

# Environmental Impact Assessment and compilation of an Environmental Management Plan for construction, operation, maintenance, and decommissioning of the Omdel - Wlotzkasbaken pipeline replacement and pump station, Erongo Region

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## Environmental Management Plan (EMP)

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## DOCUMENT STATUS

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<b>Project:</b>	Construction, operation, maintenance, and decommissioning of the Omdel - Wlotzkasbaken pipeline replacement and pump station, Erongo Region.
<b>Location:</b>	Pipeline situated between Orano Desalination Plant and Omdel Collector Reservoir, Erongo Region
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## LIST OF ABBREVIATIONS & ACRONYMS

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<b>BID:</b>	Background Information Document
<b>CITES:</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora
<b>DEA:</b>	Directorate of Environmental Affairs
<b>DCI:</b>	Ductile Cast Iron
<b>DWA:</b>	Department of Water Affairs
<b>EAP:</b>	Environmental Assessment Practitioner
<b>ECC:</b>	Environmental Clearance Certificate
<b>EIA:</b>	Environmental Impact Assessments
<b>EMA:</b>	Environmental Management Act No. 7 of 2007
<b>EMP:</b>	Environmental Management Plan
<b>ERC:</b>	Erongo Regional Council
<b>Erongo RED:</b>	Erongo Regional Electricity Distributor
<b>GN:</b>	Government Notice
<b>GRP:</b>	Glass Reinforced Plastics
<b>HDPE:</b>	High-Density Polyethylene
<b>I&amp;APs:</b>	Interested and Affected Parties
<b>IUCN:</b>	International Union for the Conservation of Nature and Natural Resources
<b>MAWLR:</b>	Ministry of Agriculture, Water, and Land Reform
<b>MEFT:</b>	Ministry of Environment, Forestry, and Tourism
<b>MSDS:</b>	Material Safety Data Sheet
<b>NHC:</b>	National Heritage Council
<b>PPE:</b>	Personal Protective Equipment
<b>NACOMA:</b>	Namibian Coast Conservation Management Project
<b>NamWater:</b>	Namibia Water Corporation Ltd
<b>RT&amp;E:</b>	Rare, Threatened, and Endangered Species
<b>SARDB:</b>	South African Red Data Book
<b>Spp:</b>	Species
<b>ToR:</b>	Terms of Reference

## GLOSSARY OF TERMS

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<b>Biome:</b>	large area characterized by its vegetation, soil, climate, and wildlife
<b>Chainage:</b>	indicates the centerline of a linear structure, such as a road or pipeline. It's used in conjunction with "elevation" and "offset" to draw up construction plans.
<b>Contractor</b>	a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job.
<b>Crustose (lichen):</b>	forming a hard crust
<b>Disjunct:</b>	occurring in areas far apart from each other
<b>Distribution:</b>	the known and expected present distribution of a species in Namibia and including required or most frequent habitat and/or substrate.
<b>Endangered:</b>	taxa whose survival is unlikely if the causal factors continue operating.
<b>Endemic:</b>	restricted to area within the borders of Namibia
<b>Environment</b>	the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is the land, water and air, all organic and inorganic material and all living organisms; and (b) (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values;
<b>Foliose (lichen):</b>	with under surface lifted off the substrate
<b>Fruticose (lichen):</b>	characterized by a coral-like shrubby or bushy growth structure.
<b>Hazardous substance:</b>	a hazardous substance is any substance that poses a threat to human health and the environment. Hazardous substances are toxic, corrosive, ignitable, explosive or chemically reactive.
<b>Hypolithic:</b>	occurring on the underside of stones
<b>Near endemic:</b>	occurring in Namibia and just over the border, largely the responsibility of Namibia
<b>Literature study:</b>	a review or desktop study of the topic at hand.
<b>Proponent:</b>	means a person who proposes to undertake a listed activity, in this project, NamWater
<b>Rare:</b>	taxa with small populations which are not thought to be presently endangered or vulnerable, but which are potentially at risk.
<b>Secure:</b>	no special conservation status.

- Specialist studies:** a study into a particular aspect of the environment, undertaken by an expert in that discipline.
- Stakeholders:** all parties affected by and/or able to influence a project, often those in a position of authority and/or representing others.
- Vertebrate fauna:** animals that have a backbone (from which they derive their name) and they are also characterized by a muscular system consisting primarily of bilaterally paired masses and a central nervous system partly enclosed within the backbone.
- Vulnerable:** taxa is likely believed to move into the endangered category in the future if the present causal factors continue operating.
- Taxa:** in the context of this report, plant species



# 1 INTRODUCTION AND BACKGROUND

## 1.1 Introduction

The Namibia Water Corporation (NamWater) Ltd supplies ground and desalinated water to the central coastal towns (Walvis Bay, Swakopmund, Henties Bay, Wlotzkasbaken and Arandis) and mines through the Omdel – Swakopmund Water Scheme. The schematic layout of the Central Coastal Water Supply System is represented in Figure 1. The Omdel–Wlotzkasbaken pipeline is highlighted in the red circle.

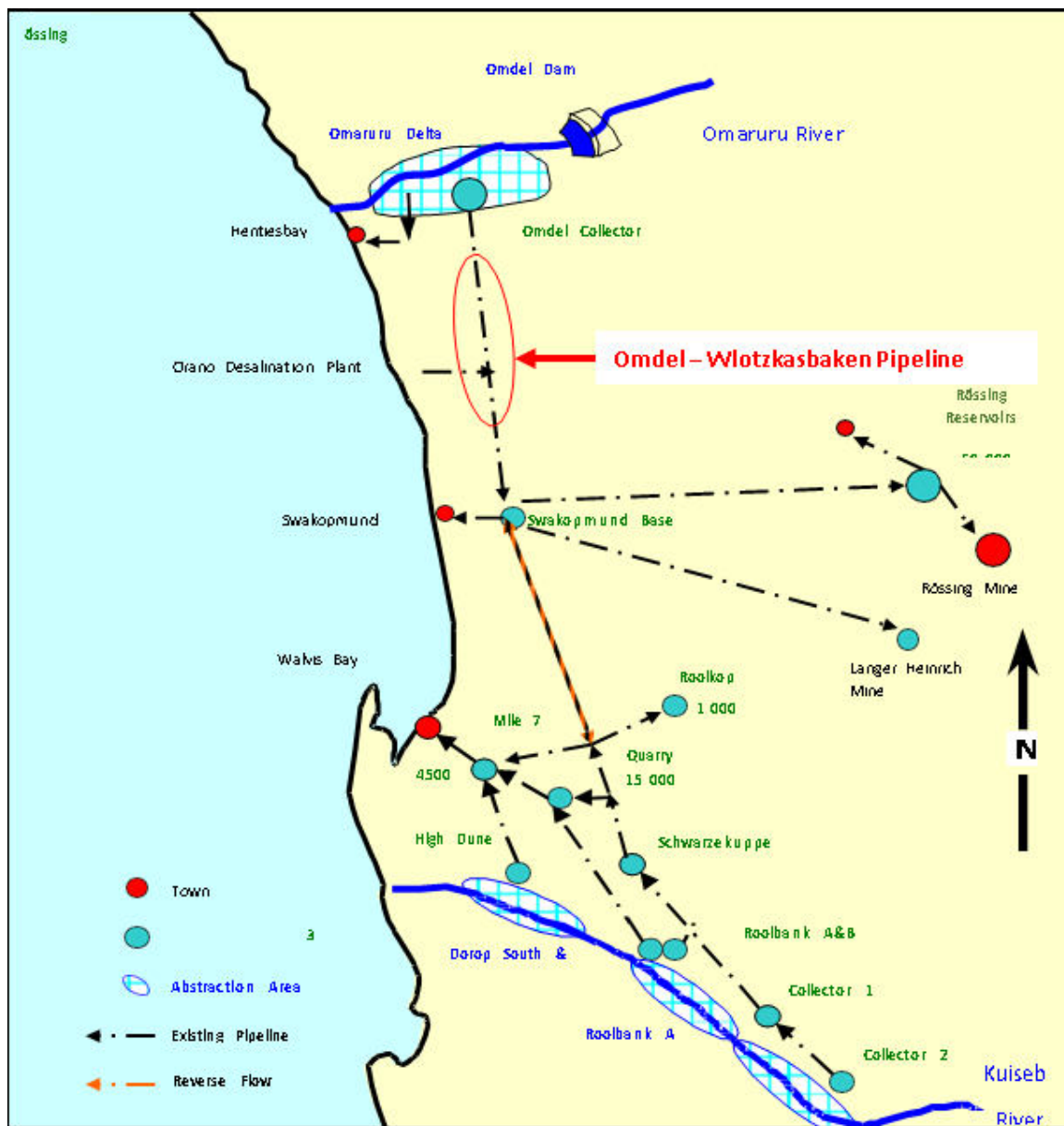


Figure 1: Layout of the Central Coastal Water Supply System

### 1.1.1 Existing water supply: Omdel-Swakopmund Water Supply Scheme

This bulk water supply scheme consists of the Omdel Dam, the Omdel Aquifer with its boreholes, two collector pipelines bringing water from the boreholes to the Omdel Collector Reservoir and the Omdel-Wlotzkasbaken-Swakopmund pipeline between the Omdel reservoir and the terminal reservoir at Swakopmund Base Station. A layout of this scheme is given in Figure 2.

