocar à disposição deles os meios e documentos necessários ao correcto desempenho das suas funções.

2. Em caso de recusa, por motivos justificados, a **Concessionária** deverá participar de imediato e por escrito as razões de tal procedimento, ficando sujeita, caso o não faça ou não sejam procedentes as razões invocadas, às sanções previstas no presente Contrato ou no Regulamento de exploração do Porto.

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CAPÍTULO XIII
Outras Responsabilidades

Artigo 54º
(Responsabilidades Extra-Contratuais)

1. A **Concessionária** é responsável pela culpa ou pelo risco, nos termos da lei geral, por prejuízos causados em pessoas ou bens de terceiros que resultem da sua actividade.

2.A **Concessionária** responderá pelos prejuízos a que derem causa as entidades por si contratadas, nos termos em que o for o comitente.

CAPÍTULO XIV

Artigo 55º
(Equilíbrio Financeiro da Concessão)

1. A **Concessionária** terá direito ao equilíbrio financeiro da concessão nos termos do Artigo 17º do presente contrato.

2. Para efeitos do presente contrato, considera-se que o equilíbrio financeiro da concessão foi ou é susceptível de ser posto em causa, quando ocorram, nomeadamente, alguns dos seguintes factos, por imperativo de interesse público devidamente fundamentado:

   a) Alteração pelos órgãos de tutela, do regulamento de Tarifas dos Portos de Angola, desde que perturbe o equilíbrio da concessão;

   b) Redução da área da concessão, por determinação governamental;

   c) Ocupação temporária da área da concessão para actividades não remuneradas, em caso de guerra ou emergência grave;

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d) Investimentos adicionais, impostos pela **Concedente**, que onerem o volume de investimentos previstos no contrato.

e) Regulamentação da **Concedente** que onerem os custos de exploração.

3. Sempre que a **Concessionária** considere que o equilíbrio financeiro da concessão foi ou é susceptível de ser posto em causa, deverá do facto dar conhecimento, por escrito, à **Concedente** o mais tardar quinze dias depois de ter tomado conhecimento de tal facto.

4. A reposição do equilíbrio financeiro da concessão será requerida pela **Concessionária**, mediante comunicação escrita nesse sentido a solicitar o início das negociações, identificando o evento que possa dar lugar à referida reposição, devendo juntar todos os elementos susceptíveis de comprovar a pretensão e as razões invocadas, com menção expressa sobre a duração ou continuação no tempo do evento e/ou respectivos efeitos e possível quantificação.

5. No prazo máximo de 15 dias a contar da comunicação referida no número anterior, a **Concedente** pronunciar-se-á sobre ela, tendo em consideração, para além do conteúdo da comunicação da **Concessionária**, outros efeitos dos mesmos eventos, de que tenha conhecimento.

6. Nos 15 dias subsequentes, devem as partes acordar na quantificação dos efeitos produzidos pelo(s) evento)s) em causa.

7. Sempre que haja lugar à reposição do equilíbrio financeiro da concessão, essa reposição poderá ter lugar, através de uma das seguintes modalidades, consoante, de entre elas, a que, para o caso, for escolhida por acordo entre as Partes ou, na falta de acordo, através do processo de resolução de diferendos previsto nos artigos 56º e 57º do presente contrato:

a) atribuição de compensação;

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b) alteração do montante a pagar pela **Concessionária** a título de rendas variáveis;

c) alteração do plano de investimentos;

d) prorrogação do prazo da concessão;

e) propor, aos órgãos competentes, a alteração do tarifário máximo;

f) combinação das modalidades anteriores, ou qualquer outra forma que venha a ser acordada entre as Partes.

CAPÍTULO XV
Diferendos e Contencioso

Artigo 56º
(Processo Resolutivo)

Quaisquer diferendos emergentes da aplicação, interpretação ou integração das normas contratuais ou dos princípios gerais aplicáveis ao presente contrato, as Partes, quando a natureza dos diferendos o justifique, poderão fazer preceder o recurso à via arbitral da fase pré-contenciosa nos termos do artigo seguinte.

Artigo 57º
(Peritagem)

1. Para os efeitos do artigo anterior, as Partes nomearão por acordo, um perito ou grupo de peritos, os quais emitirão, dentro do prazo que as Partes fixarem, o seu parecer, propondo a resolução do diferendo segundo os princípios da equidade.

2. Uma vez aceite o recurso à via pré-contenciosa, obrigam-se as Partes a comportar-se de harmonia com os princípios de boa fé, facultando os elementos e prestando os esclarecimentos que sejam indispensáveis à acção dos peritos nomeados.

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Artigo 58º
(Resolução arbitral)

Não havendo lugar ao procedimento referido nos dois artigos anteriores, não sendo resolutivo o parecer dos peritos ou se alguma das Partes não se conformar com o parecer emitido, os diferendos serão submetidos a arbitragem nos tèrmos da Lei nº 16/03 de 25 de Julho.

Feito em Luanda, àos 17 de Janeiro 2005, em três exemplares, devidamente assinados e rubricados por ambas as Partes, cada um deles valendo como documento original.

P'LA CONCEDENTE **P'LA CONCESSIONÁRIA**

Silvio Barros Vinhas **Eduardo Veloso**

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ANEXO (I)
PLANTA GERAL DO TERMINAL

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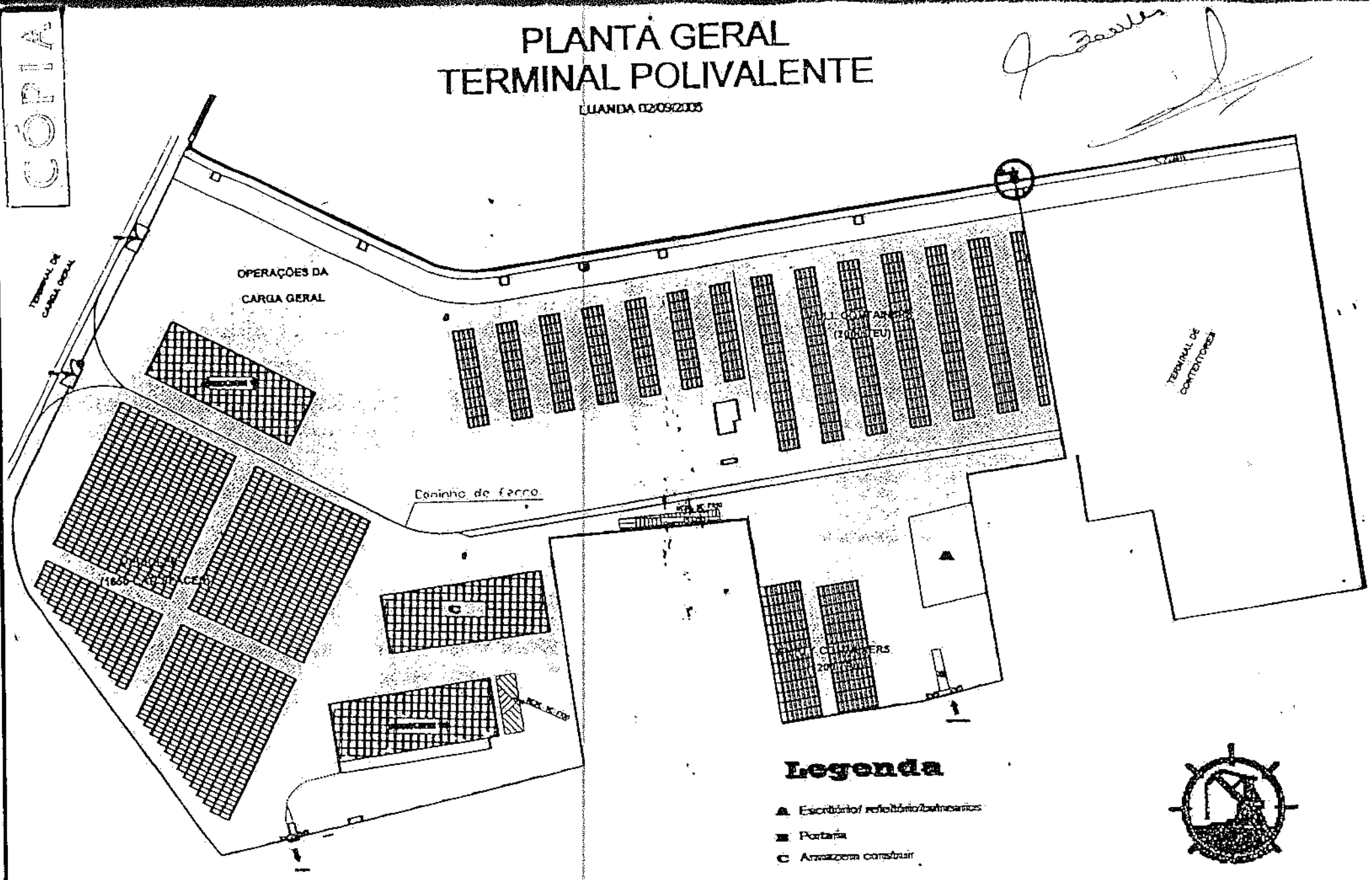
PLANTA GERAL
TERMINAL POLIVALENTE

LUANDA 02/09/2005



Legenda

- A Escritório/ refeitório/balneários
- P Portaria
- C Armazens construir

PORTO DE LUANDA

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ANEXO (II)
PLANO DE INVESTIMENTOS

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PLANO DE INVESTIMENTOS

CRONOGRAMA FÍSICO- FINANCEIRO

Estimativa de custos em USD

ACÇÃO	1ª FASE			2ª FASE			CUSTOS	
	ANOS							
	ANO 0	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	1ª FASE	2ª FASE
1, Obras							8.800.000,00	
1,1, Reparação do cais							360.000,00	
1,2, Reparação do Arm 16							525.000,00	
1,3, Reparação do Arm 18							280.000,00	
1,4, Remodelação do Arm 19							110.000,00	
1,5, Demolição das oficinas no TCI							1.700.000,00	
1,6, Escritórios/Portaria							300.000,00	
1,6, Balneários/Refeitório							840.000,00	
1,7, Reforço do pav existente							3.500.000,00	
1,8, Pav áreas não pavimentada								
1,9, Vedação							70.000,00	
1,9,1, Interna							250.000,00	
1,9,2, Externa							74.725.000,00	
Sub-total								
2, Equipamentos							3.000.000,00	3.000.000,00
2,1, 2 Guindastes polivalentes							466.666,66	233.333,33
2,2, 3 Guindastes móveis							100.000,00	
2,4, Báscula até 50Ton							150.000,00	
2,5, 1 Empilhadora 5 Ton							350.000,00	350.000,00
2,6, 2 Empilhadoraas 40Ton							300.000,00	
2,7, 2 Spreaders							3.600.000,00	3.600.000,00
2,8, 6 RTGs							800.000,00	600.000,00
2,9, 12 Tug Master							8.566.666,66	7.783.333,33
Sub-total								
3, Tecnologia e Informação							250.000,00	
3,1, Software gestão do terminal							250.000,00	
Sub-total								
3, Segurança							40.000,00	
3,1 Cancela autom. e torniquetes								150.000,00
3,2 Circuito fechado de televisão							40.000,00	150.000,00
Sub-total							23.681.666,66	7.933.333,33
Total								

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ANEXO (III)
OBJECTIVOS DE TRÁFEGO

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ANEXO III$_{(a)}$

CAPACIDADE DE MOVIMENTAÇÃO DE CONTENTORES PARA O TERMINAL POLIVALENTE

Com base nas características operacionais locais e em valores internacionalmente recomendados, os parâmetros a considerar são os seguintes:

Número de Postos de Acostagem	NB (number of berths)..... 2
N° de Pórticos por Posto	NGC (n° of gantry cranes)..... 1
Rendimento Médio	CPH (containers per hour).....20 cont/h
Período de trabalho Diário[1]	HPD (hours per day).....21 h/dia
Período de trabalho Anual	DPA (days per annum).....345 d/ano
Taxa de Ocupação dos Cais[2]	BOF (berth occupancy factor)...0,45

Donde a Capacidade de Movimentação Anual de Contentores Para os 2 Postos de acostagem é dada Por:

$$Q_{cont} = NB \times NGC \times CPH \times HPD \times DPA \times BOF$$

$$\mathbf{Q_{cont} = 130.410 \text{ contentores}}$$

Esta capacidade de movimentação de contentores não é exactamente igual ao tráfego de TEU/ano, uma vez que parte deste tráfego é realizado com contentores de 40 pés. Nas condições actuais, a quantidade de contentores de 40 pés é de aproximadamente 20% do tráfego total, o que determina uma relação TEU/ contentor = 1,20. No entanto, julgando que esta relação se mantenha no 1° ano do exercício, é de se considerar aqui uma relação de:

$$\mathbf{TEU/\ Contentor = 1,20}$$

Donde, para os 3 postos:

$$\mathbf{Q_{cont} = 156.492 \text{ TEU/ano}}$$

1 Período de trabalho correspondente a 3 turnos
2 Valor admissível para um conjunto de 2 a 3 postos de acostagem

ANEXO III$_{(b)}$

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CAPACIDADE DE MOVIMENTAÇÃO DE CARGA GERAL PARA O TERMINAL POLIVALENTE

1.- Com base nas caracteristicas operacionais locais e em valores internacionalmente recomendados, os parâmetros a considerar são os seguintes:

Rendimento Médio Por Terno	TGH (tonnes per gang hour)	30 t/h
Número de Ternos Por Navio	NG (number of gangs)	2,5 ternos
Periodo de trabalho Diário[3]	HPD (hours per day)	21 h/dia
Periodo de trabalho Anual	DPA (days per annum)	345 d/ano
Taxa de Ocupação dos Cais[4]	BOF (berth occupancy factor)	0,45

2.- Sendo a Capacidade Anual de Movimentação de carga geral por cada posto de acostagem é dada por:

$$Q_{cgeral} = TGH \times NG \times HPD \times DPA \times BOF$$

$$\mathbf{Q_{cgeral} = 244.518,75\ tons/\ posto{\cdot}ano}$$

3.- Donde a Capacidade mínima de Movimentação Carga diária em cada posto de acostagem será a seguinte:

$$\mathbf{Q_{cgeral} = 709\ tons/posto{\cdot}dia}$$

4.- OBS.:
Os rendimentos médios e capacidades de carga diária por posto de atracação (mencionados nos pontos 1 e 2 dos anexos III$_{(b)}$ e III$_{(b)}$, serão objecto de análise e renegociação entre a concedente e a concessionária, durante o quarto trimestre do 2° ano de vigência do contrato.
Esta avaliação reconhecerá os principais factores condicionantes da evolução verificada e perspectivará os desenvolvimentos futuros, buscando sempre melhorar a eficiência do terminal.

3 Periodo de trabalho correspondente a 3 turnos
4 Valor admissivel para um conjunto de 2 a 3 postos de acostagem

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ANEXO (IV)
GUINDASTES

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GUINDASTES DO PORTO DE LUANDA – EP

- **GUINDASTE NÚMERO DE ORDEM 34 – MARCA TAKRAF**

- **GUINDASTE NÚMERO DE ORDEM 20 – MARCA DEMAG**

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ANEXO (V)
SEGURANÇA

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PRINCÍPIOS GERAIS PARA A SEGURANÇA DO TERMINAL POLIVALENTE

- A instalação, a curto prazo, do sistema de cancelas electrónicas para o controlo do acesso de pessoas e viaturas;

- Instalação, a médio prazo, de um circuito fechado de televisão (CCTV);

- Construção, a curto prazo, de uma vedação em toda a área pertencente ao Terminal Polivalente. A vedação deve ter um suporte de cerca de 1 m, em alvenaria;

- Colocação, a curto prazo, de báscula para controlo das mercadorias, para um tráfego nos dois sentidos (entrada e saída);

- Aquisição de todo o equipamento necessário para a protecção e higiene dos trabalhadores (EPI), bem como da escolha da cor do fardamento, como forma de identificação;

- Identificação dos trabalhadores através do cartão magnético;

- Construção dos balneários;

- Reservar uma área para possíveis depósitos de mercadorias perigosas;

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- Constituição das equipas de 1ª e 2ª intervenção de prevenção contra incêndios;

- Aquisição de equipamentos contra incêndios, tais como: extintores, mangueiras para bocas de incêndio, tambores de areia, entre outros.

- Introdução de um sistema de RX, a médio/longo prazo (5/7 anos com o concurso da Alfândega e do Porto de Luanda-EP.

- Delimitação da área de operação, tornando-a de acesso restrito, sómente a trabalhadores do terminal;.

- Sistema integral de comunicação: telefone, fax, rádio e Internet, como serviços a serem prestados pela Administração do Porto de Luanda – EP, e a ser pago pelo Terminal, mediante contrato.

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ANEXO (VI)
PESSOAL

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PORTO DE LUANDA, E.P.

DIRECÇÃO DE ADMINISTRAÇÃO E RECURSOS HUMANOS

DEPARTAMENTO DOS RECURSOS HUMANOS

SECTOR DA FORÇA DE TRABALHO E SALÁRIOS

RELAÇÃO NOMINAL DE TRABALHADORES ADMITIDOS PELO TERMINAL DECARGA GERAL Nº 1 (UNICARGAS)

Nº Ord.	Nome	Nº mec.	Categoria Anterior	Categoria Actual	Data de nascimento	Data de admissão	Salário	Agregado familiar	Habilitações literárias	Obs
1	GERÓNIMO ANTÓNIO GUEVE	10026		SUPERVISOR DE MANUTENÇÃO	10.02.1957	05.12.1978	51.573.00		5ª CLASSE	
2	ANDRÉ MANUEL LUCOMBO	10048		CHEFE DO SECT.ADMINISTRATIVO	24.04.1958	29.03.1990	38.663.00		8ª CLASSE	
3	EDUARDO MANUEL NOTÍCIA	30512		CHEFE DO SECT. PLAN.CONTROLO	21.02.1967	10.06.1995	38.663.00		9ª CLASSE	
4	JOSÉ A. COSTA E SOUDA	30085		CHEFE DE SEC. P.CONTENTORES	23.08.1966	20.03.1993	32.770.00		9ª CLASSE	
5	FERNANDO MANUEL DA SILVA	10021		CHEFE DE SEC. ADMINISTRATIVA	07.05.1958	12.08.1992	32.770.00		8ª CLASSE	
6	JOÃO SEBASTIÃO ANTÓNIO	40001		CHEFE DE SEC. P. AUTO	25.08.1950	15.01.1979	32.770.00		4ª CLASSE	
7	EDUARDO F. CASTRO	30096		RESPONSÁVEL DE MÁQUINAS	08.08.1953	24.06.1977	32.770.00		4ª CLASSE	
8	MÁRIO SAMUEL	30482		CHEFE DE SECÇÃO DE LIMPEZA	13.08.1965	17.10.1994	32.770.00		7ª CLASSE	
9	MARIA C. J.C. LEOPOLDO	30454		RESPONSÁVEL DO REFEITÓRIO	20.04.1950	17.10.1994	25.471.00		4ª CLASSE	
10	ANTÓNIO SORARES FRANCO	30612		OP.COMPUTADOR DE 2ª CLASSE	10.07.1976	12.09.2002	19.913.00		11ª CLASSE	
11	JOSÉ JOÃO LOPES DE LEMOS	30378		CHEFE DE SEC. C. DADOS	13.03.1971	04.06.1994	32.770.00		9ª CLASE	
12	MARIA R. FRANCISCO	30452		CHEFE DE SEC. ADMINISTRATIVA	15.11.1975	25.09.1994	32.770.00		8ª CLASSE	
13	MANUEL F. COSTA E SILVA	30022		CHEFE DO SECT. TAXAÇÃO	26.09.1972	17.05.1993	38.663.00		8ª CLASSE	
14	AIDA ANTÓNIO AUGUSTO	30497		ESCRITURÁRIA DE 1ª CLASSE	12.02.1955	17.10.1994	21.318.00		8ª CLASSE	
15	ADÃO ANDRÉ DA COSTA	30076		ESCRITURÁRIO DE 1ª CLASSE	08.05.1956	10.03 1983	21.318.00		5ª CLASSE	
16	BERNARDA A. F.PASCOAL	30477		ESCRITURÁRIA DE 1ª CLASSE	20.04.1962	17.10.1994	21.318.00		6ª CLASSE	
17	LUZIA A . F. MIGUEL	30092		ESCRITURÁRIA DE 1ª CLASSE	06.07.1958	02.05.1986	21.318.00		4ª CLASSE	
18	SARA MANUEL CANGULO	30094		ESCRITURÁRIA DE 1ª CLASSE	22.-07.1958	22.02.1978	21.318.00		4ª CLASSE	
19	FILOMENO JÚLIO DE ALMEIDA	40686		ESCRITURÁRIO DE 2ª CLASSE	20.06.1969	26.02.1994	19.447.00		8ª CLASSE	
20	ANTÓNIO BARROS	30058		ESCRITURÁRIO DE 3ª CLASSE	13.06.1949	01.08.1984	18.310.00		4ª CLASSE	
21	LENIM DA CONCEIÇÃO M. PANZO	30621		ESCRITURÁRIA DE 1ª CLASSE	07.11.1977	30.09.2003	21.318.00		12ª CLASSE	
22	HERCULANO PEDRO ZEFERINO	40665		ESCRITURÁRIO DE 1ª CLASSE	07.11.1964	26.02.1994	21.318.00		4ª CLASSE	
23	EVARISTO ANTÓNIO	30495		ESCRITURÁRIO DE 3ª CLASSE	26 . 10.1968	31.01.1995	18.310.00		5ª CLASSE	
24	JOSÉ MATEUS GINGA	30486		ESCRITURÁRIO DE 3ª CLASSE	18.06.1974	17.10.1995	18.310.00		4ª CLASSE	
25	PAULA GOMES MASSANGO	30610		ESCRITª DACTª 3ª CLASSE	02.04.1983	16.06.2003	16.704.00		8ª CLASSE	
26	LÍDIA AGOSTINHO FERREIRA	30568		EMPREGADA DE MESA	25.04.1957	23.09.1995	16.906.00		1ª CLASSE	
27	NAZARÉ MARIA DINIZ	30622		EMPREGADA DE MESA	13.02.1966	08.09.2003	16.906.00		6ª CLASSE	
28	SERAFINA FRANCISCO GOUVEIA	30498		EMPREGADA DE MESA	14.06.1950	17.10.1994	16.906.00		NENHUMA	
29	FELIZARDA ANTÓNIO F. AVELINO	30352		RESPONSÁVEL DO ARQUIVO	22.031.969	14.03.1994	25.471.00		6ª CLASSE	
30	MARIA CELESTINA A . DE ALMEIDA	20018		TÉC. M.EQUIP.EST.2ª CLASSE	01.06.1950	12.08.1994	26.408.00		9ª CLASSE	

31	MANUEL MARQUES	40690		RESPONSÁVEL DO ARQUIVO	20.01.1959	13.03.1994	25.471.00		8ªCLASSE	
32	NÍDIA MALENE MACEDO CARDOSO	30620		OP. COMPUT. DE 1ª CLASSE	17.06.1981	21.02.2003	21.652.00		10ª CLASSE	
33	PATRICE LUÍS MEIRA HENRIQUES	20029		TÉC. M. ELECT. DE2ª CLASSE	.02.12.1977	09.03.2004	32.225.00		12ª CLASSE	
34	JACOB LUCAS CHICUME	30324		CONTRAMARCADOR	09.03.1976	04.11.1993	16.098.00		5ª CLASSE	
35	SILVEIRO ASSOREIRA CASSULE	40557		PORTALÓ	20.06.1959	19.07.1993	18.712.00		NENHUMA	
36	BELMIRO VENÂNCIO	30082		CONFERENTE DE 1ª CLASSE	02.05.1956	01.08.1984	22.459.00		4ª CLASSE	
37	FRANCISCO ÂNGELO J.TAVIRA	30435		CONFERENTE DE 1ª CLASSE	18.03.1972	03.09.1997	22.459.00		8ª CLASSE	
38	LUCIANO BERNARDO	30071		CONFERENTE DE 1ª CLASSE	25.08.1950	07.05.1985	22.459.00		4ª CLASSE	
39	MANUEL ANTÓNIO CAXALA	40670		CONFERENTE DE 1ª CLASSE	10.12.1969	26.02.1993	22.459.00		7ª CLASSE	
40	JOSÉ CAPATA GOLOMBOLE	30555		CONFERENTE DE 2ª CLASSE	25.07.1960	31.07.1997	22.126.00		8ª CLASSE	
41	FERNANDO BANDE			CONFERNTE DE 2ª CLASSE		23.06.2003	22.126.00			
42	MANUEL MIGUEL QUILENGUE	40708		CONFERNTE DE 2ª CLASSE	16.09.1966	02.04.1994	22.126.00		6ª CLASSE	
43	MIGUEL FRANCISCO J.PAULO	30437		CONFERENTE DE 2ª CLASSE	13.05.1953	12.08.1994	22.126.00		8ª CLASSE	
44	NORBERTO MARTINS FERNANDES	30554		CONFERENTE DE 2ª CLASSE	13.07.1965	10.05.1995	22.126.00		8ª CLASSE	
45	SOZINHO ALBERTO	30344		CONFRENTE DE 2ª CLASSE	07.07.1962	01.02.2004	22.126.00		8ª CLASSE	
46	ANTÓNIO SEBASTIÃO D.NETO	40702		CONFERENTE DE 3ª CLASSE	10.12.1961	13.03.1994	18.712.00		8ª CLASSE	
47	ACÁCIO AUGUSTO PANZO	40667		CONFERENTE DE 3ª CLASSE	07.05.1967	26.02.1994	18.712.00		6ª CLASSE	
48	BERNARDO SALVADOR	30565		CONFERENTE DE 3ª CLASSE	28.02.1967	31.07.1995	18.712.00		8ª CLASSE	
49	FORTUNATO RAMIRO MIGUEL	30493		CONFERENTE DE 3ª CLASSE	10.01.1957	17.10.1994	18.712.00		6ª CLASSE	
50	GONÇALO ZOVO PEREIRA	30548		CONFERENTE DE 3ª CLASSE	12.08.1963	01.06.1995	18.712.00		8ª CLASSE	
51	JOSÉ VADIANO GONÇALVES	40601		CONFERENTE DE 3ª CLASSE	07.01.1957	21.11.1993	18.712.00		8ª CLASSE	
52	JOÃO CRISTÓVÃO DOMINGOS	40555		CONFERENTE DE 3ª CLASSE	10.11.1962	19.07.1993	18.712.00		8ª CLASSE	
53	JANUÁRIO DA SILVA	40653		CONFERENTE DE 3ª CLASSE	09.05.1967	21.11.1993	18.712.00		8ª CLASSE	
54	MARCELINO JOÃO F.VAN-DÚNEM	30322		CONFERENTE DE 3ª CLASSE	13.08.1973	10.07.1993	18.712.00		8ª CLASSE	
55	ROMEU SÉRGIO BRAGA	40570		CONFERENTE DE 3ª CLASSE	25.07.1973	19.07.1993	18.712.00		8ª CLASSE	
56	VICTORIANO JOÃO	40806		CONFERENTE DE 3ª CLASSE	11.03.1964	24.07.1994	18.712.00		8ª CLASSE	
57	VASCO ANTÓNIO DOS S. CUNHA	40539		CONFERENTE DE 3ª CLASSE	03.05.1964	19.07.1993	18.712.00		6ª CLASSE	
58	VASCO SAYENGUE	40540		CONFERENTE DE 3ª CLASSE	05.12.1965	19.07.1993	18.712.00		6ª CLASSE	
59	ERMELINDA BAPTISTA QUARESMA	40095		OP. MÁQUINA DE 1ª CLASSE	24.01.1961	09.10.1989	23.269.00		5ª CLASSE	
60	AMERICO VILARES EPALANGA	40461		OP. MÁQUINA DE 1ª CLASSE	10.12.1975	01.03.1991	23.269.00		4ª CLASSE	
61	ABEL DOS SANTOS	40821		OP. MÁQUINA DE 2ª CLASSE	01.07.1962	13.10.1994	22.796.00		8ª CLASSE	
62	MICOLO PEDRO DE SOUSA	30551		EMPREGADA DE LIMPEZA	02.03.1961	01.06.1995	16.098.00		4ª CLASSE	
63	BERNARDO MORAIS JIMBO	40824		ESTIVADOR	25.12.1968	13.10.1994	17.444.00		5ª CLASSE	
64	MARTINHO ELAVOCO	40830		ESTIVADOR	25.9.1969	13.10.1994	17.444.00		6ª CLASSE	
65	MOISÉS NGOLA LESA	40553		ESTIVADOR	21.07.1968	19.07.1993	17.444.00		5ª CLASSE	
66	ANDRÉ FRANCISCO	40701		ESTIVADOR	03.03.1951	13.06.1998	17.444.00		3ªCLASSE	

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DIRECÇÃO DE ADMINISTRAÇÃO E RECURSOS HUMANOS

DEPARTAMENTO DOS RECURSOS HUMANOS

SECTOR DA FORÇA DE TRABALHO E SALÁRIOS

RELAÇÃO NOMINAL DE TRABALHADORES DO PORTO CEDIDOS AO TERMINAL DE CARGA GERAL Nº 2 UNICARGAS

Nº Ord.	Nome	Nºmec.	Categoria		Data de nascimento	Data de admissão	Salário	Agregado familiar	Habilitações literárias	Obs
			Anterior	Actual						
1	Franco Figueira			Ch.Sect.Oper.	110.358	24.08.80	30,463.00	10 filhos	7ª classe	
2	Agostinho F.J. Van-Duném	9.218		Ch.SectR.Hu.	30.06.61	02.01.80	30,463.00	7 filhos	8ª classe	
3	Domingos David	83.273		Ch/Sec.Cont.	30.09.62	08.06.83	24,570.00	7 filhos	8ª classe	
4	António Francisco	84.077		Ch/Sec.Conf.	19.06.57	17.02.84	24,570.00	11 filhos	8ª classe	
5	José Mateus Neto	12.968		(Conf.) ch.zona	04.06.46	22.03.73	29,320.00	12 filhos	4ª classe	
6	Pedro Manuel António		Asst/Maq.	Chefe/secção	05.04.48	03.08.76	24,570.00	9 filhos	8ª classe	
7	Miguel Manuel João		Conf. 1ª	Resp/arq.Proc	05.05.54	19.09.75	17,271.00	9 filhos	4ª classe	
8	Matias Caetano		Conf. 1ª	Resp/arq.Proc	10.01.58	03.08.84	17,271.00	7 filhos	7ª classe	
9	Pedro Francisco		Estivador	Estivador	04.10.54	04.08.84	9,244.00	5 filhos	4ª classe	
10	Elisa Luvumbi			Escrit° 1ª	08.12.54	14.07.83	13,118.00	3 filhos	5ª classe	
11	Carlos Quizuela			Escrit° 1ª	05.03.54	22.07.84	13,118.00	9 filhos	7ª classe	
12	Maria Hélena Cafala			Emp. Mesa	17.01.48	02.09.83	8,706.00	7 filhos	2ª classe	
13	Rosa Domingos Julio			Taxadora 1ª	22.08.60	18.10.83	17,201.00	3 filhos	12ª classe	
14	Armindo Gicossa			Portaló	06.04.52	11.11.84	10,512.00	5 filhos	Analfabeto	
15	Simão Gaspar Mateus			Estivador	11.10.58	24.02.81	9,244.00	8 filhos	5ª classe	
16	Augusto José Golome			Portaló	05.05.53	08.03.84	10,512.00	4 filhos	2ª classe	
17	Barros Pedro	84.504	Estivador	Portaló	18.12.52	01.10.84	10,512.00	6 filhoa	4ª classe	
18	Cristovão Zua	841.049	Estivador	Estivador	10.07.51	24.10.84	9,244.00	7 filhos	4ª classe	
19	Domingos Janipri Manuel	18.709		(Estiv.)portaló	07.05.56	20.10.83	10,512.00	5 filhos	5ª classe	
20	Eduardo Magalhães	19.114		(Estiv.)portaló	10.08.52	08.02.84	10,512.00	7 filhos	4ª classe	
21	Gomes Mendes Quituxi		Estivador	Portaló	12.10.59	24.05.80	10,512.00	10 filhos	5ªclasse	
22	Jorge Capitão		Estivador	Portaló	06.02.56	13.01.82	10,512.00	6 filhos	5ª classe	
23	Joaquim J. José		Estivador	Portaló	09.01.60	10.01.77	10,512.00	6 filhos	2ª classe	

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Nº Ord.	Nome	Nº Mec.	Categoria Anterior	Actual	nascimento	admissão	Salário	familiar	literárias	
24	Jacinto Geremias	840.915		(Estiv.)portaló	02.03.50	10.10.84	10,512.00	8 filhos	5ª classe	
25	Lucas Bungo	840.893		(Estiv.)portaló	05.05.55	09.10.84	10,512.00	8 filhos	5ª classe	
26	Abel António Muangongo			Conferente 1ª	10.08.61	12.10.82	14,259.00	9 filhos	8ª classe	
27	Alfreles A. Anibal Malafaia			Conferente 1ª	02.01.66	28.06.91	14,259.00	4 filhos	8ª classe	
28	Agostinho João Lemos			Conferente 1ª	04.01.67	08.08.88	14,259.00	5 filhos	7ª classe	
29	Alberto Constantino Queta			Conferente 1ª	15.03.55	01.12.88	14,259.00	10 filhos	6ª classe	
30	António Manuel A Francisco	842.683		Conferente 1ª	29.05.58	19.10.87	14,259.00	9 filhos	6ª classe	
31	Adão de Jesus Miguel			Conferente 1ª	12.02.58	18.04.84	14,259.00	8 filhos	7ª classe	
32	Armando Figueira Quinhango			Conferente 1ª	02.06.61	05.09.87	14,259.00	16 filhos	6ª classe	
33	Bernardo João	14.409		Conferente 1ª	25.06.46	24.01.75	14,259.00	8 filhos	4ª classe	
34	Bloquele Pacassa			Conferente 1ª	24.07.57	15.10.84	14,259.00	14 filhos	8ª classe	
35	Didisa Ndombasi	81.091		Conferente 1ª	30.07.61	02.09.81	14,259.00	13 filhos	10ª classe	
36	Francisco Puto	81.263		Conferente 1ª	12.07.60	02.02.81	14,259.00	4 filhos	8ª classe	
37	Ferreira Buila			Conferente 1ª	12.09.60	03.06.84	14,259.00	8 filhos	6ª classe	
38	José Peheleca	84.157		Conferente 1ª	26.06.57	28.05.84	14,259.00	10 filhos	7ª classe	
39	José João Falcão	5.378		Conferente 1ª	05.05.58	15.12.78	14,259.00	7 filhos	7ª classe	
40	José Quissongo	00.481		Conferente 1ª	24.09.56	20.10.82	14,259.00	5 filhos	6ª classe	
41	Lourenço Augusto	842.587		Conferente 1ª	12.04.68	05.10.87	14,259.00	3 filhos	6ª classe	
42	Manuel Bernardo António	5.419		Conferente 1ª	01.10.60	16.02.78	14,259.00	6 filhos	4ª classe	
43	Manecas João Buba			Conferente 1ª	24.12.64	10.10.84	14,259.00	5 filhos	7ª classe	
44	Mateus Sebastião Domingos			Conferente 1ª	06.05.54	20.07.74	14,259.00	8 filhos	5ª classe	
45	Pedro Tomas	99.579		Conferente 1ª	20.10.59	20.11.80	14,259.00	5 filhos	8ª classe	
46	Sebastião Luís Cuba	30.312		Conferente 1ª	02.01.54	26.11.75	14,259.00	5 filhos	4ª classe	
47	Victor Golo			Conferente 2ª	20.01.66	01.10.84	14,259.00	6 filhos	8ª classe	
48	Tito António Malanga			Conferente 3ª	13.01.62	14.03.81	13,926.00	7 filhos	6ª classe	
49	Aurélio Canjo			Conferente 3ª	06.05.63	28.12.88	10,512.00	4 filhos	3ª classe	
50	Domingos José Correia	840.604		Conferente 3ª	09.09.57	20.10.84	10,512.00	6 filhos	5ª classe	
51	Cole Aurélio	30.057		Enc./Navio	09.05.53	02.02.72	15,792.00	8 filhos	4ª classe	
52	Feliciano Domingos	840.939		Enc./Navio	01.03.49	08.10.84	15,792.00	10 filhos	7ª classe	