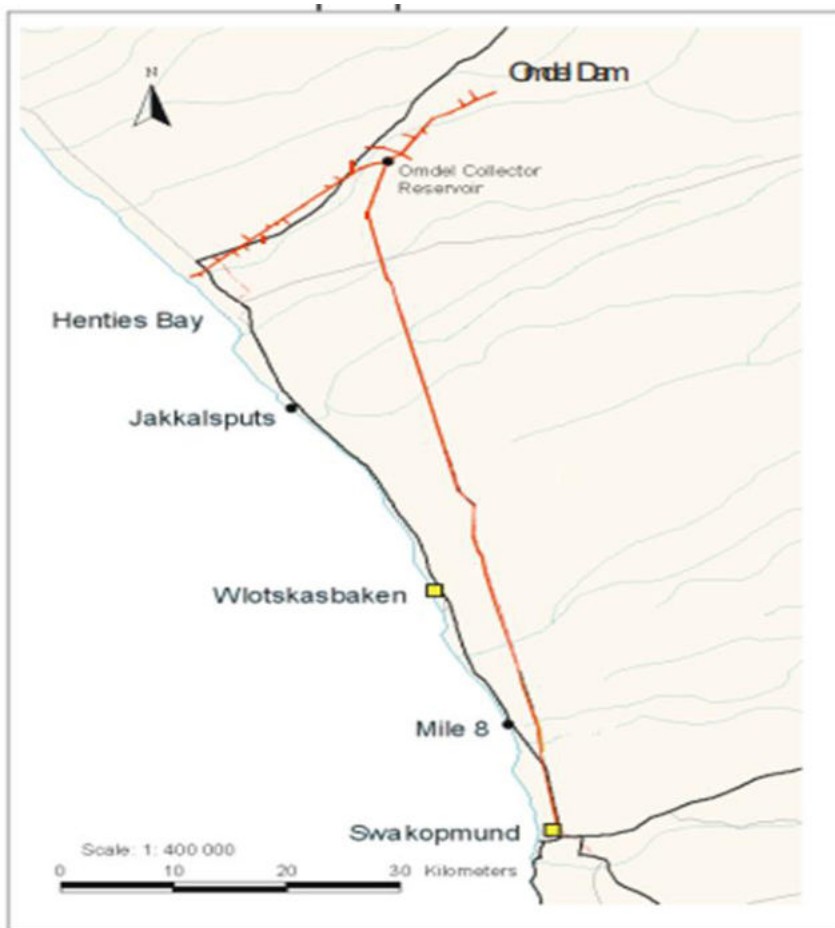


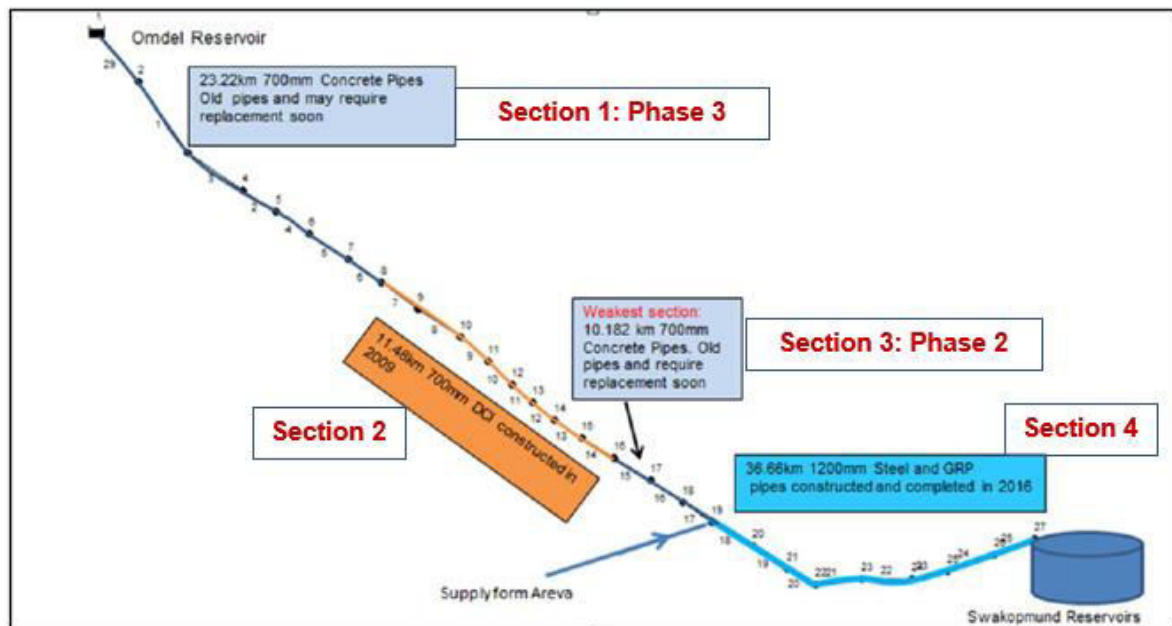
Figure 2: Layout of Omdel-Swakopmund Water Scheme

#### a) Omdel Collector Reservoir

Water abstracted from the Omdel Aquifer is conveyed to the Omdel Collector Reservoir from where it gravitates to various coastal clients. The Omdel Collector Reservoir is located approximately 40 km northeast of Henties Bay. The Omdel Collector Reservoir is a round, concrete ground-level reservoir with a volume of 4 500 m<sup>3</sup>. The reservoir inlet is situated at 161.2 m asl.

#### b) Omdel – Wlotzkasbaken - Swakopmund Pipeline.

Water abstracted from the Omdel Aquifer in the Omaruru River as well as desalinated water from the Orano desalination plant, is supplied to Swakopmund and the uranium mines via the Omdel – Wlotzkasbaken - Swakopmund Pipeline. The 81.54 km long pipeline is made up of four sections (Figure 3 **Error! Reference source not found.** starting downstream of the Omdel Collector Reservoir and feeds into two 20 000 m<sup>3</sup> concrete reservoirs at the Swakopmund Base Station at 61.9 m asl (Infrastructure Planning, NamWater, 2007). The pipeline sections and their conditions of the Omdel pipeline are shown in Figure 3



**Figure 3: Main sections and conditions of the Omdel-Wlotzkasbaken-Swakopmund pipeline**

### 1.1.2 The need to upgrade the pipeline

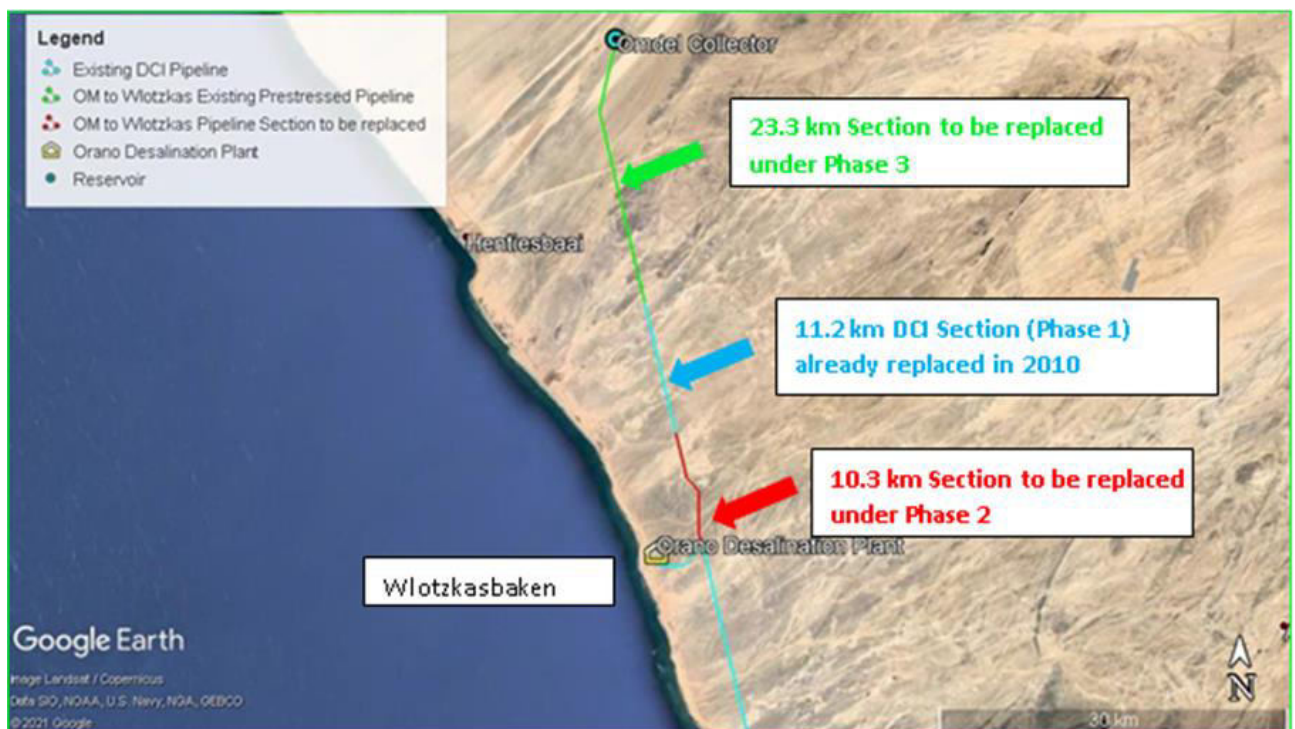
The pipeline section between Omdel and Orano offtake has old sections, that are failing and unreliable and are causing frequent leaks and a high frequency of pipe breaks causing water supply interruptions.

The pipeline is under severe strain due to high soil salinity in the area and the malfunctioning of the cathodic protection system. The pipeline in its current condition is considered a major risk to the reliable water supply as it causes water supply interruptions to the central coastal area. Moreover, this pipeline forms part of the primary water transfer system from the Omdel Aquifer to Swakopmund, thus there is a need to replace the pipeline to improve the current level of security of water supply to the various customers.

### 1.1.3 Project description

#### a) Pipeline replacement

The project entails the replacement of a 33.6 km of 700 mm underground pre-stressed concrete pipes with 700 mm diameter above-ground DCI pipes on pedestals, at a height of 300 mm from the ground. The project will be done in two phases, starting with a 10.3 km (Section 3) just upstream of the Orano off-take as Phase 2, followed by a 23.3 km (Section 1) downstream of Omdel Collector Reservoir as Phase 3, as shown in Figure 4.



**Figure 4: Graphical presentation of Omdel–Wlotzkasbaken sections showing the phase 1 (11.2 km section) already replaced and phase 2 (10.3 km section) and phase 3 (23.3 Km section)**

The new pipeline along the route shall be:

#### Phase 3

- Preferably below ground from Chainage 0km to 13.2km and
- Above ground on concrete pedestals from Chainage 13.2km to 23.2km.

#### Phase 2

- Above ground on concrete pedestals from Chainage 34.4km to 44.7km.

The new proposed pipeline will follow the existing pipeline route and will be placed between the existing service road and the existing pipeline, at an offset 3m to 5m from the existing pipeline.

The aim is to ensure that the new pipeline is aligned with the section previously replaced under

Phase 1. Moreover, the proposed pipeline route will be located west of the existing pipeline because the new pipeline cannot cross the existing pipeline with heavy construction equipment as it may damage the existing pipeline.

#### **b) Service Road**

The service road is in fairly good condition and mainly requires routine grading from Omdel Collector Reservoir to Swakopmund (NamWater, 2022). The existing pipeline is laid approximately 20m to 25m from the road and it is parallel to the road. The new pipeline will be placed between the existing service road and the existing pipeline, at an offset of 3 m to 5 m from the existing pipeline. Thus, this road will only be widened by a maximum of 15 m from the edge of the opposite junction (Kavetuna, personal communication, 2022) at the vehicle crossings.