53	Afonso Miguel			Enc/Porão	07.01.57	02.04.79	11,245.00	10 filhos	4ª classe	
54	Francisco Laurindo Nequefela	00.185		Enc/Porão	22.11.54	02.04.85	11,245.00	7 filhos	4ª classe	
55	Francisco Sassapa	841.419		Enc/Porão	24.02.49	28.10.74	11,245.00	6 filhos	1ª classe	
56	Francisco José Santana	15.176		Enc/Porão	06.06.48	11.75	11,245.00	5 filhos	5ª classe	
57	João Ngunza	30.539		Enc/Porão	10.01.59	19.04.89	11,245.00	5 filhos	5ª classe	
58	José Filipe	842.918	Estivador	Enc/Porão	07.08.52	04.11.75	11,245.00	5 filhos	1ª classe	
59	Morais Francisco Bau			Enc/Porão	13.04.43	01.01.84	15,792.00	5 filhos	4ª classe	
60	Viegas Vunge Manuel	30.284		Enc/Porão	09.06.50	19.06.71	29,320.00	7 filhos	5ª classe	
61	Jorge Graça	11.864		(Enc/nav)ch/zona	05.05.53	08.08.74	29,320.00	4 filhos	5ª classe	
62	Joaquim José Lemos	14.528		Chef/Zona	25.04.64	28.08.82	25,305.00	9 filhos	8ª classe	
63	Sebastião António	99.139		Chef/Zona Ajt	03.05.56	13.12.82	25,305.00	6 filhos	8ª classe	
64	Victor Morais	18.056		Chef/Zona Ajt	08.09.55	11.05.79	8,706.00	3 filhos	4ª classe	
65	Joaquim Bernardo Ngola	00.631		Ajdt/Carpinte	25.12.44	04.01.67	7,898.00	8 filhos	2ª classe	
66	Laurindo Hossi	70.380		Arrumador	02.11.54	01.09.81	15,069.00	3 filhos	4ª classe	
67	Joaquim António Miguel	81.137		Maq.Guind.1ª	26.04.48	26.08.78	15,069.00	6 filhos	6ª classe	
68	Mauricio Rodrigues Almeida			Maq.Guind.1ª	22.09.62	22.06.81	14,598.00	4 filhos	6ª classe	
69	Domingos C.Carlos Campos			Maq.Guind.2ª	28.04.60	05.02.84	14,598.00	4 filhos	4ª classe	
70	Pascoal António Augusto ,			Maq.Guind.2ª	07.04.57	03.05.84	13,048.00	6 filhos	4ª classe	
71	António Joaquim da Silva			Maq.Guind.3ª	13.06.56	18.04.84	13,048.00	9 filhos	4ª classe	
72	Carlos Quissanga Cangundo	84.120		Maq.Guind.3ª	03.03.59	16.08.90	14,598.00	4 filhos	4ª classe	
73	João Fernando Ginga			Maq.Guind.2º	11.12.58	04.10.78	15,069.00	5 filhos	7ª classe	
74	Paulo Tussoco José			Op.Eq.Aut.1ª	03.01.56	09.09.58	15,069.00	5 filhos	4ª classe	
75	Agostinho Feidão			Op.Eq.Aut.1ª	08.07.57	09.09.78	15,069.00	6 filhos	4ª classe	
76	Martins Simão			Op.Eq.Aut.1ª	15.04.55	12.10.82	15,069.00	12 filhos	4ª classe	
77	David Lundemico	11.426		Op.Eq.Aut.1ª	08.07.56	12.10.82	15,069.00	7 filhos	3ª classe	
78	Manuel António Gabriel			Op.Eq.Aut.1ª	22.05.57	11.01.80	15,069.00	4 filhos	4ª classe	
79	Xavier Figueira Nzambi	8.051		Op.Eq.Aut.1ª	26.04.57	04.12.82	15,069.00	6 filhos	6ª classe	
80	João Fonseca	18.191		Op.Eq.Aut.1ª	11.02.47	20.07.84	15,069.00	6 filhos	4ª classe	
81	Sabalo Cardoso			Op.Eq.Aut.1ª	01.04.54	03.06.80	9,244.00		3ª classe	
82	Mateus Muondo Dala	00.147		Estivador	20.12.44	10.01.83	9,244.00	7 filhos	1ª classe	
83	Clemente Seachilia	99.876		Estivador						

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Nº Ord.	Nome	Nº	Anterior	Actual	nascimento	admissão	Salário	familiar	Escolaridade	
84	Luis Fernando D. Gaspar	843.039		Op:Eq.Aut.3ª	29.10.52	10.02.89	14,259.00	4 filhos	4 classe	
85	Manuel Francisco	99.407		Operador3ª	06.06.57	27.12.83	14,259.00	14 filhos	3ª classe	
86	Fernando Curso	8.420.612		Guinchelro	03.03.50	06.07.84	10,512.00	10 filhos	3ª classe	
87	António Sabalo	842.482		Guincheiro	28.11.69	01.10.87	10,512.00	4 filhos	6ª classe	
88	Fernando Ferráz	82.957		Estivador	09.06.57	18.09.73	10,512.00	10 filhos	Anafalbeto	
89	José Graça Kapanda			Estivador	06.01.58	07.10.79	10,512.00	4 filhos	1ª classe	
90	Paulino Afonso	840.156		Estivador	04.10.59	15.06.84	10,512.00	8 filhos	3ª classe	
91	João Ferráz	840.064		Estivador	14.04.56	18.10.84	10,512.00	7 filhos	4ª classe	
92	Bernada Wimbo	841.474		Emp./Limpeza	18.12.59	16.02.85	7,898.00	5 filhos	1ª classe	
93	Francisco José Missengo	11.268		Emp./Limpeza	25.02.63	03.12.81	7,898.00		2ª classe	
94	Jacinto Ngola	840.297		Estivador	22.12.46	13.08.84	7,898.00	9 filhos	1ª classe	
95	Mateus Manuel			Emp./Limpeza	12.07.44	20.06.68	7,898.00	2 filhos	1ª classe	
96	Guilherme Casseba Panzo	841.266		Ch./Brigada	10.06.52	22.08.84	10,512.00	8 filhos	6ª classe	
97	Agostinho Figueira			Estivador	21.03.57	07.03.80	9,244.00	3 filhos	4ª classe	
98	Garcia Ficial Ngola	842.484		Estivador	06.04.54	01.10.87	9,244.00	4 filhos	4ª classe	
99	Miguel Muanha			Estivador	01.01.61	07.10.87	9,244.00	4 filhos	3ª classe	
100	Manuel Tchivangi			Estivador	1956	25.10.87	9,244.00	3 filhos	3ª classe	
101	Santos Afonso			Estivador	10.07.50	15.08.81	9,244.00	8 filhos	4ª classe	
102	Domingos António Fula	840.657		Ch./Brigada	24.02.57	30.10.84	10,512.00	5 filhos	4ª classe	
103	Augusto Quitongo Massango			Estivador	02.01.48	18.10.84	9,244.00	8 filhos	2ª classe	
104	João Fernando			Estivador	04.06.55	28.07.93	9,244.00	5 filhos	1ª classe	
105	Rogeiro Vieira			Estivador	07.01.61	13.10.87	9,244.00	5 filhos	4ª classe	
106	Rui Abilio			Ch./Brigada	07.03.53	09.11.82	10,512.00	4 filhos	6ª classe	
107	Abel Caluleme			Estivador	28.10.51	09.10.84	9,244.00	1 filho .	4ª classe	
108	Domingos Severino	83.228		Estivador	13.03.55	21.04.83	9,244.00	5 filhos	2ª classe	
109	Francisco Damião	840.557		Estivador	25.04.55	30.10.85	9,244.00	6 filhos	3ª classe	
110	Jocas Sapalalo	840.775		Estivador	05.09.46	16.11.84	9,244.00	2 filhos	3ª classe	
111	Manuel Catema Mongala	11.058		Estivador	25.08.55	02.12.81	9,244.00	5 filhos	1ª classe	
112	Victor Nidunduma	841.300		Estivador	08.02.49	11.02.85	9,244.00	10 filhos	4ª classe	
113	José Cavambo	99.779		Ch./Brigada	10.04.54	26.06.78	10,512.00	4 filhos	4ª classe	
114	Costa Cacoije	19.486		Estivador	13.06.58	08.12.82	9,244.00	8 filhos	3ª classe	
115	Miguel Sampalo				01.02.50	03.02.82	9,244.00	4 filhos	1ª classe	
116	Sebastião Mamboca	842.319		Ch./Brigada	07.01.55	05.10.87	10,512.00	6 filhos	Analfabeto	

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117	António Fernando Pires	18.047	Estivador	02.06.54	25.08.58	9,244.00	6 filhos	2ª classe	
118	Armindo António Bande		Estivador	06.06.53	23.10.85	9,244.00	6 filhos	3ª classe	
119	Domingos Pedro Domingos	99.458	Estivador	19.04.58	17.10.83	9,244.00	5 filhos	4ª classe	
120	João Simão Muenembala	18.445	Estivador	04.02.55	14.01.83	9,244.00	5 filhos	1ª classe	
121	Mateus António Gomes	99.421	Estivador	16.09.58	17.10.82	9,244.00	8 filhos	3ª classe	
122	Pinto Estevão Bamde	99.740	Estivador	05.05.51	13.04.83	9,244.00	4 filhos	3ª classe	
123	Valenim Changamaleli	99.440	Estivador	03.12.59	19.04.89	9,244.00	6 filhos	5ª classe	
124	António Miranda	842.928	Estivador	10.09.55	16.07.87	9,244.00	6 filhos	1ª classe	
125	Augusto Texeira da Silva		Estivador	01.02.59	05.10.84	9,244.00	7 filhos	4ª classe	
126	António José Bucha	840.539	Estivador	23.08.55	06.10.87	9,244.00	7 filhos	4ª classe	
127	Estevão Sebastião		Estivador	03.10.53	15.12.78	9,244.00	6 filhos	1ª classe	
128	João Ginga Pedro	5.388	Estivador	03.06.58	05.04.84	9,244.00	3 filhos	5ª classe	
129	Rui Manuel da Silva		Estivador	18.01.50	11.02.84	10,512.00	4 filhos	1ª classe	
130	Oliveira Herugnel		Ch./Brigada	10.06.54	04.12.81	9,244.00	4 filhos	1ª classe	
131	Adelino Golua		Estivador	20.04.58	14.12.82	9,244.00	6 filhos	4ª classe	
132	Fernando Celestino Francisco	99.835	Estivador	25.07.47	20.12.82	9,244.00	4 filhos	4ª classe	
133	Isaac Muecalia		Estivador	08.09.54	13.02.80	9,244.00	6 filhos	3ª classe	
134	Lucas Tonga Fitacany	8.492	Estivador	01.01.51	11.11.89	9,244.00	4 filhos	3ª classe	
135	Mateus Joveta		Estivador	04.10.59	16.11.81	9,244.00	6 filhos	5ª classe	
136	Manuel Bernardo	81.153	Estivador	13.08.54	05.11.81	10,512.00	6 filhos	4ª classe	
137	David Umba	11.455	Ch./Brigada	10.08.51	25.08.75	9,244.00	6 filhos	1ª classe	
138	Alcino Viana		Estivador	02.02.54	25.10.82	9,244.00	3 filhos	1ª classe	
139	António Júlio	30.636	Estivador	01.08.50	02.12.82	9,244.00	7 filhos	2ª classe	
140	Fernando Francisco Gonga	99.168	Estivador	15.10.57	12.02.81	9,244.00	4 filhos	3ª classe	
141	José Ernesto F.Sambawgo		Estivador	10.04.52	19.04.99	10,512.00	5 filhos	4ª classe	
142	Manuel Escovalo	842.914	Ch./Brigada	27.09.52	25.08.80	9,244.00	5 filhos	4ª classe	
143	Augusto Dengue		Estivador	04.09.55	25.10.85	9,244.00	4 filhos	3ª classe	
144	José Feka		Estivador	04.04.55	02.10.82	9,244.00	7 filhos	4ª classe	
145	Ramos Gouveia		Estivador	15.05.52	18.02.85	9,244.00	6 filhos	1ª classe	
146	António Cossecala	841.391	Estivador	30.11.61	03.02.81	9,244.00	4 filhos	2ª classe	
147	António Joaquim	15.136	Estivador						

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149	Bernardo Satapi	99.530		Estivador	11.05.52	22.02.83	9,244.00	6 filhos	3ª classe	
150	Frederico Tchingonji	841.342		Estivador	04.06.49	08.01.81	9,244.00	7 filhos	2ª classe	
151	José Fernandes			Estivador	02.03.53	24.10.84	9,244.00	9 filhos	2ª classe	
152	Lourenço Joaquim da Silva	15.975		Estivador	03.01.55	24.05.80	9,244.00	4 filhos	4ª classe	
153	Manuel Graça Lopes	18.603		Estivador	15.05.53	09.09.75	9,244.00	12 filhos	2ª classe	
154	João Valente	99.311		Ch./Brigada	22.04.53	18.10.83	9,244.00	8 filhos	Analfabeto	
155	António Manuel Gaspar	842.533		Estivador	20.12.57	23.10.82	10,512.00	6 filhos	4ª classe	
156	Martinho Paulino			Estivador	04.06.58	06.10.87	9,244.00	9 filhos	Analfabeto	
157	Miguel da Silva	841.459		Estivador	12.02.55	25.02.85	9,244.00	5 filhos	3ª classe	
158	Manuel Luciano			Estivador	02.10.55	14.02.84	9,244.00	8 filhos	2ª classe	
159	Afonso Avelino Quituxi			Conf. 3ªclasse	02.05.56	28.10.83	9,244.00	2 filhos	Analfabeto	
160	Pedro Betari	841.193		Estivador	18.01.57	09.10.84	10,512.00	6 filhos	6ª classe	
161	António André Francisco	3.344		Estivador	02.12.54	27.11.84	9,244.00	3 filhos	2ª classe	
162	Abel Gamba			Estivador	07.06.60	05.10.87	9,244.00	4 filhos		
163	João Cabombo	841.438		Estivador	07.04.81	03.12.81	9,244.00	2 filhos	3ª classe	
164	Monteiro Contreiras			Estivador	05.08.54	22.10.84	9,244.00	6 filhos	2ª classe	
165	José Papel	11.215		Estivador	01.04.54	24.10.83	9,244.00	7 filhos	3ª classe	
166	Afonso Muquixi			Chef/Brigada	01.05.49	03.12.81	9,244.00	12 filhos	1ª classe	
167	Domingos Bondo	9.078		Chef/Brigada	16.10.62	24.10.84	10,512.00	10 filhos	4ª classe	
168	Domingos Sofia Miguel	19.044		Estivador	10.08.60	22.05.80	10,512.00	8 filhos	5ª classe	
169	Fernando Quijila Matamba	00.221		Chef/Brigada	27.09.48	16.02.83	9,244.00			
170	Miguel C.da Cruz	99.325		Estivador	02.03.60	02.06.80	10,512.00	7 filhos	6ª classe	
171	Jorge Paiva			Com.1ªclasse	07.02.56	08.11.82	9,244.00			
					24.09.56	20.10.82	14,259.00	9 filhos	8ª classe	

Luanda, 18-08-04

CÓPIA

Luanda, 23.11.04

[illegible]	Cezar da C. Macedo	[illegible]	[illegible]	[illegible]	28.08.45	15.03.74	23.487.00	Estivador	[illegible]		
24	Gomes António	13.788	Estivador	Emp/Limpeza	06.06.56	26.10.84	23.487.00	Estivador	2ª classe		
25	Alberto Quituxi	841.333	Estivador	Emp/Limpeza	05.04.56	29.09.87	23.487.00	Estivador	3ª classe		
26	Novais Alberto	842.446	Estivador	Emp/Limpeza	02.05.57	05.10.84	23.487.00	Estivador	1ª classe		
27	Joaquim C. Sérgio	840.055	Estivador	Emp/Limpeza	13.12.63	02.10.80	23.487.00	Estivador	4ª classe		
28	João André	18.006	Estivador	Emp/Limpeza	04.06.61	02.06.80	23.487.00	Estivador	4ª classe		
29	Francisco J. Mateus	00.254	Estivador	Emp/Limpeza	29.09.64	01.10.87	23.487.00	Estivador	3ª classe		
30	Ferraz Cardoso	842.469	Estivador	Emp/Limpeza	03.03.45	24.03.84	23.487.00	Estivador	2ª classe		
31	Luciano Wandalica	19.233	Estivador	Emp/Limpeza	20.12.52	23.10.83	23.487.00	Estivador	3ª classe		
32	Bernardo Secavango	18.853	Estivador	Emp/Limpeza	19.12.49	01.12.81	23.487.00	Estivador			
33	Luzaiade João	81.182	Estivador	Enc/Porão	23.04.64	07.10.87	33.887.00	Enc.porão	7ª classe		Zona 4
34	Manuel Kafala	842.724	Estivador	Enc/Porão	16.05.60	15.10.87	33.887.00	Enc.porão	4ª classe		Zona 1
35	Henrique Avelino	842.347	Estivador	Enc/Porão	06.10.54	08.10.84	33.887.00	Enc.porão	3ª classe		Parq.Viaturas
36	João Francisco António	840.786	Estivador	Enc/Porão	16.03.56	01.09.86	33.887.00	Escrit°	4ª classe		Administrativa
37	Bernardo Vunda	842.018	Cnf.2ª	Conferente 1ª	12.07.57	24.10.84	28.080.00	Estivador	4ª classe		
38	Xavier M. João	841.001	Estivador	Estivador	01.09.83	30.09.83	28.080.00	Estivador	2ª classe		
39	José Bumba	841.328	Estivador	Estivador	15.03.42	03.10.83	28.080.00	Estivador	4ª classe		
40	Alberto Armando	840.782	Estivador	Estivador	08.08.56	08.10.82	28.080.00	Estivador	3ª classe		
41	Morais J. Dambi	18.376	Estivador	Estivador	11.01.59	07.12.82	28.080.00	Estivador	4ª classe		
42	Manuel Rufino	842.417	Estivador	Estivador	19.01.61	21.10.87	28,080.00	Estivador	4ª classe		
43	Domingos Samba	842.408	Estivador	Estivador	15.05.53	24.10.87	28,080.00	Estivador	2ª classe		
44	Luís Domingos	842.463	Estivador	Estivador	18.03.56	06.10.84	28.080.00	Estivador	4ª classe		
45	Joaquim C. M. Fernando	84.068	Estivador	Estivador	20.08.55	10.08.84	28,080.00	Estivador	4ª classe		
46	Mateus R. Garcia	841.285	Estivador	Enc.porão	25.03.53	20.10.83	28.080.00	Estivador	2ª classe		
47	Manuel Bumba	18.677	Estivador	Estivador	08.05.44	04.10.82	28,080.00	Estivador	2ª classe		
48	Paulo Calembe	99.843	Estivador	Estivador	10.11.42	10.10.84	28,080.00	Estivador	2ª classe		
49	Francisco António	840.210	Estivador	Estivador	10.03.56	17.12.82	28.080.00	Estivador	3ª classe		
50	David Tchivinda	99.529	Estivador	Estivador	11.01.63	05.10.87	28,080.00	Estivador	4ª classe		
51	Pedro Pena	842.383	Estivador	Estivador	10.06.52	15.08.74	28,080.00	Estivador	2ª classe		
52	Bartolomeu José	18.086	Estivador	Estivador	15.06.56	06.12.82	28.080.00	Estivador	3ª classe		
53	Paulo A . André	99.393	Estivador	Estivador	15.05.54	26.10.84	28,080.00	Estivador	2ª classe		
54	Luciano Nh N'gunza	841.511	Estivador	Estivador	02.03.48	31.08.78	28.080.00	Estivador	2ª classe		
55	Keto João	5.215	Estivador	Estivador	02.10.56	06.10.84	28.080.00	Estivador	1ª classe		
56	José Domingos	840.372	Estivador	Estivador	09.01.56	07.10.82	28.080.00	Estivador	2ª classe		
57	José Zua Massaqui	99.934	Estivador	Estivador	27.10.52	03.12.82	28.080.00	Estivador	3ª classe		Zona 1
58	Abreu Lucamba	18.262	Estivador	Estivador	13.08.63	01.10.99	18.913.00		8ªclasse		
59	César da G.P.Graça	1162		Control.coz.	28.12.75	12.02.99	20.946.12		4ªclasse		
60	Americo D. Pedro	1200		Pedreiro 1ªc	16.03.76	25.04.02	8.700.00		4ªclasse		
[illegible]	Bento F. Nzinga	1278		Motorista							

Ord.	Nome	Nº	Anterior	Actual	Nascimento	Admissão					
61	Adelino C.Magonga	1279		Motorista	09.08.67	25.04.02	8.700.00		10ªclasse		
62	Dimas J.Alfredo	1048		Estivador	09.06.81	01.07.96	28,080.00		7ªclasse		
63	Adão J. Luciano	1453		Emp/limpeza	10.10.80	25.02.04	23,487.00		6ªclasse		
64	Juliana M.Quitumbo	1388		Cozinh 2ºc.	10.01.73	25.02.02	15,764.00		4ªclasse		
65	Sebastião M.José	1.295		Estivador	03.04.71	12.07.02	28,080.00		8ªclasse		
66	Simão A. Baptista	1.315		Estivador	10.09.79	12.07.93	28,080.00		2ªclasse		
67	Artur C.André	1.277		Op.cgq.2ª	30.10.60	11.06.99	31,113.00		6ªclasse		
68	António João	1.325		Estivador	02.01.80	12.07.02	28,080.00		7ªclasse		
69	Armindo Quimuanga	1.306		Estivador	20.04.61	12.07.02	28,080.00		6ªclasse		
70	Alfredo Q. Francisco	1.307		Estivador	01.01.68	12.07.02	28,080.00		7ªclasse		
71	Albano António	1.302		Estivador	01.04.69	12.07.02	28,080.00		7ªclasse		
72	Agostinho M.Simão	1.335		Estivador	01.08.62	12.07.02	28,080.00		7ªclasse		
73	Armando C.T.António	1.134		Estivador	15.03.65	12.07.02	28,080.00		8ªclasse		
74	Armindo J.B. Francisco	1.103		Estivador	02.03.77	11.06.99	28,080.00		10ªclasse		
75	Augusto C.Santos	1.331		Estivador	15.02.79	12.07.02	28,080.00		5ªclasse		
76	Barros Savissenga	759		Conf.1ªcl.	08.10.49	10.10.93	33,887.00		4ªclasse		
77	Bento Chambata	820		Estivador	08.02.61	10.10.93	28,080.00		7ªclasse		
78	Bernardo M. Quissalua	1.311		Estivador	01.08.82	12.07.02	28,080.00		6ªclasse		
79	Brandão J.W.Danguessa	1.105		Estivador	11.11.69	11.06.99	28,080.00		9ªclasse		
80	Cândido S.Canganjo	1.332		Estivador	08.05.81	12.07.02	28,080.00		8ªclasse		
81	Celestino P.Capanzo	1.334		Estivador	18.06.80	12.07.02	28,080.00		4ªclasse		
82	Daniel A . Alberto	1.140		Estivador	09.12.63	11.06.99	28,080.00		8ªclasse		
83	Gaspar Domingos Zua	1.113		Estivador	07.07.67	11.06.99	28,080.00		7ªclasse		
84	Gabriel Tiago	1.310		Estivador	10.06.84	12.07.02	28,080.00		12ªclasse		
85	Gil Manuel Francisco	1.323		Estivador	15.08.76	12.07.02	28,080.00		2ªclasse		
86	Gin Paulo Bartolomeu	1.114		Estivador	23.10.77	11.06.99	28,080.00		8ªclasse		
87	Hingomba S.C.Manuel	1.305		Estivador	04.10.77	12.07.02	28,080.00		7ªclasse		
88	Jacinta Wassati	52		Escritoraria	15.02.66	01.11.91	33,887.00		8ªclasse		
89	Januário R.Caculo	1.326		Escrit.1ªc.	18.06.80	12.07.02	33,887.00		8ªclasse		
90	Jaime Eduardo	1.314		Estivador	13.05.64	12.07.02	28,080.00		7ªclasse		
91	José António	1.116		Estivador	20.04.76	12.06.99	28,080.00		7ªclasse		
92	Josén de Sousa	1.136		Estivador	20.07.66	12.06.99	28,080.00		9ªclasse		
93	José João Diogo	1.132		Estivador	10.09.60	12.06.99	28,080.00		8ªclasse		
94	José Gabriel Morais	1.121		Estivador	07.02.83	12.07.02	28,080.00		7ªclasse		
95	José de O.Simão	1.292		Estivador	17.06.75	12.07.02	28,080.00		4ªclasse		
96	José M. Hipulenge	1.332		Estivador	01.12.68	12.07.02	28,080.00		7ªclasse		
97	João S.P.Domingos	689		Conf.1ªcl.	30.03.70	08.11.91	33,887.00		8ªclasse		
98	João António Miguel	344		Estivador	06.03.67	01.01.94	28,080.00				

Ord.											
99	José C.de Oliveira	1.336		Estivador	05.01.76	12.07.02	28.080.00		7ªclasse		
100	Lino Holandês	352		Conf.3ªcl.	14.12.67	10.08.92	28.339.00		12ªclasse		
101	Lourenço A . Zua	1.308		Estivador	13.09.78	12.07.02	28.080.00		6ªclasse		
102	Lourenço F.C.Quitedi	1.301		Estivador	04.02.68	12.07.02	28.080.00		7ªclasse		
103	Lucas M.Ngola	1.330		Estivador	01.08.77	12.07.02	28.080.00		6ªclasse		
104	Mateus B.António	1.121		Estivador	24.07.71	12.06.99	28.080.00		1ªclasse		
105	Mateus Manuel	1.148		Estivador	03.01.65	12.06.99	28.080.00		6ªclasse		
106	Mateus P.Jungo	1.138		Estivador	13.08.77	12.06.99	28.080.00		3ªclasse		
107	Manuel B. Sebastião	1.119		Estivador	03.02.63	12.06.99	28.080.00		4ªclasse		
108	Manuel Alberto	818		Estivador	20.08.56	10.08.92	28.080.00		2ªclasse		
109	Marcelo D. André	1.120		Conf.3ªcl.	12.01.75	12.06.99	28.339.00		7ªclasse		
110	Mario João Inácio	1.227		Estivador	30.10.75	12.07.02	28.080.00		10ªclasse		
111	Miguel M.Domingos	1.124		Estivador	07.05.75	12.06.99	28.080.00		7ªclasse		
112	Morais M. Honguila	1.133		Conf.3ªcl.	06.11.72	12.06.99	28.339.00		11ªclasse		
113	Rita André	910		Estivador	17.10.60	23.11.95	28.080.00		1ªclasse		
114	Rosário E.C.Capusso	1.309		Estivador	13.11.80	12.07.02	28.080.00		8ªclasse		
115	Rodrigues Augusto	1.300		Estivador	09.04.81	12.07.02	28.080.00		5ªclasse		
116	Rubeni S.F.Feijo	1.293		Estivador	01.11.73	12.07.02	28.080.00		7ªclasse		
117	Sandro Q.Leão	1.329		Estivador	20.01.73	12.07.02	28.080.00		7ªclasse		Zona 1
118	Pedro M.Jorge	1.130		Estivador	12.08.70	12.06.99	28.080.00		7ªclasse		
119	Pengüissa António	1.348		Estivador	15.05.77	12.07.02	28.080.00		7ªclasse		
120	Raimundo J.F.Costa	1.296		Estivador	04.10.70	12.07.02	28.080.00		7ªclasse		
121	Daniel R. Yango			Emp/limpeza	02.05.60	13.09.04	23.487.00		6ªclasse		
122	Tomás António Matique	1.404		Emp/limpeza	25.01.75	21.07.04	23.487.00		5ªclasse		
123	Adriano Araujo Neto	1.364		Estivador	10.10.75	02.04.02	28.080.00		9ªclasse		
124	João A . Gomes	9.121	Estivador	Estivador	10.06.59	03.03.80	28.080.00	Estivador	4ª classe	"	"
125	José da Silva	99.994	Estivador	Estivador	08.04.58	20.09.86	28.080.00	Estivador	3ª classe	"	"
126	Pedro M. Francisco	1.129		Estivador	23.01.75	12.06.99	28.080.00		8ªclasse		
127	Gaspar j. Gimbo	841.413	Op.Máq.	Op.Máq.2ª	04.10.66	101.087	31.113.00	Op.Máq.	4ª classe		
128	Domingos Ngunza	8.216	Op.Máq.	Op.Máq.2ª	15.08.52	18.02.80	31.113.00	Op.Máq.	4ª classe		
129	João Manuel Ngunza	842.676	Estivador	Conferente 3ª	23.12.59	23.10.87	28.339.00	Conferente 3ª	4ª classe		
130	Domingos Miguel	9.315	Estivador	Enc/Porão	07.07.58	02.03.80	33.887.00	Enc/Porão	4ª classe		
131	Domingos Bumba	18.491	Estivador	Enc/Porão	25.05.54	14.10.83	33.887.00	Estivador	4ª classe		
132	Manuel Vidal Gomes	5.404	Estivador	Emp/limpeza	01.02.52	20.04.75	23.487.00	Estivador	3ª classe		
133	Pedro S. Alexandre	1.312	Estivador	Estivador	06.11.82	12.07.02	28.080.00				
134	Domingos Ngamba	16.494	Estivador	Enc/Porão	18.08.51	25.10.75	33.887.00	Enc/Porão	4ª classe		
135	Manuel Francisco	10.670	Estivador	Conferente 1ª	12.10.61	10.10.82	33.887.00	Conferente	4ª classe		

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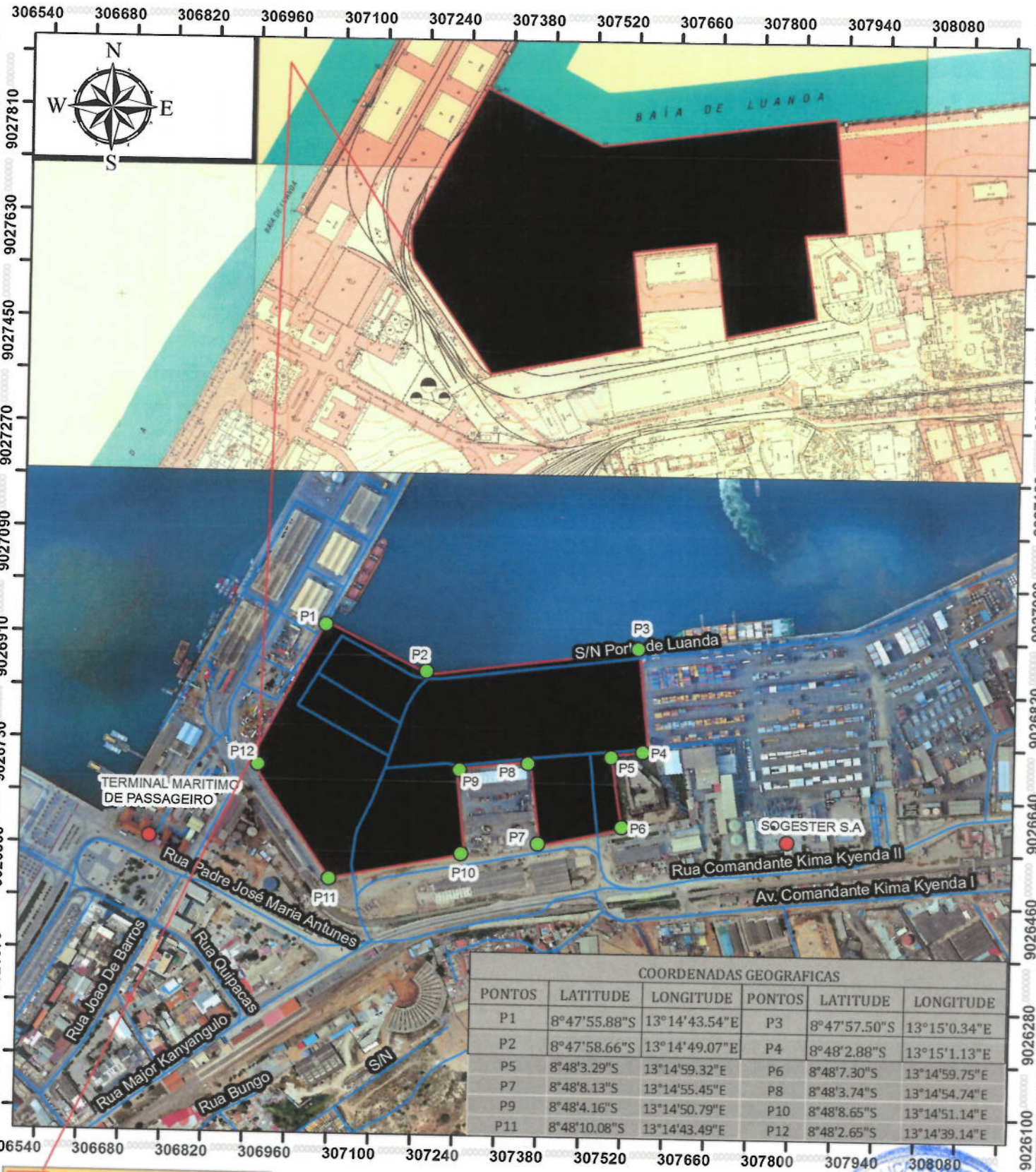
6. PROJECT LOCATION

CROQUIS LOCALIZAÇÃO



COORDENADAS GEOGRAFICAS					
PONTOS	LATITUDE	LONGITUDE	PONTOS	LATITUDE	LONGITUDE
P1	8°47'55.88"S	13°14'43.54"E	P3	8°47'57.50"S	13°15'0.34"E
P2	8°47'58.66"S	13°14'49.07"E	P4	8°48'2.88"S	13°15'1.13"E
P5	8°48'3.29"S	13°14'59.32"E	P6	8°48'7.30"S	13°14'59.75"E
P7	8°48'8.13"S	13°14'55.45"E	P8	8°48'3.74"S	13°14'54.74"E
P9	8°48'4.16"S	13°14'50.79"E	P10	8°48'8.65"S	13°14'51.14"E
P11	8°48'10.08"S	13°14'43.49"E	P12	8°48'2.65"S	13°14'39.14"E

ÁREA_REQUERIDA

PONTOS DE REFERÊNCIAS

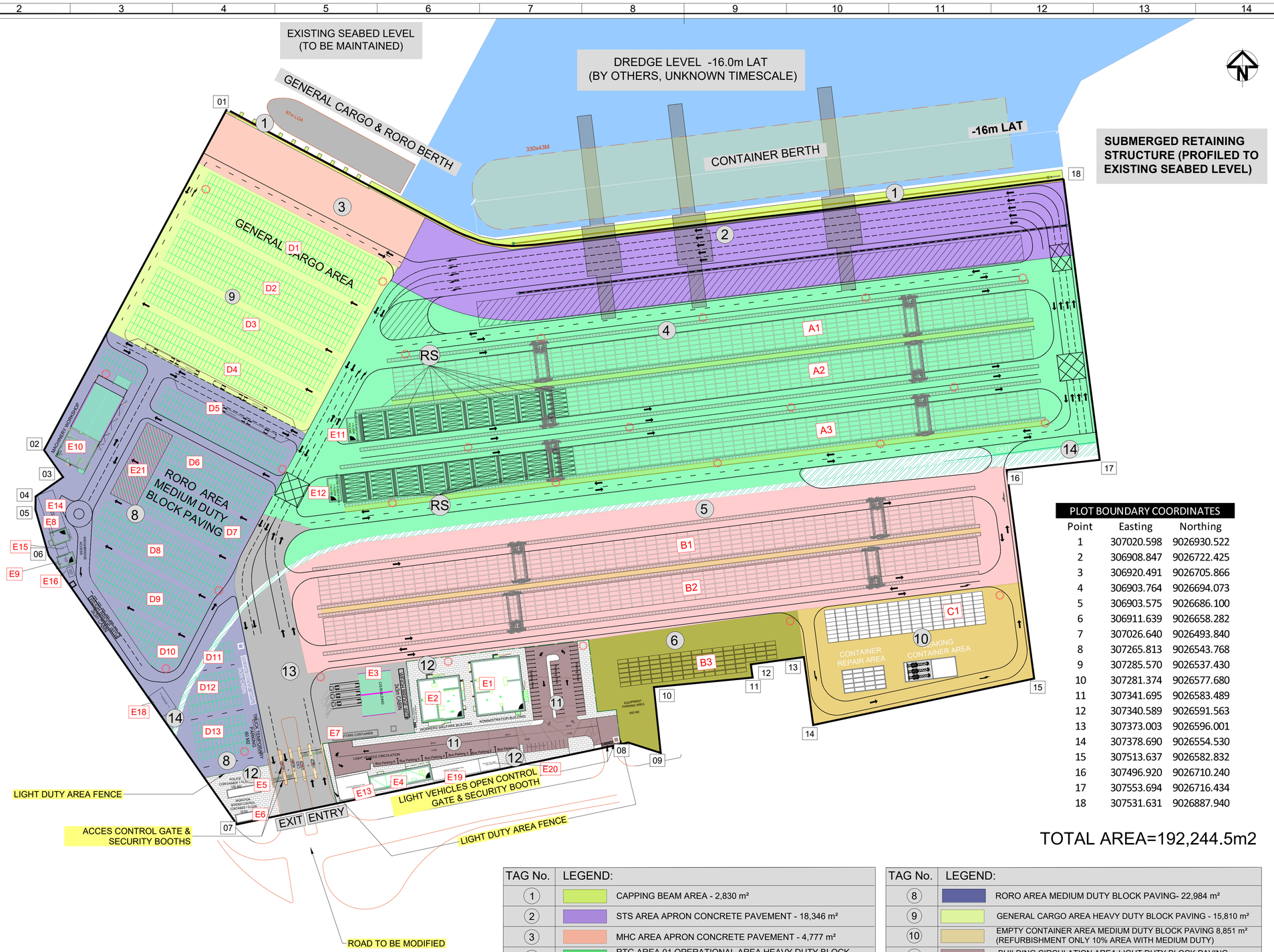
0 900 1 800 3 600 5 400 7 200 Metros

O PRESENTE CROQUIS DE LOCALIZAÇÃO SERVIRA APENAS COMO DOCUMENTAÇÃO COMPLEMENTAR AO DOSSIER PARA EFEITOS LEGAIS ADMINISTRATIVOS

REQUERENTE	**UNICARGAS - Transporte Rodoviário e Gestora de Terminais Portuario**	
DESC. E VERF.	GPL 1491/1385	**ESCALA:**1:9 182
DATA: Agosto/2023	Rua Kima Kienda II (EN 100), BairroPatrice Lumumba (Boavista), Distrito Urbano da Ingombota, Municipio de Luanda, Provincia de Luanda.	**INGOMBOTA LUANDA**

C.A.C.L

7. PHYSICAL LAYOUT OF THE EQUIPMENT



PLOT BOUNDARY COORDINATES

Point	Easting	Northing
1	307020.598	9026930.522
2	306908.847	9026722.425
3	306920.491	9026705.866
4	306903.764	9026694.073
5	306903.575	9026686.100
6	306911.639	9026658.282
7	307026.640	9026493.840
8	307265.813	9026543.768
9	307285.570	9026537.430
10	307281.374	9026577.680
11	307341.695	9026583.489
12	307340.589	9026591.563
13	307373.003	9026596.001
14	307378.690	9026554.530
15	307513.637	9026582.832
16	307496.920	9026710.240
17	307553.694	9026716.434
18	307531.631	9026887.940

TOTAL AREA=192,244.5m2

TAG No.	LEGEND:
1	CAPPING BEAM AREA - 2,830 m²
2	STS AREA APRON CONCRETE PAVEMENT - 18,346 m²
3	MHC AREA APRON CONCRETE PAVEMENT - 4,777 m²
4	RTG AREA 01 OPERATIONAL AREA HEAVY DUTY BLOCK PAVING - 56,655 m²
5	RTG AREA 02 OPERATIONAL AREA HEAVY DUTY BLOCK PAVING - 32,925 m²
6	REACH STACKER OPERATIONAL AREA HEAVY DUTY BLOCK PAVING - 5,272 m²
7	NOT USED

TAG No.	LEGEND:
8	RORO AREA MEDIUM DUTY BLOCK PAVING- 22,984 m²
9	GENERAL CARGO AREA HEAVY DUTY BLOCK PAVING - 15,810 m²
10	EMPTY CONTAINER AREA MEDIUM DUTY BLOCK PAVING 8,851 m² (REFURBISHMENT ONLY 10% AREA WITH MEDIUM DUTY)
11	BUILDING CIRCULATION AREA LIGHT DUTY BLOCK PAVING - 3,961 m²
12	PEDESTRIAN BLOCK PAVING - 4,405 m²
13	ACCESS ROAD AREA MEDIUM DUTY BLOCK PAVING- 8,259 m²
14	RAIL AREA - 3342 m²

CAR PARKING SLOTS	
BLOCK No.	SLOTS
D1	245
D2	245
D3	196
D4	147
D5	124
D6	136
D7	136
D8	135
D9	114
D10	48
D11	8
D12	46
D13	52
TOTAL	**1632**

RTG GROUND SLOTS (20')	
BLOCK No.	SLOTS
A1	360
A2	264
A3	264
TOTAL	**888**

REEFER GS (40')	
BLOCK No.	SLOTS
A2	48
A3	54
TOTAL	**102**

GROUND SLOTS (20')	
BLOCK No.	SLOTS
B1	372
B2	372
B3/OPTIONAL	84
TOTAL	**828**

EMPTY YARD GROUND SLOTS (20')	
BLOCK No.	SLOTS
C1	120
TOTAL	**120**

BUILDINGS		
No.	TYPE	AREA(m²)
E1	ADMINISTRATION BUILDING	1025
E2	WORKERS WELFARE BLD	690
E3	CIS BUILDING	500
E4	ELECTRICAL SUBSTATION	357.6
E5	POLICE CONTAINER	100
E6	MIGRATION BORDER CONTROL CONTAINER	62
E7	CUSTOMS CONTAINER	106
E8	GRP FIRE TANK PUMP ROOM	89.2
E9	GRP WATER TANK PUMP ROOM	76
E10	MACHINERY WORKSHOP	1152.6
E11	REEFER SUBSTATION 1	114.3
E12	REEFER SUBSTATION 2	114.3

OPEN AREAS		
No.	TYPE	AREA(m²)
E13	OUTDOOR GENERATOR YARD	280
E14	GRP FIRE TANK	230
E15	GRP WATER TANK	49
E16	UNDERGROUND SEPTIC TANK	21
E17	NOT USED	
E18	DANGEROUS/HAZARDOUS AREA	150
E19	OUTDOOR TRANSFORMER YARD	236
E20	GROUND FUEL TANK	96
E21	PROVISION FOR RTG MAINTENANCE AREA	857

UNCONTROLLED IF PRINTED

DO NOT SCALE FROM THIS DRAWING

CONSULTANT'S VERIFICATION STAMP

CONSULTANT'S PROJECT MANAGER:

PRINT NAME | SIGNATURE | DATE

DOCUMENT STATUS STAMP

CODE 1	WORK MAY PROCEED
CODE 2	REVISE & RESUBMIT. WORK MAY PROCEED SUBJECT TO INCORPORATION OF COMMENTS INDICATED
CODE 3	REVISE & RESUBMIT. WORK MAY NOT PROCEED
CODE 4	REVIEW NOT REQUIRED. WORK MAY PROCEED

THE STATEMENT "WORK MAY PROCEED" APPLIES TO THE FOLLOWING WORK ACTIVITIES ASSOCIATED WITH THE MATTERS CONTAINED WITHIN THE CONSULTANT'S DOCUMENT:
DESIGN / PROCUREMENT / CONSTRUCTION / ALL * ACTIVITIES

ANY REVIEW, COMMENT OR ACCEPTANCE BY EMPLOYER UNDER THIS CONTRACT WITH RESPECT TO ANY OF CONSULTANT'S DOCUMENTS SHALL NOT IN ANY WAY BE, OR DEEMED TO BE, AN APPROVAL OF ANY WORKS OR AN ACCEPTANCE THAT THE CONSULTANT'S DOCUMENTS MEET THE REQUIREMENTS OF THE CONTRACT, AS CONSULTANT HAS THE SOLE RESPONSIBILITY FOR PERFORMING THE WORKS IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CONTRACT.