#### **c) New pump station at Omdel Collector Reservoir**

A new pump station next to the Omdel Collector Reservoir within the NamWater Reservoir fenced area is under consideration for construction. The floor area for this pump station is shown in **Error! Reference source not found..**

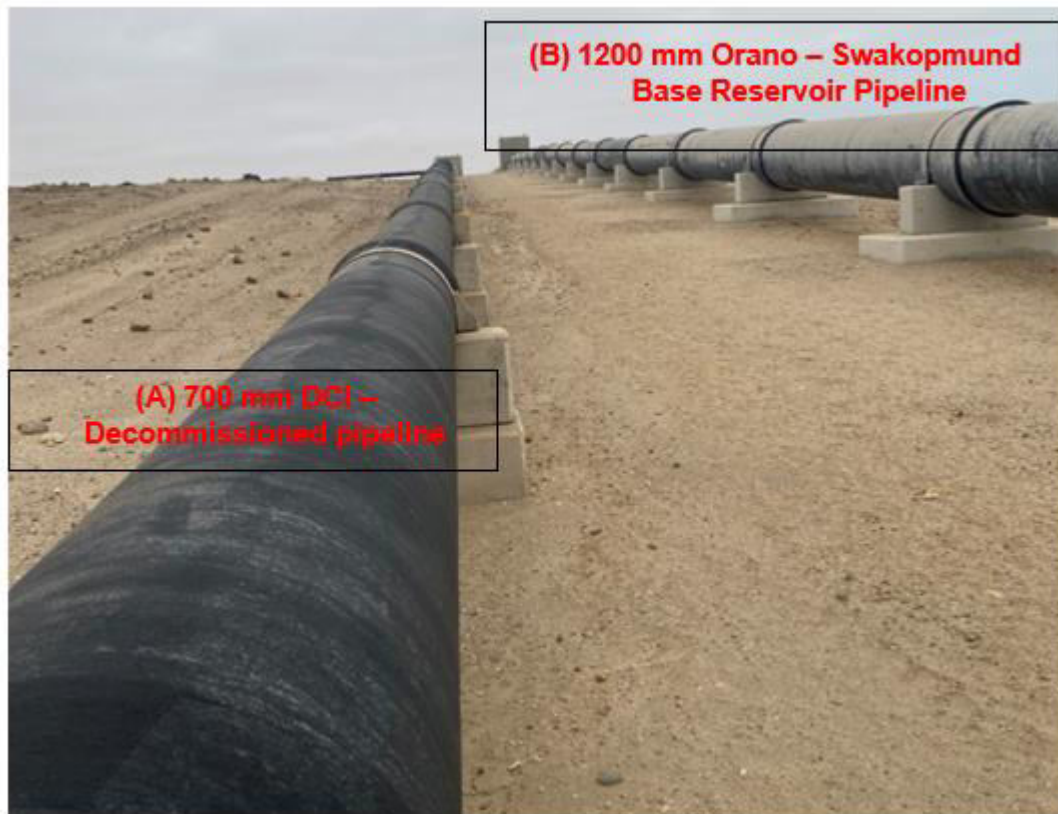
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**Figure 5: Omdel Pump station floor area**

#### **d) Recovery of the decommissioned DCI pipes in Section 4 (as indicated in Figure 3)**

There is a 2.2km long (700mm diameter) erected DCI pipeline approximately 17km south of Orano Off-take on the Wlotzkasbaken–Swakopmund pipeline. This pipeline is in a good condition (NamWater, 2022) and it was erected on pedestals in 2009 and has been

decommissioned when the new 1,200mm diameter DCI/GRP pipeline between the Orano Off take and Swakopmund was constructed in 2015/16. These pipes will be salvaged and transported to the construction site to be re-used during Phase 1 of this project (Section 3). The decommissioned pipeline is positioned next to the Orano – Swakopmund Pipeline as depicted in Figure 6.



**Figure 6: The decommissioned pipeline (A) next to the Swakopmund – Orano Pipeline (B)**

#### **e) Abandoning the existing pipeline or removing it**

The existing underground pipeline will not be removed to avoid disturbing the current flow of water and environmental disruption due to blasting of hard rocks as well as to save financial resources. The existing pipeline is a 700 mm underground pre-stressed concrete pipes, which does not pose a threat to the environment if left in (in-situ) the ground.

## **1.2 Environmental requirements**

The proposed project is a listed activity under the EIA Regulations: Environmental Management Act of 2007 (Act No. 07 of 2007) which may not be undertaken without an environmental clearance certificate (ECC), and is listed as follows:

**Infrastructure - No.10.1.** The construction of (a) oil, water, gas and petrochemical, and other bulk supply pipelines. As such, an application for an ECC can only be made once an EIA study has been undertaken and approved by the Competent Authority (Department of Water Affairs(DWA)) and the Regulatory Authority (Ministry of Environment, Forestry, and Tourism (MEFT)).

This Environmental Management Plan (EMP) was prepared in line with Section 8 (j) of the EIA Regulations (GN 30 of February 2012), and the proponent's Terms of Reference. The EMP contains aspects of the proposed management and mitigation measures to be taken to address the negative environmental impacts and enhancement measures for the positive environmental impacts identified in the environmental scoping report. It also addresses the need for compliance monitoring of identified significant environmental impacts.

The EMP is therefore important in ensuring that the management actions arising from EIA processes are clearly defined and implemented through all phases of the project life cycle. It is not a standalone document; however, it must be read in conjunction with the EIA report. All personnel taking part in the planning, construction, operation, and maintenance of the proposed Omdel - Wlotzkasbaken pipeline should be made aware of the contents of this EMP. The EMP is also a dynamic document that allows for the evaluation of the success or failure of management actions and to carry out reorientation of the relevant actions if found necessary.

It should be noted that the EIA and EMP is a legally binding documents between the proponent and MEFT and implementation of the recommended management actions is mandatory.

### **1.3 Objectives of the EMP**

This EMP has been compiled for the management of potential environmental impacts during the planning, design, operation, and decommissioning phases of the proposed construction upgrading of the Omdel - Wlotzkasbaken pipeline. The EMP also includes best practices for the generic issues of construction management and supervision as well as the ongoing management and operation of the scheme.

The specific objectives of this EMP are:

- Present measures to avoid, lessen and mitigate adverse impacts on various environmental components, and enhance the value of environmental components where possible.
- Defining the roles and responsibilities for the implementation of environmental management and mitigation measures.
- Explain the need for compliance with regulatory provisions and guidelines.

- Explain procedures for compliance monitoring and reporting to the relevant competent and regulatory authorities.
- Present procedures for the possible decommissioning and required environmental rehabilitations.

## 1.4 Roles and Responsibilities

### 1.4.1 Project involvement

The implementation of the EMP requires a multitude of administration of various role players, each with specific responsibilities to ensure that the proposed infrastructure is planned and designed, constructed, operated, and maintained in an environmentally sound manner.

**Table 1: Project Team**

NO.	SPECIFIC PROJECT ROLE	ADDRESS AND CONTACTS
1.	Proponent	<p><b>NamWater Ltd.</b>  <b>Project Manager: Mr. Drews Hanjörg</b>            Tel: +264 (61) 71-2129            Mobile: +264811222855            Email: <a href="mailto:DrewsH@namwater.com.na">DrewsH@namwater.com.na</a></p> <p><b>Environmental Department:</b>            Mrs. Jolanda Kamburona            Tel: +264 (61) 71-2105            Email: <a href="mailto:KamburonaJ@namwater.com.na">KamburonaJ@namwater.com.na</a></p>
2.	Environmental Practitioner      Assessment	<p><b>Lana Environmental Consulting CC</b>            Ms. Nangula Amutenya Amatsi            Mobile: +264812024059            Email: <a href="mailto:nangula.a@gmail.com">nangula.a@gmail.com</a></p> <p>Ms. Faye Brinkman            Mobile: +264 813320920            Email: <a href="mailto:brinkman.faye@gmail.com">brinkman.faye@gmail.com</a></p>
3.	Permitting Authority	<p>Ministry of Environment and Tourism            Directorate of Wildlife and National Parks – Erongo Regional Office            Chief Control Warden for Dorop National Park            Mr. Riaan Solomon            Mobile: +264 812527474            Email: <a href="mailto:Riaan.Solomon@mef.gov.na">Riaan.Solomon@mef.gov.na</a></p> <p>Ms. Frieda Shikongo            Warden: Dorob National Park            Mobile: +264 813723287</p>



### **1.4.2 Proponent (NamWater)**

The proponent shall play a pivotal role to ensure the successful implementation of this EMP. This can be achieved by designating a project Team whom should take responsibility to ensure the implementation of this EMP during the planning & design, construction, and decommissioning phase. The proponent shall support the Contractor in the management and monitoring of possible adverse environmental, social and climate impacts and risks associated with the implementation of the construction, operation, maintenance and decommissioning of the Omdel - Wlotzkasbaken pipeline replacement and pump station.

NamWater, as the implementing agency, the following officials will be responsible for:

#### **Resident Engineer (RE)**

- a) Ensuring that the objectives of the EMP are met.
- b) Ensuring that the Designing Engineer is aware of this EMP and has applied the relevant proposed mitigation measures outlined in this EMP.
- c) Take disciplinary actions in cases of transgressions and non-compliance.
- d) Ensuring that all environmental impacts are managed according to the environmental principles of avoiding, minimizing, mitigating, and rehabilitation as contained in this EMP.
- e) To ensure and support occupational health and safety as well as health protection in the workplace;
- f) Ensuring that appropriate monitoring and compliance auditing are executed;
- g) To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and nonroutine circumstances.
- h) Ensuring that the environment is rehabilitated to its natural state as far as possible.
- i) Appropriate compliance monitoring is executed as outlined in Section 6
- j) Handle grievances/complaints in the prescribed manner as outlined in Section 7.4.

#### **Environmentalists – in collaboration with the RE and Project Team**

- a) Oversee compliance to the EMP
- b) Be present at the project site inspections and meetings
- c) To ensure and support occupational health and safety as well as health protection in the workplace;
- d) That all employees and contractors are aware to protect and preserve the Dorob National Park's cultural heritage;
- e) Receive and attend to complains as received from the RE and the ECO
- f) Resolve complaints/grievances which has been escalated to their attention
- g) Notify the DWA and MEFT of any proposed changes to the scope of the project and potential environmental impacts.

- h) Keep a record of emergencies and take corrective actions as per Section 8.
- i) To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.
- j) To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.

**Scheme Superintendent** as the overall responsible official for the operation of the Omdel - Wlotzkasbaken pipeline shall oversee the implementation of this EMP during the operation and maintenance phases. The Scheme Superintendent shall ensure.

- That a copy of this EMP is always kept on site.
- That all employees involved in the operation and maintenance of the Omdel - Wlotzkasbaken pipeline are aware of this EMP and provide brief training (when necessary).
- To ensure and support occupational health and safety as well as health protection in the workplace;
- That all employees and contractors are aware to avoid all forms of discrimination of their employees;
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.
- To promote the fair treatment, nondiscrimination and equal opportunity of project workers
- That all employees and contractors are made aware to avoid negatively influencing existing conflict dynamics;
- That all employees and contractors are aware to protect and preserve the Dorob National Park's cultural heritage;
- Are made aware to condemn forced labour and child labour, ban discrimination in respect of employment and occupation, and support the freedom of association and the right to collective bargaining in accordance with national laws;
- Review of the on-site environmental management and implementation of the EMP by the employees.
- Conduct compliance monitoring as outlined in Section 6.2 of this EMP.
- To have in place effective measures to address emergency events.
- Keep a record of emergencies and take corrective actions as per Section 8.

- All operation and maintenance activities are in line with NamWater’s environmental code of conduct.
- To provide project workers with accessible means to raise workplace concerns.
- Handle grievances in the prescribed manners as outlined in Section 7.4.
- Take appropriate disciplinary action against the Omdel - Wlotzkasbaken pipeline maintenance employees in case of a transgression.
- To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.
- To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.