AD PORTS GROUP | APPROVAL CODE | DATE

	Date	Description	Drawn	Chkd	Appr
001	10/02/24	FOR INFORMATION			

Drawn by / Date | Checked by / Date | Approved by / Date

مجموعة موانئ أبوظبي
AD PORTS GROUP

Contract No. & Project Title

DEVELOPMENT OF UNICARGAS PORT IN LUANDA
-

Independent Checking Engineer

Signature

Contractor

N/A

Consultant

Drawing Title

PRELIMINARY DESIGN
UNICARGAS PORT LAYOUT

Sheet	Scale	Paper Size
1 OF 1	1:1000	A1

Drawing Status

PRELIMINARY DESIGN

Drawing No. | Revision

DRAFT | -

V6

8. COMMUNICATION FROM MINAMB OF PROJECT REGISTRATION

Este email foi enviado automaticamente pelo sistema para vosso acompanhamento.

Caríssimo utente,

A Solicitação da Licença Ambiental de Instalação nº **17695475244** foi deferido para elaboração do(s) estudo(s) de impacte ambiental. Para verificar as Entidades de Consultoria Ambiental, aceder "Serviços / Editar Estudo Ambiental" na plataforma do SIA.

Para iniciar o estudo, aceder a plataforma SIA e efectuar o upload dos ficheiros do estudo.

Para dúvidas e esclarecimentos, por favor encaminhar email para dnpaia@mcta.gov.ao.

Aceder o portal

Observação: O Ministério do Ambiente nunca pede as suas informações por correio electrônico.

Caso haja necessidade de contacto com o Ministério do Ambiente, gentileza utilizar a conta de correio electrônico dnpaia@mcta.gov.ao.

6. Annex 6. Informational letters

(Note: All the letters included the leaflet from Annex 3 in the mailing)

6.1 LETTERS SENT

6.2 RESPONSES FROM ENTITIES

7. Annex 7. Minutes of Meeting Reports

ENGLISH VERSION

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan SOAPRO

DATE AND TIME OF MEETING 08 /07 / 2024 11:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Luanda Provincial Health Office

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	Presentation of SOAPRO and Unicargas by Joice Henriques
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

Question: Posed by Mr. José Manuel (Head of the Inspection Department)

Can we visit the project area to ensure it won't affect public health?

Answer:

Yes, we can schedule a visit to the Unicargas Terminal once management approves it.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1. Schedule a visit to the Unicargas facilities	Medium	Joice Henriques	End of August 2024

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 15 /07 / 2024 10:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Sambizanga Urban District Administration

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Acknowledge and thank attendees for the welcome ▪ Presentation of SOAPRO and Unicargas by Margarida Matos
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

Question: Posed by Mr. Daniel Siamusseque (Deputy Administrator for the Technical Area)

How can we help?

Answer:

Eng. Margarida explained that, in addition to presenting the project, we would also like to obtain the contact details of the person in charge of the Bungo neighborhood.

Response:

Mr. Daniel expressed regret that he could not assist and informed us that the Bungo neighborhood is no longer part of Sambizanga; it is now part of Ingombota.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
-	-	-	-

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 15 /07 / 2024 14:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Ingombota Urban District Administration

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Acknowledge and thank attendees for the welcome ▪ Presentation of SOAPRO and Unicargas by Margarida Matos
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

Question: Posed by Architect Paulo Furtado (Administrator of the Ingombota Urban District)

How can the Administration help?

Answer:

Eng. Margarida explained that, in addition to presenting the project, the aim is also to establish contact with those responsible for the Boavista and Bungo neighborhoods.

Response:

Architect Paulo Furtado indicated that he could assist and mentioned that by the end of the day, Mr. Dinis Marques would send the contact details of the individuals responsible for the respective neighborhoods.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1. Send the contact details of those responsible for the respective neighborhoods	High	Dinis Marques	15-07-2024

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 18 /06 / 2024 10:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Unicargas meeting room

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Welcome and Introduction ▪ Person Responsible: Ângela Alves (SOAPRO)
2.	▪ Presentation of the project and its objectives ▪ Present the activities to be carried out at the TPU and the timetable for these activities ▪ Person Responsible: Ludmila Campos (UNICARGAS)
3.	▪ Explain the mandatory environmental licensing process to comply with national legislation and international standards ▪ Provide a brief explanation of the Environmental Impact Study, its potential impacts and measures established ▪ Present the objectives of the stakeholder involvement process, including the list of stakeholders ▪ Present the Grievance mechanism ▪ Identification of the focal point of contact ▪ Person Responsible for presentation: Ângela Alves (SOAPRO)
4.	Questions and answers

DETAILS/NOTES OF THE MEETING AGENDA

Time for Questions and Answers:

1. **Question:** Posed by Mrs. Iracelma de Lemos (Security Company - Lemuxus)

   "When will the individual meetings with the companies be held?"

2. **Answer:**

   Eng. Ângela explained that the individual meetings will be scheduled with the government bodies that are available to present the project.

3. **Question:** Posed by Anacleto Mateus (Unicargas Communications and Image)

   "What precautions are being taken to protect marine fauna?"

   Answer:

   Ângela explained that the study includes mitigation measures to protect marine fauna and that it is still being finalized until the end of the month. She also mentioned that while this meeting focuses on the social component, all identified impacts are being addressed and will be monitored by MINAMB.

4. **Question:** Posed by Clesne Antunes (Cle Catering)

   "Will the Terminal's activities be suspended during the construction phase?"

   Answer:

   José de Sousa (Operations Director at Unicargas) explained that the terminal's operations will continue during the construction works. Arrangements have been made with neighboring companies, and a plot of land between DP World and Sonils will be utilized to maintain operations during the construction period. Customers will be informed of any changes beforehand.

5. **Question:** Posed by Gelson Cristovão (Goldenan Shipping Agency)

   "The project presented a ro-ro general cargo quay with a water depth of -9.0 meters, which is not feasible for the shipping agency and may require looking for other partners, as it suggests a preference for container ships over general cargo ships. What does the project envisage for general cargo ships?"

   Answer:

   José de Sousa (Director of Operations at Unicargas) assured that there is no cause for concern, although he could not provide further details as the project is still in progress. He emphasized that this issue is being addressed and that partners need not worry.

.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1. Schedule and conduct individual meetings with companies if required	High	SOAPRO	By the end of July 2024
2. Ensure that the ESIA and its corresponding ESMP include measures related to wildlife, in accordance with the environmental context	Medium	TYPSA	By the end of August 2024
3. Inform clients and users about changes in Unicargas' operations before construction begins	Medium	Unicargas/Owner	Before construction starts

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 19/07/2024 10:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	SONILS Offices

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Acknowledge and thank attendees for the welcome ▪ Presentation of SOAPRO and Unicargas by Margarida Matos
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

Question: posed by Mr. Sil Airola (Head of Projects and Infrastructures Department)

Will the quay be extended?

Answer:

Eng. Margarida explained that the project involves modernizing the existing quay at Unicargas Terminal. Mr. Sil and Mr. Pedro reviewed the leaflet thoroughly and understood the scope and appearance of the Unicargas Terminal Rehabilitation. Mr. Sil Airola then confirmed that the rehabilitation of the Unicargas Terminal would not impact their operations due to the distance between the companies.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
-	-	-	-

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 17/07/2024 10:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Mata-Gato Neighborhood

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Acknowledge and thank attendees for the welcome ▪ Presentation of SOAPRO and Unicargas by Margarida Matos
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

SOAPRO

Time for Questions and Answers:

1. **Question:** posed by Mrs. Maria Varela (Coordinator of the Mata-Gato Neighborhood)

   "What will this requalification involve?"

   Answer: Eng. Margarida explained that the project will involve improvements to the existing maritime infrastructure and the installation of modern equipment at the Unicargas Terminal.

2. **Question:** asked by Mrs. Maria Varela (Mata-Gato Neighborhood Coordinator)

   "Will the neighborhood benefit from the redevelopment of the terminal?"

   Answer: Eng. Margarida explained that the redevelopment of the Terminal would not directly impact the Bairro Mata-Gato due to the distance. However, commercially, the presence of construction staff might boost local food trade.

3. **Question:** asked by Mrs. Maria Varela (Coordinator of Bairro Mata-Gato)

   "Is it possible to recruit young people from the neighborhood to prevent them from being left out?"

   Answer: Eng. Margarida explained that no recruitment is being done at the moment, but the Environmental Impact Assessment (EIA) studies always suggest the hiring of local labor.

4. **Question:** asked by Margarida (SOAPRO)

   "How many residents are there in the neighborhood?"

   Answer: Mrs. Maria explained that she could not provide this information, as only the Administration has it. However, according to the most recent census, there are approximately 600 residents.

5. **Question:** asked by Margarida (SOAPRO)

   "Are there many cases of malaria?"

   Answer: Mrs. Maria explained that there are indeed many cases due to the ditch in the area.

Other Concerns:

Mrs. Maria mentioned that she has lived in the neighborhood for over 10 years and expressed concerns about the poor conditions, including the lack of schools for children, a health center, and job opportunities for young people.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1. Prioritize local hiring	High	Contractor (as established in ESMP)	Start recruiting and selecting candidates for the project

PHOTOGRAPHS:

TITLE OF MEETING Presentation of the Project and Stakeholder Engagement Plan

DATE AND TIME OF MEETING 17/07/2024 11:00

Purpose of the meeting	Presentation of the Project, distribution of the leaflet, and clarification of doubts and concerns
Meeting location	Boavista Neighborhood

■ MEETING ☐ INFORMAL CONVERSATION ☐ OTHER: _____

MEETING AGENDA / MAIN POINTS OF DISCUSSION

1.	▪ Acknowledge and thank attendees for the welcome ▪ Presentation of SOAPRO and Unicargas by Margarida Matos
2.	▪ Presentation of the project and its objectives ▪ Overview of the stakeholder engagement process ▪ Explanation of the grievance mechanism ▪ Identification of the focal point of contact
3.	Questions and answers
4.	

DETAILS/NOTES OF THE MEETING AGENDA

Time for Questions and Answers:

1. **Question:** Posed by Mr. Mateus Miguel (Boavista Neighborhood Coordinator)

   "Is there a questionnaire I need to answer?"

   Answer: Eng.ª Margarida explained that the surveys had already been sent to the Municipal Administration as a first step. At this stage, the Unicargas terminal project would be presented for informational purposes as part of the consultation with interested parties to comply with international standards.

Other Comments and Concerns:

Mr. Mateus then provided an overview of the neighborhood, mentioning the following information:

Bairro da Boavista has a total of 37,000 inhabitants and is divided into three sectors: A, B, and C, with a total of 11 blocks. It has two primary schools, a public health center, and a police station.

Sector A, near the Unicargas terminal, consists of four blocks and has some basic sanitation problems.

Sector B has three blocks, and Sector C has four blocks. The neighborhood is considered an industrial zone due to its proximity to the provincial port.

Mr. Mateus expressed concerns about the conditions of the neighborhood, including the lack of additional schools and health centers, and requested that if new workers need to be recruited, local youth should be considered.

FOLLOW-UP ACTIONS (including any commitments made to the community, however minor)

DESCRIPTION OF ACTION	PRIORITY	PERSON RESPONSIBLE	COMPLETION DATE
1. Prioritize local hiring	High	Contractor (as established in ESMP)	Start recruiting and selecting candidates for the project

PHOTOGRAPHS:

PORTUGUESE VERSION

Entidades Reguladoras/Autoridades

Gabinete Provincial da Saúde de Luanda

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO **08 / 07 / 2024** **11:00**

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Gabinete Provincial da Saúde de Luanda

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Joice Henriques começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicargas.
2.	- De seguida, fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	- Por fim passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

PORMENORES/NOTAS DA ORDEM DO DIA DA REUNIÃO

Momento de perguntas e respostas:

1 Questão: Colocada pelo Sr. José Manuel- Chefe de Departamento de Inspeção

– "Poderemos ir para a área do projecto para constatar que não irá afectar a saúde pública? "

Resposta: – Sim, podemos agendar a visita ao terminal da Unicargas, assim que direcção da Unicargas aprovar.

Administraçao do Distrito Urbano do Sambizanga (15-07-2024)

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO **15 / 07 / 2024** **10:00**

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Administração do Distrito Urbano do Sambizanga

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Margarida de Matos começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicarga.
2.	- Fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	De seguida passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

Momento de perguntas e respostas:

1 Questão: Colocada pelo Sr Daniel Siamusseque (Administrador Adjunto para a Área Técnica)

– "Como podemos ajudar? "

Resposta: – Eng.ª Margarida explicou que para além da apresentação do projecto pretendemos também obter o contacto do responsável do bairro Bungo?

Resposta: - Sr Daniel lamentou não poder ajudar e informou que o bairro Bungo já não faz parte do Sambizanga, agora faz parte da Ingombota.

Administraçao do Distrito Urbano do Ingombota (15-07-2024)

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO **15 / 07 / 2024** **14:00**

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Administração do Distrito Urbano da Ingombota

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Margarida de Matos começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicarga.
2.	- de seguida, fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	- Por fim passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

PORMENORES/NOTAS DA ORDEM DO DIA DA REUNIÃO

Momento de perguntas e respostas:

1 Questão: Colocada pelo Arquiteto Paulo Furtado (Administrador do Distrito Urbano da Ingombota)

– "Como a Administração pode ajudar? "

Resposta: – Eng.ª Margarida explicou que para além da apresentação do projecto pretendemos também obter o contacto dos responsáveis dos bairros Boavista e Bungo?

Resposta: - Arquitecto Paulo Furtado informou que poderá ajudar e informou que até ao final do dia o Sr. Dinis Marques irá enviar os contactos dos responsáveis dos respectivos bairros.

EMPRESAS ENVOLVENTES NO TERMINAL E PRESTADORAS DE SERVIÇO

(18-06-2024)

Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO **18 / 06 / 2024** **10:00**

Objectivo da reunião	1 - A apresentação das actividades a serem realizadas no TPU; 2 - Cronograma de actividades; 3 - Impactes e riscos ambientais e sociais; 4 - Apresentação do mecanismo de reclamações; 5 - Apresentação do ponto focal.
Local da reunião	Sala de Reuniões da Unicargas

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Ângela Alves começou por dar as boas vindas aos presentes, e fez uma breve introdução do que se tratava a reunião e passou a palavra para a Eng.ª Ludmila Campos para explicar o projecto. - A Eng.ª Ludmila Campos fez apresentação das actividades a serem realizadas no TPU e o cronograma destas mesmas actividades.
2.	- A Eng.ª Ângela Alves explicou que o licenciamento ambiental é obrigatório para cumprimento da legislação nacional e informou que o projecto além de estar a ser elaborado para dar cumprimento à legislação nacional, também irá obedecer os requisitos das normas internacionais. - Fez uma breve explicação do que é o Estudo de Impacte Ambiental, e das Licenças que são adquiridas no licenciamento ambiental. - Posteriormente apresentou os objectivos do processo de envolvimento das partes interessadas, apresentou a lista das partes interessadas, os impactes e riscos, o mecanismo de reclamação e o ponto focal de contacto.
3.	De seguida passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

Momento de perguntas e respostas:

1 Questão: Colocada pela Sra. Iracelma de Lemos (da empresa de Segurança - Lemuxus)

– "Quando serão realizadas as reuniões individuais com as empresas? "

Resposta: – Eng.ª Ângela explicou que as reuniões individuais serão realizadas com as entidades governamentais, aquelas que estejam disponíveis para apresentação do projecto.

2 Questão: Anacleto Mateus (Comunição e imagem da Unicargas)

– "Quais são os cuidados que estão a ser feitos para proteção da fauna marinha?"

Resposta: – Eng.ª Ângela esclareceu que no estudo estão acauteladas as medidas de mitigação para proteção da fauna marinha, e que o mesmo encontra-se ainda em finalização até ao final do presente mês, explicou também que esta sessão de reunião é para apresentação da componente social mas que todos os impactes identificados estão a ser acautelados e serão monitorizados pelo MINAMB.

3 Questão: Clesne Antunes (da empresa Cle Catering)

– "As actividades do Terminal serão suspensas durante a fase de obras?"

Resposta: – Eng.º José de Sousa (Director de Operações da Unicargas) explicou que o terminal não irá parar durante a obra, as operações irão continuar. Foram efectuados contactos com as empresas vizinhas da Unicargas e também foi cedido um terreno entre a DP World e a Sonils que irá servir para dar continuidade aos trabalhos durante o período de obras. Serão feitos os contactos com os clientes antes dessa fase para informar a todos das alterações.

4 Questão: Gelson Cristovão (da empresa Goldenan agência de navegação)

– "No desenvolvimento do projecto apresentado o cais de carga geral ro-ro com profundidade de água de -9,0 metros, o que chega a ser não viável para a agência de navegação, o que acabará por exigir a procura outros parceiros, pois o que foi apresentado dá a entender que preferem dar mais atenção a navios de contentores do que a navios de carga geral. O que o projecto prevê para os navios de carga geral?"

Resposta: – Eng.º José de Sousa (Director de Operações da Unicargas) garantiu que não haverá motivo para preocupação embora não possa adiantar mais pormenores pois o projecto ainda está em andamento, mas reforçou que essa questão está acautela e que os parceiros não precisam de se preocupar.

SONILS (19-07-2024)

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO **19 / 07 / 2024** **14:00**

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Sonils

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Margarida de Matos começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicarga.
2.	- de seguida, fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	- Por fim passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

PORMENORES/NOTAS DA ORDEM DO DIA DA REUNIÃO

Momento de perguntas e respostas:

1 Questão: Colocada pelo Sr Sil Airola (Chefe de Departamento de Projectos e infraestruturas)

– "Irá ser feito o aumento do cais? "

Resposta: – Eng.ª Margarida explicou que o projecto envolve a modernização do cais existente no Terminhal Unicargas.

O Sr Sil e o Sr Pedro leram atentamente o folheto e perceberam quais serão e como será a Reabilitação do Terminal da Unicarga.

Sr Sil Airola informou que não serão afectados pelos impactes da reabilitação do Terminal da Unicargas devido a distância entre as empresas.

BAIRROS PRÓXIMOS AO PORTO

Bairro Mata- Gato (17-07-2024)

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO 17 / 07 / 2024 10:00

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Bairro Mata-Gato

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Margarida de Matos começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicarga.
2.	- De seguida, fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	- Por fim passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

SOAPRO Projecto do Unicargas Terminal em Luanda

PORMENORES/NOTAS DA ORDEM DO DIA DA REUNIÃO

Momento de perguntas e respostas:

1 Questão: Colocada pela Sra. Maria Varela (Coordenadora do Bairro Mata- Gato)

– "Como será essa requalificação? "

Resposta: – Eng.ª Margarida explicou que serão efectuadas melhorias das as infra- estruturas marítimas existentes e instalação de equipamentos modernos no Terminal da Unicargas.

2 Questão: Colocada pela Sra. Maria Varela (Coordenadora do Bairro Mata- Gato)

– "O Bairro irá se beneficiar com a requalificação do Terminal? "

Resposta: – Eng.ª Margarida explicou que o processo de requalificação do Terminal não afetaria directamente o Bairro Mata Gato dado a distância, mais que a nível comercial com a presença do pessoal das obras poderia ajudar no fomento do comercio alimentar.

3 Questão: Colocada pela Sra. Maria Varela (Coordenadora do Bairro Mata- Gato)

– "Será possível recrutar os jovens do bairro para não ficarem perdidos no bairro? "

Resposta: – Eng.ª Margarida explicou que de momento não está a ser feito nenhum recrutamento, mas que em nossos estudos (EIA) sugerimos sempre a contratação de mão de obra local.

4 Questão: Colocada pela Eng.ª Margarida (SOAPRO)

– "Quantos moradores existem no bairro? "

Resposta: – Sra. Maria explicou que não sabe dizer, somente a Administração tem essa informação.

Mas de acordo com último censo realizado era de aproximadamente 600 moradores.

5 Questão: Colocada pela Eng.ª Margarida (SOAPRO)

– "Existem muitos casos de malária? "

Resposta: – Sra. Maria explicou que sim devido a vala existente na zona.

Outras preocupações:

Sra. Maria informou que vive no bairro há mais 10 anos, lamentou as condições do bairro, a falta de escolas para as crianças, centro de saúde e oportunidade de emprego para os jovens.

Bairro Mata- Gato (17-07-2024)

SOAPRO Projecto do Unicargas Terminal em Luanda

TÍTULO DA REUNIÃO: Apresentação do Plano de Envolvimento das Partes Interessadas

DATA E HORA DE REUNIÃO 17 / 07 / 2024 11:00

Objectivo da reunião	1 - A apresentação do Projecto e entrega do flyer;
Local da reunião	Bairro Boavista

■ REUNIÃO ☐ CONVERSAÇÃO INFORMAL ☐
OUTROS:_____

ORDEM DO DIA DA REUNIÃO / PRINCIPAIS PONTOS DE DISCUSSÃO

1.	- A Eng.ª Margarida de Matos começou por agradecer a recepção, apresentou-se e fez um breve resumo, sobre SOAPRO e a Unicarga.
2.	- de seguida, fez a apresentação do projecto, os objectivos do processo de envolvimento das partes interessadas, o mecanismo de reclamação e o ponto focal de contacto.
3.	- Por fim passou-se para o momento de perguntas e respostas e depois deu-se por encerrado a reunião.

Projecto do Unicargas Terminal em Luanda

PORMENORES/NOTAS DA ORDEM DO DIA DA REUNIÃO

Momento de perguntas e respostas:

1 Questão: Colocada pela Sr. Mateus Miguel (Coordenador do Bairro Boavista)

– "Há algum questionário na qual eu preciso responder? "

Resposta: – Eng.ª Margarida explicou que os inquéritos já tinham sido enviados numa primeira fase, para a Administração Municipal e que nessa fase será feita a apresentação do projecto do terminal da Unicargas, a título informativo, no âmbito da consulta as partes interessadas para o cumprimento das normas de padrão internacional.

Seguidamente o Sr. Mateus fez um enquadramento do bairro mencionando as seguintes informações:

O Bairro da Boavista possui um total de 37 mil habitantes, e está composto por 3 sectores nomeadamente Sectores A, B e C com um total de 11 quarteirões, tem duas Escolas primarias, um Centro de Saúde público e uma esquadra da polícia.

Sector A é a zona onde se encontra o Terminal da Unicargas e está composto por 4 quarteirões. Referiu que este sector se encontra com alguns problemas de saneamento básico.

No sector B tem 3 quarterões e o sector C tem 4 quarterões. O bairro é tido como zona industrial por possuir muitas indústrias dada a proximidade com a unidade Portuária da província.

Lamentou as condições do bairro, a falta de mais escolas, centros de saúde e solicitou que se houver a necessidade de recrutar novos trabalhadores podem contar com os jovens do bairro.

8. Annex 8. Attendance Registers for SEP Meetings

REGULATORY BODIES/AUTHORITIES

July 8, 2024 and July 15/2024

ESTUDO AMBIENTAL E SOCIAL DO PROJECTO DE REABILITAÇÃO DO TERMINAL DA UNICARGAS

Auscultação Pública

LISTA DE PRESENÇAS

Nº	NOME	Empresa	Telefone	Email	Assinatura
1					
2					
3					
4	Daniel Fernando Siamunegue	ADM-SUMBE	928890866		
5					
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COMPANIES IN AND AROUND UNICARGAS TERMINAL

June 18, 2024

مجموعة موانئ أبوظبي AD PORTS GROUP unicargas SOARRO

ESTUDO AMBIENTAL E SOCIAL DO PROJECTO DE REABILITAÇÃO DO TERMINAL DA UNICARGAS

Auscultação Pública

LISTA DE PRESENÇAS

Nº	NOME	Empresa	Telefone	Email	Assinatura
1	STEN FRISCH	NAIBER	937981057	sten@naiberangola.com	
2	José Francisco	MARCARGA	933937471	josefrancisco@marcargas.com	
3	Raimundo José	Maessa	929591207	Raimundojose@Maessa.Angola	
4	Ilacelma de Leroos	Lemuxus	923805075	Ilacelma@lemuxus.co.ao	
5	Elexne Antunes	CLE CATERING	923953091	Elexne.antunes@cle-catering.com	
6	Adilson Pinheiro Sebastião	CLEAN SYSTEM	933200485	Adilsonpinheiro25@hotmail.com	
7	Gelson Cristóvão Sebastião	GOLDENAN	922979636	Gelson.cristovao@goldenan.net	
8	João Quintufa	SIC	922208882		
9	[illegible]	S.L.U.C	923733037	U.P.L	
10	Leonardo Neto Julaute	ZUKAMSAS	923-500 256	leonardo.julaute@zuka	
11	Ukuelonga Jamba	UNICARGAS	924608445	ukuelonga.jamba@unicargas.co.ao	
12	MARTA OLIVEIRA	SOARRO	931538084	MARTA.OLIVEIRA@SOARRO.AO	
13	ELIE AKOURY	DAR	923117942	ELIE.AKOURY@DAR.CO.AO	
14	[illegible]	UNICARGAS	923499263	[illegible]	
15	Angela Alves	SOARRO	925281500	angela.alves@soarro.ao	
16	Ondino Kaxlanga Baltazar	Unicargas	923369406	ondino.kaxlanga@unicargas.co.ao	

مجموعة موانئ أبوظبي AD PORTS GROUP unicargas SOARRO

Nº	NOME	Empresa	Telefone	Email	Assinatura
39	Ana dos Santos	Unicargas	923820604	ana.santos@unicargas.co.ao	
40	ANACLETO SEBASTIÃO MATEUS	"	926574915	ANACLETO.MATEUS@UNICARGAS.CO.AO	
41	Juri De Bleeck	"	948262996	Juri.debleeck@ad.ae	
42					
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SONILS COMPANY

July 19, 2024

ESTUDO AMBIENTAL E SOCIAL DO PROJECTO DE REABILITAÇÃO DO TERMINAL DA UNICARGAS

Auscultação Pública

LISTA DE PRESENÇAS

Nº	NOME	Empresa	Telefone	Email	Assinatura
1	Sik Aihola	Sonils	923800008	Sik.Aihola@Sonils.co.ao	
2	PEDRO SAMPAIO	SONILS	928042684	pedrosampaio@sonils.co.ao	
3		SOAPRO	922955384		
4	Angelica Matos	SOAPRO	924990330		
5					
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SURROUNDING COMMUNITIES

July 17, 2024

ESTUDO AMBIENTAL E SOCIAL DO PROJECTO DE REABILITAÇÃO DO TERMINAL DA UNICARGAS

Auscultação Pública

LISTA DE PRESENÇAS

Nº	NOME	Empresa	Telefone	Email	Assinatura
1	MATEUS MACHIANO MIGUEL	COMISSÃO DE AVISÃO	925691778		
2	Nestor Simão	C.M. Belas	923080786		
3		SOAPRO	922555386		
4	Marcelina Matos	SOAPRO	934014230		
5	Maria da Nazaré Lopes Varela	camionagista	923094476		
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9. Annex 9. Complaint form

FORMULÁRIO DE RECLAMAÇÃO

Data de submissão:	
Nome completo do reclamante:: Nota: pode permanecer anónimo se preferir ou solicitar que a sua identidade não seja divulgada a terceiros sem o seu consentimento	Primeiro nome_____ Último nome_____ ❑ Desejo apresentar a minha reclamação de forma anónima ❑ Peço que a minha identidade não seja revelada sem o meu consentimento
Informações de contacto do reclamante (se desejar manter a sugestão anónima, deixe em branco)	(como gostaria de ser contactado, correio, telefone ou e-mail)
Idioma preferido para comunicação	
Preencha como uma reclamação individual ou em nome de um grupo ou comunidade. Nota: o seu grupo ou comunidade pode permanecer anónimo	❑ Como uma reclamação individual ❑ Represento um grupo Nome do grupo ou comunidade _____
Descrição da reclamação: (O que aconteceu? Onde aconteceu? A quem aconteceu? Qual é o resultado do problema?)	
Data do Incidente/Reclamação	❑ Incidente/reclamação única (data _____) ❑ Aconteceu mais de uma vez (quantas vezes?_____) ❑ Em progresso (atualmente um problema)

Caixas cinzentas a serem preenchidas pelo responsável pela gestão da reclamação

Número da reclamação:	
Reclamação recebida por:	
Membro da equipa responsável pela gestão da reclamação:	
Data prevista de resolução:	
Avaliação do Nível de Significância da Reclamação (1-3)	*(se nível 3, escalar para o Gestor/Diretor do Projeto)*
Assinatura:	

AÇÕES PARA RESOLVER RECLAMAÇÕES

Delegação:			
Ação	**Pessoa/entidade responsável**	**Quando**	**Concluído S/N/Data**
Resposta/Resolução:			
Estratégia para comunicar a resposta:			
Aprovação:			
Data:	Arquivado por:		

CONCLUSÃO DA RECLAMAÇÃO

O reclamante está satisfeito?	S/N	Comentários do responsável de ligação com a comunidade:			
Comentários do reclamante sobre a resolução:					
Reclamação encerrada?	S/N	Data de encerramento	Reclamação submetida novamente?	S/N	Data
Assinatura e função:					

ENGLISH VERSION

COMPLAINT FORM

Date of submission:	
Complainant's full name: Note: You may remain anonymous if you prefer or request that we do not disclose your identity to third parties without your consent	First name_____ Last name _____ ❑ I wish to raise my complaint anonymously ❑ I ask not to reveal my identity without my consent
Complainant's contact information (If you wish to remain anonymous, leave this section blank)	(how would you like to be contacted, post, telephone or e-mail)
Preferred language for communication	
Specify whether you are filing the complaint as an individual or on behalf of a group or community. Note: Your group or community may remain anonymous	❑ As an individual complaint ❑ Represent a group Name of the group or community _____
Description of the complaint: (What happened? Where did it occur? Who was affected? What is the impact or result of the issue?)	
Date of Incident/Complaint	❑ Incident/single complaint (date _____) ❑ Happened more than once (how many times?_____) ❑ In progress (currently a problem)

Gray boxes to be filled in by the complaint handler

Complaint number::	
Complaint received by:	
Member of the team responsible for handling the complaint:	
Expected date of resolution:	
Evaluation of Complaint Significance Level (1-3)	*(if level 3 escalates to Project Manager/Director)*
Signature:	

ACTIONS TO ADDRESS COMPLAINTS

Delegation:			
Action	Person/entity responsible	When	Completed S/N/Dat
Response/Resolution:			
Strategy for communicating response:			
Approval:			
Date:	Filled by:		

CONCLUSION OF COMPLAINT

Is the complainant satisfied?	Y/N	Comments from the community liaison officer:			
Complainant's comments on the resolution:					
Is complaint closed?	Y/N	Closing date	Complaint Submitted again?	Y/N	Date
Signature and role:					

10. Annex 10. Communications from MINAMB

Este email foi enviado automaticamente pelo sistema para vosso acompanhamento.

Caríssimo utente,

A Solicitação da Licença Ambiental de Instalação nº **17695475244** foi deferido para elaboração do(s) estudo(s) de impacte ambiental. Para verificar as Entidades de Consultoria Ambiental, aceder "Serviços / Editar Estudo Ambiental" na plataforma do SIA.

Para iniciar o estudo, aceder a plataforma SIA e efectuar o upload dos ficheiros do estudo.

Para dúvidas e esclarecimentos, por favor encaminhar email para dnpaia@mcta.gov.ao.

Aceder o portal

Observação: O Ministério do Ambiente nunca pede as suas informações por correio electrônico.

Caso haja necessidade de contacto com o Ministério do Ambiente, gentileza utilizar a conta de correio electrônico dnpaia@mcta.gov.ao.

Nota de Liquidação

RUPE - Referência Única de Pagamento ao Estado

602 012 402 024 122 993 92

1 - DADOS DO DOCUMENTO

1.1 Número	1.2 Data de Emissão	1.3 Mês/Ano de Referência Única	1.4 Data de Vencimento
24122993249	**04/10/2024**	**8/2024**	**03/11/2024**

1.5 Forma de Liquidação	1.6 Tipo de Liquidação
Auto Liquidação	**Comparticipação**

2 - DADOS DO CONTRIBUINTE

2.1 NIF	2.2 Nome do Contribuinte ou Designação
5002047810	**Adpg Luanda - Operador De Terminal, Lda**

3 - DETALHE DA RECEITA

3.1 Código da Receita	3.2 Nome da Receita	3.3 Valor da Receita
04S	**Receitas De Serviços Diversos**	**41.240,00**

3.4 Valor Total

41.240,00

3.5 Valor Total (por extenso)

Quarenta e Um Mil e Duzentos e Quarenta Kwanzas

4 - OUTRAS INFORMAÇÕES

4.1 - Observações

A solicitação do serviço será cancelada automaticamente, caso não seja pago até a data do vencimento 03/11/2024. Protocolo: 17695475244. Documento: Estudo Ambiental.

Pagamento do documento disponível em:

Multicaixa: Seleccionar: **Pagamentos >> Pagamentos ao Estado**
Informe a RUPE: **602 012 402 024 122 993 92** e o Valor:**41.240,00AKZ**

Balcão do Banco: Informar o número do GPT: **24122993249**

O talão emitido pelo Multicaixa faz prova de pagamento.

República de Angola

MINISTÉRIO DO AMBIENTE

Direcção Nacional de TecnologiaS Ambientais

Número do Protocolo: 17695475244

Empreendedor: 5002047810 - Adpg Luanda - Operador de Terminal, Lda

ASSUNTO: Licença Ambiental de Instalação do projecto da Entidade Adpg Luanda - Operador De Terminal, Lda

Os nossos respeitosos cumprimentos.

Deste modo, vimos por este intermédio informar que o projecto denominado **Desenvolvimento do Porto da Unicargas Em Luanda, Angola**, localizada no Bairro Bungo Largo 4 de Fevereiro, Luanda 1229, Distrito Ingombota, Município de Luanda, cujo proponente é a **Adpg Luanda - Operador De Terminal, Lda**, foi concluído aguardando somente pela emissão da competente Licença Ambiental.

O pagamento da taxa da Licença Ambiental precede a emissão da Licença Ambiental.

Sem outro assunto de momento, reiteramos os nossos cumprimentos, com estima e consideração.

DIRECÇÃO NACIONAL DE TECNOLOGIAS AMBIENTAIS, em Luanda aos 20 de Novembro de 2024.

A DIRECTORA

VILMA JACIRA DA SILVA PAULO M´BUMBA

Nota de Liquidação

RUPE - Referência Única de Pagamento ao Estado

602 012 402 029 759 061 55

1 - DADOS DO DOCUMENTO

1.1 Número	1.2 Data de Emissão	1.3 Mês/Ano de Referência Única	1.4 Data de Vencimento
29759061244	**20/11/2024**	**8/2024**	**20/12/2024**

1.5 Forma de Liquidação	1.6 Tipo de Liquidação
Auto Liquidação	**Definitiva**

2 - DADOS DO CONTRIBUINTE

2.1 NIF	2.2 Nome do Contribuinte ou Designação
5002047810	**Adpg Luanda - Operador De Terminal, Lda**

3 - DETALHE DA RECEITA

3.1 Código da Receita	3.2 Nome da Receita	3.3 Valor da Receita
07M	**Outras Taxas**	**54.017.589,00**

3.4 Valor Total

54.017.589,00

3.5 Valor Total (por extenso)

Cinquenta e Quatro Milhões, Dezessete Mil e Quinhentos e Oitenta e Nove Kwanzas

4 - OUTRAS INFORMAÇÕES

4.1 - Observações

A solicitação do serviço será cancelada automaticamente, caso não seja pago até a data do vencimento 20/12/2024. Protocolo: 17695475244. Documento: Licenciamento.

Pagamento do documento disponível em:

Multicaixa: Seleccionar: **Pagamentos >> Pagamentos ao Estado**
Informe a RUPE: **602 012 402 029 759 061 55** e o Valor:**54.017.589,00AKZ**

Balcão do Banco: Informar o número do GPT: **29759061244**

O talão emitido pelo Multicaixa faz prova de pagamento.

11. Annex 11. Incident and Accident Reporting Forms

Incident and Accident Reporting Forms

1. Incident/Accident Reporting and Investigation Form

Date and Time of Incident:

_____

Location of Incident:

_____

Reported By (Name and Position):

_____

Description of Incident:

_____

_____

_____

_____

_____

Immediate Actions Taken:

_____

_____

_____

_____

Witnesses (Name and Contact):

_____

_____

_____

Injuries or Damages (if any):

_____

_____

_____

Investigation Findings:

_____

_____

Incident and Accident Reporting Forms

_____

_____

_____

_____

Recommended Actions:

_____

_____

_____

_____

Investigator's Name and Signature:

_____

Date:

_____

Incident and Accident Reporting Forms

2. Incident Report Form for SEAH Cases

Date and Time of Incident:

_____

Location of Incident:

_____

Reported By (Name and Position):

_____

Description of SEAH Incident:

_____

_____

_____

_____

_____

_____

Perpetrator Details (if known):

_____

_____

_____

Victim Details (if appropriate):

_____

_____

_____

Witnesses (Name and Contact):

_____

_____

_____

Immediate Support Provided to Victim:

_____

_____

Incident and Accident Reporting Forms

_____

_____

Reporting Officer's Name and Signature:

_____

Date:

_____

12. Annex 12. Compliance Certificate for Waste Management Plan - issued by National Waste Agency (ANR)

مجموعة موانئ أبوظبي AD PORTS GROUP	AD Ports Group Project	TYPSA
PROJECT TITLE	**Contract No. 2800-302** **Title: Environmental Consultancy Services for the Development of Unicargas Port in Luanda – Angola**	

Compliance Certificate for Waste Management Plan - issued by National Waste Agency (ANR)

CONTRACTOR'S VERIFICATION STAMP

We, TYPSA Group, verify that this contractor's document:

- Has been produced and checked in accordance with contractor's quality assurance plan
- Is of a standard that will enable the employer to accept it in accordance with the contract
- Complies with all requirements of the contract

Following deviations to contract are referenced for which a dispensation has been accepted by the employer:

None

Other related letters/CTIs which document clarifications associated with this document are listed below:

None

Consultant/Contractor's Project Manager:

Patricia Rullán 08.08.2025

Project Manager | Signature | Date

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The statement "work may proceed" applies to the following work activities associated with the matters contained within the contractor's document:

Any review, comment or acceptance by employer under this contract with respect to any of contractor's documents shall not in any way be, or deemed to be, an approval of any works or an acceptance that the contractor's documents meet the requirements of the contract, as contractor has the sole responsibility for performing the works in accordance with the requirements of this contract.

Document Number: 2800-302-V3-0000-00033

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Rev	**Date**	**Reason For Revision**	**Prepared**	**Checked**	**Approved**

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REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
AGÊNCIA NACIONAL DE RESÍDUOS

Á
Direcção Da Soapro,S.A

CC: ADPG Luanda - Operador De Terminal, Lda
Luanda

N.º 179C/ANR/2024
Assunto: Parecer Técnico Sobre Análise do Plano de Gestão de Resíduos.

Os Nossos Respeitosos Cumprimentos.

A Agência Nacional de Resíduos criada ao abrigo do Decreto Presidencial nº181/14 de 28 de Julho, é um órgão tutelado pelo Ministério do Ambiente, encarregue de executar a política nacional de gestão de resíduos na base da hierarquia dos princípios de gestão aplicáveis, prevenção da produção, reutilização, reciclagem, valorização e eliminação dos resíduos, com critérios de protecção ambiental, assegurando assim a nível nacional a política sobre a gestão de resíduos no âmbito da normação, regulação e fiscalização.

Nesta conformidade, após análise do Plano de Gestão de Resíduos do projecto **"Requalificação do Porto da Unicargas de Luanda"** localizado no Município e Província de Luanda, informamos que o mesmo está de modo geral em conformidade com o disposto no Decreto Presidencial nº 190/12 de 24 de Agosto, Regulamento sobre Gestão dos Resíduos.

Contudo, o projecto aguardará a emissão do Certificado de Conformidade do Plano de Gestão de Resíduos.

Sem outro assunto de momento, subscrevo-me com consideração.

AGÊNCIA NACIONAL DE RESÍDUOS, em Luanda, aos 22 de Maio de 2025.

O Presidente do Conselho de Administração

Adérito Adelino João Carlos Mohamed

Estrada da Samba, Condomínio Rosalinda,
Edifício 11B, 3º andar, porta C | Luanda-Angola
Email: agencianacionalderesiduos@anr.gov.ao
Telefone: +244 222 779 571

REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
AGÊNCIA NACIONAL DE RESÍDUOS

CERTIFICADO

Conformidade do Plano de Gestão de Resíduos

N.º 179C/ANR/2024

A Agência Nacional de Resíduos, em conformidade com as competências conferidas pela alínea g) do n.º 1 do artigo 5.º do Decreto Presidencial n.º 181/14, de 28 de Julho, que aprova o Estatuto Orgânico da Agência Nacional de Resíduos;

Tendo sido cumpridas as disposições consignadas pelo artigo 7.º do Decreto Presidencial n.º 190/12, de 24 de Agosto , que prova o Regulamento sobre a Gestão de Resíduos;

Certifica que foi aprovado o certificado de Conformidade do Plano de Gestão de Resíduos para o projecto **Requalificação do Porto da Unicargas de Luanda** da **ADPG LUANDA - OPERADOR DE TERMINAL, LDA** Contribuinte Fiscal n.º **5002047810**, estabelecimento localizado no Bairro Luanda, Distrito Ingombotas, Município , Província Luanda, em observância ao exposto nas disposições constantes nos diplomas supra mencionados

Data de Emissão: 31/07/2025

Data de Validade: 31/07/2029

O Presidente do Conselho de Administração

Adérito Adelino João Carlos Mohamed

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MEDIDAS DE MINIMIZAÇÃO DE RESÍDUOS

Emitido o Certificado de Conformidade do Plano de Gestão de Resíduos, devem ser cumpridas as medidas abaixo descritas durante a implementação do projecto **Requalificação do Porto da Unicargas de Luanda** do certificado Nº **179C/ANR/2024**

Prevenção na Fonte

• Adoptar tecnologias e processos mais eficientes que reduzam a produção de resíduos;

• Realizar de manutenções preventivas de de equipamentos fabris e máquinas para evitar perdas de materiais e insumos;

• Substituir matérias-primas tóxicas ou não renováveis por alternativas com menor impacte ao ambiente e biodegradáveis;

• Usar embalagens retornáveis ou reduzir o uso de materiais em embalagens descartáveis.

Reutilização e Reciclagem de Resíduos

• Reaproveitar materiais descartados no processo produtivo, como aparas de metal, resíduos de madeira, papel ou plásticos;

• Implementar sistemas de recirculação de água em circuitos fechados;

• Transformar resíduos em subprodutos úteis, como combustíveis alternativos (valorização energética) ou matéria-prima para outros processos;

• Promover parcerias com outras indústrias para uso de resíduos como insumos em diferentes sectores.

Gestão de Resíduos Líquidos e Gasosos

• Instalar sistemas de tratamento físico-químico ou biológico para efluentes industriais antes do descarte;

• Reutilizar a água tratada para resfriamento, irrigação ou outros processos;

• Implementar filtros, catalisadores e outros dispositivos para reduzir a emissão de gases poluentes;

• Monitorar continuamente os níveis de emissão para evitar exceder limites regulatórios permissíveis.

Gestão de Resíduos Sólidos

• Estabelecer sistemas de separação de resíduos na fonte para facilitar a reciclagem e o descarte adequado;

• Garantir que resíduos perigosos sejam armazenados de forma segura, evitando derrames e contaminação do solo e água.

Capacitação e Sensibilização

• Capacitar os trabalhadores para identificar oportunidades de redução de resíduos e adoptar boas práticas no uso de materiais e equipamentos;

• Promover campanhas internas para engajar colaboradores na redução e no gestão correcta dos resíduos;

• Apoiar projectos de consciencialização sobre a gestão de resíduos da ANR, estais como o PEDUR, Reciclar com as Comunidades, 1 minuto de sensibilização, nas Escolas e Comunidades aonde esta a ser implementado o projecto;

• Sempre que ocorrer situação anómala no que concerne a gestão de resíduos, comunicar a Agência Nacional de Resíduos no prazo máximo de 12 horas no endereço: agencianacionalderesiduos@anr.gov.ao; (nº1 e 2 do artigo 11º do Decreto Presidencial nº 190/12).

Monitorização e Auditorias

• Implementar normas como a ISO 14001 para gerenciar resíduos de forma integrada e eficiente;

• Realizar auditorias ambientais periódicas para identificar fontes de resíduos e implementar melhorias contínuas.

Inovação e Pesquisa

• Investir em pesquisa e desenvolvimento para criar processos industriais mais limpos e eficientes;

• Implementar práticas que transformem resíduos em insumos para o mesmo ou outros ciclos produtivos.

Planeamento e Conformidade

• Adequar a produção à demanda real para evitar excesso de materiais e produção de resíduos desnecessários;

• Garantir que todas as práticas sigam as legislações locais e internacionais de gestão de resíduos realizando auditorias internas/externas de gestão de resíduos e avaliações pontuais periodicamente, para a supervisão do Plano de Gestão de Resíduos;

• Remeter à Agência Nacional de Resíduos mensalmente um resumo (tipologia dos resíduos produzidos, quantidades, tratamento, valorização, destino final, fazendo remissão do manifesto dos resíduos descartados, quer seja ao aterro ou adquiridos por empresas de valorização devidamente identificadas;

• É crucial o respeito pelo prazo de renovação do Plano de Gestão de Resíduos, conforme orienta o nº4 do artigo 7º do Decreto Presidencial nº190/12 de 24 de Agosto, Regulamento sobre Gestão de Resíduos.

Observação: No decurso das suas actividades a empresa será alvo de acções periódicas de controlo por parte da Agência Nacional de Resíduos, conforme a alínea g) do artigo 6º, do Decreto Presidencial nº190/12 de 24 de Agosto, Regulamento sobre Gestão de Resíduos, devendo sempre colaborar com as entidades devidamente mandatadas.

O não cumprimento de qualquer das medidas supramencionadas, constitui infracção passível de aplicação de multas e sanções acessórias, que podem resultar na cassação do Certificado e, não isenta o infractor das responsabilidades civis e criminais, aplicáveis nos termos da lei.

O Presidente do Conselho de Administração

Adérito Adelino João Carlos Mohamed

REPUBLIC OF ANGOLA
MINISTRY OF ENVIRONMENT
NATIONAL WASTE AGENCY

CERTIFICATE

Compliance with the Waste Management Plan

No. 179C/ANR/2024

The National Waste Agency, in accordance with the powers granted under subparagraph g) of paragraph 1 of Article 5 of Presidential Decree No. 181/14 of 28 July, which approves the Organic Statute of the National Waste Agency;

Having complied with the provisions set forth in Article 7 of Presidential Decree No. 190/12 of 24 August, which approves the Waste Management Regulations;

Certifies that the Certificate of Compliance with the Waste Management Plan has been approved for the project **Redevelopment of the Unicargas Port of Luanda by ADPG LUANDA – TERMINAL OPERATOR, LDA**, Taxpayer No. **5002047810**, facility located in Bairro Luanda, Ingombotas District, Municipality, Luanda Province, in accordance with the provisions outlined in the aforementioned legal documents.

Date of Issue: 31/07/2025 Date of Expiry: 31/07/2029

Chairman of the Board of Directors

Adérito Adelino João Carlos Mohamed

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WASTE MINIMIZATION MEASURES
Upon issuance of the Certificate of Compliance with the Waste Management Plan, the following measures must be complied with during the implementation of **the Redevelopment of the Unicargas Port of Luanda** project – Certificate **No. 179C/ANR/2024**

Source Prevention:

• Adopt more efficient technologies and processes that reduce waste production;

• Conduct preventive maintenance of factory equipment and machinery to avoid material and input losses;

• Replace toxic or non-renewable raw materials with alternatives with lower environmental impact and biodegradable;

• Use returnable packaging or reduce the use of disposable packaging materials.

Waste Reuse and Recycling:

• Reuse discarded materials in the production process, such as metal shavings, wood waste, paper or plastics;

• Implement water recirculation systems in closed circuits;

• Convert waste into useful by-products, such as alternative fuels (energy recovery) or raw materials for other processes;

• Promote partnerships with other industries for the use of waste as inputs in different sectors.

Liquid and Gaseous Waste Management:

• Install physical-chemical or biological treatment systems for industrial effluents before discharge;

• Reuse treated water for cooling, irrigation, or other processes;

• Implement filters, catalysts, and other devices to reduce pollutant gas emissions;

• Continuously monitor emission levels to avoid exceeding permissible regulatory limits.

Solid Waste Management:

• Establish source separation systems to facilitate recycling and proper disposal;

• Ensure that hazardous waste is stored safely, preventing spills and contamination of soil and water.

Training and Awareness:

• Train workers to identify opportunities for waste reduction and to adopt good practices in the use of materials and equipment:

• Promote internal campaigns to engage employees in the reduction and correct management of waste;

• Support waste management awareness projects led by the ANR, such as PEDUR, Recycling with Communities, 1 Minute of Awareness, in schools and communities where the project is being implemented;

• Whenever an anomalous situation occurs regarding waste management, report it to the National Waste Agency within a maximum of 12 hours to the address: agencianacionalderesiduos@anr.gov.ao;
(items 1 and 2 of Article 11 of Presidential Decree No. 190/12).

Monitoring and Audits:

• Implement standards such as ISO 14001 to manage waste in an integrated and efficient manner;

• Conduct regular environmental audits to identify waste sources and implement continuous improvements.

Innovation and Research:

• Invest in research and development to create cleaner and more efficient industrial processes;

• Implement practices that transform waste into inputs for the same or other production cycles.

Planning and Compliance:

• Align production with actual demand to avoid material surplus and unnecessary waste generation;

• Ensure that all practices comply with local and international waste management legislation by conducting internal/external waste management audits and periodic assessments for supervision of the Waste Management Plan;

• Submit a monthly report to the National Waste Agency with a summary (waste types produced, quantities, treatment, recovery, final destination, referring to the waste manifest for discarded materials, whether sent to landfill or acquired by duly registered recovery companies);

• It is crucial to respect the deadline for renewal of the Waste Management Plan, as outlined in Article 7, No.4 of Presidential Decree No. 190/12 of 24 August, Waste Management Regulation.

Note: During its operations, the company will be subject to periodic control actions by the National Waste Agency, in accordance with Article 6, paragraph (g) of Presidential Decree No. 190/12 of 24 August, Waste Management Regulation, and must always cooperate with duly authorized entities.

Failure to comply with any of the above measures constitutes an infraction subject to the application of fines and accessory sanctions, which may result in the revocation of the Certificate, and does not exempt the offender from civil and criminal liabilities as provided by law.

The Chairman of the Board of Directors

Adérito Adelino João Carlos Mohamed

13. Annex 13. Environmental Installation License

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE INSTALAÇÃO

N.º 17695475244

Nos Termos do Decreto Presidencial que aprova o Regulamento Geral sobre Avaliação de Impactes e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes, nomeadamente a apresentação do instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para execução e operação do projecto.

É passada a Licença Ambiental de Instalação, do projecto denominado:

Desenvolvimento do Porto da Unicargas Em Luanda, Angola, no Bairro Bungo Largo 4 de Fevereiro, Luanda 1229, Distrito Ingombota, Município de Luanda.

Operado pela **Adpg Luanda - Operador De Terminal, Lda.**

Confirma-se a não existência de potenciais impactes ambientais no decorrer do desenvolvimento do projecto a desenvolver na Província de **Luanda**, que se enquadra na categoria B de projecto de Infra-Estruturas..

Emitida em 17 de Dezembro de 2024	**Válida até** 17 de Dezembro de 2027

Assinatura

(Ministra)

Ana Paula Chantre Luna Carvalho Pereira

A autenticidade deste documento poderá ser verificada através dos passos a seguir:
1. Aceda ao Portal MINAMB (https://sia.minamb.gov.ao/validacaodocumentos)
2. Introduza o código **LINST-1496188965** no campo "Código de Validação"
3. Clique em "Pesquisar"
Número da Licença: **17695475244**

República de Angola Ministério do Ambiente	**ANEXO** **Número da Licença: 17695475244** **Página 1 de 7**

Gabinete da Ministra

Medidas de Mitigação

É emitida a Licença Ambiental do Projecto denominado por **Desenvolvimento do Porto da Unicargas em Luanda** da empresa **Adpg Luanda-Operador do Terminal, Lda.:**

1.Medidas de Mitigação (C):

1.1 Nos termos da Legislação em vigor deve o proponente cumprir com o seguinte:

1.1.1 A Licença Ambiental de Instalação precede à Licença Ambiental de operação;

2.1.1 Obrigatoriedade de informar a entidade responsável pela política do ambiente, no prazo de 24 horas, de qualquer incidente que afecte consideravelmente o ambiente;

2.1.2 O requerimento para renovação da Licença Ambiental deve ser submetido ao Departamento Ministerial responsável pelo Sector do Ambiente ou ao Órgão Provincial competente, até 90 dias antes do termo de validade da Licença Ambiental;

2.1.3 As ampliações ou alterações das instalações para efeitos de aumento da produção ou melhoria de qualidade requerem licenciamento ambiental;

2.1.4 O proponente responde civil e criminalmente sempre que:

a) Não submeter a sua actividade ao processo prévio de licenciamento ambiental;
b) Altere a actividade inicial após a emissão da licença ambiental sem prévia autorização da entidade competente;
c) Apresentar informação fraudulenta, adulterada ou omissa durante o processo de AIA;
d) Não implemente as medidas propostas nos estudos técnicos, bem como a não observância das condições de licenciamento ambiental;
e) Não proceder à actualização da licença ambiental.

2.1.5 No âmbito do licenciamento ambiental, constitui infracção ambiental punível com multa:

a) O início da implementação e operação de actividades e alterações das instalações antes de emitida a competente licença ambiental;
b) A alteração do sistema de produção ou de exploração sem a devida licença ambiental.

DIÁRIO DA REPÚBLICA - I SÉRIE N.º 84 DE 13 DE JULHO DE 2007

1.2 Medidas de Protecção do Ar e Ruído para o Controlo de Emissões

1.2.1 Criação de boas práticas de eficiência energética e fontes renováveis de energia;

1.2.1 Dar preferência a iluminação do exterior do projecto para *LED´s*;

1.2.2 Trocar progressivamente lâmpadas ineficientes por lâmpadas eficientes e instalar dispositivos de controlo (sensores de luz e sensores de movimento) ;

1.2.3 Realização de Campanhas de fornecimento de lâmpadas eficientes e dispositivos de controlo (sensores de luz e sensores de movimento) ao nível doméstico;

1.2.4 Os topos dos respiradores, abertos para atmosfera e em local visível, deverão estar munidos de tapa-chamas em rede de arame e libertar os gases a uma altura do solo igual ou superior a 4 m;

1.2.5 Deverá efectuar-se manutenção adequada da frota de veículos, reduzindo as emissões excessivas de gases e de partículas provenientes dos veículos e geradores móveis;

1.2.6 Pulverizar as áreas externas com solo descoberto;

1.2.7 As emissões de partículas podem ser controladas pelo uso de equipamentos de aspiração e separação mediante o uso de ciclones;

1.2.8 Instalação e manutenção dos filtros de manga nos sistemas dos geradores e equipamentos de emissões de gases poluentes;

1.2.9 Os equipamentos sonoros e máquinas deverão ter a sua potência sonora, bem identificada e cumprir com os limites considerados admissíveis;

1.2.10 Controlar a velocidade de circulação das viaturas pesadas, de modo a minimizar a ressuspensão de partículas e os níveis de ruído;

1.2.11 Manter o nível de ruído dentro de limites aceitáveis e as actividades de construção devem, sempre que possível, ser limitadas ao horário normal de trabalho. Sempre que se considerar que se irão ultrapassar, ou se ultrapassem os limites aceitáveis, devem instalar-se silenciadores para máquinas e equipamentos e barreira insonorizadoras nos locais passive de produzir ruído;

1.2.12 Utilizar chaminés com filtros apropriados nos geradores para minimizar a emissão de poluentes atmosféricos;

1.2.13 Planear acções de comunicação e informação à população relativamente à possibilidade de ocorrência de actividades geradoras de maiores níveis de ruído;

1.3 Solos e Uso do Solo

1.3.1 Implementar medidas preventivas, para adopção de um planeamento prévio em qualquer actividade ligada ao uso do solo, para a prevenção dos processos erosivos;

1.3.2 Todas as superfícies onde são manuseados combustíveis e potenciais poluidores, devem estar em superfície lisa e impermeável;

1.3.3 Instituir procedimentos internos relativamente aos derrames acidentais e encaminhamento dos solos ou material absorvente eventualmente contaminados para destino adequado;

1.3.4 Limpar todos os pequenos derrames que ocorram na área, de forma a minimizar os impactes sobre o solo e não só. Devem ser desenvolvidos procedimentos de gestão de derrames, incluindo procedimentos de limpeza remoção, deposito/armazenamento e eliminação.

1.4 Medidas de Prevenção e Controlo de Gestão de Águas

1.4.1 Fica Proibido a alteração dos regimes de escoamento cursos naturais de água;

1.4.2 Prevenir a potencial contaminação do meio hídrico, não permitindo a descarga de poluentes (óleos, lubrificantes, combustíveis, produtos químicos e outros materiais) e evitando o seu derrame acidental;

1.4.3 Deve o proponente adoptar práticas que permitam controlar e reduzir o consumo de água instalando equipamentos que permita por si só a redução do consumo de água (por exemplo, utilizar torneiras com redução de caudal ou torneiras de pressão);

1.4.4 Implementação de separadores de hidrocarbonetos para a separação da fração aquosa e da fração contaminada com óleos e hidrocarbonetos, permitindo assim a descarga da primeira e a remoção periódica da segunda fração;

1.4.5 Criação de uma Estação de Tratamento de Águas Residuais (ETAR);

1.4.6 As águas residuais devem ser drenadas para uma bacia de retenção, impermeabilizada e isolada da rede de drenagem natural;

1.4.7 Instalação de caleiras para o aproveitamento de água das áreas condicionados, bem como das pluviométricas para o combate a incêndio, lavagem dos pavimentos, lavagem das viaturas, rega dos espaços verdes;

1.4.8 Sensibilizar os colaboradores para a adopção de medidas que conduzam a um consumo de água mais eficiente;

1.4.9 Criar um sistema de monitorização da qualidade da água para o consumo nas principais fontes de água potável.

1.5 Medidas de Controlo e Gestão de Resíduos

1.5.1 Implementação de Plano de Gestão de Resíduos, de acordo com a legislação em vigor nomeadamente o Decreto Presidencial nº190/12 de 24 de Agosto, referente ao Regulamento sobre Gestão de Resíduos;

1.5.2 O processo de identificação e acondicionamento de resíduos perigosos deve ser efectuado de acordo Decreto 190/12 de 24 de Agosto, sem prejuízo da aplicação do Regulamento Sanitário Nacional, Regulamento de Radioprotecção para garantir a sua conformidade e harmonia com os princípios e normas internacionais assumidas pelo País sobre gestão de resíduos perigosos, bem como sobre o transporte de substâncias ou produtos perigosos;

1.5.3 Os resíduos perigosos devem ser empacotados ou acondicionados de acordo com as normas técnicas a estabelecer. Devem ser efectuados segundo percursos definidos por instruções específicas sobre acondicionamento de resíduos perigosos, devendo no mínimo serem contidos em recipiente com capacidade para:

a) Resistir às operações normais de armazenagem e de transporte;
b) Manter selado o conteúdo para que não vaze;
c) Não serem danificados pelo seu conteúdo;
d) Não formarem substâncias prejudiciais ou perigosas quando em contracto com o seu conteúdo;
e) Serem devidamente identificados com os símbolos previstos no Anexo V do presente Regulamento DP 190/12 de 24 de Agosto.

1.5.4 Para além das condicionantes acima descritas, devem ser ainda observados os seguintes cuidados especiais para as seguintes categorias de resíduos:

a) As substâncias auto-inflamáveis devem ser acondicionadas em recipientes hermeticamente fechados;
b) As substâncias que libertam gases inflamáveis quando em contacto com água, devem ser acondicionadas em locais livres de humidade;
c) As substâncias radioactivas, devem ser acondicionadas em recipientes construídos de tal maneira que as radiações por estas emitidas sejam limitadas a uma quantidade mínima e eficientemente protegidas em áreas completamente seladas, de modo a que, não haja qualquer possibilidade de os trabalhadores ou o público em geral terem contacto com os isótopos de acordo com as normas internacionais supervisionadas pela Agência Internacional de Energia Atómica - AIEA.

1.5.5 Contratar uma empresa efectiva que se ocupa do tratamento de limpeza e manutenção das fossas sépticas que esteja registada na Agência Nacional de Resíduos para efectuar tais trabalhos;

1.5.6 Criação de uma zona apropriada para o armazenamento dos resíduos;

1.5.7 Reforçar e documentar um programa de limpeza periódica da área do gerador, e dar o devido encaminhamento dos resíduos obtidos, como os filtros, os óleos queimados, para um destino ambientalmente correcto;

1.5.8 Assegurar que resíduos são colocados em contentores próprios e encaminhados para destino adequado por operadores licenciados para o efeito, não permitindo que estes equipamentos ultrapassem os 90% da sua capacidade;

1.5.9 Assegurar a instalação em todos os lugares de depósito de combustíveis, lubrificantes ou outras substâncias químicas, sejam manipuladas, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados;

1.5.10 Colocação de bacias de retenção e equipamento com material absorvente no grupo de geradores e no depósito de combustível;

1.5.11 Deve-se proceder à monitorização das quantidades específicas e tipos de resíduos produzidos, para que seja possível implementar acções de minimização e redução dos impactes na fonte;

1.5.12 Inspecção e manutenção periódica da rede de encaminhamento de águas residuais quer para o separador de hidrocarbonetos quer para as fossas sépticas;

1.5.13 Estabelecer uma área devidamente impermeabilizada dedicada somente para alocação de contentores para acondicionamento dos resíduos;

1.5.14 A deposição final dos resíduos deverá ser feita por uma empresa Licenciada pelo Ministério do Ambiente.

1.6 Medidas de Protecção de Derrames e Incêndios

1.6.1 Instalações eléctricas devem ser mantidas em bom estado;

1.6.2 O quadro eléctrico deve ficar fora da área de armazenamento e os fios eléctricos devem estar em calhas apropriadas para prevenir os curto-circuitos que constituem as causas da maioria dos incêndios;

1.6.3 Sinalização das áreas e estantes, além dos locais dos extintores de incêndio, precisam ser identificadas;

1.6.4 Verificar a possibilidade de instalação de um sistema de bombagem dos óleos lubrificantes, diminuindo assim a possibilidade de derrames acidentais, uma vez que os sistemas mecânicos são menos falíveis do que a interacção humana;

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1.6.5 Deve ser prevista a contenção/retenção de eventuais derrames considerando a quantidade de combustível armazenada no empreendimento, disponibilizar Kit's de contingência em todas as áreas susceptíveis de ocorrer incidentes e implementar um plano de formação do pessoal, resposta a incidentes para prontidão em caso de ocorrência de derrames;

1.6.6 A empresa deverá fornecer a todos os compartimentos com susceptibilidade de risco, equipamentos de combate a incêndios devidamente testados e aprovados;

1.6.7 Extintores de incêndio devem ser adequados aos tipos de materiais armazenados e devem estar fixados nas paredes e sinalizados conforme normas vigentes;

1.6.8 Implementação de uma Rede de Combate a Incêndios composta por detectores de fumo, bocas de incêndio, extintores e outros com a orientação do Serviço Nacional de Protecção Civil e Bombeiros;

1.6.9 Colocação do sinal de ponto de concentração para em caso de emergência;

1.6.10 Deve o proponente desenvolver e implementar um Plano de Emergência que defina as medidas preventivas e os procedimentos a adoptar em situações de emergência;

1.6.11 Deve-se assegurar que todos os locais de instalação dos depósitos de combustíveis, lubrificantes ou outras substâncias químicas, assim como todas as áreas onde estes sejam manipulados, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados, para poderem reter o volume máximo de líquido susceptível de ser derramado.

1.7 Socioeconomia

1.7.1 Zelar pela rigorosa observância e os Direitos das comunidades locais na zona de inserção do projecto;

1.7.2 Deverá respeitar as leis de Segurança e Protecção no trabalho, de acordo com as directrizes do Decreto nº 128/04 de 23 de Novembro que aprova o Regulamento Geral de Sinalização de Segurança e Saúde no trabalho;

1.7.3 Deve o empregador tomar medidas necessárias no âmbito da segurança e higiene no trabalho, ou seja integrar na gestão da empresa as actividades de Segurança, Higiene e Saúde no Trabalho;

1.7.4 Fazer seguro individual ou em grupo a todos os trabalhadores aprendizes e estagiários contra os riscos de acidentes de trabalho e doenças profissionais salvaguardando as pequenas e micro empresas;

1.7.5 Organizar e dar formação prática apropriada em matéria de segurança e saúde no trabalho a todos os trabalhadores;

1.7.6 Cumprir e fazer cumprir todas as normas, legislação, regulamentos de Segurança e Saúde no Trabalho;

1.7.7 Criar os Serviços de Segurança e Higiene no Trabalho ou a Medicina do Trabalho, como órgão de apoio à Empresa Comissão de Prevenção de Acidentes de Trabalho " CPAT" ;

1.7.8 As entidades empregadoras devem garantir que cada trabalhador receba informações e instruções em matéria de segurança, higiene e saúde no trabalho, por ocasião de:

a) Sua contratação;

b) Mudança de posto de trabalho ou de técnica e de processo de trabalho;

c) Utilização de substâncias cuja manipulação envolva riscos;

d) Regresso ao trabalho após ausência superior a seis meses.

1.7.9 Implementar uma Política Ambiental no projecto;

1.7.10 Assegurar a assistência médica e medicamentosa a todos os funcionários;

1.7.11 Criação de espaços verdes e plantação de árvores na área do projecto ou áreas adjacentes em colaboração com a administração local;

1.7.12 Garantir condições higiênico-sanitárias adequadas para os trabalhadores durante o desenvolvimento de trabalhos de produção e operações a decorrer;

1.7.13 Realização de acções de formação/sensibilização, para a consciencialização dos colaboradores para o correcto manuseamento dos equipamentos;

1.7.14 Definir um responsável pelo Ambiente e Segurança no trabalho;

1.7.15 Uso obrigatório de EPI´s aos trabalhadores adequados para o tipo de actividade.

2. Medidas de Reposição Ambiental /Medidas de Compensação (d):

2.1 Implementação de Programa de Educação Ambiental, promovendo acções que venham a contribuir para melhoria das condições de saúde e saneamento dos trabalhadores e comunidade envolvente do projeto, por meio de campanhas informativas que incluam formas de prevenção, transmissão e tratamento de doenças, hábitos de higiene, consciencialização sobre a importância do saneamento básico;

2.2 Apoiar a Administração local em projectos de contenção da erosão da costa.

3 Sistema de Gestão Ambiental (e)

3.1.Deverá o proponente implementar um Plano de Gestão Ambiental (PGA) de caráter operacional, que visa garantir que o projecto ou partes do projecto seja executada de forma a ter em conta os requisitos ambientais que levem a prevenção e minimização do impacte ambiental associado à efectiva execução do mesmo.

3.2.Apresentação dos Programas de Monitorização Ambiental Trimestral ao Ministério do Ambiente, de acordo o Termo de Referência Anexo, este deve incluir:

a) Programa de Gestão da Qualidade do Ar, Solo e Água;

b) Programa de Gestão de Resíduos e Efluentes;

c) Programa de Combate a Incêndios;

d) Plano de Contingência a Derrames;

e) Programa de Treinamento de Conscientização Ambiental.

DIÁRIO DA REPÚBLICA - I SÉRIE Nº 84 DE 13 DE JULHO DE 2007

3.3 Nota: Deve a empresa enviar à entidade licenciadora, no prazo de 30 dias o Plano de Acção detalhado, incluindo medidas e acções concretas, cronograma e recursos a utilizar para a implementação das Medidas de Compensação. Com a aprovação do Plano de Acção, as Medidas e Acções Propostas deverão ser imediatamente implementadas pela empresa.

4 Observação

4.1 Segundo Decreto nº 117/20 de 22 de Abril, as actividades sujeitas a Avaliação de Impacte Ambiental estão igualmente sujeitas a Auditoria Ambiental definida por directrizes e prazos estabelecidos pelo Ministério Do Ambiente. O que pressupõe que durante todo o período de vigência desta licença, o proponente deve incluir no orçamento anual, despesas relacionadas com Auditorias Públicas a serem realizadas pelo Ministério do Ambiente.

Assinatura

ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

(Ministra)

República de ANGOLA

14. Annex 14. Report responding to ANR requirements within the scope of the Unicargas terminal project (Portuguese)

RELATÓRIO DE RESPOSTA AOS REQUISITOS DA ANR NO ÂMBITO DO PROJETO DO TERMINAL UNICARGAS

(Processo de Referência n.º 179C/ANR/2024)

Março de 2025

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1. RELATÓRIO DE RESPOSTA AOS REQUISITOS DA ANR NO ÂMBITO DO PROJETO DO TERMINAL UNICARGAS

Antes de detalhar as ações tomadas para responder a cada um dos requisitos delineados pela ANR no seu relatório técnico, é fundamental destacar que uma parte significativa das atuais instalações do Terminal da Unicargas será demolida e substituída por infraestruturas de última geração, mais eficientes e sustentáveis. Assim, as medidas apresentadas neste relatório representam os primeiros passos, com a expectativa de melhorias e aperfeiçoamentos contínuos no futuro. As obras de construção estão previstas para começar no 4.º trimestre de 2025, com conclusão programada para o 1.º trimestre de 2027.