### **1.4.3 Design Engineer**

The project Design Engineer is responsible for the completion of proposed project design layouts and drawings and providing technical information to the EAP for EIA study and preparation of the project EMP. The Design Engineer shall be available to consider amendments to the initial project design in accordance with the EMP in order to protect and preserve the Dorob National Park’s environmental and cultural heritage. The Design Engineer shall promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure.

### **1.4.4 Environmental Assessment Practitioner (EAP)**

The EAP in collaboration with the NamWater Environmental team is responsible for the compilation of an Environmental Scoping report and EMP and the submission of such reports to the competent authority (DWA) as well as the regulatory authority (MEFT). In addition, the EAP will make an application of the ECC on behalf of the proponent and make follow-ups on the application.

### **1.4.5 Contractor and sub-contractors**

The Contractor (irrespective whether it is internal or external) shall conduct his activities so as to cause the least possible disturbance to the existing amenities, whether natural or man-made, in accordance with all the current statutory requirements. Special care shall be taken by the Contractor to prevent irreversible damage to the environment. The Contractor shall take adequate steps to educate all members of his workforce (in Consultation with NamWater) as well as his supervisory staff on the relevant environmental laws and protection requirements.

The Contractor shall supplement these steps with prominently displayed notices and signs in strategic locations to remind personnel of environmental obligations.

The Contractor shall ensure that all his employees, and those of his Sub-Contractors, attend an Environmental, Awareness Training Course. This course shall be structured to ensure that attendees:

- Acquire a basic understanding of the key environmental features on the site and its immediate environment;
- Become familiar with the environmental controls contained in the EMP;
- To ensure and support occupational health and safety as well as health protection in the workplace;
- Are made aware of all protected areas (Dorob national Park Regulations) and that the trapping, poisoning, and/or shooting of animals is strictly forbidden. No domestic pets are allowed on site;
- Are informed that natural features (e.g. rock formations) are not defaced or marked for survey or other purposes unless agreed beforehand with the engineer and natural water sources (e.g. streams) are not allowed to be used for the purposes of swimming, personal washing, and the washing of machinery or clothes;
- To promote the fair treatment, nondiscrimination and equal opportunity of project workers
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.
- Are made aware to avoid all forms of discrimination of their employees;
- Are made aware to avoid negatively influencing existing conflict dynamics;
- Are made aware to protect and preserve the Dorob National Park's cultural heritage;
- Are made aware of the need to conserve water and minimise waste;
- Receive pertinent, written instructions regarding compliance with the relevant environmental management requirements (viz. typical environmental "do's" and "don'ts");
- Are made aware of any other environmental matters as deemed necessary by the Engineer / ECO.
- Are made aware to condemn forced labour and child labour, ban discrimination in respect of employment and occupation, and support the freedom of association and the right to collective bargaining in accordance with national laws;

- Are made aware of the importance of preserving archaeological sites.
- Receive detailed training in site health and safety requirements, emergency responses and site evacuation procedures in terms of the Contractor's health and safety plan;
- Are made aware of NamWater's Code of Conduct;
- HIV/AIDS awareness training and the training should indicate where condoms are freely available on site;
- Awareness around birth control and the potential long-term risks associated with casual sex;
- Are made aware that prostitution shall not be tolerated in the construction camp;
- Are aware that a copy of the EMP is readily available on site and that all site staff are aware of the location and have access to the document;
- Are aware of the requirements of any approved Method Statements that have bearing on their activities, and where necessary, any specialised training required to ensure compliance with the approved Method Statements has been provided; and
- Are informed that employee information posters, outlining the environmental "do's" and "don'ts" (as per the environmental awareness training course) will be placed at prominent locations throughout the site.
- To provide project workers with accessible means to raise workplace concerns.
- Handle grievances in the prescribed manners as outlined in Section 7.4.
- Are informed of the relevant requirements of KfW sustainability guideline.
- To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.
- To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.
- To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.

The Contractor upon receiving this EMP, should ensure compliance to this EMP by:

- Ensure that a copy of this EMP is always kept on site.
- Undertaking their activities in an environmentally sensitive manner and within the context of this EMP.
- To have in place effective measures to address emergency events.

- Keeping a record of emergencies and taking corrective actions as per Section 7.
- Taking appropriate disciplinary actions against their employees in case of transgression.

#### **1.4.6 Environmental Control Officer**

A suitably qualified and experienced Environmental Control Officer (ECO) shall be appointed by the Contractor prior to the commencement of construction to ensure that the mitigation and rehabilitation measures are implemented and to ensure compliance with the provisions of the EMP.

The ECO is responsible to oversee and monitor compliance with and implementation of the EMP. The ECO's responsibilities include:

- Liaison with the community, NamWater, Consulting Engineer, Resident Engineer and Environmental Authorities;
- Liaise with stakeholders from neighbouring communities in order to ensure that the project does not adversely impact on the living conditions of communities, in particular indigenous peoples and other vulnerable groups, as well as to ensure the rights, living conditions and values of indigenous peoples;
- Monitoring of all the Contractor's activities for compliance with the various environmental requirements contained in this EMP;
- To promote the fair treatment, nondiscrimination and equal opportunity of project workers
- Monitoring of all Contractor's activities for compliance with occupational health and safety requirements as well as health protection in the workplace;
- Monitoring of all Contractor's activities to avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.
- Ensuring that the requisite remedial action is implemented in the event of non-compliance;
- Ensuring the proactive and effective implementation and management of environmental protection measures;
- Ensuring that a register of employee and public complaints is maintained by the Contractor and that any and all employee and public comments or issues are appropriately reported and addressed;
- Routine recording and reporting of social and environmental activities, incidents and non-compliance on a monthly basis;
- To have in place effective measures to address emergency events. Keeping a record of emergencies and taking corrective actions as per Section 7.

- To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
- Notifying the Environmental Authorities immediately of any events or incidents that may cause significant environmental damage or breach the requirements of the EMP; and
- Presenting Environmental Awareness Training courses to the Contractor's entire team of workers prior to commencing with construction. All new appointees should also receive the training.
- The ECO shall be at the site with construction team to ensure compliance.
- Bi - Monthly compliance reports shall be submitted to the Resident Engineer and NamWater Project Management Team. The compliance report shall address all issues of non-compliance, remedial action recommended and implementation thereof. It is recommended that an Environmental Audit Report be carried out 6 months after construction has been completed and submitted to the Environmental Authorities and NamWater.

## 2 LEGAL AND POLICY FRAMEWORK

The EMP implementation shall be guided by the legislative framework as outlined in the EIA report and briefly presented here below.

**Table 2: Applicable legislation**

LEGISLATION	PROJECT IMPLICATIONS
	<b>National legal requirements</b>
Constitution of the Republic of Namibia (1990)	The proponent shall be advocating for sound environmental management through the implementation of the environmental management plan, as set out in the constitution.
Namibia Water Corporation Act 12 of 1997	The Act makes provision for the planning & designing, construction, operation, maintenance, and decommissioning of the Omdel Wlotzkasbaken pipeline replacement since NamWater is carrying out its functions as mandated by the Act.
Environmental Management Act 7 of 2007	Application for the Environmental Clearance Certificate for the activities will be submitted to the competent and regulatory authority.
Forest Act (No. 12 of 2001)	Ensure the protection and preservation of trees in line with the Act.
Nature Conservation Ordinance 14 of 1975 and its amendments	Ensure the protection and preservation of natural resources in line with the Ordinance.
Dorob National Park Rules and Regulations	All activities are to be undertaken in line with the Dorob National Park Rules and Regulations.
Namibia's Second National Biodiversity Strategy and Action Plan (2013-2022)	Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
Pollution Control and Waste Management Policy, 2003	All waste management activities generated by the Omdel – Wlotzkasbaken pipeline activities are the responsibility of NamWater.
MEFT Policy on HIV/AIDS	The proponent and its Contractor must adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities.
National Heritage Act No. 27 of 2004	All protected heritage resources (e.g., human remains, etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.



Regional Authority Act No. 24 of 1992	The development must comply with provisions of the Local Authorities Act.
Urban and Regional Planning Act No. 5 of 2018	The Development must comply with the provisions of the Urban and Regional Planning Act Town Planning Procedures should be followed during the registration of a servitude
Public Health and Environmental Act No. 1 of 2015	<ul style="list-style-type: none"> <li>• Nuisance such as dust, noise, bad odours, etc. should be controlled during all project phases.</li> <li>• Sanitary conveniences should be provided for as per the minimum requirements prescribed by the law.</li> </ul>
National Labour Act 11 of 2007	<ul style="list-style-type: none"> <li>• The Proponent, Contractors, Sub-Contractor shall all be guided by this Act when recruiting or handling employment-related issues.</li> <li>• Contractors must adhere to the minimum workplace safety standards such as all employees must be provided with appropriate Personal Protective Equipment (PPE).</li> </ul>
<b>International legal requirements</b>	
Convention on Biological Diversity	As a signatory also to the Convention to Combat Desertification Namibia is also bound to prevent excessive land degradation that may threaten livelihoods.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973)	As a signatory also to CITES, Namibia is bound to the protection of endangered species of wildlife and fauna to ensure continued survival of the species.
United Nations Sustainable Development Goals (SDGs) 2015	Of specific relevance to ecology is SDG 15: Life on Land which aims to “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”.
<b>Sustainability Guideline: Assessment and management of Environmental, Social, and Climate Aspects: Principles and Procedures KfW Development Bank. February 2022</b>	The project implementation should be done in accordance with this Guidelines, which has the overall objective of promoting sustainability and avoiding adverse environmental, social and climate impacts and risks. The Guidelines are aligned to the KfW Development Bank’s Financial Cooperation principles.
<b>The World Bank Environmental and Social Standards</b>	The project implementation should be done in accordance with the World Bank Environmental and Social Standards which are designed to avoid, minimize, reduce or mitigate the adverse environmental and social risks and impacts of projects. To this end, the World Bank has defined specific Environmental and Social Standards (ESSs), which are designed to avoid,

minimize, reduce or mitigate the adverse environmental and social risks and impacts of projects. The ESSs relevant to the project are:

The ESSs relevant to the project are:

ESS1: Assessment and Management of Environmental and Social risks and impacts

ESS2: Labour and working conditions

ESS3: Resource Efficiency and Pollution Prevention and Management

ESS4: Community Health and Safety

ESS6: Biodiversity

ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

ESS8: Cultural Heritage

ESS10: Stakeholder Engagement and Information Disclosure

### **3 ENVIRONMENTAL MANAGEMENT REQUIREMENTS**

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The successful implementation of this EMP will depend on various factors such as training and awareness, enforcement, good record keeping, and reporting.

#### **3.1 Environmental awareness training**

It is important to ensure that Contractors, sub-contractors, and all Omdel – Swakopmund Water Scheme employees have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and minimization of environmental harm.

To achieve this, all parties involved in any work at the Omdel - Wlotzkasbaken pipeline during the construction, operation, maintenance, and decommissioning phases should be briefed on their obligation towards environmental protection in terms of the EMP before work commences. The training should also cover the actions outlined in the emergency response plan, the NamWater's environmental code of conduct, Dorob National Park Regulations as well as the KfW sustainability guideline.

The Environmental Awareness Training Course should be conducted by the ECO and Contractor's Environmental Health and Safety officer, who shall provide the site staff with an appreciation of the project's environmental requirements, and how they are to be implemented. All new staff coming onto site after the commencement of construction activities must also attend the Awareness Training Course, and refresher courses should be undertaken on a quarterly basis. A detailed record of all training sessions, including a list of attendees must be compiled by the Contractor and submitted to the Project Manager on a regular basis. The initial Environmental Awareness Training Course shall be held within 14 days from the site mobilisation date, and subsequent courses shall be arranged for all new employees arriving after the initial training course.

The Contractor shall provide a suitable venue with necessary facilities and ensure that all employees attend the environmental, health and safety induction course. The course shall be held in the morning during normal working hours. No more than 30 people shall attend each course and the Contractor shall allow for sufficient sessions to train all personnel. The Contractor shall provide proof of attendance by all of his employees in the form of a signed attendance register.

### **3.2 Construction phase**

As part of tender requirements, Contractors are obliged to educate their employees on the implementation of the EMP and NamWater's environmental code of conduct. Each Contractor should provide training to their employees on environmental issues related to construction. This training can be in the form of an onsite talk before the commencement of any work. Employee information posters, outlining the environmental "do's" and "don'ts" (as per the environmental awareness training course) should be placed at prominent locations throughout the site. Record of such training should be kept by the Contractor and should be handed to the Resident Engineer.

### **3.3 Operation and maintenance phase**

The Scheme Superintendent should ensure that Omdel - Wlotzkasbaken pipeline maintenance staff receive appropriate training on the environmental issues pertaining to the operation and maintenance of the proposed new pipeline and to carry out their works in accordance with this EMP.

### **3.4 Recordkeeping**

There should be an up-to-date filing system for the Omdel - Wlotzkasbaken pipeline whereby method statements, environmental incidents reports, training records, audit reports, and public complaints registers are kept. It is advised that photographs of the site should be taken as a visual reference. The grievance register must be kept by the Resident Engineer (RE) during the construction phase and by the Scheme Superintendent during the operation phases, respectively.

### **3.5 Enforcement**

This EMP upon approval by MEFT shall be a legally binding document, thus, the commitment and cooperation of the identified responsible person(s) will ensure the effective implementation of the EMP. Adherence to this EMP will ensure that the environmental impacts associated with the project will be mitigated to a greater extent thus promoting sustainable development. The EMP will be enforced in accordance with the provisions of Section of the Environmental Management Act 07 of 2007 through a contract between NamWater and the contractor.

### **3.5.1 Lay-out plan for the lay – down areas**

The lay out /description of the lay down areas are required especially during the construction phase to describe and indicate how they will set up and managed. This should be provided in a step-by-step description for the RE or ECO to understand the contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimize environmental impact during construction. These description/lay-out should also clearly stipulate mitigation methods of the intended works, against which the contractor's performance will be measured. In this case, the following method statements will be necessary during the construction phase.

### **3.5.2 Non-compliance and disciplinary actions**

In cases of transgressions and non-compliance to the EMP, the following actions may be taken against the transgressor.

- Disciplinary actions
- Legal actions
- Termination of contract

The RE in collaboration with the designated ECO will ensure that the EMP is fully complied with by the appointed contractor and employees during the construction phase. The RE and ECO shall issue disciplinary actions based on the severity of the environmental damages and the nature and extent of the transgression / non-compliance. In addition, the proponent may also institute legal actions against the transgressor in line with the Public Procurement Act 15 of 2015 and NamWater's contract agreement.

The Scheme Superintendent will ensure compliance during the operation and maintenance phase. Non-compliance or transgression shall result in disciplinary actions being taken against the transgressor. Transgressions should be recorded in a dedicated register and be filed.

## **3.6 Environmental reports**

The ECO shall prepare a post construction environmental report upon the completion of the construction phase. The report should indicate the environmental performance, compliance to the EMP, and matter of incidental. The report should also identify:

- environmental issues caused by construction
- issues that have been resolved

- issues that remain unresolved and how they plans to address them

Furthermore, the proponent shall ensure regular monitoring of project activities during all project phases and keep records. These records may be required by the competent authority when deemed necessary or for the renewal of the ECC if the project is not complete within three years. The records will be required when applying for renewal of the ECC and NamWater will also have to indicate how the EMP was adjusted to make provision for improved mitigation measures and action plans.

## 4 MANAGEMENT OF IDENTIFIED IMPACTS

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This section outlines the proposed mitigation measures to avoid, prevent and mitigate and/or enhance the identified potential impacts associated with the proposed Omdel - Wlotzkasbaken pipeline. It also outlines the responsibilities of each party involved in the project implementation under each phase. The project activities are grouped according to the different operational processes and stages (planning & design, construction, operational, and decommissioning phases).

### 4.1 Planning and Design phase

This EMP aims to ensure best practices are implemented and environmental degradation is avoided through appropriate environmental protection and adherence to legal requirements. The EMP also ensures that the best alternative options are selected and implemented as recommended in the Scoping report. Below are some of the recommended actions

#### 4.1.1 Proposed mitigation measures during the planning and design phase

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Siting of the new pipeline route</b>	<ul style="list-style-type: none"> <li>The proposed pipeline route will be located west of the existing pipeline as the new pipeline cannot cross the existing pipeline due to the heavy construction equipment that will be required to be transported over the existing</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that the new proposed pipeline follows the existing pipeline route and be placed between the existing service road and the existing pipeline, at an offset 3m to 5m from the existing pipeline in order to minimize the footprint</li> </ul>	Design Engineer

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
	<p>pipeline, as this may damage the existing pipeline.</p>		
<p><b>Pipeline Material and Design</b></p>	<ul style="list-style-type: none"> <li>Materials and coatings needs to strong and should not be damaged easily by external forces caused by the weather (including corrosion) and animals</li> </ul>	<ul style="list-style-type: none"> <li>Use strong and coatings materials which are proven not to be susceptible toy weather and damage by animals as described in preliminary design report (NamWater, 2022).</li> <li>For above ground use Ductile Cast Iron (DCI) with 400g/m<sup>2</sup> Zinc–aluminum coating and black HCPE seal coating with a minimum 70-micron thickness</li> <li>The below ground pipeline shall be High-Density Polyethylene (HDPE).</li> </ul>	<p>Design Engineer</p>
<p><b>Crossings and Design</b></p>	<ul style="list-style-type: none"> <li>Animals and vehicles will not be able to cross over the pipeline if the design does not facilitate the movement of animals across the pipeline.</li> </ul>	<ul style="list-style-type: none"> <li>The design should include animal and vehicle crossings</li> <li>Animal crossings should be placed at washes, river valleys and tribunals that cross the pipeline route.</li> <li>The kmz file indicating the possible locations for animal crossings is provided in Annexure A.</li> <li>To facilitate the movement of vehicles across the pipeline, 2 (two) vehicle crossings should be erected at the 10km mark on each of the pipelines.</li> <li>These crossings should remain closed for use and should only be opened when requested by Ministry of Environment and Tourism (MEFT) officials.</li> </ul>	<p>Design Engineer Project Manager</p>



Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Service Road</b>	<ul style="list-style-type: none"> <li>Widening of the service road (at crossing points) can increase the food print and could possibly damage the fauna and flora</li> </ul>	<ul style="list-style-type: none"> <li>The service road should only be widened by a maximum of 15 m from the edge of the opposite junction at the vehicle crossings.</li> </ul>	Design Engineer Project Manager
<b>Land use requirement</b>	<ul style="list-style-type: none"> <li>About 95.4 % (42.8 km) of the total length of the <b>Omdel – Wlotzkasbaken</b> pipeline falls within the Dorob National Park, except for about 2 km which falls within the Wlotzkasbaken.</li> <li>The Dorob National Park is guided by the Management Plan and also regulations.</li> <li>Although the park is not fenced off, activities within the parks are restricted as per the park regulations</li> </ul>	<ul style="list-style-type: none"> <li>To facilitate the movement of vehicles across the pipeline, 2 (two) vehicle crossings should be erected at the 10km mark on each of the pipelines.</li> <li>The vehicle crossing should remain closed and only be opened when the need arises/ on request by MEFT.</li> <li>All park rules and regulations (provided in Annexure H) should be adhered to at all times including when doing surveys and design activities.</li> <li>The future land use is guided by the Management Plan for Dorob National Park - 2021/2022-2030/2031.</li> <li>In order to safeguard the pipeline from future developments, a servitude covering the old pipeline, the pipeline, and the service road must be registered for the entire pipeline route.</li> </ul>	Design Engineer Project Manager
<b>Planning for Construction activities</b>	<p>Poor planning for construction could lead to unnecessary delays and possible non-adherence to the Dorob National Parks rules and regulations.</p>	<ul style="list-style-type: none"> <li>The EMP should be part of the tender/BID documents and contract for the construction contract</li> </ul>	

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>• Once approved, NamWater should submit all documents EIA, EMP, and Environmental Clearance Certificate to MEFT offices in Swakopmund.</li> <li>• Construction staff members should all be issued with name tags, and uniforms and all vehicles should be branded/easy to identify.</li> <li>• Entry permit should be applied for entry into Dorob National Park; the permit application should include names of all personnel to work on the pipeline and registration details of all the vehicles to be used during the construction, operational, and decommissioning phases.</li> <li>• Once issued, all staff members and Contractors should have a copy of the Entry Permit copy at all times and be able to present it to MEFT staff upon request.</li> <li>• Before the commencement of construction NamWater and the Contractor must conduct a field visit together with MEFT – Dorob National Park officials and the Environmental Control Officer</li> <li>• The workforce should be accommodated outside the National Park, in Swakopmund or Walvis Bay, or Henties Bay.</li> </ul>	

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>All park rules and regulations to be adhered to at all times. Offenders should be fined in accordance with the MEFT fine list.</li> </ul>	
<b>Electricity requirement for the Pump station at Omdel Collector Reservoir</b>	It is expected that the site will be connected to the nearest Erongo Red overhead connection point.	<ul style="list-style-type: none"> <li>NamWater should make an application for a power supply from Erongo RED to provide power to the Omdel Collector Reservoir where the new pump station will be located.</li> </ul>	Project Manager
<b>Awareness and training on environmental and sustainability requirements</b>	Non adherence to the EMP requirements could lead to non – implementation of the proposed mitigation measures (negative and positive enhancements) thus not meeting EMP objectives.	<ul style="list-style-type: none"> <li>All parties parties involved in any work at the Omdel - Wlotzkasbaken pipeline should be made aware of the EMP and environmental and sustainability requirements.</li> <li>The training should cover the actions outlined in the emergency response plan,the NamWater’s environmental code of conduct, Dorob National Park Regulations as well as the KfW sustainability guideline (Annexure K).</li> <li>The Contractor through their ECO should conduct the training and induction for their staff (as per the Section 1.5.4)</li> <li>NamWater should provide environmental induction training to their staff members.</li> </ul>	<ul style="list-style-type: none"> <li>Head: Coastal Business Unit</li> <li>Project Manager</li> <li>Resident Engineer</li> <li>Contractor</li> </ul>

## **4.2 Construction phase**

### **4.2.1 Environmental specifications**

The following specifications cover the requirements for controlling the impact of construction activities on the natural and social environment. Although the specifications below apply during the construction phase, many of the activities are similar to the operation, maintenance, and decommissioning activities, hence, these specifications, where applicable will apply to these project phases as well.