Em 28 de outubro de 2024, a Agência Nacional de Resíduos (ANR) anunciou uma visita ao Terminal Unicargas como parte do projeto de desenvolvimento do Terminal Unicargas no Porto de Luanda (Processo de Referência n.º 179C/ANR/2024).

A visita ocorreu em 14 de fevereiro de 2024 e foi conduzida por dois técnicos especialistas da ANR: Octávio Figueiredo Papusseco e Amélia Xavier. Estiveram presentes Ludmila Campos, representando a Unicargas, bem como Ângela Alves e Joice Henriques, representando a SOAPRO, a consultoria ambiental acreditada pelo MINAMB, que presta suporte ao processo de licenciamento ambiental.

Após a visita, foi emitido o Parecer Técnico sobre a Análise do Plano de Gestão de Resíduos e Inspeção Realizada, destacando determinadas irregularidades observadas durante a vistoria e exigindo as seguintes ações:

1. **Envio de evidências documentais e fotográficas das melhorias implementadas em relação às recomendações ambientais para nova inspeção pelo órgão competente.**

   As recomendações ambientais incluem:

   - Implementar contentores específicos para resíduos perigosos e não perigosos, garantindo que nunca estejam misturados;
   - Criar uma área coberta exclusiva para o acondicionamento de resíduos perigosos, com pisos impermeáveis e kits de emergência para derrames.
   - Estabelecer procedimentos internos para resposta a derrames, incluindo a remoção segura de solos contaminados e o descarte apropriado.
   - Promover capacitações periódicas para os trabalhadores, focando na manipulação segura de resíduos e no cumprimento do PGR.
   - Realizar inspeções frequentes nos pontos de armazenamento, verificando o estado dos contentores, a separação correcta e a ausência de resíduos acumulados ou expostos.
   - Sinalizar todas as áreas existentes da unidade, indicando zonas de trabalho, armazenamento e circulação, para melhorar a organização e a segurança.
   - Os óleos usados resultantes das manutenções dos geradores deverão ser devidamente armazenados, numa zona impermeável e recolhidos por empresa credenciada para o efeito pela Agência Nacional de Resíduos, não depositados no esgoto, mesmo que em quantidade reduzida.

2. **Submissão do seguinte documento:**

- Licença ambiental a favor do projecto;
- Documento comprovativo da disponibilidade de aceitação dos resíduos pelo destinatário previsto conforme alínea l) do anexo II do regulamento acima descrito;
- Manifestos de recolha de resíduos;
- Guias de acompanhamento de resíduos, atestar de que os resíduos ferrosos, óleos usados e a madeira, são realmente entregues nas respectivas empresas: Zhogan Hengtai Lda; Angojordan e a Fazenda Corpinho, a fim de comprovar que os resíduos perigosos estão sendo encaminhados a empresas licenciadas para tratamento e descarte.

Em resposta a esta notificação, é apresentado este relatório, contendo o seguinte conteúdo resumido:

ANEXO I: Implementação das melhorias relacionadas às Recomendações Ambientais

Ações específicas:

1. Disponibilização de contentores específicos e separados para os diferentes tipos de resíduos geridos no terminal.
2. Colocação de etiquetas visíveis e claras nos respetivos contentores.
3. Aplicação de material impermeável nas áreas onde os contentores estão localizados para evitar fugas.
4. Posicionamento dos contentores para materiais perigosos numa área coberta, bem ventilada e equipada com kits de resposta a derrames de emergência.
5. Separação de todos os materiais atualmente armazenados no contentor geral.
6. Estabelecimento de procedimentos internos para resposta a derrames.
7. Implementação de marcação e sinalização em todas as áreas unitárias.
8. Desenvolvimento de um plano de inspeção dos pontos de armazenamento.
9. Envio dos dados do acordo com a empresa licenciada para a gestão de resíduos perigosos.
10. Elaboração de um plano de formação para a realização de capacitações periódicas para os trabalhadores, com foco na manipulação segura de resíduos e no cumprimento do PGR

ANEXO II: Documentação Solicitada

1. Licença ambiental a favor do projecto.
2. Guias de acompanhamento de resíduos / Manifestos / Documento comprovativo.

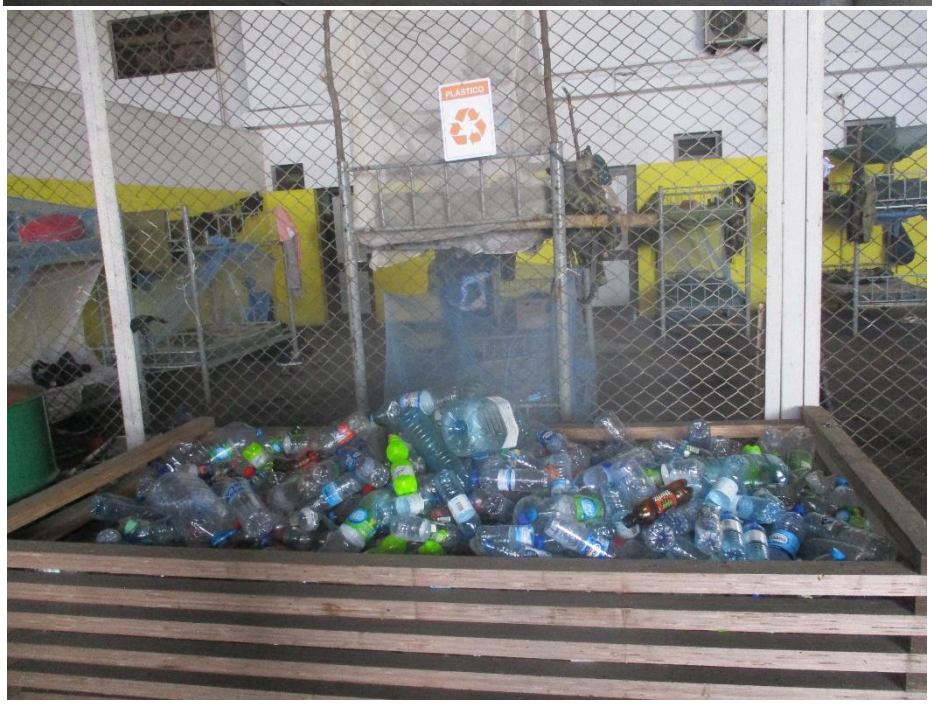
ANEXO III: Comunicações da ANR

1. Vistoria para o processo de certificação do Plano de Gestão de Resíduos (PGR).
2. Parecer Técnico Sobre Análise do Plano de Gestão de Resíduos e Vistoria Efectuada

2. ANEXO I: IMPLEMENTAÇÃO DAS MELHORIAS RELACIONADAS ÀS RECOMENDAÇÕES AMBIENTAIS

2.1. ANEXO I - AÇÕES ESPECÍFICAS 1, 2, 5: Disponibilização de contentores específicos e colocação de etiquetas nos respetivos contentores

CAIXA DE RECLAMAÇÕES


PLÁSTICO

PLASTICO

81/17
MADEIRA

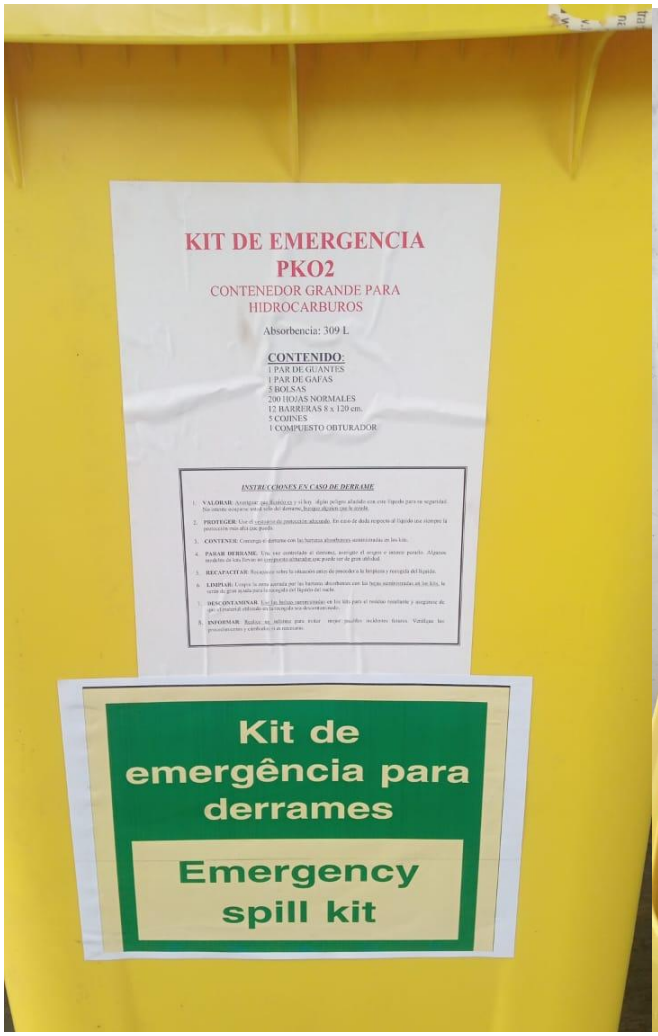
2.2. ANEXO I - AÇÕES ESPECÍFICAS 3, 4: Aplicação de material impermeável nas áreas onde os contentores estão localizados para evitar fugas e posicionamento dos contentores para materiais perigosos numa área coberta, bem ventilada e equipada com kits de resposta a derrames de emergência

AREIA

AREIA
COLETA SELETIVA
RESÍDUOS PERIGOSOS
LEMBRE-SE
ATENÇÃO
ATENÇÃO
MANTENHA ESTE LOCAL LIMPO
AVISO
PENSE

COLETA SELETIVA
ESTOPAS SUJAS
COLETA SELETIVA
ESTOPAS SUJAS
GASÓLEO USADO

COLETA SELETIVA
RESÍDUOS CONTAMINADOS
RESÍDUOS PERIGOSOS
LEMBRE-SE
SEGURANÇA EM PRIMEIRO LUGAR
ATENÇÃO
USO OBRIGATÓRIO DE EPI'S
ATENÇÃO
MANTENHA ESTE LOCAL LIMPO
AVISO
ÁREA RESTRITA
SOMENTE PESSOAL AUTORIZADO
PENSE
TODOS NÓS SOMOS RESPONSÁVEIS PELA PREVENÇÃO DE ACIDENTES
AREIA


KIT DE EMERGENCIA
PKO2
CONTENEDOR GRANDE PARA
HIDROCARBUROS
Absorbencia: 309 L
CONTENIDO:
1 PAR DE GUANTES
1 PAR DE GAFAS
5 BOLSAS
200 HOJAS NORMALES
12 BARRERAS 8 x 120 cm.
5 COJINES
1 COMPUESTO OBTURADOR
INSTRUCCIONES EN CASO DE DERRAME
Kit de emergência para derrames
Emergency spill kit

RESIDUOS

COLETA SELETIVA
ESTOPAS SUJAS
GASÓLEO USADO
Kit de emergência para derrames
Emergency spill kit
PRECAUCION

Kit de emergência para derrames
Emergency spill kit
PRECAUCION
BOLSA DE RESIDUOS

2.3. ANEXO I - AÇÃO ESPECÍFICA 6: Estabelecimento de procedimentos internos para resposta a derrames

PLANO DE RESPOSTA A EMERGÊNCIAS PARA INCIDENTES DE DERRAME NA INSTALAÇÃO TPU

As ações a serem executadas em caso de incidente estão resumidas da seguinte forma:

1. Necessidade de intervenção
2. Garantir o uso de EPI adequado
3. Isolar a área
4. Utilizar o Kit de Proteção Ambiental
5. Limpar a área, colocando os resíduos em sacos resistentes
6. Armazenar em contentor apropriado
7. Informação final/Relatório

1. Necessidade de intervenção

O primeiro passo na resposta a um derrame é identificar a necessidade de intervenção. As atividades principais incluem:

- **Deteção e verificação inicial do derrame:** o processo começa com a identificação do derrame, que pode ser observado pelo pessoal da área afetada ou durante inspeções de rotina realizadas pelo Inspetor do Departamento de Segurança Empresarial (DSE).
- **Classificação do derrame:** após a identificação, o inspetor deve avaliar imediatamente a gravidade, determinando o tipo de substância envolvida, o volume estimado e os potenciais riscos para a saúde humana, infraestrutura e meio ambiente. Esta avaliação é crucial para determinar o nível de resposta necessário e se é preciso apoio adicional das equipas de emergência. Se o derrame contiver materiais perigosos, é fundamental consultar as Fichas de Dados de Segurança (FDS) para compreender os perigos específicos e as precauções necessárias para o seu manuseamento.
- **Identificação de riscos imediatos**: após a avaliação do derrame, o inspetor deve identificar os riscos imediatos, como a possibilidade de incêndio, explosão ou exposição a substâncias tóxicas. A localização do derrame é também um fator crítico, especialmente se existir risco de contaminação de áreas marítimas, do solo ou dispersão pelo ar. Se o derrame comprometer operações essenciais, poderá ser necessário suspender atividades nas proximidades até que sejam implementadas medidas de contenção. No caso de riscos ambientais significativos, as autoridades competentes, como a Agência Nacional de Resíduos (ANR) ou os reguladores ambientais, devem ser notificadas para garantir o cumprimento dos requisitos legais e de segurança.
- **Ativação do protocolo de resposta a emergências:** após a avaliação inicial, o protocolo de resposta a emergências deve ser ativado. O Inspector do DSE deve garantir que todos os recursos relevantes, incluindo as equipas de segurança ambiental e os operadores de gestão de resíduos, sejam informados e deslocados para o local. Uma coordenação eficaz é vital para garantir uma resposta rápida e organizada. Caso seja necessário envolver entidades externas, devem ser utilizados os canais de comunicação apropriados para reportar o incidente e solicitar assistência.
- **Documentação e relatório inicial**: simultaneamente, a documentação adequada deve ser iniciada a partir do momento em que o derrame é detetado. O inspetor deve registar detalhes críticos, como a hora e o local do incidente, o tipo e a quantidade da substância derramada, e quaisquer ações iniciais de contenção tomadas. Estes registos servem como base para a análise pós-incidente e para os relatórios de conformidade. A documentação detalhada também apoia as investigações sobre as

causas do derrame e auxilia no desenvolvimento de estratégias aprimoradas de prevenção e resposta.

2. Garantir o uso de EPI adequado

Para proteger o pessoal que responde ao derrame, o Inspector Ambiental do Departamento de Segurança Empresarial deve garantir que todos os indivíduos envolvidos na emergência utilizem o Equipamento de Proteção Individual (EPI) necessário.

Isto inclui:

- Avaliar o nível de EPI requerido com base no risco do derrame (químico, inflamável, tóxico, etc.).
- Fornecer luvas, óculos de proteção, respiradores, fatos resistentes a produtos químicos e outros equipamentos de proteção conforme necessário.
- Garantir que o EPI esteja devidamente ajustado e seja utilizado corretamente para evitar a exposição.
- Realizar formações rápidas de atualização sobre o uso adequado do EPI, se necessário.
- Monitorizar as condições do EPI durante toda a intervenção para garantir a segurança contínua.

3. Isolar a área

Uma vez confirmada a necessidade de intervenção e com o pessoal devidamente equipado, a área afetada deve ser isolada para evitar a contaminação e exposição adicionais. As medidas de isolamento incluem:

- Estabelecer perímetros de segurança utilizando barreiras, sinais de aviso e zonas de acesso restrito.
- Evacuar o pessoal não essencial da área imediata.
- Parar quaisquer operações em curso que possam agravar o derrame.
- Prevenir a propagação do derrame selando pontos de drenagem e áreas vulneráveis.
- Coordenar com o pessoal de segurança para garantir o acesso controlado ao local

4. Utilizar o Kit de Proteção Ambiental

Contornar o derrame de forma eficaz requer o uso de um Kit de Proteção Ambiental. O kit deve incluir materiais absorventes, agentes neutralizantes e ferramentas de contenção. As ações de resposta incluem:

- Colocar materiais absorventes (almofadas, barreiras e absorventes granulares) para controlar a propagação do derrame.
- Aplicar neutralizadores químicos, se aplicável, para reduzir a natureza perigosa da substância.
- Utilizar diques ou barreiras de contenção do derrame para prevenir a contaminação adicional do solo, água ou ar.
- Garantir que todos os materiais utilizados sejam recolhidos e descartados de acordo com as regulamentações.
- Mantendo os kits de derrame totalmente abastecidos e estrategicamente colocados em toda a instalação para acesso rápido.

5. Limpar a área, colocando os resíduos em sacos resistentes

Após conter o derrame, o próximo passo é limpar a área afetada, garantindo que todos os resíduos sejam manuseados adequadamente. Este processo envolve:

- Utilizar materiais absorventes de grau industrial para remover os contaminantes restantes das superfícies.
- Colocar todo o resíduo recolhido, incluindo solo contaminado, absorventes e EPI, em sacos resistentes e de alta resistência.
- Cerrar e rotular os sacos de resíduos de forma apropriada para manuseamento e transporte seguros.
- Garantir que a área seja completamente limpa com desinfectantes aprovados.
- Verificar que a área limpa cumpre os padrões ambientais e de segurança antes de ser reaberta.

6. Armazenar em um recipiente apropriado

O armazenamento adequado dos resíduos recolhidos é fundamental para evitar a contaminação secundária e garantir o cumprimento das regulamentações ambientais. As ações principais incluem:

- Transferir os resíduos dos sacos resistentes para recipientes designados, à prova de fugas e devidamente rotulados.
- Separar os resíduos perigosos dos não perigosos para facilitar a eliminação apropriada.
- Garantir que os recipientes sejam armazenados em uma área designada e segura, que previna fugas e o acesso não autorizado.
- Manter um inventário dos resíduos armazenados e documentação adequada para garantir o cumprimento das regulamentações.
- Coordenar com operadores licenciados de eliminação de resíduos para agendar a remoção oportuna dos materiais armazenados.

7. Informação Final/Relatório

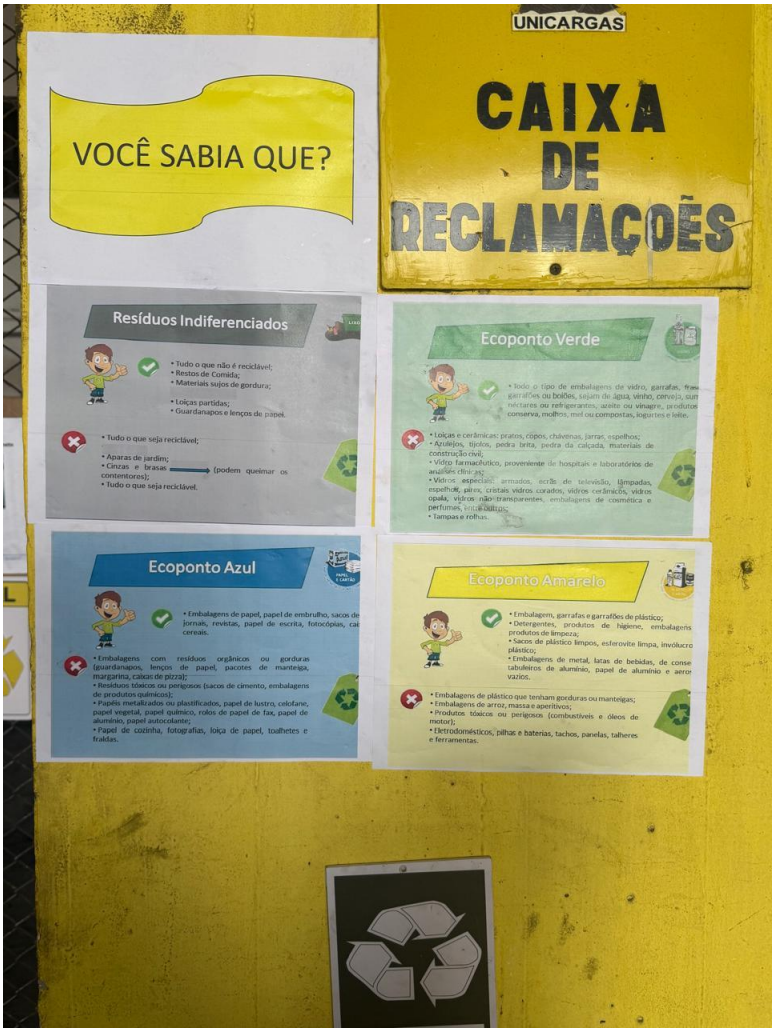
Após a conclusão da resposta ao derrame, um relatório final deve ser preparado para documentar o incidente, as ações de resposta e as lições aprendidas. O relatório deve incluir:

- Uma descrição detalhada do derrame, incluindo a causa, o volume e as áreas afetadas.
- Uma linha do tempo das atividades de resposta e das medidas tomadas para mitigar o incidente.
- Uma lista do pessoal envolvido e os papéis desempenhados na intervenção.
- Uma avaliação da eficácia da resposta e de quaisquer lacunas identificadas.
- Recomendações para melhorar os protocolos de prevenção e resposta a derrames no futuro.
- Submissão do relatório às autoridades relevantes e integração das conclusões nos programas de formação.

2.4. ANEXO I - AÇÃO ESPECÍFICA 7: Implementação de marcação e sinalização em todas as áreas unitárias

ATENÇÃO
USO OBRIGATÓRIO DE EPI'S
ATENÇÃO
AVISO
ÁREA RESTRITA
SOMENTE PESSOAL AUTORIZADO
LEMBRE-SE
SEGURANÇA EM PRIMEIRO LUGAR
CUIDADO
ÁREA DE MOVIMENTAÇÃO
PENSE
TODOS NÓS SOMOS RESPONSÁVEIS PELA PREVENÇÃO DE ACIDENTES
SEGURANÇA
OBRIGATÓRIO O USO DE E.P.I.
PREVENÇÃO DE ACIDENTES
ATENÇÃO! PERIGOS VÁRIOS
LIXO
LIXO

UNICARGAS
VOCÊ SABIA QUE?
CAIXA DE RECLAMAÇÕES
Resíduos Indiferenciados
Ecoponto Verde
Ecoponto Azul
METAL
Resíduos Indiferenciados
Resíduos Indiferenciados


UNICARGAS
CAIXA DE RECLAMAÇÕES
VOCÊ SABIA QUE?
Resíduos Indiferenciados
Ecoponto Verde
Ecoponto Azul
Ecoponto Amarelo

COLETA SELETIVA
RESÍDUOS CONTAMINADOS
RESÍDUOS PERIGOSOS
LEMBRE-SE
SEGURANÇA EM PRIMEIRO LUGAR
ATENÇÃO
USO OBRIGATÓRIO DE EPI'S
ATENÇÃO
MANTENHA ESTE LOCAL LIMPO
PERIGO
INFLAMÁVEL
AVISO
ÁREA RESTRITA
SOMENTE PESSOAL AUTORIZADO
PENSE
TODOS NÓS SOMOS RESPONSÁVEIS PELA PREVENÇÃO DE ACIDENTES

2.5. ANEXO I - AÇÃO ESPECÍFICA 8: Desenvolvimento de um plano de inspeção dos pontos de armazenamento

Agenda de Inspeção de Gestão de Resíduos

Com o objetivo de evitar comportamentos inadequados ou o manuseamento incorreto dos diferentes tipos de materiais geridos na terminal, será implementada a realização de inspeções visuais diárias, consistindo num percurso por todas as áreas de manuseamento e armazenamento de resíduos. Os resultados destas inspeções diárias serão registados apenas no caso de se detetar alguma incidência ou não conformidade relativa ao cumprimento de qualquer um dos aspetos relacionados com o plano de gestão de resíduos estabelecido.

Adicionalmente, será realizada uma inspeção mensal detalhada, seguindo a lista de verificação descrita abaixo, cujos registos serão arquivados como garantia de cumprimento do plano estabelecido.

Lista de Verificação de Inspeção de Gestão de Resíduos

Informação Geral

Instalação / Localização	
Data da Inspeção:	
Nome do Inspetor:	

Armazenamento e Manuseamento de Resíduos

	SIM	NÃO	N/A
Contentores de Resíduos: Verificar se os resíduos estão armazenados em contentores adequados e rotulados	☐	☐	☐
Tampas e Coberturas: Garantir que os contentores de resíduos tenham tampas ou coberturas para evitar derrames e odores	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Segregação e Reciclagem

	SIM	NÃO	N/A
Reciclagem: Verificar se os materiais recicláveis estão sendo geridos de forma adequada	☐	☐	☐
Segregação adequada: Verificar se os resíduos estão a ser segregados de acordo com a sua natureza e os procedimentos estabelecidos	☐	☐	☐
Educação: Garantir que os funcionários estão devidamente instruídos sobre os procedimentos de segregação e reciclagem de resíduos	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Gestão de Resíduos Perigosos

	SIM	NÃO	N/A
Identificação de Resíduos Perigosos: Identificar os fluxos de resíduos perigosos e o seu manuseamento adequado	☐	☐	☐
Armazenamento de Resíduos Perigosos: Verificar se os resíduos perigosos estão armazenados de forma segura e em conformidade com as regulamentações	☐	☐	☐
Manifestos e Registos: Verificar se os manifestos e registos adequados estão a ser mantidos para os resíduos perigosos	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Waste transportation

	SIM	NÃO	N/A
Transport Containers: Inspect waste transportation containers for proper labeling and containment	☐	☐	☐
Transportation Records: Ensure that waste transportation records are available and up to date	☐	☐	☐
Licensed transporters: Verify that waste is transported by licensed and authorized companies	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Transporte de Resíduos

	SIM	NÃO	N/A
Instalações de Eliminação Autorizadas: Confirmar que os resíduos são eliminados em instalações autorizadas e licenciadas	☐	☐	☐
Registos de Eliminação: Verificar se os registos adequados são mantidos para as atividades de eliminação de resíduos	☐	☐	☐
Cumprimento das Regulamentações: Garantir que a eliminação de resíduos segue todas as regulamentações ambientais aplicáveis	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Contenção de Derrames e Preparação para Emergências

	SIM	NÃO	N/A
Kits de Derrame: Verificar se os kits de derrame estão disponíveis e acessíveis nas áreas-chave	☐	☐	☐
Resposta a Emergências: Verificar se os funcionários estão treinados nos procedimentos adequados de resposta a derrames	☐	☐	☐
Contactos de Emergência: Garantir que as informações de contacto de emergência estão afixadas na instalação	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Redução e Minimização de Resíduos

	SIM	NÃO	N/A
Práticas de Redução de Resíduos: Identificar as iniciativas de redução e minimização de resíduos em vigor	☐	☐	☐
Reutilização: Verificar se os materiais de resíduos estão a ser reutilizados sempre que possível	☐	☐	☐
Auditorias de Resíduos: Verificar se as auditorias de resíduos são realizadas periodicamente para identificar áreas de melhoria	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Cumprimento do Plano de Gestão de Resíduos

	SIM	NÃO	N/A
Plano de Gestão de Resíduos: Garantir que existe um plano de gestão de resíduos abrangente em vigor	☐	☐	☐
Implementação do Plano: erificar se o plano de gestão de resíduos está a ser implementado conforme o previsto	☐	☐	☐
Atualizações do Plano: Verificar se o plano de gestão de resíduos é revisto e atualizado periodicamente	☐	☐	☐
Observações / Notas / Ações corretivas, se houver:			

Notas adicionais / Observações

Declaração de Inspeção

Eu, abaixo assinado, certifico que realizei a inspeção acima referida do checklist de Gestão de Resíduos e que as práticas de gestão de resíduos foram avaliadas. Quaisquer questões identificadas foram documentadas e as ações corretivas necessárias foram recomendadas.

	Data	Assinatura
Realizado por: Nome		
Aprovado por: Nome		

2.6. ANEXO I - AÇÃO ESPECÍFICA 9: Dados do acordo com a empresa licenciada para a gestão de resíduos perigosos

A antiga empresa ANGOJORDAN LDA. é agora Lupetrol, LDA. no que se refere à gestão de resíduos petrolíferos. É a empresa responsável pela remoção de resíduos perigosos no Terminal da Unicargas. Esta empresa está listada no mapa das empresas que exercem atividades nas áreas de gestão de resíduos, tratamento de água e tratamento de águas residuais, publicado no site da ANR, com uma licença válida até 2027.

Em todo o caso, deve-se destacar que a quantidade de óleos usados, o principal resíduo perigoso gerado no terminal, é muito pequena. Como pode ser visto no Anexo dos Manifestos, os seus serviços só foram necessários numa ocasião até o momento.

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003136

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ANGOJORDAN LDA,** com sede social na Província de Luanda, Distrito Urbano do N'gola Kiluange, Rua Farol das Lagostas, contribuinte fiscal n.º 5000231150, está autorizada a prestar serviço de recolha de resíduos ferrosos e não ferrosos, e óleos usados resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim Nazaré Pimentel da Piedade

Coordenador de Comissão de Gestão

República de Angola
Ministério do Ambiente
Agência Nacional de Resíduos
Gabinete Jurídico

MAPA DAS EMPRESAS QUE EXERCEM ACTIVIDADES NAS ÁREAS DE GESTÃO DE RESÍDUOS, TRATAMENTO DE ÁGUA E ÁGUAS RESÍDUAIS

Nos termos do Decreto Presidencial nº 181/14 de 28 de Julho, que aprova o Estatuto Orgânico da Agência Nacional de Resíduos, conjugado com o Decreto Executivo n.º 24/15 de 29 de Janeiro que aprova o Regulamento do Processo de Registo e Licenciamento de Empresas que Exercem Actividades nas Áreas de Gestão de Resíduos, Tratamento de Água e Águas Residuais.

Ano de caducidade	Denominação social	Sede social	Sector de actuação	Dimensão	Contacto declarante	Email	Descrição
2027	ENERLINE, LDA	Huila	Não Petrolífero	Pequena	935458822		Gestão de Resíduos Sólidos
2027	LUPETROL, LDA 47.	Luanda	Petrolífero	Média	948787042		Gestão de Resíduos Sólidos
2027	CARJOBA, LDA 44.	Luanda	Petrolífero	Pequena	923424759	contacto@carjoba.com	Gestão de Resíduos Sólidos
2027	IMARED, LDA	Luanda	Não Petrolífero	Média	912509938	zein@angorayan.com	Gestão de Resíduos Sólidos
2027	CIUBETH, LDA 53.	Luanda	Não Petrolífero	Pequena	923309848	ciubeth1cui@hotmail.com	Gestão de Águas Residuais
2027	CASA ZINGA, LDA	Cabinda	Não Petrolífero	Pequena	927544089	casazingageral@gmail.com	Gestão de Resíduos Sólidos
2027	ESA-ENGINEERING, LDA	Luanda	Não Petrolífero	Pequena	932288850	geral@esa-angola.com	Gestão de Resíduos Sólidos

2.7. ANEXO I - AÇÃO ESPECÍFICA 10: Elaboração de um plano de formação para a realização de capacitações periódicas para os trabalhadores

PLANO DE FORMAÇÃO EM GESTÃO DE RESÍDUOS PARA O TERMINAL DA UNICARGAS

1. Objectivo

O principal objetivo deste plano de formação é garantir que os colaboradores do Terminal da Unicargas sejam adequadamente formados nas práticas corretas de gestão de resíduos, de modo a minimizar a produção de resíduos, prevenir danos ambientais e proteger a saúde e segurança dos trabalhadores. Esta formação abrange todo o processo de gestão de resíduos, incluindo segregação, recolha, armazenamento temporário, transporte interno e eliminação.

2. Ações e tópicos principais

- **Classificação, segregação e recolha de resíduos:** os colaboradores serão formados na classificação dos resíduos de acordo com a sua origem e tipo, na importância da segregação dos resíduos e nos métodos corretos de recolha de resíduos para minimizar a contaminação e melhorar os esforços de reciclagem.
- **Uso de Equipamento de Proteção Individual (EPI)**: os colaboradores receberão formação detalhada sobre o uso adequado do Equipamento de Proteção Individual (EPI) nas tarefas de gestão de resíduos, incluindo:
    - EPI necessário para o manuseamento de resíduos gerais
    - Macacão
    - Botas de segurança
    - Capacete de segurança
    - Oculos de segurança
    - Máscara descartável
    - Luvas

- **Uso e preenchimento do guia de despacho de recolha de resíduos**: os colaboradores serão formados sobre como usar e preencher corretamente o guia de despacho de recolha de resíduos para garantir o acompanhamento adequado e a responsabilidade pelos resíduos em todas as fases.
- **Uso e preenchimento dos mapas de transporte de resíduos**: será fornecida formação sobre como usar e preencher o mapa de controlo de transporte, que garante que todas as atividades de transporte de resíduos sejam documentadas e cumpram os procedimentos estabelecidos.
- **Operação nos pontos de manuseamento de resíduos**: os colaboradores aprenderão os procedimentos corretos para manuseamento de resíduos nos pontos designados de recolha de resíduos dentro do terminal.
- **Preenchimento da folha de inventário de resíduos**: a formação cobrirá o procedimento correto para preencher a folha de inventário de resíduos, garantindo que todos os tipos de resíduos sejam corretamente registados e geridos.
- **Consequências ambientais e de Saúde & Segurança do Não Cumprimento**: serão explicados aos colaboradores os impactos ambientais e os riscos para a saúde e segurança de não cumprir os procedimentos corretos de gestão de resíduos. Isto irá enfatizar a importância do cumprimento das regulamentações e protocolos.
- **Comportamento proativo e reações a falhas**: os trabalhadores serão formados sobre como reagir de forma proativa e correta a quaisquer desvios ou não conformidades com os procedimentos de

gestão de resíduos, garantindo que todos os colaboradores estejam vigilantes e tomem as ações necessárias quando surgirem problemas.

- **Formação para motoristas de transporte de resíduos**: os motoristas responsáveis pelo transporte de resíduos para as áreas de armazenamento temporário receberão formação especializada sobre os procedimentos corretos para o transporte de resíduos, incluindo a segurança dos veículos, a fixação das cargas e a minimização de derrames durante o transporte.

3. Campanha de Sensibilizaçã

Para reforçar a formação e garantir o cumprimento consistente dos procedimentos de gestão de resíduos, materiais de sensibilização adequados serão exibidos em locais estratégicos ao longo do terminal. Estes materiais servirão como lembretes constantes dos requisitos relacionados com a minimização de resíduos, segregação, recolha, armazenamento temporário, transferência e eliminação.

4. Plano de Formação

- **Formação inicial:** aquando da contratação, todos os novos colaboradores envolvidos na gestão de resíduos irão receber formação abrangente sobre os tópicos mencionados acima.
- **Formação de atualização:** sessões periódicas de atualização serão agendadas para garantir que os colaboradores se mantenham atualizados sobre as melhores práticas e quaisquer alterações nas regulamentaçõe.
- **Formação Ad-Hoc:** no caso de novos equipamentos, procedimentos ou alterações regulamentares, a formação será fornecida conforme necessário.

noatum ports
LUANDA TERMINAL

Morada Para Comunicações:
Código Postal 3965
Rua Sanzalas Cabinda
Bairro da Boavista
Municipio da Ingombota
Luanda (Angola)

T +244 935 060011
www.luanda.noatum.com

Visto
Edivaldo Januário
Director

DIRECÇÃO DE SEGURANÇA EMPRESARIAL
DEPARTAMENTO DE AMBIENTE

CRONOGRAMA DE TREINAMENTO DEGESTÃO DE RESIDUOS SOLIDOS DE 2025

Nº	Topicos	Març 2025-Junh2025		Julh 2025-Out2025		Nov. 2025-Dez.2025	Publico Alvo	Alcance
1	**Classificação dos residuos sólidos**	08 Sessões		08 Sessões		10 Sessões	Funcionarios da empresa de Gestão de Residuos	Novo Trabalhador
2	**Etapas de Gerenciamento dos residuos sólidos**		10 Sessões		08 Sessões			Trabalhadores Permanentes
3	**Material Reciclavel**	10 Sessões		05 Sessões		10 Sessões		Trabalhadores Permanentes
4	**Tratamento de Residuos**		10 Sessões		10 Sessões			Novo Trabalhador
5	**Segurança no Manuseamento dos residuos**	15 Sessões		08 Sessões		10 Sessões		Novo/Permanentes Trabalhadores

Luanda, aos 14 de Março de 2025

Atenciosamente,
Ludmila Campos
Ch. Dptº de Ambiente

3. ANNEXO II. DOCUMENTAÇÃO SOLICITADA

3.1. ANEXO II – Licença ambiental a favor do projecto

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

GABINETE DA MINISTRA

LICENÇA AMBIENTAL DE INSTALAÇÃO

N.º 17695475244

Nos Termos do Decreto Presidencial que aprova o Regulamento Geral sobre Avaliação de Impactes e Procedimentos de Licenciamento Ambiental, tendo sido cumpridas as formalidades relativas ao Processo de Avaliação de Impactes, nomeadamente a apresentação do instrumento de Gestão Ambiental e por não haver impedimento de ordem Legal, Social e Ambiental para execução e operação do projecto.

É passada a Licença Ambiental de Instalação, do projecto denominado:

Desenvolvimento do Porto da Unicargas Em Luanda, Angola, no Bairro Bungo Largo 4 de Fevereiro, Luanda 1229, Distrito Ingombota, Município de Luanda.

Operado pela **Adpg Luanda - Operador De Terminal, Lda.**

Confirma-se a não existência de potenciais impactes ambientais no decorrer do desenvolvimento do projecto a desenvolver na Província de **Luanda**, que se enquadra na categoria B de projecto de Infra-Estruturas..

Emitida em 17 de Dezembro de 2024	**Válida até** 17 de Dezembro de 2027

Assinatura

(Ministra)

Ana Paula Chantre Luna Carvalho Pereira

A autenticidade deste documento poderá ser verificada através dos passos a seguir:
1. Aceda ao Portal MINAMB (https://sia.minamb.gov.ao/validacaodocumentos)
2. Introduza o código **LINST-1496188965** no campo "Código de Validação"
3. Clique em "Pesquisar"
Número da Licença: **17695475244**

República de Angola Ministério do Ambiente	**ANEXO** **Número da Licença: 17695475244** **Página 1 de 7**

Gabinete da Ministra

Medidas de Mitigação

É emitida a Licença Ambiental do Projecto denominado por **Desenvolvimento do Porto da Unicargas em Luanda** da empresa **Adpg Luanda-Operador do Terminal, Lda.:**

1.Medidas de Mitigação (C):

1.1 Nos termos da Legislação em vigor deve o proponente cumprir com o seguinte:

1.1.1 A Licença Ambiental de Instalação precede à Licença Ambiental de operação;

2.1.1 Obrigatoriedade de informar a entidade responsável pela política do ambiente, no prazo de 24 horas, de qualquer incidente que afecte consideravelmente o ambiente;

2.1.2 O requerimento para renovação da Licença Ambiental deve ser submetido ao Departamento Ministerial responsável pelo Sector do Ambiente ou ao Órgão Provincial competente, até 90 dias antes do termo de validade da Licença Ambiental;

2.1.3 As ampliações ou alterações das instalações para efeitos de aumento da produção ou melhoria de qualidade requerem licenciamento ambiental;

2.1.4 O proponente responde civil e criminalmente sempre que:

a) Não submeter a sua actividade ao processo prévio de licenciamento ambiental;
b) Altere a actividade inicial após a emissão da licença ambiental sem prévia autorização da entidade competente;
c) Apresentar informação fraudulenta, adulterada ou omissa durante o processo de AIA;
d) Não implemente as medidas propostas nos estudos técnicos, bem como a não observância das condições de licenciamento ambiental;
e) Não proceder à actualização da licença ambiental.

2.1.5 No âmbito do licenciamento ambiental, constitui infracção ambiental punível com multa:

a) O início da implementação e operação de actividades e alterações das instalações antes de emitida a competente licença ambiental;
b) A alteração do sistema de produção ou de exploração sem a devida licença ambiental.

DIÁRIO DA REPÚBLICA - I SÉRIE N.º 84 DE 13 DE JULHO DE 2007

1.2 Medidas de Protecção do Ar e Ruído para o Controlo de Emissões

1.2.1 Criação de boas práticas de eficiência energética e fontes renováveis de energia;

1.2.1 Dar preferência a iluminação do exterior do projecto para *LED´s*;

1.2.2 Trocar progressivamente lâmpadas ineficientes por lâmpadas eficientes e instalar dispositivos de controlo (sensores de luz e sensores de movimento) ;

1.2.3 Realização de Campanhas de fornecimento de lâmpadas eficientes e dispositivos de controlo (sensores de luz e sensores de movimento) ao nível doméstico;

1.2.4 Os topos dos respiradores, abertos para atmosfera e em local visível, deverão estar munidos de tapa-chamas em rede de arame e libertar os gases a uma altura do solo igual ou superior a 4 m;

1.2.5 Deverá efectuar-se manutenção adequada da frota de veículos, reduzindo as emissões excessivas de gases e de partículas provenientes dos veículos e geradores móveis;

1.2.6 Pulverizar as áreas externas com solo descoberto;

1.2.7 As emissões de partículas podem ser controladas pelo uso de equipamentos de aspiração e separação mediante o uso de ciclones;

1.2.8 Instalação e manutenção dos filtros de manga nos sistemas dos geradores e equipamentos de emissões de gases poluentes;

1.2.9 Os equipamentos sonoros e máquinas deverão ter a sua potência sonora, bem identificada e cumprir com os limites considerados admissíveis;

1.2.10 Controlar a velocidade de circulação das viaturas pesadas, de modo a minimizar a ressuspensão de partículas e os níveis de ruído;

1.2.11 Manter o nível de ruído dentro de limites aceitáveis e as actividades de construção devem, sempre que possível, ser limitadas ao horário normal de trabalho. Sempre que se considerar que se irão ultrapassar, ou se ultrapassem os limites aceitáveis, devem instalar-se silenciadores para máquinas e equipamentos e barreira insonorizadoras nos locais passive de produzir ruído;

1.2.12 Utilizar chaminés com filtros apropriados nos geradores para minimizar a emissão de poluentes atmosféricos;

1.2.13 Planear acções de comunicação e informação à população relativamente à possibilidade de ocorrência de actividades geradoras de maiores níveis de ruído;

1.3 Solos e Uso do Solo

1.3.1 Implementar medidas preventivas, para adopção de um planeamento prévio em qualquer actividade ligada ao uso do solo, para a prevenção dos processos erosivos;

1.3.2 Todas as superfícies onde são manuseados combustíveis e potenciais poluidores, devem estar em superfície lisa e impermeável;

1.3.3 Instituir procedimentos internos relativamente aos derrames acidentais e encaminhamento dos solos ou material absorvente eventualmente contaminados para destino adequado;

1.3.4 Limpar todos os pequenos derrames que ocorram na área, de forma a minimizar os impactes sobre o solo e não só. Devem ser desenvolvidos procedimentos de gestão de derrames, incluindo procedimentos de limpeza remoção, deposito/armazenamento e eliminação.

1.4 Medidas de Prevenção e Controlo de Gestão de Águas

1.4.1 Fica Proibido a alteração dos regimes de escoamento cursos naturais de água;

1.4.2 Prevenir a potencial contaminação do meio hídrico, não permitindo a descarga de poluentes (óleos, lubrificantes, combustíveis, produtos químicos e outros materiais) e evitando o seu derrame acidental;

1.4.3 Deve o proponente adoptar práticas que permitam controlar e reduzir o consumo de água instalando equipamentos que permita por si só a redução do consumo de água (por exemplo, utilizar torneiras com redução de caudal ou torneiras de pressão);

1.4.4 Implementação de separadores de hidrocarbonetos para a separação da fração aquosa e da fração contaminada com óleos e hidrocarbonetos, permitindo assim a descarga da primeira e a remoção periódica da segunda fração;

1.4.5 Criação de uma Estação de Tratamento de Águas Residuais (ETAR);

1.4.6 As águas residuais devem ser drenadas para uma bacia de retenção, impermeabilizada e isolada da rede de drenagem natural;

1.4.7 Instalação de caleiras para o aproveitamento de água das áreas condicionados, bem como das pluviométricas para o combate a incêndio, lavagem dos pavimentos, lavagem das viaturas, rega dos espaços verdes;

1.4.8 Sensibilizar os colaboradores para a adopção de medidas que conduzam a um consumo de água mais eficiente;

1.4.9 Criar um sistema de monitorização da qualidade da água para o consumo nas principais fontes de água potável.

1.5 Medidas de Controlo e Gestão de Resíduos

1.5.1 Implementação de Plano de Gestão de Resíduos, de acordo com a legislação em vigor nomeadamente o Decreto Presidencial nº190/12 de 24 de Agosto, referente ao Regulamento sobre Gestão de Resíduos;

1.5.2 O processo de identificação e acondicionamento de resíduos perigosos deve ser efectuado de acordo Decreto 190/12 de 24 de Agosto, sem prejuízo da aplicação do Regulamento Sanitário Nacional, Regulamento de Radioprotecção para garantir a sua conformidade e harmonia com os princípios e normas internacionais assumidas pelo País sobre gestão de resíduos perigosos, bem como sobre o transporte de substâncias ou produtos perigosos;

1.5.3 Os resíduos perigosos devem ser empacotados ou acondicionados de acordo com as normas técnicas a estabelecer. Devem ser efectuados segundo percursos definidos por instruções específicas sobre acondicionamento de resíduos perigosos, devendo no mínimo serem contidos em recipiente com capacidade para:

a) Resistir às operações normais de armazenagem e de transporte;
b) Manter selado o conteúdo para que não vaze;
c) Não serem danificados pelo seu conteúdo;
d) Não formarem substâncias prejudiciais ou perigosas quando em contracto com o seu conteúdo;
e) Serem devidamente identificados com os símbolos previstos no Anexo V do presente Regulamento DP 190/12 de 24 de Agosto.

1.5.4 Para além das condicionantes acima descritas, devem ser ainda observados os seguintes cuidados especiais para as seguintes categorias de resíduos:

a) As substâncias auto-inflamáveis devem ser acondicionadas em recipientes hermeticamente fechados;
b) As substâncias que libertam gases inflamáveis quando em contacto com água, devem ser acondicionadas em locais livres de humidade;
c) As substâncias radioactivas, devem ser acondicionadas em recipientes construídos de tal maneira que as radiações por estas emitidas sejam limitadas a uma quantidade mínima e eficientemente protegidas em áreas completamente seladas, de modo a que, não haja qualquer possibilidade de os trabalhadores ou o público em geral terem contacto com os isótopos de acordo com as normas internacionais supervisionadas pela Agência Internacional de Energia Atómica - AIEA.

1.5.5 Contratar uma empresa efectiva que se ocupa do tratamento de limpeza e manutenção das fossas sépticas que esteja registada na Agência Nacional de Resíduos para efectuar tais trabalhos;

1.5.6 Criação de uma zona apropriada para o armazenamento dos resíduos;

1.5.7 Reforçar e documentar um programa de limpeza periódica da área do gerador, e dar o devido encaminhamento dos resíduos obtidos, como os filtros, os óleos queimados, para um destino ambientalmente correcto;

1.5.8 Assegurar que resíduos são colocados em contentores próprios e encaminhados para destino adequado por operadores licenciados para o efeito, não permitindo que estes equipamentos ultrapassem os 90% da sua capacidade;

1.5.9 Assegurar a instalação em todos os lugares de depósito de combustíveis, lubrificantes ou outras substâncias químicas, sejam manipuladas, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados;

1.5.10 Colocação de bacias de retenção e equipamento com material absorvente no grupo de geradores e no depósito de combustível;

1.5.11 Deve-se proceder à monitorização das quantidades específicas e tipos de resíduos produzidos, para que seja possível implementar acções de minimização e redução dos impactes na fonte;

1.5.12 Inspecção e manutenção periódica da rede de encaminhamento de águas residuais quer para o separador de hidrocarbonetos quer para as fossas sépticas;

1.5.13 Estabelecer uma área devidamente impermeabilizada dedicada somente para alocação de contentores para acondicionamento dos resíduos;

1.5.14 A deposição final dos resíduos deverá ser feita por uma empresa Licenciada pelo Ministério do Ambiente.

1.6 Medidas de Protecção de Derrames e Incêndios

1.6.1 Instalações eléctricas devem ser mantidas em bom estado;

1.6.2 O quadro eléctrico deve ficar fora da área de armazenamento e os fios eléctricos devem estar em calhas apropriadas para prevenir os curto-circuitos que constituem as causas da maioria dos incêndios;

1.6.3 Sinalização das áreas e estantes, além dos locais dos extintores de incêndio, precisam ser identificadas;

1.6.4 Verificar a possibilidade de instalação de um sistema de bombagem dos óleos lubrificantes, diminuindo assim a possibilidade de derrames acidentais, uma vez que os sistemas mecânicos são menos falíveis do que a interacção humana;

República de ANGOLA

1.6.5 Deve ser prevista a contenção/retenção de eventuais derrames considerando a quantidade de combustível armazenada no empreendimento, disponibilizar Kit's de contingência em todas as áreas susceptíveis de ocorrer incidentes e implementar um plano de formação do pessoal, resposta a incidentes para prontidão em caso de ocorrência de derrames;

1.6.6 A empresa deverá fornecer a todos os compartimentos com susceptibilidade de risco, equipamentos de combate a incêndios devidamente testados e aprovados;

1.6.7 Extintores de incêndio devem ser adequados aos tipos de materiais armazenados e devem estar fixados nas paredes e sinalizados conforme normas vigentes;

1.6.8 Implementação de uma Rede de Combate a Incêndios composta por detectores de fumo, bocas de incêndio, extintores e outros com a orientação do Serviço Nacional de Protecção Civil e Bombeiros;

1.6.9 Colocação do sinal de ponto de concentração para em caso de emergência;

1.6.10 Deve o proponente desenvolver e implementar um Plano de Emergência que defina as medidas preventivas e os procedimentos a adoptar em situações de emergência;

1.6.11 Deve-se assegurar que todos os locais de instalação dos depósitos de combustíveis, lubrificantes ou outras substâncias químicas, assim como todas as áreas onde estes sejam manipulados, sejam impermeáveis e disponham de drenagem para tanques de retenção adequadamente dimensionados, para poderem reter o volume máximo de líquido susceptível de ser derramado.

1.7 Socioeconomia

1.7.1 Zelar pela rigorosa observância e os Direitos das comunidades locais na zona de inserção do projecto;

1.7.2 Deverá respeitar as leis de Segurança e Protecção no trabalho, de acordo com as directrizes do Decreto nº 128/04 de 23 de Novembro que aprova o Regulamento Geral de Sinalização de Segurança e Saúde no trabalho;

1.7.3 Deve o empregador tomar medidas necessárias no âmbito da segurança e higiene no trabalho, ou seja integrar na gestão da empresa as actividades de Segurança, Higiene e Saúde no Trabalho;

1.7.4 Fazer seguro individual ou em grupo a todos os trabalhadores aprendizes e estagiários contra os riscos de acidentes de trabalho e doenças profissionais salvaguardando as pequenas e micro empresas;

1.7.5 Organizar e dar formação prática apropriada em matéria de segurança e saúde no trabalho a todos os trabalhadores;

1.7.6 Cumprir e fazer cumprir todas as normas, legislação, regulamentos de Segurança e Saúde no Trabalho;

1.7.7 Criar os Serviços de Segurança e Higiene no Trabalho ou a Medicina do Trabalho, como órgão de apoio à Empresa Comissão de Prevenção de Acidentes de Trabalho " CPAT" ;

1.7.8 As entidades empregadoras devem garantir que cada trabalhador receba informações e instruções em matéria de segurança, higiene e saúde no trabalho, por ocasião de:

a) Sua contratação;

b) Mudança de posto de trabalho ou de técnica e de processo de trabalho;

c) Utilização de substâncias cuja manipulação envolva riscos;

d) Regresso ao trabalho após ausência superior a seis meses.

1.7.9 Implementar uma Política Ambiental no projecto;

1.7.10 Assegurar a assistência médica e medicamentosa a todos os funcionários;

1.7.11 Criação de espaços verdes e plantação de árvores na área do projecto ou áreas adjacentes em colaboração com a administração local;

1.7.12 Garantir condições higiênico-sanitárias adequadas para os trabalhadores durante o desenvolvimento de trabalhos de produção e operações a decorrer;

1.7.13 Realização de acções de formação/sensibilização, para a consciencialização dos colaboradores para o correcto manuseamento dos equipamentos;

1.7.14 Definir um responsável pelo Ambiente e Segurança no trabalho;

1.7.15 Uso obrigatório de EPI´s aos trabalhadores adequados para o tipo de actividade.

2. Medidas de Reposição Ambiental /Medidas de Compensação (d):

2.1 Implementação de Programa de Educação Ambiental, promovendo acções que venham a contribuir para melhoria das condições de saúde e saneamento dos trabalhadores e comunidade envolvente do projeto, por meio de campanhas informativas que incluam formas de prevenção, transmissão e tratamento de doenças, hábitos de higiene, consciencialização sobre a importância do saneamento básico;

2.2 Apoiar a Administração local em projectos de contenção da erosão da costa.

3 Sistema de Gestão Ambiental (e)

3.1.Deverá o proponente implementar um Plano de Gestão Ambiental (PGA) de caráter operacional, que visa garantir que o projecto ou partes do projecto seja executada de forma a ter em conta os requisitos ambientais que levem a prevenção e minimização do impacte ambiental associado à efectiva execução do mesmo.

3.2.Apresentação dos Programas de Monitorização Ambiental Trimestral ao Ministério do Ambiente, de acordo o Termo de Referência Anexo, este deve incluir:

a) Programa de Gestão da Qualidade do Ar, Solo e Água;

b) Programa de Gestão de Resíduos e Efluentes;

c) Programa de Combate a Incêndios;

d) Plano de Contingência a Derrames;

e) Programa de Treinamento de Conscientização Ambiental.

DIÁRIO DA REPÚBLICA - I SÉRIE Nº 84 DE 13 DE JULHO DE 2007

3.3 Nota: Deve a empresa enviar à entidade licenciadora, no prazo de 30 dias o Plano de Acção detalhado, incluindo medidas e acções concretas, cronograma e recursos a utilizar para a implementação das Medidas de Compensação. Com a aprovação do Plano de Acção, as Medidas e Acções Propostas deverão ser imediatamente implementadas pela empresa.

4 Observação

4.1 Segundo Decreto nº 117/20 de 22 de Abril, as actividades sujeitas a Avaliação de Impacte Ambiental estão igualmente sujeitas a Auditoria Ambiental definida por directrizes e prazos estabelecidos pelo Ministério Do Ambiente. O que pressupõe que durante todo o período de vigência desta licença, o proponente deve incluir no orçamento anual, despesas relacionadas com Auditorias Públicas a serem realizadas pelo Ministério do Ambiente.

Assinatura

ANA PAULA CHANTRE LUNA DE CARVALHO PEREIRA

(Ministra)

República de ANGOLA

3.2. ANEXO II – Guias de acompanhamento de resíduos/Manifestos/Documentos comprobativos (*)

(*) Uma vez que, em todos os casos, a empresa que recolhe os resíduos no terminal é o destinatário final dos mesmos, armazenando-os nas suas instalações e gerindo o seu uso posterior, são fornecidos os documentos unificados para a gestão de cada tipo de resíduo, indicando a identificação da empresa, a quantidade de material retirado e o destino final do mesmo.

LUPETROL, LDA.

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE RESÍDUOS ÓLEOSOS

REQUISIÇÃO Nº01 /DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Lupetrol Antiga Angojordan Lda.

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da empresa Lupetrol Antiga Angojordan Lda.

TIPO DE TRATAMENTO: Reaproveitamento externo.

DATA DA OPERAÇÃO DE RECOLHA:01/11/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (L)
Valorização de resíduos óleo usado	Óleo usado	1.100 Litros

VIATURA MARCA: Tata

MATRÍCULA: LD-06-07-ID

COR: Branca

O RECEBEDOR

Celestino Campos
01.11.2024

UNICARGAS, TPU

unicargas

R. Sanzalas Cabinda, Boavista
Município das Ingombotas, Luanda - Angola
NIF: 5410 003 136

Modelo E.P. 14 N.º 20241400227 [01-11-2024]

ESTE DOCUMENTO NÃO SERVE DE FACTURA OU COMPROVATIVO DE PAGAMENTO

Chave: 040466961A4

Despachante

Taxador
Domingos Rogério Tomás [01-nov-2024 11:39]

Fiscalizador
José João Lopes de Lemos [01-nov-2024 11:46]

LUPETROL-INDÚSTRIA TRANFORMADORA, LDA
RUA DIREITA DE CACUACO, BAIRRO DAS SALINAS, JUNTO AO ANTIGO CARROSEL, CACUACO LUANDA
ANGOLA

Embarcação

N.º Escala / Contramarca

Observações: *Cobrança de 1.100 Litro de Óleo Queimado*

Impressos

Produtos / Serviços	Qtd. 1	Un.1	Qtd.2	Un.2	Taxa	Valor Sobretaxas	Descontos	Total
Impresso EP-14	1,00	UN			12,000	12,00		12,00

Total de Impressos: 12,00 USD

Serviços Diversos

Produtos / Serviços	Qtd. 1	Un.1	Qtd.2	Un.2	Taxa	Valor Sobretaxas	Descontos	Total
Serviços diversos	1,00	UN	0,00		56,100	56,10	0,00	0,00	56,10

Total de Serviços Diversos: 56,10 USD

Resumo de Impostos

Imposto	Taxa	Incidência	Total(AKZ)
IVA 14%	14%	63.091,62	8 833,00
Imposto Provisório Sobre Serviços - 6.5%	6.5%	63.091,62	4 101,00
		Total Imposto:	**12 934,00**

Sub Total:	**68,10 USD**
Valor Imposto:	**9,53 USD**
Arredondamentos:	**-0,45 USD**
Total Documento:	**77,63 USD**
Contra-Valor [Câmbio 926,4555]:	**71924,00 AKZ**

Para efectuar o pagamento, utilize uma das seguintes contas: BAI AO06004000003045852510110 / BIC AO060051000018442562151187 / BSOL AO06004400001806743913151 / BCA AO06004300000316433510111 / BCI AO0600

ZHONGAN HENGTAI – INDUSTRIA, LDA.

unicargas

Transportadora de Cargas,Operadora de Terminais e Transitária. Contribuinte n.º 5410003136

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº001/DSE/2023

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Zhongan Hengtai Indutria Lda

LOCAL DE DESCARGA (DESTINO FINAL):Estaleiro da empresa Zhongan Hengatai Lda
TIPO DE TRATAMNTO:Reaproveitamento externo.

DATA DA OPERAÇÃO DE RECOLHA: 04/01/2023

Com Escolta
04-01-2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (Kg)
Recolha e transporte de resíduos sólidos material ferroso	Material ferroso	860 (kg)

VIATURA MARCA: Scania

MATRÍCULA: LD-32-36-BE

COR: Branca

UPAP Posto Fiscal da Polícia Nacional Alfândega
Data:
Ass:

O RECEBEDOR

UNICARGAS,TPU

R. Sanzalas Cabinda, BoavistaMunicipio: IngombotasLuanda/Angola
T. +244 222 310976/+244 222 310184/+244 222 311924F. +244 222 310694 C.P. 3965
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eral@unicargas.co.ao

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Andre A. J Moreira Telef: 935150813

B.I. Nº 003222175LA033

Matrícula da viatura LD-32-36-BE

A quantidade de sucata LÍCITA 860 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A **Empresa** ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda aos 04 / 01 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS FERROSOS

REQUISIÇÃO Nº02/DSE/2023

LOCAL DE CARREGAMENTO: T P U .

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS:ZHOGAN HENGTAI INDUSTRIA LDA.

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Empresa Zhongan Hengtai Industria lda .

DATA DA OPERAÇÃO DE RECOLHA: 18/04/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (kg)
Recolha e transporte de Material Ferrosos	Materia Ferroso	2020(**kg**)

VIATURA MARCA: DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo e Verde

18/04/2023

O RECEBEDOR

UNICARGAS

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Andina A. J Moreira Telef: 935150813

B.I. Nº 003222175LA033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 2.020 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda aos 18 / 04 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS FERROSOS

REQUISIÇÃO Nº03/DSE/2023

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Zhogan Hengatai Indutria.

LOCAL DE DESCARGA (DESTINO FINAL):Estaleiro da empresa Zhogan Hengtai Indutria Lda

DATA DA OPERAÇÃO DE RECOLHA: 19/05/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (kg)
Recolha e transporte de Residuos ferrosos	Residuos ferrosos de (cabos de aço e fitas de aço)	1.140 Kg

VIATURA MARCA: Daf

MATRÍCULA: LD-83-47-CS

COR: Amarelo e Verde

UFAP Posto Fiscal Ad. da Unicargas Polícia Fiscal Aduaneira

O RECEBEDOR

UNICARGAS,TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº DD3222175LAD33

Matrícula da viatura LD-83-17-CS

A quantidade de sucata LÍCITA 1.140 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda aos 19 / 05 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS.

REQUISIÇÃO Nº 05/53.09/DSE/2023

LOCAL DE PRODUÇÃO: T.P.U/

O RESPONSÁVEL PELA RECOLHA E TRANSPORTE DE RESIDUOS USADOS: Zhongan Hengtai

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Empresa Zhongan Hengtai.

DATA DA OPERAÇÃO DE RECOLHA: 01/08/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (kg)
Recolha e transporte de Residuos Ferrosos usados	Ferroso	1.620 (kg)

VIATURA DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo

LUANDA DIRECÇÃO DE SEGURANÇA E AMBIENTE
DATA 02/08/23

UFAP Polícia Fiscal Aduaneira Posto Fiscal Ad. da Unicargas

O RECEBEDOR

UNICARGAS

Lemoxus Services
Bunda
02/08/2023

UFAP Polícia Fiscal Aduaneira Posto Fiscal Ad.

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº 003222175LA033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 1.620 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A **Empresa** ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda aos 01 / 08 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

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Transportadora de Cargas,Operadora de Terminais e Transitária, Contribuinte n.º 5410003136

DERECÇÃO DE SEGURANÇA EMPRESARIAL
DEPARTAMENTO DO AMBIENTE

GUIA DE REMESSA DE RECOLHALHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº 09 / D.S.E / 2023

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSÁVEL PELA RECOLHAETRANSPORTE: Zhogan Hengtai Industria Lda

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Empresa Zhogan Hengtai Industria Lda

DATA DA OPERAÇÃO DE RECOLHA: 24/10/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Valorização de residuos Ferroso	Material Ferroso	2700 Kg

VIATURA MARCA: Daf

MATRÍCULA: LD-83-47-CS

COR: Amarelo e verde

O RECEBEDOR

UNICARGAS, TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº DD3222175LAD33

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 2700 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A **Empresa** ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda aos 24 / 10 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

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Transportadora de Cargas,Operadora de Terminais e Transitária, Contribuinte n.º 5410003136

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

Baptista Augusto

REQUISIÇÃO Nº10/DSE/2023 29-11-23

LOCAL DE CARREGAMENTO:TPU Terminais

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Zhogan Hengtai Industria Lda.

LOCAL DE DESCARGA (DESTINO FINAL):Estaleiro da empresa Zhogan Hengtai Industria Lda.

TIPO DE TRATAMENTO: Reaproveitamento.

DATA DA OPERAÇÃO DE RECOLHA: 29/11/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (Kg)
Valorização de residuos ferroso	Retalhos de fitas e cabos de aço	1.720 Kg

VIATURA MARCA: DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo e Verde

DIRECÇÃO DE SEGURANÇA E AMBIENTE

Nelson 29/11/23

O RECEBEDOR

UNICARGAS, TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anibio A. J. Moreira Telef: 935150813

B.I. Nº DD3222175LA033

Matrícula da viatura LD-83-17-CS

A quantidade de sucata LÍCITA 1.720 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda aos 29 / 11 /2023

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS SOLIDOS

REQUISIÇÃO Nº01 /DSE/2024

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Zhogan Hengtai Indutria Lda.

LOCAL DE DESCARGA (DESTINO FINAL) Zhogan Hengtai Indutria Lda.

TIPO DE TRATAMENTO. Reaproveitamento.

DATA DA OPERAÇÃO DE RECOLHA:01.03.2024.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS
Recolha e transporte de Resíduos ferrosos	Retalhos de fitas e cabos de aços	(3.440) Kg

Emanuel Domingos
Segurança Ocupacional
01.03.2024

VIATURA: Daf

MATRICULA: LD-83-47-CS

COR: Amarelo e Verde

UFRP Posto de Pesagem da Unicargas Nº: Nelson 01/03/24

O RECEBIDOR

UNICARGAS TPU

01/03/24

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº LT 3277175LA033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 3.440 Kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda, aos 01 de Março de 2024

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: aninamoreira03@gmail.com TEL: 955150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE MATERIAL FERROSO.

REQUISIÇÃO Nº02/53.09/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

O RESPONSÁVEL PELA RECOLHA E TRANSPORTE DE MARERIAL FERROSO: Zhogan Hengtai Industrial Lda.

LOCAL DE DESCARGA (DESTINO FINAL): Reaproveitamento

DATA DA OPERAÇÃO DE RECOLHA: 18/03/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de Material Ferroso usados	Retalhos de fitas e cabos de aço	2.260 (KG)

VIATURA DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo e verde

O RECEBEDOR

UNICARGAS, T.PU.

Joaquim dos Santos Lemuxes

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº DD3222175LA033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 2.260kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda aos 18 / 03 /2024

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE RECOLHA E REMESSA DE RESIDUOS SÓLIDOS.

REQUISIÇÃO Nº 04/53.09/DSE/2024

LOCAL DE PRODUÇÃO: T.P.U/

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Zhongan Hengttai.

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Empresa Zhongan Hengtai.

DATA DA OPERAÇÃO DE RECOLHA: 01/07/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (kg)
Recolha e transporte de Material ferroso usado.	Ferrosos	(580 kg)

VIATURA DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo

UFAP Posto Fiscal Ad. da Unicargas

O RECEBEDOR

UNICARGAS T.P.U.

01/07/24

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Andra A. J Mo... Telef: 935150813

B.I. Nº DD3222 175 LA033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 580 Kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda aos 01 / 07 /2024

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESS DE RECOLHA E TRANSPORTE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº04/DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: DE MATERIAL FERROSOS: Zhogan Hengtai Indutria Lda

LOCAL DE DESCARGA (DESTINO FINAL):Estaleiro da empresa Zhongan Hegtai Indutria Lda.

TIPO DE TRATAMENTO: Reaproveitamento.

DATA DA OPERAÇÃO DE RECOLHA: 11 /10/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de residuos material ferrosos fitas e usado cabos de aço	Recolha de fitas e cabos de aços	(1320) Kg

VIATURA MARCA: Daf

MATRÍCULA: LD-32-36-BE

COR: Branca

11.10.2024

Bernardino Serviço Lda

Guilherme Galiano

11.10.2024

O RECEBEDOR

UNICARGAS, TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J Moreira Telef: 935150813

B.I. Nº LD3 222.175 L4 D33

Matrícula da viatura LD-82-36-BE

A quantidade de sucata LÍCITA 13.200 Kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda, aos 11 de Outubro de 2024

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: aninamoreira03@gmail.com TEL: 935150813/957153213

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº05/DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: DE MATERIAL FERROSOS: Zhogan Hengtai Indutria Lda

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da empresa Zhongan Hegtai Indutria Lda.

TIPO DE TRATAMENTO: Reaproveitamento. 12/10/2024

DATA DA OPERAÇÃO DE RECOLHA: 12 /10/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de residuos material ferrosos fitas e usado cabos de aço	Recolha de fitas e cabos de aços	(2200) Kg

VIATURA MARCA: Volvo

MATRÍCULA: LD-54-31-CM

COR: Preta

UFAP Posto Fiscal Ad. da Unicargas Fiscal Aduaneira Data 12/10/24

DIRECÇÃO DE SEGURANÇA E AMBIENTE DATA

O RECEBEDOR

UNICARGAS, TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. _____ Telef: 935150813

B.I. Nº DD322217SLAD33

Matrícula da viatura LD-54-31-CM

A quantidade de sucata LÍCITA 2.200 kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda, aos 25 de Fevereiro de 2025

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: aninamoreira03@gmail.com TEL: 935150813/957153213

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº06/DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Zhogan Hengtai Indutria Lda

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da empresa Zhogan Hengtai Indutria Lda
TIPO DE TRATAMENTO:Reciclagem.

DATA DA OPERAÇÃO DE RECOLHA:30/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de resíduos sólidos ferroso	Recolha de fitas e cabos de aço	(2500) kg

Segurança Lemuxos
Matias Pereira
30/12/2024

VIATURA MARCA:Daf

MATRÍCULA:-LD-83-46-CF

COR:Amarelo e verde

DIRECÇÃO DE SEGURANÇA E AMBIENTE
LUANDA
DATA 30 12 24

30/12/24

O RECEBEDOR

UNICARGAS,TPU

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anda J. J. Moreira Telef: 935130813

B.I. Nº DD322217516038

Matrícula da viatura LD-83-46-CF

A quantidade de sucata LÍCITA 25000kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda, aos 25 de Fevereiro de 2025

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: aninamoreira03@gmail.com TEL: 935150813/957153213

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE MATERIAL FERROSO.

REQUISIÇÃO Nº01/53.09/DSE/2025

LOCAL DE CARREGAMENTO: T.P.U.

O RESPONSÁVEL PELA RECOLHA E TRANSPORTE DE MARERIAL FERROSO: Zhogan Hengtai Industrial Lda.

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Zhongan Hengtai.

DATA DA OPERAÇÃO DE RECOLHA: 13/01/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de Material Ferroso usados	Retalhos de fitas e cabos de aço	(1.640, KG)

VIATURA DAF

MATRÍCULA: LD-83-47-CS

COR: Amarelo e verde

13-01-2025

UFA: Posto Fiscal Ad. da Unicargas Data: 13/01/25

O RECEBEDOR

UNICARGAS, T.P.U

13/01/25

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eral@unicargas.co.ao

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Anita A. J. Moreira Telef: 935150813

B.I. Nº 003222175LA033

Matrícula da viatura LD-55-47-CB

A quantidade de sucata LÍCITA 1.640kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

Luanda, aos 25 de Fevereiro de 2025

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: aninamoreira03@gmail.com TEL: 935150813/957153213

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Bairro da Boavista
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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE VALORIZAÇÃO DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº001/DSE/2025

LOCAL DE CARREGAMENTO: NOATUM PORTS

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS: ZHOGAN HENGTAI INDUTRIA LDA.

LOCAL DE DESCARGA (DESTINO FINAL): Estaleiro da Empresa Zhongan hengtai indutria Lda.
TIPO DE TRATAMENTO :Reaprovetamento

DATA DA OPERAÇÃO DE RECOLHA: 30/01/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (KG)
Recolha e transporte de residuos material ferrosos fetas e usado cabos de aço	Recolho de fitas e cabos de aços	**3700 KG**

VIATURA MARCA: DAF

MATRÍCULA: LD-83-47-CS

COR: Branco

O RECEBEDOR

NOATUM PORTS

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

TERMO DE RECEBIMENTO DE SUCATA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, acusou a receção a Empresa.

O Sr. Aninha A. J. Moreira Telef: 935150813

B.I. Nº DD3 222175 LA 033

Matrícula da viatura LD-83-47-CS

A quantidade de sucata LÍCITA 37.00 Kg TONELADAS.

O mesmo declara que a sucata ferrosa em causa esta isenta de materiais ilegais e que assume a responsabilidade caso se venha detetar que existam estes materiais ilegais no interior da viatura.

A Empresa ZHONGAN HENTAI-INDUSTRIA, LDA descarta qualquer responsabilidade caso o agente venha apresentar materiais ferrosos ilegais e reserva-se ao direito de comunicar as entidades competentes para o devido tratamento.

ZHONGAN HENGTAI

Luanda, aos 25 de Fevereiro de 2025

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

FAZENDA CORPINHO

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº27 /DSE/2023

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpnho .

LOCAL DE DESCARGA (DESTINOFINAL) Material reaproveitáveis.

DATA DA OPERAÇÃODE RECOLHA:31.10.2023.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos solidos de ripas e barrotes de madeiras usadas	Ripas de madeiras de barrote usadas	(1960)kg

VIATURA: Carinha Canter Mitsubishi

MATRICULA:LD-49- 82-EI

COR: Branca

O RECEBIDOR

UNICARGAS TPU

UFAP Posto Fiscal Ad. Data: Ass:

Lerucxus

Mariano S.

UNICARGAS
RUA SANZALAS CABINDA- INGOMBOTAS- LUANDA
3937 LUANDA
NIF:
TEL: 919737789

Talão de Pesagem N° 6806

Data: 2023-10-31
Entrada: 13:37:23
Saída: 13:43:52

DUPLICADO

Cliente	: 0079 - PARTICULAR
Morada	:
Localidade	:
Cód. Postal	:
Contribuinte	: Consumidor Final
Transportador	: 0094 - PARTICULAR
Matricula	: LD-49-82-GM
Guia Req.	:
Produto	: 156 - RESIDOUS DE MADEIRAS
Peso Bruto	: 4960 Kg
Tara	: 3000 Kg
Peso Liquido	: 1960 Kg
N° Contentor	: XXXXXXXXXXX
N° Selo	: XXXXXXXXXXX
BL/Booking	: XXXXXXXXXX
Tara Contentor	: 0 Kg
MBV Contentor	: 1960 Kg
Resp.Pesagem	: AGOSTINHO CAHUMA
Método	: 2
Cert. Pesagem	: T164200138

OBS:CARINHA COM RESIDIOUS DE MADEIRA./ MT.ANTÓNIO ETAMBA CACUNDE

O Motorista

O Responsável

Terminal Polivalente UNICARGAS DATA 31/10/23

(Processado por Computador)

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº31 /DSE/2023

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS:Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Material reaproveitáveis.

DATA DA OPERAÇÃODE RECOLHA:23.11.2023.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos	Barrote Usados	(3640)kg

VIATURA: CANTER MTSUBISHI

MATRICULA:LD-24-03-CX

COR: Branca

O RECEBIDOR

UNICARGAS TPU

Segurança

Beni P. Matamba

23/11/2023

23/11/23

UNICARGAS
RUA SANZALAS CABINDA- INGOMBOTAS- LUANDA
3937 LUANDA
NIF:
TEL: 919737789

Talão de Pesagem Nº 6817

Data: 2023-11-23
Entrada: 13:44:21
Saída: 13:53:45

DUPLICADO

Cliente	: 033 - particular
Morada	:
Localidade	:
Cód. Postal	:
Contribuinte	: Consumidor Final
Transportador	: 0094 - PARTICULAR
Matricula	: LD-24-03-CX
Guia Req.	:
Produto	: 004 - MOLOTES DE MADEIRA
Peso Bruto	: 6140 Kg
Tara	: 2500 Kg
Peso Liquido	: 3640 Kg
Nº Contentor	: XXXXXXXXXX
Nº Selo	: XXXXXXXXXX
BL/Booking	: XXXXXXXXXXX
Tara Contentor	: 2500 Kg
MBV Contentor	: 6140 Kg
Resp.Pesagem	: AMILTON DOS SANTOS
Método	: 1
Cert. Pesagem	: T164200138

OBS:CARRINHA MITSUBISHI COM MADEIRA ALBERTO SILVA -/ B.I. LD-239473

O Motorista

O Responsável

(Processado por Computador)

Terminal Polivalente
UNICARGAS
ENTRADA
DATA 23/11/2023

unicargas®

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003136, Web: www.unicargas.com

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº 36 /DSE/2023

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS:Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Material reaproveitáveis.