#### **i. Construction camp**

Due to the sensitivity of the area and park rules, no construction campus should be established along the pipeline route. Construction workers should be accommodated in the towns of Swakopmund and Henties Bay.

#### **ii. Cement and concrete batching**

The permitted location of a batching plant (including the location of cement stores and sand and aggregate stockpiles) shall be at NamWater premises in Swakopmund. Concrete shall not be mixed directly on the ground. Boards, plastic sheeting, or other protective materials shall be used for this purpose.

#### **iii. Lay-down areas**

Laydown areas must be as few as possible and must be sited in previously damaged areas next to the service road (western side). A total of 41 suitable sites were identified and mapped, throughout the entire pipeline route as indicated in Figure 7, Figure 8 and Figure 9 – not to scale). The laydown areas that should be note more then 50 m<sup>2</sup> and must be properly demarcated and all activities should not go beyond the demarcated area. The kmz file containing the exact location of the laydown areas is attached Annexure A.



Figure 7: Suitable site for laydown areas (LD1 – to LD 15)

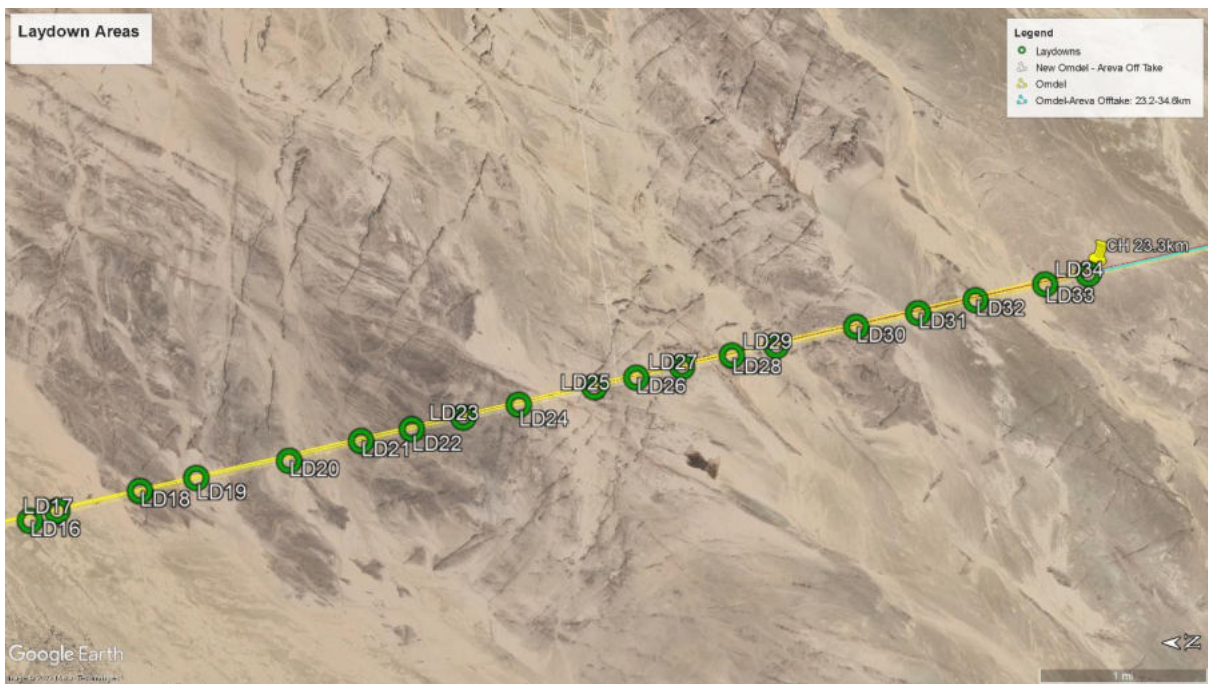
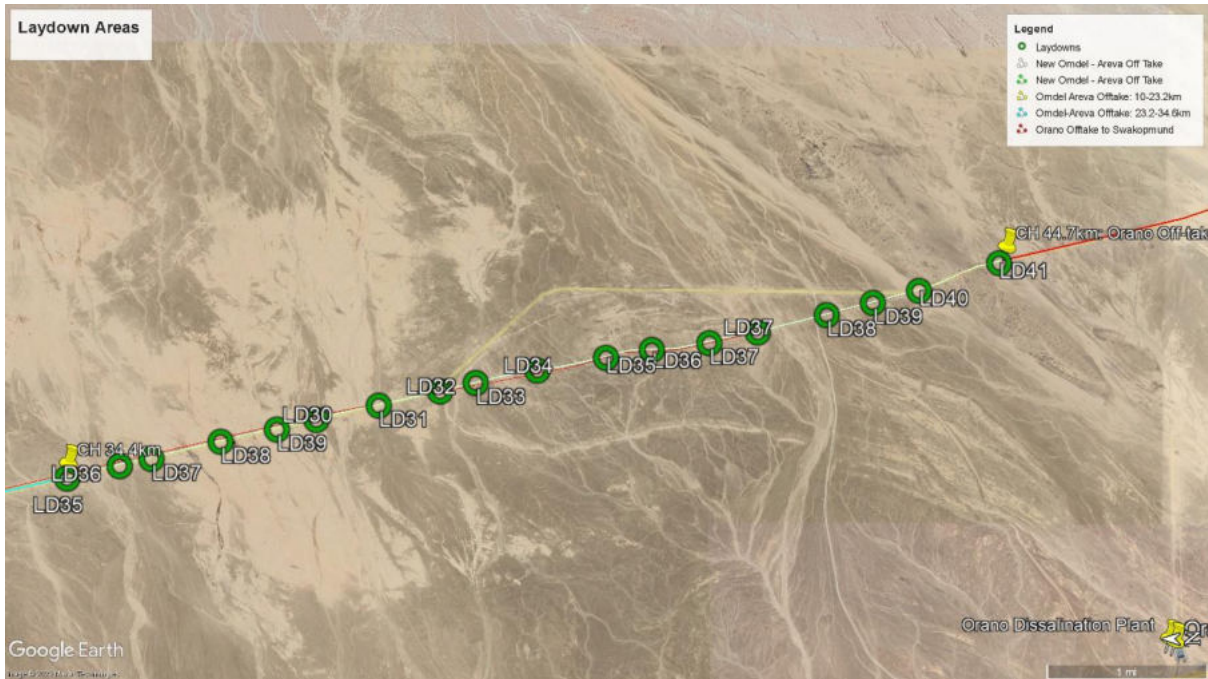


Figure 8: Suitable site for laydown areas (LD15 – to LD 34)



**Figure 9: Suitable site for laydown areas (LD35 – to LD 41)**

**iv. Construction site; Pump Station at Omdel Collector reservoir**

The pump station should be constructed within the NamWater Reservoir fenced area, in order to keep the same footprint and to facilitate control and minimize impacts on the surrounding environment.

**v. No-go areas**

Only the existing service road should be used as the working corridor/ working area. Any area outside the service road or the demarcated laydown area “should be considered as a no go” area. The Contractor shall ensure that no unauthorized entry, stockpiling, dumping or storage of equipment or materials shall be allowed within the "no go" areas.

### 4.3 Proposed mitigation measures: Construction of the Pipeline (including associated infrastructure) and laydown areas (including concrete batching

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<p><b>Damage to sensitive substrates</b></p>	<ul style="list-style-type: none"> <li>Construction activity can damage lichen fields and fragile soil crusts that prevent soil erosion and provide a habitat for lichens and hypolithic organisms. This impact would be scored far worse were it not for the existing damage along the route.</li> </ul>	<ul style="list-style-type: none"> <li>Laydown areas must be as few as possible and must be sited in previously damaged areas. Suitable sites were mapped. This has also been supplied as a kmz file (Annexure A).</li> <li>Demarcate the extent of the laydown areas using danger tape with steel droppers.</li> <li>No vehicles should be permitted to drive anywhere but along the existing service road or in laydown areas.</li> <li>Vehicles should make three-point turns, not loop turns. Figure 10 shows the unnecessary damage where a loop turn was previously made within a lichen field.</li> <li>Staff should be housed off-site.</li> <li>Temporary toilet facilities and rubbish bins should be provided for staff use in laydown areas</li> <li>Staff should be encouraged to stay away from sensitive areas such as dark rocky ridges and slopes and consolidated gravel plains at all times.</li> <li>All unused and disused construction materials should be removed unless it will cause damage to sensitive areas.</li> <li>NamWater assist MEFT to provide signage for park rules along the entire pipeline route, one signage for every 10 km.</li> <li>All Contractors and sub-contractors must be made aware of their environmental responsibilities and fines (as per the</li> </ul>	<p>Contractor/ Project Manager All drivers accessing the area including NamWater Employees</p>

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		MEFT fine list) should be applied when unnecessary damage is done. Responsibility for damage must lie with the main contractor, regardless of whether it was done by a sub-contractor, in order to prevent “passing of the buck”.	
<b>Loss of downstream vegetation due to disruption of water flow</b>	Loss of plant structure and diversity in drainage lines due to trenching and heaping of soil. Digging of trenches and heaping of soil can impede water flow along drainage lines during rare rain events in central Namib. This may cause deterioration or death of vegetation downstream. Because plant density and diversity are often higher in washes, this can impact food resources for fauna.	<ul style="list-style-type: none"> <li>Water flow in washes should not be impeded by heaped-up sand or rocks. After construction, such ridges should be leveled down carefully.</li> </ul>	Contractor Project Manager
<b>Loss of plants or plant parts due to illegal collection for fuel or the ornamental trade</b>	Collection of plants, parts of plants or seeds for the horticultural trade is illegal and compromises populations and recruitment, particularly of endemic and restricted range species. Illegal collection of wood, or other plant material in a national park, for burning reduces the resources available for fauna and reduces debris that eventually degrades and becomes soil nutrients.	<ul style="list-style-type: none"> <li>No collection of any plants or plant parts should be permitted, including fuel for fires.</li> <li>Do not disturb, deface, destroy or remove plants or natural features.</li> <li>All Contractors and sub-contractors must be fined (as per the MEFT fine list – Annexure I). Responsibility for damage must lie with the main contractor, regardless of whether it was done by a sub-contractor, in order to prevent “passing of the buck”.</li> </ul>	Contractor Project Manager



Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Illegal collection of wild animals</b>	Collection of dead wild animals or poaching thereof for consumption or trade is illegal	<ul style="list-style-type: none"> <li>• No poaching/collection of wild animals for consumption or for trade.</li> <li>• Employees who poached fauna and/or flora will be handed to the authorities for prosecution.</li> <li>• Employees who set traps will be handed to the authorities for prosecution.</li> <li>• Employees found guilty or even suspected to be guilty of poaching or setting traps should not be allowed to continue with work on this project. They should immediately be removed from the construction team.</li> <li>• The Contractor will be held liable for the replacement of any plant or animal that is removed or damaged due to the Contractor's negligence or mismanagement.</li> <li>• Regular checks of the surrounding environment must be undertaken to ensure no traps or snares have been set. Any snares or traps found on or adjacent to the site must be disposed of.</li> <li>• All Contractors and sub-contractors must be fined (as per the MEFT fine list). Responsibility for damage must lie with the main contractor, regardless of whether it was done by a sub-contractor, in order to prevent "passing of the buck".</li> </ul>	Contractor Project Manager ECO
<b>Loss of vertebrate fauna habitat</b>	Vertebrate fauna habitat affected during construction activities	<p>The sensitive habitats – i.e.</p> <ol style="list-style-type: none"> <li>1) ephemeral drainage lines – e.g. Omaruru River &amp; other drainage lines.</li> <li>2) black dolerite ridges/outcrops potentially serving as habitat to endemic reptiles, and</li> <li>3) lichen fields – e.g. areas that serve as potential nesting site for Damara terns – should be avoided and/or mitigations followed regarding above- or below ground pipeline infrastructures:</li> </ol>	

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>• Avoid small mammal / reptile and bird nesting where possible. Do not hurt, kill or unnecessarily disturb birds or animals.</li> <li>• Follow the same pipeline corridor;</li> <li>• Leave enough space between the pipelines for maintenance purposes.</li> <li>• Bury pipeline, where possible (depending on geology), along the entire route.</li> <li>• Where the pipeline has to be constructed above ground, due to local geology, incorporate below-ground wildlife “crossing points” at ephemeral drainage lines (used as foraging and/or movement corridors for ungulates &amp; ostrich).</li> <li>• Below ground “crossing points” should be greater than 30 - 50m in length; recommended length is &gt;100m in order to be effective.</li> <li>• Where existing above ground “crossing points” have been established along the existing pipeline, then mimic the existing “wildlife crossing” points.</li> <li>• Aboveground “wildlife crossing points” should be greater than 30 - 50m in length, recommended length is &gt;100m in order to be effective.</li> </ul>	

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Open pipeline trench</b>	An open trench would act as a pitfall trap for animals.	<ul style="list-style-type: none"> <li>• Avoid leaving an open trench overnight.</li> <li>• Leave access ramps at each end of the trench and/or along the trench to facilitate wildlife exiting the trench.</li> <li>• Remove and/or assist trapped wildlife to exit – e.g. create an exit ramp close to trapped species (ungulate/ostrich) and guide individual(s) to ramp. This would not be necessary if trench is not left open overnight.</li> <li>• Contact Dorob National Park Rangers/Wardens for assistance when wildlife is caught in an open trench.</li> </ul>	
<b>Sanitation</b>	<ul style="list-style-type: none"> <li>• Liquid waste from construction workers will be generated.</li> <li>• All these types of waste will have a negative impact on surrounding areas if not disposed of properly and regularly.</li> </ul>	<ul style="list-style-type: none"> <li>• Provision must be made for sufficient portable ablution facilities during the construction period (ablution facilities must be placed at laydown areas only – kmz file for laydown area is provided in Appendix A.)</li> <li>• In terms of the general health Regulations (GN 121. 1969), it is recommended to have at least 1 toilet within 500m along the pipeline route and 2 toilets for every 25 people (separate water closet for males and females) at the construction site.</li> <li>• Sewage from ablution facilities should be contained in a tank and disposed of at the Swakopmund or Henties Bay Municipality wastewater treatment plant.</li> </ul>	Resident Engineer /Contractor
<b>Safety hazard while working close to the electrical infrastructure</b>	<ul style="list-style-type: none"> <li>• Safety hazard could occur while working next to Erongo Red Omdel Sub – station which is right next to service road. Equipment and machines could be bump against the fence if the drivers are not careful.</li> </ul>	<ul style="list-style-type: none"> <li>• Adhere to the signage which are placed on the fence of the Omdel Sub Station.</li> <li>• In case of an emergency – contact Erongo RED Stand by numbers as follows:   <b>Henties Bay:</b>                   064 500-560 or 0654 500-570  After hours (Technical): 081-149 0179</li> </ul>	Contractor

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<p><b>Swakopmund</b>            Technical: 064 413-600 or 413-601            Apex Park Office: 064 413-650 or 461-887            Mondesa: 064 413-618/9 or 461-198            After hours (Technical): 081-128 5561</p>	
<p><b>Migrant construction workers and danger of communicable and non-communicable diseases.</b></p>	<p>Temporary construction activities may cause an influx of people from different parts of the country in search of employment opportunities. Migrant construction workers are likely to engage in casual relationships with locals. This will result in unplanned pregnancies and may contribute to the spread of sexual transmitted diseases. Moreover, the movement of people from other parts of the country will contribute to the spread of the pandemics such as COVID-19.</p>	<ul style="list-style-type: none"> <li>• Provide health education and awareness.</li> <li>• Qualified local people should be given priority.</li> <li>• Enforce Public Health COVID-19 General Regulations: Public and Environmental Health Act 2015 as amended.</li> <li>• Regular health check-ups.</li> <li>• Non-local employees should return to their original residential areas after completion of the contract.</li> </ul>	<p>Contractor</p>
<p><b>Disturbance to sites of palaeontological and archaeological importance.</b></p>	<p>Damage and destruction of important palaeontological and archaeological sites could occur during construction.</p>	<ul style="list-style-type: none"> <li>• Follow the Chance Finding Procedure (Annexure J) which covers actions to be taken on discovery of a heritage site or object.</li> <li>• Do not disrupt any archaeological or palaeontological sites. Inform the ECO who will take the necessary action.</li> <li>• All workers will be educated about the importance of preserving archaeological sites.</li> <li>• Educate specific workers about tell-tale signs of archaeological sites and the action to be taken if one is identified</li> </ul>	<p>Contractor ECO</p>

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Landscape and visual/aesthetic impacts</b>	Visual impacts associated with the construction of the pipeline could occur because of the uncollected waste stockpile, unpacked construction materials, open trenches, and other facilities which makes the view of the site unappealing.	<ul style="list-style-type: none"> <li>• Only prepare trenches in short sections sufficient to be worked for a day i.e. a week and avoid leaving empty trenches for overnight.</li> <li>• The stripped topsoil must be backfilled carefully in position after the completion of the pipe laying.</li> <li>• Waste generated should be collected and disposed of weekly.</li> <li>• Construction materials should be properly stacked in one place.</li> <li>• The construction area and lay down areas should be kept neat as far as possible.</li> </ul>	Contractor
<b>Erosion</b>	Construction activities could accelerate erosion during construction	<ul style="list-style-type: none"> <li>• Runoff on steep inclines should be diverted to prevent the formation of erosion gullies.</li> <li>• Berms should be constructed at selected intervals on long sloping areas to prevent erosion. Diversion berms should be reshaped as necessary to divert runoff.</li> <li>• When equipment crossings are necessary, diversions may be wider with flatter side slopes to minimise erosion.</li> <li>• Berms should be constructed with compacted soil, have a minimum top width of 60 cm and a minimum height of 30 cm, and should allow for 10% settlement. It should have side slopes with a gradient of at least 2:1.</li> <li>• Runoff should be guided to a point where it will not cause damage. Scour by the discharge of runoff should be prevented.</li> </ul>	
<b>Dust control</b>	Generation of dust	<ul style="list-style-type: none"> <li>• The Contractor shall take all reasonable measures to minimise generation of dust as a result of construction activity.</li> <li>• Construction vehicles to use only designated roads and to adhere to speed regulations.</li> </ul>	Contractor

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>Consider temporary ceasing of work during high wind conditions.</li> </ul>	
<b>Noise</b>	Generation of noise	<ul style="list-style-type: none"> <li>Install and maintain silencers on trucks and machinery.</li> <li>Repair faulty brakes.</li> <li>Operators should not use hooters for the purposes of general communication.</li> </ul>	Contractor
<b>Driving</b>	Increased risk for accidents	<ul style="list-style-type: none"> <li>No operator should operate any equipment when he is under the influence of alcohol.</li> <li>Adhere to safety rules.</li> <li>Always keep your headlights on.</li> <li>Drivers must have the correct licence for the vehicle they are driving.</li> </ul>	Contractor
<b>Concrete batching</b>	Pollution and contamination of the environment may occur as a result of improper handling of concrete .	<ul style="list-style-type: none"> <li>Concrete batching shall take place on a smooth impermeable surface enclosed with a bund and in lay down area only.</li> <li>Batching shall take place at least 20 m away from any water source to avoid contamination.</li> <li>All waste water resulting from batching of concrete shall be contained and disposed appropriately and shall not be discharged into the environment.</li> <li>Any spillages of concrete shall be cleaned –up immediately and disposed of through the solid waste disposal system.</li> <li>Empty cement bags shall be collected continuously and stored and disposed-off appropriately.</li> </ul>	Contractor Resident Engineer
<b>Fire outbreaks</b>	Construction activities such as welding. This can be aggravated by the presence of flammable and combustible items i.e., fuel, vegetation.	<ul style="list-style-type: none"> <li>In terms of the Atmospheric Pollution Prevention Act (No. 45 of 1965), burning is not permitted as a waste disposal method.</li> </ul>	Contractor

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>• Any fires that occur shall immediately be reported to the RE.</li> <li>• Ensure a designated smoking area far from fire hazard areas such as the workshop and fuel storage areas and any areas where the vegetation or other material is such as to make liable the rapid spread of an initial flame.</li> <li>• Cigarette butts must be disposed of in a designated container.</li> <li>• There must be a competent fire safety officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedures to be followed.</li> <li>• The Contractor shall be equipped with appropriate basic fire-fighting equipment (e.g., fire buckets, extinguishers, fire beaters, etc.) at all times.</li> <li>• Open fires for cooking purposes are not allowed.</li> </ul>	
<b>Criminal activities i.e., theft</b>	Construction materials and untended equipment kept onsite may attract criminals.	<ul style="list-style-type: none"> <li>• Materials and equipment must not be left on site so that it does not attract criminals.</li> </ul>	Contractor
<b>Handling of complaints and grievances</b>	Grievance may be received from residents with regard to construction activities.	<ul style="list-style-type: none"> <li>• All complaints and grievances shall be reported in the Form (Annexure G) and submitted to the RE.</li> <li>• The RE shall handle the grievance as per the Grievance response procedure presented in Section 7.4</li> </ul>	Resident Engineer