DATA DA OPERAÇÃODE RECOLHA: 28.12.2023.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos	Barrote Usados	(3240)kg

VIATURA: Toyota Dina

MATRICULA:LD-12-18-CL

COR: Creme

José Roberto
28/12/23
Denisan

O RECEBIDOR

UNICARGAS TPU

UFAP Angola n.d. 28/12/23

DIRECÇÃO DE SEGURANÇA E AMBIENTE

FAZENDA CORPINHO
DE
NICOLAU CORDEIRO DA MATA
ABASTECEDOR DE PERMUTORES
AGRO-PECUÁRIA E PISCATÓRIA
LUANDA
Enderenço: Rua da Sonagalp – Viana – Luanda
NIF 102897186LA0306
TELEFONE 927 437 520

TERMO DE RECEBIMENTO DE MADEIRA USADAS

A FAZENDA CORPINHO, empresa de direito Angolano vocacionada para trabalhar no mercado nacional com sede em Luanda na rua da Sonagalp-Viana, com o contribuinte fiscal nº 102897186LA0306, acusou a recepcção de:

RELAÇÃO DO MATERIAL RECOLHIDO

Nº	Tipo de material	Quantidade (Kg)	Categoria	Produtor
01	Barrotes de madeiras usadas	3240	Resíduo de madeira	Terminal Polivalente da Unicargas

Luanda, aos 28 de Dezembro de 2024

Atenciosamente

Nicolau Cordeiro da Mata

Nicolau Cordeiro da Mata
(Sócio Gerente)

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO N 03 /DSE/2024

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Material para reaproveitámento.

DATA DA OPERAÇÃODE RECOLHA: 26.01.2024.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos Madeira de usados	Residuos de madeiras Usados	(2260)kg

VIATURA: Cater

MATRICULA:LD-30-57-DX

COR: Branca

UFAP
Posto Aduaneiro
Unicargas
Data: 26/01/2024
Ass:

O RECEBIDOR

UNICARGAS TPU

UNICARGAS
RUA SANZALAS CABINDA- INGOMBOTAS- LUANDA
3937 LUANDA
NIF:
TEL: 919737789

Talão de Pesagem N° 6974

Data: 2024-01-26
Entrada: 13:21:49
Saída: 13:31:04

ORIGINAL

Cliente	: 033 - particular
Morada	:
Localidade	:
Cód. Postal	:
Contribuinte	: Consumidor Final
Transportador	: 0094 - PARTICULAR
Matricula	: LD3057 DX
Guia Req.	:
Produto	: 2007 - MADEIRA EM TABUAS
Peso Bruto	: 4760 Kg Tara: 2500 Kg Peso Liquido: 2260 Kg
N° Contentor	: X X X X X X XX
N° Selo	: X X X X X X X BL/Booking : X X X X X X X X
Tara Contentor	: 2500 Kg MBV Contentor: 0 Kg
Resp.Pesagem	: MATEUS ADÃO Método :
Cert. Pesagem	:

OBS:HIPOLITO GERONIMO CARREGOU MADEIRA

O Motorista

Hipolito Figueiro

O Responsável

(Processado por Computador)

DATA 26/01/24

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO N 04 /DSE/2024

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Material para reaproveitámento.

DATA DA OPERAÇÃODE RECOLHA: 30.01.2024.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos Madeira de usados	Residuos de madeiras Usados	(3120)kg

VIATURA: Cater

MATRICULA:LD-30-57-DX

COR: Branca

Joaquim dos Santos
Lemikos
30-01-2024

30.01.2024

O RECEBIDOR

UNICARGAS TPU

UNICARGAS
RUA SANZALAS CABINDA- INGOMBOTAS- LUANDA
3937 LUANDA
NIF:
TEL: 919737789

Talão de Pesagem Nº 6975

ORIGINAL

Data: 2024-01-30
Entrada: 11:54:44
Saída: 11:59:21

Cliente	: -		
Morada	:		
Localidade	:		
Cód. Postal	:		
Contribuinte	: Consumidor Final		
Transportador	: 0094 - PARTICULAR		
Matricula	: LD3057DX		
Guia Req.	:		
Produto	: 004 - MOLOTES DE MADEIRA		
Peso Bruto	: 5620 Kg	Tara: 2500 Kg	Peso Liquido: 3120 Kg
Nº Contentor	: X X X X X X		
Nº Selo	: X X X X X X	BL/Booking	: X X X X X XX X
Tara Contentor	: 2500 Kg	MBV Contentor	: 0 Kg
Resp.Pesagem	: MATEUS ADÃO	Método	:
Cert. Pesagem	:		

OBS:HIPOLITO GERONIMO CARREGOU MADEIRA

O Motorista

Hipolito Geronimo

O Responsável

(Processado por Computador)

Terminal Polivalente
UNICARGAS
DATA 30 / 07 / 24

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS.

REQUISIÇÃO Nº 05/53.09/DSE/2024

LOCAL DE PRODUÇÃO: T.P.U.

O RESPONSÁVEL PELA RECOLHA E TRANSPORTE DE MADEIRA USADA: Fazenda Corpinho

LOCAL DE DESCARGA (DESTINO FINAL): Reaproveitamento.

DATA DA OPERAÇÃO DE RECOLHA: 05/02/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (Kg)
Recolha e transporte de barrotes de madeiras usadas	Barrotes de Madeiras usadas.	2.720 (Kg)

VIATURA MARCA: SCANIA

MATRÍCULA: LD-30-57-DX

COR: Branca

O RECEBEDOR

Victor da Mata

UNICARGAS/T.P.U

Joaquim dos Santos

Joaquim dos Santos
Lemuxus

UNICARGAS
RUA SANZALAS CABINDA- INGOMBOTAS- LUANDA
3937 LUANDA
NIF:
TEL: 919737789

Talão de Pesagem N° 6977

Data: 2024-02-05
Entrada: 14:59:33
Saída: 15:04:52

ORIGINAL

Cliente	: 0079 - PARTICULAR
Morada	:
Localidade	:
Cód. Postal	:
Contribuinte	: Consumidor Final
Transportador	: 0094 - PARTICULAR
Matricula	: LD-30-57-DX
Guia Req.	:
Produto	: -
Peso Bruto	: 5220 Kg
Tara	: 2500 Kg
Peso Liquido	: 2720 Kg
N° Contentor	: RESÍDUOS DE MADEIRA
N° Selo	: XXXXXXXXXXX
BL/Booking	: XXXXXXXXXXX
Tara Contentor	: 2500 Kg
MBV Contentor	: 5220 Kg
Resp.Pesagem	: MAURÍCIO NANGONGO
Método	: 1
Cert. Pesagem	: T164200138

OBS:HIPOLITO FRANCISCO JEREMIAS / LD523927 / RESÍDUOS DE MADEIRA

O Motorista

Hipolito Francisco

O Responsável

(Processado por Computador)

05/02/2024

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Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003136, Web: www.unicargas.co.ao

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO N 18 /DSE/2024

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Material para reaproveitamento.

DATA DA OPERAÇÃO DE RECOLHA: 03.07.2024.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS UNIDADES
Recolha e transporte de Resíduos Madeira de usados	Residuos de madeiras Usados	(2420) Kg

VIATURA: Cater

MATRICULA:LD-01-35-CH

COR: Branca

03 07 24

O RECEBIDOR

UNICARGAS TPU

FAZENDA CORPINHO
DE
NICOLAU CORDEIRO DA MATA
ABASTECEDOR DE PERMUTORES
AGRO-PECUÁRIA E PISCATÓRIA
LUANDA
Enderenço: Rua da Sonagalp – Viana – Luanda
NIF 102897186LA0306
TELEFONE 927 437 520

TERMO DE RECEBIMENTO DE MADEIRA USADAS

A FAZENDA CORPINHO, empresa de direito Angolano vocacionada para trabalhar no mercado nacional com sede em Luanda na rua da Sonagalp-Viana, com o contribuinte fiscal nº 102897186LA0306, acusou a recepcção de:

RELAÇÃO DO MATERIAL RECOLHIDO

Nº	Tipo de material	Quantidade (Kg)	Categoria	Produtor
01	Barrotes de madeiras usadas	2420	Resíduo de madeira	Terminal Polivalente da Unicargas

Luanda, aos 03 de Julho de 2024

Atenciosamente

Nicolau Cordeiro da Mata
(Sócio Gerente)

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003135, Web: www.unicargas.co.ao

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº01/DSE/2025

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINO FINAL) Fazenda corpinho.

DATA DA OPERAÇÃODE RECOLHA: 14.01.2025.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS Qtd
Recolha e transporte de Resíduos de barrotes usados	Barrotes Usados	(3980) kg

VIATURA: Canter

MATRICULA- LD-16-64-BD

COR: Branca

14.01.2025

Augusto Capitão
Lemuxis
14/01/2025
O RECEBIDOR

UFA
Polícia Fiscal
Posto da Unicargas
Data: 14/01/25
Ass:

UNICARGAS TPU

FAZENDA CORPINHO

DE

NICOLAU CORDEIRO DA MATA

ABASTECEDOR DE PERMUTORES

AGRO-PECUÁRIA E PISCATÓRIA

LUANDA

Endereço: Rua da Sonagalp – Viana – Luanda

NIF 102897186LA0306

TELEFONE 927 437 520

TERMO DE RECEBIMENTO DE MADEIRA USADAS

A FAZENDA CORPINHO, empresa de direito Angolano vocacionada para trabalhar no mercado nacional com sede em Luanda na rua da Sonagalp-Viana, com o contribuinte fiscal nº 102897186LA0306, acusou a recepcção de:

RELAÇÃO DO MATERIAL RECOLHIDO

Nº	Tipo de material	Quantidade (Kg)	Categoria	Produtor
01	Barrotes de madeiras usadas	3980	Resíduo de madeira	Terminal Polivalente da Unicargas

Luanda, aos 14 de Janeiro de 2025

Atenciosamente

Nicolau Cordeiro da Mata

Nicolau Cordeiro da Mata

(Sócio Gerente)

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte Fiscal n.º 5410003338, Web: www.unicargas.co.ao

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº02/DSE/2025

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Fazenda corpinho.

DATA DA OPERAÇÃODE RECOLHA:15.01.2025.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS Qtd
Recolha e transporte de Resíduos de barrotes usados	Barrotes Usados	(3840) kg

VIATURA:Canter

MATRICULA-LD-16-64-BD

COR:Branca

15.01.2025

15.01.25

O RECEBIDOR

UNICARGAS TPU

FAZENDA CORPINHO
DE
NICOLAU CORDEIRO DA MATA
ABASTECEDOR DE PERMUTORES
AGRO-PECUÁRIA E PISCATÓRIA
LUANDA
Endereço: Rua da Sonagalp – Viana – Luanda
NIF 102897186LA0306
TELEFONE 927 437 520

TERMO DE RECEBIMENTO DE MADEIRA USADAS

A FAZENDA CORPINHO, empresa de direito Angolano vocacionada para trabalhar no mercado nacional com sede em Luanda na rua da Sonagalp-Viana, com o contribuinte fiscal nº 102897186LA0306, acusou à recepcção de:

RELAÇÃO DO MATERIAL RECOLHIDO

Nº	Tipo de material	Quantidade (Kg)	Categoria	Produtor
01	Barrotes de madeiras usadas	3840	Resíduo de madeira	Terminal Polivalente da Unicargas

Luanda, aos 15 de Janeiro de 2025

Atenciosamente

Nicolau Cordeiro da Mata

Nicolau Cordeiro da Mata
(Sócio Gerente)

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESIDUOS

REQUISIÇÃO Nº03/DSE/2025

LOCAL DE CARREGAMENTO: TPU.

RESPÓNSAVEL PELA RECOLHA E TRANSPORTE DE BARROTE USADOS: Fazenda Corpinho.

LOCAL DE DESCARGA (DESTINOFINAL) Fazenda corpinho.

DATA DA OPERAÇÃODE RECOLHA:16.01.2024.

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS Qtd
Recolha e transporte de Resíduos de barrotes usados	Barrotes Usados	(3380) kg

VIATURA:Canter

MATRICULA-LD-16-64-BD

COR:Branca

16.01.2025

O RECEBIDOR

UNICARGAS TPU

FAZENDA CORPINHO

DE

NICOLAU CORDEIRO DA MATA

ABASTECEDOR DE PERMUTORES

AGRO-PECUÁRIA E PISCATÓRIA

LUANDA

Endereço: Rua da Sonagalp – Viana – Luanda

NIF 102897186LA0306

TELEFONE 927 437 520

TERMO DE RECEBIMENTO DE MADEIRA USADAS

A FAZENDA CORPINHO, empresa de direito Angolano vocacionada para trabalhar no mercado nacional com sede em Luanda na rua da Sonagalp-Viana, com o contribuinte fiscal nº 102897186LA0306, acusou a recepcção de:

RELAÇÃO DO MATERIAL RECOLHIDO

Nº	Tipo de material	Quantidade (Kg)	Categoria	Produtor
01	Barrotes de madeiras usadas	3380	Resíduo de madeira	Terminal Polivalente da Unicargas

Luanda, aos 16 de Janeiro de 2025

Atenciosamente

Nicolau Cordeiro da Mata

Nicolau Cordeiro da Mata

(Sócio Gerente)

ENVIROBAC

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº12/DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO -BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro dos Sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 22/01/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Diverso	4,52 (m^3)

VIATURA MARCA: Sinotruk

MATRÍCULA: LD-39-40-HJ

COR: Branco

O RECEBEDOR

Ana dos Santos
07.02.2024

UNICARGAS, TPU

07.02.2024

elisal
Empresa de Limpesa e Saneamento de Luanda

Ticket: 04271224135414-9

Data:27/12/2024

Hora: 13:54:14

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa

EMBAC

VEICULO

Codigo 36 Matric LD2920IF

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

CONTRACTO - PORTO DE LUANDA

Peso Bruto	23.520
Tara	19.000
Peso Liquido	4.520

Operador ANDRÉ LUAMBA

Cop FFOCO 2016 Copia Autorizada para a ELISAL

ANDRÉ LUAMBA 27/12/2024 13 54 15

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº09 /DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro dos Sanitário

DATA DA OPERAÇÃO DE RECOLHA: 24/01/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Diverso	10,84 (m_3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Ana dos Santos

UNICARGAS,TPU

Ligília de Almeida

Ticker 04240124116905 5
Data 24/01/2024
Hora 11 03 05

125 720
14 880
10 840

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº10 /DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL):Aterro dos Sanitário

DATA DA OPERAÇÃO DE RECOLHA: 24/01/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Diverso	9,28 (m_3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS,TPU

24 160

14 880

9 280

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº13/DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 27/01/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Diversos	5 (m3)

VIATURA MARCA:SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

07.02.2024

UNICARGAS,TPU

07.02.2024

Empresa de Limpeza Urbana de Santa

Ticket: 04270124152049-5

Data: 27/01/2024

Hora: 15:20:49

29/01/2024

PESAGEM MANUAL

balança ATERRO [illegible]

Empresa

ELISABAC

[illegible]

Placa: [illegible]

PARTICULARES

[illegible]

ITAGOMECTA

PORTO DE ITAITIBA

Peso Bruto 19 880

Tara 14 880

Peso Líquido 5 000

Operador: [illegible]

Balança Aferida para a ELISAL

Impresso: [illegible] 15:20:51

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº16 /DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS:

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 06/02/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de residios sólidos	Diverso	10,84(m^3)

VIATURA MARCA: Sinotruk

MATRÍCULA: LD-24-06-HV

COR: Branco

O RECEBEDOR

Catarina da Costa

UNICARGAS

Empresa de Limpesa e Saneamento de Luanda

Ticket de Particular

Ticket 04080523205321-9

Data 06/02/2024

Hora 20 53 21

PESAGEM UNIC -

Balança ATERR . DOS MULENVOS

Empresa ENVIROBAC

VEICULO

Matric .LD2406H . Codigo

Serviço 12

Localidade E

PORTO DE LUANDA

UNICARGAS

Peso Bruto	
Tara	25.260
Peso Liquido	14.420
Resíduo	10.840
	DOMICILIAR

Operador ANDRE LUAMBA

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ANDRE LUAMBA 06/02/2024 20 53 23

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº17 /DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS:

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 10/02/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de residios sólidos	Diverso	5,34(m^3)

VIATURA MARCA: Sinotruk

MATRÍCULA: LD-24-03-HV

COR: Branco

O RECEBEDOR

Catalina da Costa

UNICARGAS

Empresa de Limpesa e Saneamento de Luanda

Ticket de Particular

Ticket 04050523173446-5

Data 10/02/2024

Hora 17 34 46

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa ENVIROBAC

VEICULO

Matric LD2403HV Codigo

Serviço 12

Localidade E

POR[illegible]E LUANDA

UNIC[illegible]AS

Peso Bruto	19.340
Tara .	14.000
Peso Liquido	5.340
Resíduo	DOMICILIAR

Operador JOSE MAKANZO

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JOSE MAKANZO 10/02/2024 17 34 47

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº18 /DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS:

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 20/02/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de residios sólidos	Diverso	1,62(m^3)

VIATURA MARCA: Sinotruk

MATRÍCULA: LD-39-40-HJ

COR: Branco

O RECEBEDOR

Catarina da Costa

UNICARGAS

unicargas®

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136,

Empresa de Limpesa e Saneamento de Luanda

Ticket: 04030523161927-5

Data:20/02/2024

Hora: 16:19:27

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS
Empresa
ENVIROBAC

VEICULO
Codigo 1 Matric LD3940H
Recolha 12
PARTICULARES
Localidade
PORTO DE LUANDA
UNICARGAS

Peso Bruto	16.500
Tara	14.880
Peso Liquido	1.620

Operador PASCUAL DOMINGOS

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PASCUAL DOMINGOS 20/02/2024 16:19:31

R. Sanzalas Cabinda, Boavista
Município: Ingombotas
Luanda/Angola

T. +244 222 310976/+244 222 310184/+244 222 311924
F. +244 222 310694
C.P. 3965

www.unicargas.co.ao
geral@unicargas.co.ao

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº19 /DSE/2024

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSAVEL PELA RECOLHA E TRANSPORTEDAS:

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 28/02/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de residios sólidos	Diverso	9,08(m^3)

VIATURA MARCA: Sinotruk

MATRÍCULA: LD-24-06-HV

COR: Branco

O RECEBEDOR

Catarina da Costa

UNICARGAS

Empresa de Limpesa e Saneamento de Luanda

Ticket de Partcular

Ticket 04010523195154-0

Data 28/02/2024

Hora 19 51 54

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa ENVIROBAC

VEICULO

Matric LD2406HV Codigo

Serviço 12

Localidade E

PORTO DE LUANDA

UNICA S

Peso Bruto	22.280
Tara	13.200
Peso Liquido	9.080
Resíduo	DOMICILIAR

Operador DOMINGOS

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DOMINGOS ECONGO 28/02/2024 19 51 55

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº020/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 02/03/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	7, 96 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa

UNICARGAS, T.P.U.

Jeremias Paulo
DA

20

Empresa de Limpeza e Saneamento de Luanda

Ticket 040203241529O1-3

Data 02/03/2024

Hora 15:29:01

PESAGEM [illegible]

Balanço TERRENOS MULENVOS

Empresa
ENVIROBAC

2

VEICULO

Codigo [illegible] 36DR

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	20.960
Tara	13.000
Peso Liquido	7.960

Operador ANTÓNIO FERNANDO

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº022/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 27/03/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	9, 66 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

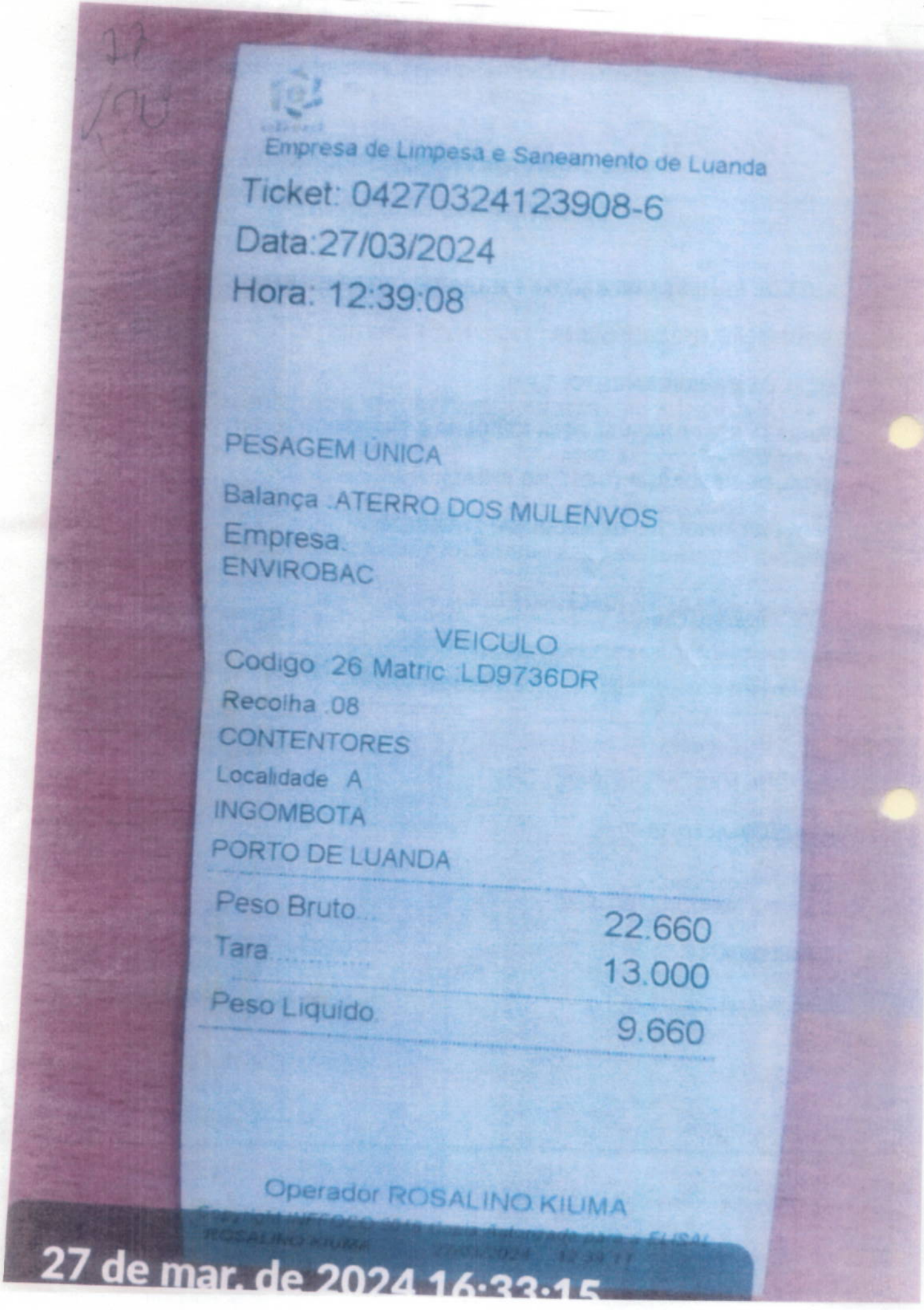
COR: Branca

O RECEBEDOR

Catarina da Cato

UNICARGAS, T.P.U.

Severino Pereira
DA



Empresa de Limpesa e Saneamento de Luanda

Ticket: 042703241239O8-6

Data:27/03/2024

Hora: 12:39:08

PESAGEM ÚNICA

Balança .ATERRO DOS MULENVOS

Empresa.
ENVIROBAC

VEICULO

Codigo 26 Matric .LD9736DR

Recolha .08

CONTENTORES

Localidade A

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	22.660
Tara	13.000
Peso Liquido	9.660

Operador ROSALINO KIUMA

27 de mar. de 2024 16:33:15

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº028/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 28/04/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	7, 12 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa

UNICARGAS, T.P.U.

Terceira Fonseca
S.A.
30/04/24

Empresa de Limpeza e Saneamento de Luanda

Ticket: 042804242138S6-0

Data: 28/04/2024

Hora: 21:38:56

29/04/2024

PESAGEM ÚNICA

Balança: ATERRO DOS MULENVOS

Empresa:
ENVIROBAC

VEICULO

Codigo: 1 Matric: LD3940HJ

Recolha: 12

PARTICULARES

Localidade: A

INGOMBOTA

PORTO DE LUANDA

Peso Bruto:	22.000
Tara:	14.880
Peso Liquido:	7.120

29/04/2024 10:17

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº025/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 29/04/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	5, 1 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa

UNICARGAS, T.P.U.

Lourenço Paulo
D.A.
30/04/24

30/04

Empresa de Limpeza e Saneamento de Luanda

Ticket: 042904242233326-6

Data 29/04/2024

Hora: 22:33:26

PESAGEM UNICA

Balança: ATERRO DOS MULEMBAS

Empresa:

ENVIROBAC

VEICULO

Codigo: 1 Matric: LD354GHJ

Receita: 12

PARTICULARES

Localidade: A

INGOMBOTA

PORTO DE LUANDA-CONTRATO

Peso Bruto	19.980
Tara	14.880
Peso Liquido	5.100

Operador: ROSALINO KIUMA

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ROSALINO KIUMA 29/04/2024 22:33:27

R.C.
Jesus
29/10/2024

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº029/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 14/05/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	7,82 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
21/05/2024

UNICARGAS, T.P.U.

Jeremias Pereira
20/5/24

029

T.8U

Empresa de Limpeza e Saneamento de Luanda

Ticket 04140524130904-1

Data 14/05/2024

Hora 13:09:04

PESAGEM ÚNICA

Balança ATERRO DOS MILENVOS

Empresa
ENVIROBAC

Codigo 36 MATº [illegible]

Recolha 08

CONTENTORES

Localidade A
#GOMBOTA
PORTO DE LUANDA

Peso Bruto	26 820
Tara	19 000
Peso Liquido	7 820

Operador ROSALINO KIUMA

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ROSALINO KIUMA 14/05/2024 13:09:04

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº32/DSE/2024

LOCAL DE CARREGAMENTO:TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitario.

DATA DA OPERAÇÃO DE RECOLHA: 10/06/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Diversos	10.5 (m3)

VIATURA MARCA:SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS,TPU

Ticket: 0410062415354[illegible]

Data:10/06/2024

Hora: 15:35:42

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo 1 Matric. LD3940HJ

Recolha 12

PARTICULARES

Localidade A

INGOMBOTA

PORTO DE LUANDA- CONTRACTO

Peso Bruto	25.380
Tara	14.880
Peso Liquido	10.500

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº034/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 05/07/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos urbanos	9,26 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catalina da Costa
18/07/24

UNICARGAS, T.P.U.

17/07/24

18/07/2

Empresa de Limpesa e Saneamento de ...arida

Ticket: 040507241[illegible]1858-5

Data:05/07/20[illegible]

Hora: 10:48:5[illegible]

PESAGEM ÚNICA

Balança :ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo .1 Matric. LD3940HJ

Recolha :12

PARTICULARES

Localidade A

INGOMBOTA

PORTO DE LUANDA

Peso [illegible]	24.140
Tara	14.880
Peso Liquido	9.260

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº034/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 18/07/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	9, 54 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
01/08/2024

UNICARGAS, T.PU.

01/08/24

Empresa de Limpesa e Saneamento de Luanda

Ticket:040302240450 46-9

Data18/07/2024

Hora: 15:52

PESAGEM ÚNICA

Balança :ATERRO DOS MULENVOS

Empresa:
ENVIROBAC

VEíCULO

Codigo :1 Matric.: LD-39-40-
Hj

Recolha:12

particulares

Localidade A

INGOMBOTA

Contrato porto de luanda

Peso Bruto...	**25.540**
Tara.....	**16.000**
Peso Liquido.	**9.540**

Operador manuel
sebasteão1...

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manuel... *18/07/2024 15:52:27*

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº035/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 29/07/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 12 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
01.08.2024

UNICARGAS, T.PU.

01/08/24

Empresa de Limpeza e Saneamento de Luanda

Ticket 042907241557 42-6

Data 29/07/2024

Hora 15 57 42

PESAGEM UNICA

Balança ATERRO DOS MULENVOS

Empresa

ENVIRCBAC

VEICULO

Codigo 1 Matric LD3940HJ

Recolha 12

PARTICULARES

Localidade A

INGOMBOTA

PORTO DE LUANDA CONTRATO

Peso Bruto	20.000
Tara	14.880
Peso Liquido	5.120

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº039/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 05/09/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	3, 46 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
02.10.24

UNICARGAS, T.PU.

Trevenio Tavares
02/10/24

39 TPU

Peso bruto 18.340
Tara 14.880
3.460
6 de set. de 2024 07:17:22
94,6m Altitude

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº042/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 11/09/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	9, 14 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

03/10/24

	28 140
	19.000
	9 140

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº043/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 20/09/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 52 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catalina da Costa

UNICARGAS, T.P.U.

Jeovencio Bartolo
03/10/24

07/10/24

unicargas®
Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136Web.www.unicargas.co.ao

R. Sanzalas Cabinda,
BoavistaMunicípio:
IngombotasLuanda/Angola

T. +244 222 310976/+244 222 310184/+244 222 311924F. +244 222 310694
C.P. 3965

www.unicargas.co.aog
eral@unicargas.co.ao

R. Sanzalas Cabinda,

T. +244 222 310976/+244 222 310184/+244 222

www.unicargas.co.aog

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº045/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 02/10/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	7, 5 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

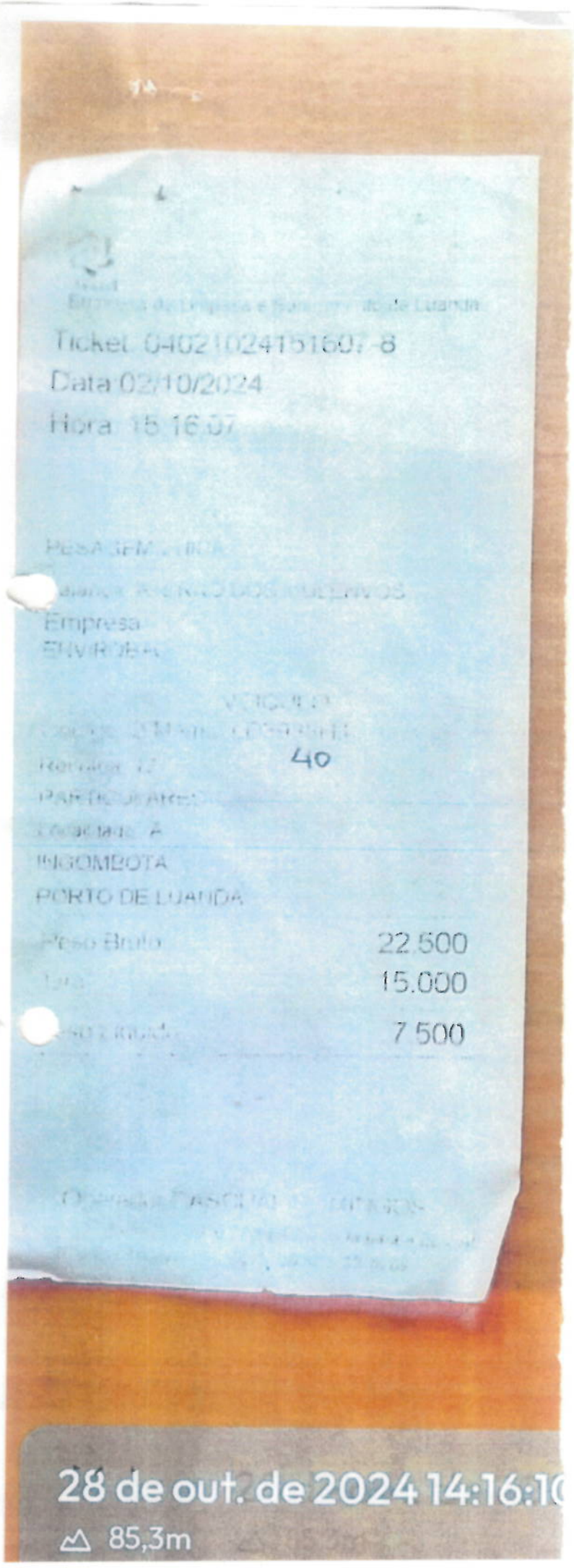
O RECEBEDOR

Catarina da Cruz
30-10-24

UNICARGAS, T.PU.

Veronica Pereira

30/10/24



Empresa de Limpeza e Saneamento de Luanda

Ticket 0402102415160?-8

Data 02/10/2024

Hora 15:16:07

Empresa

40

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	22.500
	15.000
	7.500

28 de out. de 2024 14:16:1

85,3m

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº047/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 25/10/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 18 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

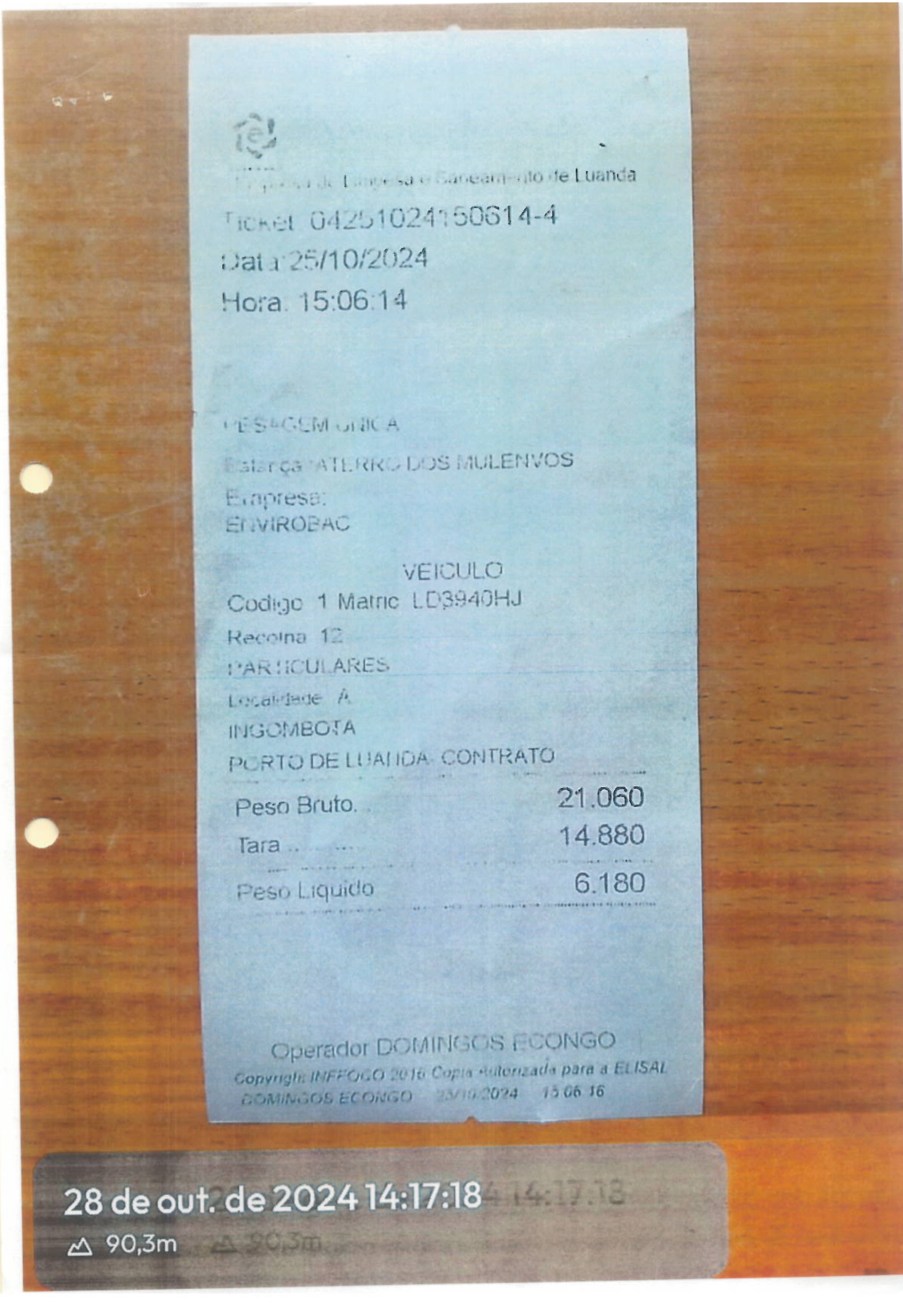
O RECEBEDOR

Catarina da Costa
30-10-24

UNICARGAS, T.PU.

Jeremias Pinheiros

30/10/24



Empresa de Limpeza e Saneamento de Luanda

Ticket 042510241506l4-4

Data: 25/10/2024

Hora: 15:06:14

PESAGEM UNICA

Estança: ATERRO DOS MULENVOS

Empresa:
ENVIROBAC

VEICULO

Codigo 1 Matric LD3940HJ

Recolha 12

PARTICULARES

Localidade A

INGOMBOTA

PORTO DE LUANDA CONTRATO

Peso Bruto	21.060
Tara	14.880
Peso Liquido	6.180

Operador DOMINGOS ECONGO

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DOMINGOS ECONGO 25/10/2024 15:06:16

28 de out. de 2024 14:17:18

90,3m

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº048/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 25/10/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	3, 36 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

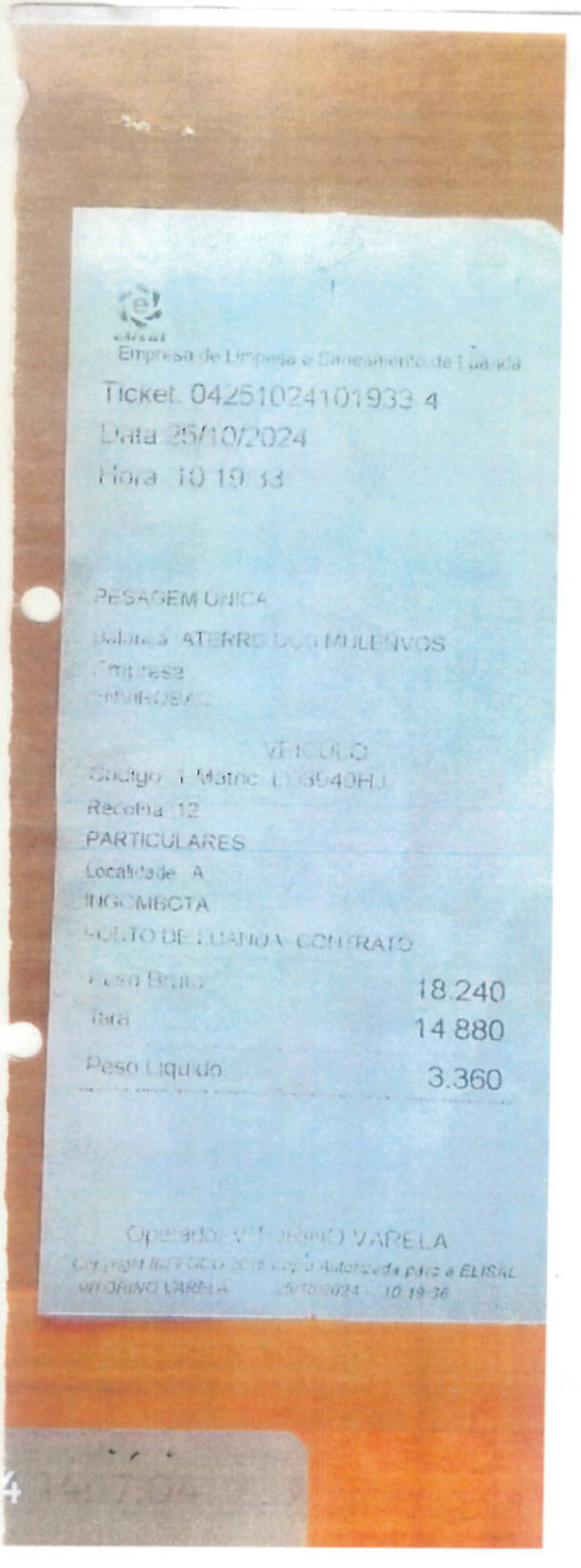
COR: Branca

O RECEBEDOR

Catarina da Costa
30-10-24

UNICARGAS, T.PU.

30/10/24



Empresa de Limpeza e Saneamento de Luanda

Ticket. 04251024101933 4

Data 25/10/2024

Hora 10 19 53

PESAGEM UNICA

Balança ATERRO DOS MULENVOS

Empresa

[illegible]

VEICULO

Codigo Matric [illegible]

Recolha 12

PARTICULARES

Localidade A

INGOMBOTA

SUJEITO DE LIMPEZA CONTRATO

Peso Bruto	18.240
Tara	14 880
Peso Liquido	3.360

Operador VITORINO VARELA

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VITORINO VARELA 25/10/2024 10 19 36

0

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº049/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 08/11/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 38 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
18/11/2024

UNICARGAS, T.P.U.

Jeremias Paulino
18/11/24

Empresa de Limpeza e Saneamento de Luanda

Ticket 040811241300034-9

Data: 08/11/2024

Hora: 13.00.34

PASSAGEM UNICA

Balança ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo 36 Matric LD2920IF

Eixos 08

CLIENTES

Localidade A

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	25.380
Tara	19.000
Peso Liquido	6.380

Operador ANDRE LOPES

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ANDRE LOPES 08/11/2024 13:00:35

8 de nov. de 2024 16:08:20

85,0m

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº050/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 13/11/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 72 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
18, 11, 2024

UNICARGAS, T.P.U.

Lourenço Pereira
18/11/24

Da
19/11/24

unicargas

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136Web.www.unicargas.co.ao

Ticket: 041311241175902-9

Data 13/11/2024

Hora 17:59:02

Empresa:
ENVIROBAC

Codigo 36 Matric LD292UF

Reserva 08

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	25.720
Tara	19.000
Peso Liquido	6.720

R. Sanzalas Cabinda,
BoavistaMunicipió:
IngombotasLuanda/Angola

T. +244 222 310976/+244 222 310184/+244 222 311924F, +244 222 310694
C.P. 3965

www.unicargas.co.ao
erat@unicargas.co.ao

14 de nov. de 2024 08:19:51

0

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº51/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 02/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	3, 92 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

11/12/24

Ticket 04021224160659-5
Data 02/12/2024
Hora 16:06:59

PESAGEM UNICA
Balança ATERRO DOS MULEIVOS
Empresa
ENVIROBAC

VEICULO
Codigo 36 Matric LDC-00DF
Reboque 08
CONTENTORES
Localidade A
LUGOMBOTA
PORTO DE LUANDA

Peso Bruto	22.920
Tara	19 000
Peso Liquido	3.920

Operador ANDRÉ LOPES

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ANDRÉ LOPES 02/12/2024 16:07:00

0

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº 52/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 03/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 88 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

Ticket: 04031224135336-5
Data 03/12/2024
Hora: 13:53:36

PLANTA UNICA
Balanca: ATENCIO DOS MULENVOS
Empresa:
ENVIROBAC

VEICULO
Codigo: 36 Matric: LDZ920IF
Recolha: 09
CONTENTORES
Localizacao: A
INGOMBOTA
PORTO DE LUANDA

Peso Bruto	24.880
Tara	19.000
Peso Liquido	5.880

Operador ANDRE LUAMBA

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ANDRE LUAMBA 03/12/2024 13:53:36

T.C.
Jussara
XIX.XII.2024

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº54/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 12/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 6 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

DA
19/12/24

Data:12/12/2024
Hora: 13:38:09

PESAGEM UNICA

Balança ATERRO DOS MULENVOS
Empresa
ENVIROBAC

VEICULO
Codigo 36 Matric LD2920IF
Recolha 08
CONTENTORES
Localidade A
INGOMBOTA
CONTRATO PORTO DE LUANDA

Peso Bruto	24.600
Tara	19.000
Peso Liquido	5.600

Operador ROSALINO KIUMA

unicargas®

Transportadora de Cargas, Operadora de Terminais e Transitária, Contribuinte n.º 5410003136Web.www.unicargas.co.ao

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº55/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 17/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 7 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

19/12/24

Ticket 041712241154l3-8

Data: 17/12/2024

Hora. 11:54:13

PESAGEM UNICA

Balança ATERRO DOS MOLENVOS

Empresa
ENVIROBAC

VEICULO

Codigo Matric LD2920IF

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

CONTRATO-PORTO DE LUANDA

Peso Bruto	25.700
Tara	19.000
Peso Liquido	6.700

Operador FRANCISCO ANTONIO

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FRANCISCO ANTONIO 17/12/2024 11:54:13

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº56/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 23/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 14 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

elisal
Empresa de Limpesa e Saneamento de Luanda

Ticket: 04231224113334-0

Data:23/12/2024

Hora: 11:33:34

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo 36 Matric LD29201F

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

PORTO DE LUANDA

Peso Bruto	25.140
Tara	19.000
Peso Liquido	6.140

Operador VITORINO VARELA

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VITORINO VARELA 23/12/2024 11 33 43

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº57/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 27/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	4, 76 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa

UNICARGAS, T.P.U.

Terminal Terrestre
30/12/24

elisal

Empresa de Limpeza e Saneamento de Luanda

Ticket: 04271224313531-3

Dara: 27/12/2024

Hora: 10:41:20

PESAGEM ÚNICA
Balança: ATERRO DOS MULENVOS
Empresa:
ENVIROBAC

VEICULO
Codigo: 36 Matric: LD2920IF
Recolha: 08
CONTENTORES
Localidade A
CONTRATO – PORTO DE LUANDA

Peso Bruto:	23.760
Tara:	19.000
Peso Liquido:	4.760

Operador: ANTÓNIO FERNANDO

Copyrint INFOLO 2016 Copia Autorizada para a ELISAL
ANTONIO FERNANDO 27/12/2024 10:41:22

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº58/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 27/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m^3)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	4, 52 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

UNICARGAS, T.P.U.

30/12/24

31/12/24

Ticket: 042201241326 56-8
Data: 22/01/2024
Hora 13:26:56

PESAGEM UNICA

Balança : ATERRO DOS MULENVOS
Empresa
ENVIROBAC

VEICULO
Código 1 Matric LD3940HJ
Recolha 12
PARTICULARES
Localidade A
NGOMBOTA
PORTO DE LUANDA

Peso Bruto	19.400
Tara	14.880
Peso Liquido	4.520

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº59/DSE/2024

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 31/12/2024

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 92 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa

06/01/2025

UNICARGAS, T.P.U.

Severino Tavares

04/01/25

elisal
Empresa de Limpesa e Saneamento de Luanda

Ticket: 04311224115038-9

Data:31/12/2024

Hora: 11:50:3

PESAGEM ÚNICA

Balança :ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo 36 Matric :LD2920IF

Recolha :08

CONTENTORES

Localidade A

INGOMBOTA

CONTRCTO PORTO DE LUANDA

Peso Bruto	24.920
Tara	19.000
Peso Liquido	5.920

Operador VITORINO VARELA

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VITORINO VARELA 31/12/2024 11:50:39

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº01/DSE/2025

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 02/01/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	4, 98 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
27/07.25

UNICARGAS, T.P.U.

Leveríno Bucheró
DA
27/01/25

27/01/25

elisal
Empresa de Limpesa e Saneamento de Luanda

Ticket: 04020125150154-3
Data:02/01/2025
Hora: 15:01:54

PESAGEM UNICA

Balança ATERRO DOS MULENVOS
Empresa
ENVIROBAC

VEICULO
Codigo 36 Matric LD2920IF
Recolha 06
CONTENTORES
Localidade A
INGOMBOTA
PORTO DE LUANDA

Peso Bruto	23.980
Tara	19.000
Peso Liquido	4 980

Operador FRANCISCO ANTONIO

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº05/DSE/2025

LOCAL DE CARREGAMENTO: T.P.U.

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 14/01/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	5, 9 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
17-01-25

UNICARGAS, T.P.U.

Veronica Paulino
17/01/25

elisal
Empresa de Limpesa e Saneamento de Luanda

Ticket: 04140125135651-0
Data:14/01/2025
Hora: 13:56:51

PESAGEM UNICA

Balança ATERRO DOS MULENVOS
Empresa
ENVIROBAC

VEICULO
Codigo 1 Matric LD3940HJ
Recolha 12
PARTICULARES
Localidade A
INGOMBOTA
CONTRATO-PORTO DE LUANDA

Peso Bruto	20.780
Tara	14.880
Peso Liquido	5.900

Operador FRANCISCO ANTONIO

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FRANCISCO ANTONIO 14/01/2025 13:56:53

noatum ports
LUANDA TERMINAL

Morada Para Comunicações:
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Bairro da Boavista
Municipio da Ingombota
Luanda (Angola)

T +244 935 060011
www.luanda.noatum.com

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº07/DSE/2025

LOCAL DE CARREGAMENTO: NOATUM PORTS

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 30/01/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	7, 36 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
19.02.25

NOATUM PORTS

Juvenico Paulicio

19/02/25

Empresa de Limpeza e Saneamento de Luanda

Ticket: 04300125163329-2

Data:30/01/2025

Hora: 16:33:29

PESAGEM ÚNICA

Balança ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEÍCULO

Codigo 36 Matric LD2920IF

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

PORTO DE LUANDA CONTRATOS

Peso Bruto	26.360
Tara.	19.000
Peso Liquido	7 360

Operador IVO AGOSTINHO F

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IVO AGOSTINHO F 30/01/2025 16:33:31

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº09/DSE/2025

LOCAL DE CARREGAMENTO: NOATUM PORTS

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 06/02/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	11, 84 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
19.02.25

NOATUM PORTS

Empresa de Limpeza e Tratamento de Lixo

Ticket 04060225131737-5
Data 06/02/2025
Hora: 13:17:37

PESAGEM UNICA

Balança ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO
Codigo 36 Matric LD29208

Recolha 08

CONTENTORES

Localidade A

INGOMBOTA

CONTRATOS PORTO DE LUANDA

Peso Bruto	30.840
Tara	19.000
Peso Liquido	11.840

Operador DOMINGOS ECONGO

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DOMINGOS ECONGO 06/02/2025 13:17:40

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS SÓLIDOS

REQUISIÇÃO Nº10/DSE/2025

LOCAL DE CARREGAMENTO: NOATUM PORTS

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: ENVIRO-BAC

LOCAL DE DESCARGA (DESTINO FINAL): Aterro sanitário

DATA DA OPERAÇÃO DE RECOLHA: 12/02/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (m³)
Recolha e transporte de resíduos sólidos	Resíduos Sólidos Urbanos	6, 38 (m3)

VIATURA MARCA: SINOTRUK

MATRÍCULA: LD-39-40-HJ

COR: Branca

O RECEBEDOR

Catarina da Costa
19.02.2025

NOATUM PORTS

Jeverício Paulino

Empresa de Limpeza e Saneamento de Luanda

Ticket: 04120225131451-0

Data:12/02/2025

Hora: 13:14:51

PESAGEM UNICA

Balança: ATERRO DOS MULENVOS

Empresa
ENVIROBAC

VEICULO

Codigo: 36 Matric: LD2920IF

Recolha: 08

CONTENTORES

Localidade: A

INGOMBOTA

PORTO DE LUANDA-CONTRATO

Peso Bruto:	25.380
Tara:	19.000
Peso Liquido:	6.380

Operador: PASCUAL DOMINGOS

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PASCUAL DOMINGOS 12/02/2025 13:14:54

TONANGOL/RESIANGOL

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE TONERS USADOS

REQUISIÇÃO Nº001/53.09/DSE/2023

LOCAL DE PRODUÇÃO: T.P.U.

O RESPONSÁVEL PELA RECOLHA E TRANSPORTE DE TONERS USADOS:

LOCAL DE DESCARGA (DESTINO FINAL): REAPROVEITAVEIS.

DATA DA OPERAÇÃO DE RECOLHA: 16/01/2023

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS (UN)
Recolha e transporte de toners usados	Toners usados	151 Toners

VIATURA MARCA: RENAULT

MATRÍCULA: LD-69-44-FJ

COR: Cinzento

O RECEBEDOR

UNICARGAS/TPU

UFAP Polícia Fiscal Aduaneira Posto Fiscal Ad. da Unicargas Data: 16/01/23 Ass:

Resiangol

Reciclagem de Produtos Electrónicos

GUIA DE ACOMPANHAMENTO DE RESÍDUOS

REF. GAR2017030000042

1 PRODUTOR/DETENTOR

NOME (*)	UNICARGAS, EP
ENDEREÇO (*)	R. SANZALA DE CABINDA - BOAVISTA - LUANDA
TELEFONE (*)	923 498 263 / 913 898 252
E-MAIL (*)	lumilacampos2@gmail.com
CONTRIBUINTE (*)	5410003136
PESSOA A CONTACTAR (*)	LUDMILA CAMPOS
DESIGNAÇÃO DO RESÍDUO (*)	Electrónico
CÓDIGO DO RESÍDUO (*)	CATEGORIA C
DESTINO DO RESÍDUO (*)	Resiangol - (Tonangol, Lda)
QUANTIDADE (UNID./KG) (*)	202

A Resiangol é um conceito da Tonangol, Lda
Documento para preenchimento exclusivo da Tonangol, Lda
LICENCIAMENTO Nº 067/2016 - P/Agência Nacional de

2 TRANSPORTADOR

NOME	Tonangol, Lda
ENDEREÇO	Mulenvos de Cima - Viana - Luanda
TELEFONE	225 777 000
E-MAIL	comercial@tonangol.net
PESSOA A CONTACTAR	Raquel Costa

Informação do tipo de embalamento

TIPO		
		Tambor
		Barrica de madeira
		Jerricane
		Caixa
		Saco
		Tanque
	x	Granel
		Embalagem metálica leve
		Outro (indique qual)

CATEGORIA E	☐	Detectores de fumo
	☐	Termostatos
	☐	Reguladores de calor
CATEGORIA F	☐	Máquinas de bebidas
	☐	Máquinas de snacks
	☐	Máquinas de café
CATEGORIA G	☐	Consola de jogo
	☐	Comandos
	☐	Cartões de memória
	☐	Cronómetros
	☐	DVD's

OUTROS: Prateleiras metálicas

3 DESTINATÁRIO

NOME (*) Tonangol, Lda

MORADA (*) Mulenvos de Cima - Viana - Luanda

TELEFONE (*) 225 777 000

E-MAIL (*) comercial@tonangol.net

4 DADOS PESSOAIS OU DE EMPRESA PARA AUTENTICAÇÃO E EMISSÃO DE FACTURA

NOME UNICARGAS, EP

MORADA R. SANZALA DE CABINDA - BOAVISTA - LUANDA

CONTRIBUINTE 5410003136

TELEFONE 923 498 263 / 913 898 252

EMAIL lumilacampos2@gmail.com

(*) Campos obrigatórios de preenchimento

31 de Janeiro de 2023

Tonangol
Consumíveis de Angola
Mulenvos de Cima - Luanda - Angola
NIF: 5417107409
Móvel: + 244 948752102
E-mail: comercial@tonangol.com
lumilacampos2@gmail.com

Mulenvos de Cima

Viana —Luanda

Móvel: +244 912 809 705 **tel.:** +244 944 884 627

email: comercial@tonangol.net **email:** tonangol.comercial@gmail.com

FACEBOOK: www.facebook.com/tonangol

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LICENCIAMENTO Nº 24/2019 - P/Agência Nacional de

DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE TONERS USADOS

REQUISIÇÃO Nº 002/DSE/2023

LOCAL DE PRODUÇÃO: ÁREAS ADMINISTRATIVAS DO TPU

LOCAL DE CARREGAMENTO: TPU

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: TONANGOL

LOCAL DE DESCARGA (DESTINO FINAL): RECICLAGEM

DATA DA OPERAÇÃO DE RECOLHA: _10/__05_/__2023___

DESIGNAÇÃO	TIPO DE RESIDUOS	QDDE DE RESIDUOS TRANSPORTADOS (Un)
Material Eletrónicos	Toners de impressoras usadas	91 Un

VIATURA MARCA: VOLKSWAGEN AMAROK

MATRICULA: LD-45-94-ET

COR: BRANCA

O RECEBEDOR

UNICARGAS, SEDE

10/05/023

ANEXO À GUIA DE ACOMPANHAMENTO DE RESÍDUOS

REF. GAR2017030000045

RELAÇÃO DE MATERIAS RECOLHIDOS

	MARCA	MODELO	QUANTIDADE	CATEGORIA
1	HP		91	TONER

MATERIAL RECOLHIDO NAS INSTALAÇÕES DO CLIENTE, NA DATA DE EMISSÃO DA GUIA DE ACOMPANHAMENTO DE RESIDUOS

Tonangol
Consumíveis de Angola
Mulenvos de Cima - Luanda - Angola
NIF: 5417107409
Moveis: + 244 948752102
E-mail: comercial.tonangol.net
tonangol.apoiocliente@gmail.com

noatum ports
LUANDA TERMINAL

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Bairro da Boavista
Municipio da Ingombota
Luanda (Angola)

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DIRECÇÃO DE SEGURANÇA EMPRESARIAL

DEPARTAMENTO DE AMBIENTE

GUIA DE REMESSA DE RECOLHA E TRANSPORTE DE RESÍDUOS TONER USADOS

REQUISIÇÃO Nº01/DSE/2025

LOCAL DE CARREGAMENTO:Noatum Ports

EMPRESA RESPONSÁVEL PELA RECOLHA E TRANSPORTE: Tonagol Lda.

LOCAL DE DESCARGA (DESTINO FINAL):Reciclagem.

DATA DA OPERAÇÃO DE RECOLHA: 06/03/2025

DESIGNAÇÃO	TIPO DE RESÍDUOS	QTDADE DE RESIDÚOS TRANSPORTADOS QTD
Recolha e transporte de resíduos sólidos Toner usados	Toner usados	(45)

VIATURA MARCA: Volkwagem

MATRÍCULA: LD-45-94-ET
COR: Branca

Fernanda

O RECEBEDOR

O NOATUM PORTS

ADPG LUANDA – OPERADOR DE TERMINAL, LDA, (operando sob a designaçãocomercial de Noatum Ports Luanda Terminal) sociedadepor quotas, com sede no Terminal Polivalente do Porto de Luanda, registada junto da Conservatória do RegistoComercial de Luanda sob o número 2024.998, NIF 5002047810, com o capital social de Kz. 60.000.000,00

Tonangol

ANEXO À GUIA DE ACOMPANHAMENTO DE RESÍDUOS

REF. GAR2017030000049

RELAÇÃO DE MATERIAS RECOLHIDOS

	MARCA	MODELO	QUANTIDADE	CATEGORIA
1	HP		45	TONER

MATERIAL RECOLHIDO NAS INSTALAÇÕES DO CLIENTE, NA DATA DE E
DA GUIA DE ACOMPANHAMENTO DE RESIDUOS

Tonangol
Consumíveis de Angola
Mulenvos de Cima - Luanda - Angola
NIF: 5417107409
Móveis: + 244 948752102
E-mail: comercial.tonangol.net
tonangol.apoio@gmail.com

4. ANEXO III. COMUNICAÇÕES DA ANR

4.1. ANEXO III – Vistoria para o processo de certificação do Plano de Gestão de Resíduos (PGR)

REPÚBLICA DE ANGOLA
MINISTÉRIO DO AMBIENTE
AGÊNCIA NACIONAL DE RESÍDUOS

Á
Direcção Da ADPG LUANDA - OPERADOR DE TERMINAL, LDA
Luanda

N.º 179C/ANR/2024

Assunto: Vistoria para o processo de certificação do Plano de Gestão de Resíduos (PGR).

Os Nossos Respeitosos Cumprimentos.

A Agência Nacional de Resíduos criada ao abrigo do Decreto Presidencial nº181/14 de 28 de Julho, é um órgão tutelado pelo Ministério do Ambiente, encarregue de executar a política nacional de gestão de resíduos na base da hierarquia dos princípios de gestão aplicáveis, prevenção da produção, reutilização, reciclagem, valorização e eliminação dos resíduos, com critérios de protecção ambiental, assegurando assim a nível nacional a política sobre a gestão de resíduos no âmbito da normação, regulação e fiscalização.

Nesta conformidade, para a certificação do Plano de Gestão de Resíduos, a ANR pretende realizar uma vistoria no dia 14 de Fevereiro, do ano em curso, pelas 09:00 horas, ao projecto "**Projecto do porto da Unicargas em Luanda"** da empresa **ADPG LUANDA - OPERADOR DE TERMINAL, LDA** localizado na Luanda, Município de Luanda, Província de Luanda para efeitos de confirmação das informações constantes do PGR ora apresentado, pelo que, o transporte da equipa técnica é da responsabilidade da empresa proponente.

Sem outro assunto de momento, subscrevo-me com consideração.

AGÊNCIA NACIONAL DE RESÍDUOS, em Luanda, aos 28 de Outubro de 2024.

A Presidente do Conselho de Administração

Nelma Lígia Almeida Silva Caetano

Estrada da Samba, Condomínio Rosalinda,
Edifício 11B, 3º andar, porta C | Luanda-Angola
Email: agencianacionalderesiduos@anr.gov.ao
Telefone: +244 222 779 571

4.2. ANEXO III – Parecer Técnico Sobre Análise do Plano de Gestão de Resíduos e Vistoria Efectuada

REPÚBLICA DE ANGOLA

MINISTÉRIO DO AMBIENTE

AGÊNCIA NACIONAL DE RESÍDUOS

Á
Direcção Da Soapro,Lda
CC: ADPG Luanda - Operador De Terminal, Lda
Luanda

N.º 179C/ANR/2024
Assunto: Parecer Técnico Sobre Análise do Plano de Gestão de Resíduos e Vistoria Efectuada.

Os Nossos Respeitosos Cumprimentos.
A Agência Nacional de Resíduos criada ao abrigo do Decreto Presidencial nº181/14 de 28 de Julho, é um órgão tutelado pelo Ministério do Ambiente, encarregue de executar a política nacional de gestão de resíduos na base da hierarquia dos princípios de gestão aplicáveis, prevenção da produção, reutilização, reciclagem, valorização e eliminação dos resíduos, com critérios de protecção ambiental, assegurando assim a nível nacional a política sobre a gestão de resíduos no âmbito da normação, regulação e fiscalização.

Após análise do Plano de Gestão de Resíduos e da documentação, referente ao projecto **"Porto da Unicargas em Luanda"**, localizado no Município e Província de Luanda, e a vistoria efectuada no dia 14 de Fevereiro do corrente ano, ao abrigo da legislação vigentes, informamos as seguintes irregularidades:
Armazenamento misto:

- O plano prevê a separação entre resíduos perigosos e não perigosos, mas a prática observada indica mistura de resíduos sólidos urbanos, óleos usados e resíduos contaminados, o que não está de acordo com as directrizes do plano.

Derrames de combustível:

- O documento especifica que superfícies onde combustíveis e poluentes são manuseados devem ser lisas, impermeáveis e ter drenagem para tanques de retenção, o que não está sendo cumprido.

Armazenamento inadequado:

- As áreas de armazenamento temporário devem estar cobertas e sobre pavimentos impermeáveis, mas as areias contaminadas estão sendo colocadas em contentores comuns, o que é uma falha grave.

Mistura de resíduos:

- O plano destaca que a separação de resíduos deve ser feita desde a fonte geradora, mas a prática encontrada mostra o contrário mistura de resíduos comuns e perigosos no mesmo contentor, representando um grande risco ambiental e de segurança.

Falta de identificação e sinalização:

- Não foi identificado um sistema eficaz de identificação visual dos resíduos, apesar do PGR recomendar contentores identificados com etiquetas e sinalizações específicas (perigo, inflamável, tóxico).

Falta de manutenção regular:

- O documento menciona inspeções periódicas, mas não há evidências de que essas inspeções estejam sendo realizadas de forma consistente. O estado da oficina, com vários derrames de combustível no chão, indica falhas graves nesse controle, com solos contaminados que não recebem o tratamento correcto.

Recomendações ambientais:

- Implementar contentores específicos para resíduos perigosos e não perigosos, garantindo que nunca estejam misturados;
- Criar uma área coberta exclusiva para o acondicionamento de resíduos perigosos, com pisos impermeáveis e kits de emergência para derrames.
- Estabelecer procedimentos internos para resposta a derrames, incluindo a remoção segura de solos contaminados e o descarte apropriado.
- Promover capacitações periódicas para os trabalhadores, focando na manipulação segura de resíduos e no cumprimento do PGR.
- Realizar inspeções frequentes nos pontos de armazenamento, verificando o estado dos contentores, a separação correcta e a ausência de resíduos acumulados ou expostos.
- Sinalizar todas as áreas existentes da unidade, indicando zonas de trabalho, armazenamento e circulação, para melhorar a organização e a segurança.
- Os óleos usados resultantes das manutenções dos geradores deverão ser devidamente armazenados, numa zona impermeável e recolhidos por empresa credenciada para o efeito pela Agência Nacional de Resíduos, não depositados no esgoto, mesmo que em quantidade reduzida.

Para que possamos proceder com a apreciação do Plano de Gestão de Resíduos, solicitamos a submissão do seguinte documento no prazo de 15 (quinze) dias:

- Licença ambiental a favor do projecto;
- Documento comprovativo da disponibilidade de aceitação dos resíduos pelo destinatário previsto conforme alínea l) do anexo II do regulamento acima descrito;
- Manifestos de recolha de resíduos;
- Guias de acompanhamento de resíduos, atestar de que os resíduos ferrosos, óleos usados e a madeira, são realmente entregues nas respectivas empresas: Zhogan Hengtai Lda; Angojordan e a Fazenda Corpinho, a fim de comprovar que os resíduos perigosos estão sendo encaminhados a empresas licenciadas para tratamento e descarte.

Nota: Para a fase de operação, requer uma nova certificação em matéria de resíduos, conforme orienta, o número 7º do Decreto Presidencial nº 190 de 24 de Agosto, Regulamento sobre Gestão de Resíduos, uma vez que, para a fase actual o projecto encontra-se na fase de construção, será certificado ao abrigo da legislação sobre os resíduos de construção e demolição, Decreto Executivo nº17/13 de 22 de Janeiro
No entanto, a empresa tem um prazo de 15 dias para realizar adequações, priorizando melhorias na área da oficina, bem como no parque de resíduos. Após as correções, deve apresentar evidências documentais e fotográficas das melhorias à agência competente para uma nova vistoria. A certificação do projecto só será concedida após a conformidade. O cumprimento das recomendações garantirá a certificação e um ambiente de trabalho mais seguro e organizado.

Sem outro assunto de momento, subscrevo-me com consideração.

AGÊNCIA NACIONAL DE RESÍDUOS, em Luanda, aos 20 de Fevereiro de 2025.

A Presidente do Conselho de Administração

Nelma Lígia Almeida Silva Caetano

Estrada da Samba, Condomínio Rosalinda,
Edifício 11B, 3º andar, porta C | Luanda-Angola
Email: agencianacionalderesiduos@anr.gov.ao
Telefone: +244 222 779 571

15. Annex 15. Requalification of the Unicargas port in Luanda (Potuguese)

REQUALIFICAÇÃO DO PORTO DA UNICARGAS DE LUANDA

(Processo de Referência n.º 179C/ANR/2024)

Abril de 2025

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3. ZHONGAN HENGTAI - INDUSTRIA, LDA. 9
4. ENVIROBAC COMÉRCIO GERAL, LDA. 12

1. LUPETROL, LDA. (ANTIGA ANGOJORDAN)

LUPETROL INDÚSTRIA TRANSFORMADORA, LDA

NIF:5000206547

A LUPETROL INDÚSTRIA TRANSFORMADORA LDA. Sociedade de direito Angolano, com sede em Luanda, Município de Cacuaco, Bairro das Salinas (Junto ao Antigo Carrossel) , S/N , com contribuinte fiscal nº 5000206547, que se dedica a compra e recolha de resíduos de óleo lubrificante usado (óleo usado) para sua requalificação e reutilização, atuando como receptor final.

Neste sentido, declaramos que a empresa, **LUPETROL INDÚSTRIA TRANSFORMADORA LDA.**. presta serviço de recolha de resíduos na unidade ADPG Luanda-Operador de terminal (ex Terminal Polivalente da Unicargas). O serviço acordado não possui uma data de término estabelecida, sendo necessária uma comunicação por escrito por parte da Luanda-Operador de Terminal, caso se revele necessária a cessação do acordo.

Ciente de que o assunto merece a vossa especial atenção, queiram a aceitar antecipadamente os nossos agradecimentos.

Luanda, aos 25 de Abril de 2025

A EMPRESA

LUPETROL INDÚSTRIA TRANSFORMADORA, LDA
NIF: 5000206547
LUANDA - ANGOLA

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ANGOJORDAN LDA,** com sede social na Província de Luanda, Distrito Urbano do N'gola Kiluange, Rua Farol das Lagostas, contribuinte fiscal n.º 5000231150, está autorizada a prestar serviço de recolha de resíduos ferrosos e não ferrosos, e óleos usados resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

2. RECICLART – COMÉRCIO E PRESTAÇAO DE SERVIÇO, LDA.

RECICLART
Comércio & Prestação de Serviço, Lda

DECLARAÇÃO

A sociedade adaptada à denominação de **Reciclart-Comércio e Prestação de serviço Limitada.**

Com sede em Luanda, Rua da Burgalheira nº 14, Bairro Viana, registada na Conservatória de Luanda, titular de Identificação nº **541736062**, é uma empresa vocacionada à reciclagem.

Contudo, declaramos que a Empresa, **Reciclart**, presta serviço de recolha de determinados resíduos na unidade da Empresa ADPG Luanda-Operador de Terminal. (Ex Terminal Polivalente da Unicargas actualmente como receptor final).

O serviço acordado não possui uma data determinada estabelecida.

Por ser verdade passamos a presente declaração que vai assinada e carimbada.

Sem mais outro assunto de momento.

Agradecimentos antecipados.

Luanda, 28 de Abril de 2025

RECICLARTE TRANSFORMAÇÃO E PRESTAÇÃO DE SERVIÇOS NIF: 541736062 DIRECÇÃO GERAL

A Direcção

Valdemar Francisco Guimarães

Viana da Bagalheira nº 14 Ponte Partida Rés/Chão
Tel: 931 520 049 / 954 665 883
E-mail: valdoguimaraes50@gmail.com

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **RECICLART – Comércio e Prestação de Serviços, LDA,** com sede social na Província de Luanda, Município de Viana, Rua 7, Casa n.º 301, Bairro Zango 3, contribuinte fiscal n.º 5417436062, está autorizada a prestar serviço de recolha de resíduos metálicos e não metálicos procedentes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

Unicargas, S.A. Transportadora de Cargas, Operadora de Terminais e Transitária unicargas Comissão de Gestão

3. ZHONGAN HENGTAI - INDUSTRIA, LDA.

ZHONGAN HENGTAI

ZHONGAN HENGTAI - INDÚSTRIA,LDA

A ZHONGAN HENTAI-INDUSTRIA, LDA. Sociedade de direito Angolano, constituída a no dia 19 de setembro de 2018, com sede em Luanda, Município de Viana, KM 20, casa nº 67, com contribuinte fiscal nº 500077445, que se dedica a compra e recolha de resíduos de material ferrosos e não ferrosos (sucatas) para sua requalificação e reutilização, atuando como receptor final.

Neste sentido, declaramos que a empresa, ZHONGAN HENTAI-INDUSTRIA, LDA, presta serviços de recolha de resíduos na unidade ADPG Luanda-Operador de terminal (ex. Terminal Polivalente da Uinicarga). O serviço acordado não possui uma data de termino estabelecida, sendo necessária uma comunicação por escrito por parte da Luanda Operadora de Terminal, caso se revele necessário a cessação do acordo.

Ciente de que o assunto merece a vossa especial atenção, queiram a aceitar antecipadamente os nossos agradecimentos.

ZHONGAN HENGTAI

Luanda, aos 28 de Abril de 2025

A DIREÇÃO

ZHONGAN HENGTAI

Endereço: Icolo e Bengo, bairro Tari
NIF: 5000077445 E-mail: **aninamoreira03@gmail.com** TEL: 935150813/957153213

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ZHONGAN HENGTAI- INDÚSTRIA, LDA,** com sede social na Província de Luanda, Município de Viana, KM 20, Casa n.º 67, contribuinte fiscal n.º 5600077445, está autorizada a prestar serviço de recolha de resíduos ferrosos e não ferrosos, resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

Unicargas, S.A. Transportadora de Cargas, Operadora de Terminais e Transitária. Comissão de Gestão

4. ENVIROBAC COMÉRCIO GERAL, LDA.

EnviroBac
GESTÃO DE RESÍDUOS

DECLARAÇÃO

A **ENVIROBAC, COMÉRCIO GERAL LDA.**, empresa de direito angolano, vocacionada na gestão de resíduos, devidamente licenciada pela ANR, titular do NIF-5402134880, matriculada na conservatória do registo comercial de Luanda, 2.ª Secção do guiché único, sob o n.º 29-05, com sede na rua dos vasos s/n, em frente a Vila do Gamek, Morro Bento II, distrito urbano da Samba, município e província de Luanda.

Declara para os devidos fins, que opera como parceiro estratégico da **ADPG Luanda** – Operador de Terminal (ex Terminal Polivalente da Unicargas), no processo de recolha, transporte e destinação final dos resíduos sólidos não petrolíferos/não perigosos.

O serviço acordado não possui data de término estabelecida, sendo necessário uma comunicação por escrito por parte da Luanda-Operador de Terminal, caso se revele necessária a cessação do acordo.

Por ser verdade e nos ter sido solicitado, passamos a presente declaração que vai devidamente assinada e autenticada.

Luanda, 21 de Abril de 2025

Atentamente;

EnviroBac
A direcção

Morada: Rua dos vasos s/n frente a vila do Gamek, Morro Bento II- Luanda
Contactos: (+244 941294625)- email: paulo.vidal@envirobac.ao
NIF: 5402134880

DECLARAÇÃO DE CONFIRMAÇÃO DE PRESTAÇÃO DE SERVIÇOS

UNICARGAS, S.A – Transportadora de Cargas, Operadora de Terminais e Transitária, Sociedade Anónima, com sede em Luanda, na Rua Sanzalas Cabinda, Bairro da Boavista, Município de Luanda, Distrito Urbano da Ingombota, contribuinte fiscal n.º 5410003136, registada na Conservatória do Registo Comercial, sob o n.º 1996.1079, declara para todos os fins convenientes e em especial para fazer fé perante o Ministério do Ambiente e da Agência Nacional de Resíduos, ambos da República de Angola, que a empresa **ENVIROBAC - Comércio Geral, Limitada** com sede social na Província de Luanda, Município de Luanda, Bairro Morro Bento, contribuinte fiscal n.º 5402134880, está autorizada a prestar serviço de recolha de resíduos sólidos, resultantes das operações portuárias no Terminal Polivalente do Porto de Luanda, concessionado à Unicargas.

Luanda, 18 de Setembro de 2023.

O Declarante

Joaquim N. P. da Piedade

Joaquim Nazaré Pimentel da Piedade
Coordenador da Comissão de Gestão

Unicargas S.A. Transportadora de Cargas, Operadora de Terminais Comissão de Gestão