### 4.3.1 Waste Management

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
Waste	Improper disposal of waste could lead to pollution	<ul style="list-style-type: none"> <li>• All waste will be removed to an appropriate waste dump.</li> <li>• No waste should be buried.</li> <li>• General waste: Includes wastepaper, plastic, cardboard, harmless organic (e.g. vegetables) and domestic waste.</li> <li>• Hazardous substances include: sewerage, fuels, lubrication oils, hydraulic and brake fluid, solvents, paints, anticorrosive, insecticides and pesticides, chemicals, acids etc. It should be disposed of at designated hazardous disposal sites.</li> <li>• Contaminated soil should be stored in drums and taken to the nearest appropriate waste dumpsite.</li> <li>• Do not change oil on uncovered ground. Drip trays will be used to catch oil when vehicles are repaired in the field.</li> <li>• Used oil and hydraulic fluids should not be discarded on the soil or buried. It should be removed from site and taken back to an appropriate dump.</li> <li>• In the event of a hazardous spill, immediately implement the following actions to stop or reduce the spill:               <ul style="list-style-type: none"> <li>○ Contain the spill.</li> <li>○ Arrange implementation of the necessary clean-up procedures.</li> <li>○ Collect contaminated soil, water and other materials and dispose it at an appropriate waste dumpsite.</li> </ul> </li> <li>• Used solvents and grease should be stored in drums or other suitable containers. It should be sealed and recycled or disposed at an appropriate disposal site.</li> </ul>	Resident Engineer/ Contractor



Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
		<ul style="list-style-type: none"> <li>• Hazardous waste should not be burnt.</li> <li>• Bunding, concrete slabs and/or other protective measures should be installed where hazardous materials are handled.</li> <li>• Ensure that the staff are informed and have information pertaining to the management of spills or ingestion.</li> <li>• Remove all temporary buildings, concrete slabs etc., when construction is completed.</li> <li>• The laydown areas and construction site must be kept neat and tidy. No littering inside the camp must be allowed. Make sure that refuse bins are used.</li> <li>• Vehicles transporting waste should be sealed with a tarpaulin to avoid waste from being blown away by the wind.</li> <li>• After construction, the entire area will be rehabilitated as set out in the EMP (see Section <b>Error! Reference source not found.</b>).</li> </ul>	
<b>Fuel and lubricants spill or leaks at construction, refuelling, and storage sites</b>	<p>The poor handling and spillage of fuel, lubricants, and chemicals i.e., oil, grease from construction vehicles could contaminate the soil.</p>	<ul style="list-style-type: none"> <li>• Drip trays should be provided for vehicles and machines with leakages.</li> <li>• All construction vehicles must be serviced at the maintenance workshop and no offsite maintenance should be allowed.</li> <li>• If refuelling is to be done onsite, fuel tanks should be left in vehicles only and not be offloaded on the ground. A bunding wall, big enough to contain 120% of the volume of the fuel tank should be constructed at fuel storage and transfer site/s.</li> <li>• All leakages and spillages of oil and grease should be contained, cleaned up, stored in sealed containers and then be disposed of at the Walvis Bay Hazardous Waste disposal site.</li> <li>• In the event of a hazardous spill: <ul style="list-style-type: none"> <li>✓ Immediately implement actions to stop or reduce the spill.</li> </ul> </li> </ul>	Resident Engineer Contractor

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
		<ul style="list-style-type: none"> <li>✓ Contain the spill.</li> <li>✓ Arrange implementation of the necessary clean-up procedures.</li> <li>✓ Do not bury polluted soil, but rather dispose it at an appropriate dump site.</li> </ul> <p>Collect contaminated soil, water and other materials and dispose it at an appropriate waste dumpsite.</p>	
Litter produced during construction.	Littering (Litter such as paper, plastic etc. can be blown away into the surrounding environment).	<ul style="list-style-type: none"> <li>• No littering should be allowed. The construction area will be kept free of waste at all times. All construction sites will be cleaned on a daily basis before leaving the construction site.</li> <li>• Provide sufficient waste bins at worksites and in laydown areas. Make sure that all waste is removed from the worksites.</li> <li>• Bins should be placed in pairs to ensure that one is always present while the other is being emptied.</li> <li>• Areas likely to generate higher quantities of waste shall be equipped with additional bins.</li> <li>• Refuse bins must be stable, i.e. cannot be tipped by animals, and have scavenger and baboon proof lids.</li> <li>• Make sure that the bins are covered so that plastic bags, paper etc., are not blown away.</li> <li>• Make sure that the bins are regularly emptied and the waste taken to an appropriate waste dumpsite.</li> <li>• The central waste storage vessel shall be emptied weekly or as necessary.</li> </ul>	Resident Engineer Contractor

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
		<ul style="list-style-type: none"> <li>Vehicles transporting waste should be sealed with a tarpaulin to avoid waste from being blown away by wind.</li> </ul>	

### 4.3.2 Workshops, vehicle and equipment management

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
<b>Appropriate storage of machinery, vehicles and materials.</b>	Inappropriate storage of machinery, vehicles and materials may result in the possible damage/disturbance of nearby undisturbed environments.	<ul style="list-style-type: none"> <li>Store machinery, vehicles, and materials only in demarcated lay down areas only (kmz file in Annexure A) areas.</li> <li>Do not leave machinery and equipment standing around if not in use.</li> <li>Only park vehicles in designated areas.</li> <li>Do not park heavy vehicles or store equipment under or near trees.</li> <li>Do not store machinery, vehicles or materials in undisturbed or rehabilitating areas.</li> </ul>	Resident Engineer Contractor
<b>Leakage of fuels and lubricants from vehicles and equipment.</b>	The use of vehicles and equipment that may leak fuel and lubricants.	<ul style="list-style-type: none"> <li>Only service machinery and vehicles in designated areas lay down areas.</li> <li>Regularly check your vehicle for fuel and oil leaks.</li> <li>Maintain vehicles and equipment in good condition through regular and thorough servicing.</li> <li>No vehicles, machinery or equipment with leaks or causing spills may be allowed to operate on the construction site.</li> <li>Inform the Resident Engineer of leaking vehicles and machinery so that he can schedule repairs.</li> <li>Only refuel by means of a pump and on the bund created for that purpose.</li> </ul>	Resident Engineer Contractor

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
		<ul style="list-style-type: none"> <li>• Immediately clean any accidental fuel and oil spills – do not hose spills into the natural environment.</li> <li>• Dispose of contaminated soil as hazardous waste in the correct location on site.</li> <li>• If a mobile fuel bowser is used, then all refueling shall occur with appropriate measures in place to prevent spillages (drip trays, funnels, non-dripping dispensing nozzles etc.)</li> <li>• All mobile fuel bowsers shall carry a spill kit that is adequately sized to contain at least a 200-litre spill.</li> <li>• A spill kit must be available at the construction site and there must be at least one person with appropriate authority who is trained in hazmat response.</li> </ul>	
<b>Theft of stock and equipment.</b>	Incidences of stock and equipment theft could occur	<ul style="list-style-type: none"> <li>• Security should be arranged to guard the laydown areas/camp</li> <li>• It is important that the necessary precautions be taken to protect property against theft.</li> <li>• Equipment should remain within the fenced-off area during night time.</li> </ul>	Resident Engineer Contractor

### 4.3.3 Health and safety

Environmental issues/impacts	Source of impact	Mitigation measures	Responsibility
Risk of HIV infection.	Minimise the risk of HIV infection and the increase of STI's.	<ul style="list-style-type: none"> <li>• Provide an AIDS awareness program to all the staff.</li> </ul>	Resident Engineer Contractor

Environmental issues/impacts	Source of impact	Mitigation measures	Responsibility
Construction related injuries.	<ul style="list-style-type: none"> <li>• Construction related injuries could occur.</li> <li>• Occupational health hazards are expected particularly for the construction workers who will be present at the site.</li> <li>• Workers will be exposed to dust, vibrations, high noise levels, sun exposure (sunstroke), and dehydration during the summer months.</li> <li>• The safety of the public may also be compromised by certain construction activities i.e., uncovered trenches, increase in traffic volume generation of dust, noise, and vibration.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure that all staff are equipped and know how to use safety and protective gear. This includes hard hats, goggles, hearing protectors, dusk masks, steel-toed shoes etc.</li> <li>• Keep a comprehensive first aid kit at construction points.</li> <li>• Ensure the evacuation of serious injured people.</li> <li>• Dangerous areas must be clearly marked and access to these areas controlled or restricted.</li> <li>• Train people who handle fuels in the correct procedure/technique to transfer fuels.</li> <li>• Refuelling of vehicles and machinery should be done at a designed transfer site supported with a bunding wall, big enough to contain 120% of the volume of the fuel tank.</li> <li>• Make sure all vehicles are roadworthy. Repair faulty brakes, exhausts, etc. immediately.</li> <li>• Good driving and adherence to safety rules will result in a minimum number of road and workplace accidents.</li> <li>• Fire extinguishers must be available at all refueling sites. Staff should be trained to handle such equipment.</li> <li>• Fire extinguishers shall be present whenever undertaking any form of hot work, i.e. welding, gas cutting, angle grinding, etc.</li> <li>• Nobody is allowed to dispose of a burning or smoldering object in an area where it may cause the ignition of a fire.</li> </ul>	Resident Engineer Contractor

Environmental issues/impacts	Source of impact	Mitigation measures	Responsibility
		<ul style="list-style-type: none"> <li>• The contractor must ensure that no wildfires will be caused as a result of his activities.</li> <li>• Hazardous substances must be kept in adequately protected areas to avoid soil, air, or water pollution.</li> <li>• Work areas, such as these for the maintenance of equipment, must be on concrete slabs.</li> <li>• Explosives should be stored according to the prescribed regulations.</li> <li>• Keep clear of blasting sites.</li> <li>• Keep a record of all incidents, accidents and illnesses on site and make the information available at meetings.</li> <li>• Employees must also be trained on the nature of their jobs and made aware of potential hazards at their workplace.</li> <li>• Ensure that, there is a safety representative who is equipped with a first aid kit at the construction site.</li> <li>• Shade and enough water should be provided at the lay down areas.</li> <li>• The team should have trained the first aider and the fully stocked first aid kit should always be present</li> </ul>	

#### 4.4 Proposed mitigation measures: Operation and maintenance phase

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
<b>Biophysical</b>	Disturbance to local flora and fauna	<ul style="list-style-type: none"> <li>Existing maintenance roads should be used as far as possible</li> <li>All vehicles should be driven at a minimum speed limit of 40km/hr, as per the Dorob National Park rules.</li> </ul>	Scheme Superintendent
	Waste generation	<ul style="list-style-type: none"> <li>General waste should be disposed of in the municipal refuse bins for disposal.</li> <li>Worn-out parts can be collected and sent to the local scrap yards.</li> <li>All empty disinfectants containers should be sent to the local recycling companies or properly cleaned before re-use.</li> <li>Hazardous waste such as used oil, paints, unused chemicals, etc., should be collected separately and sent to Walvis Bay Hazardous waste cell.</li> </ul>	Scheme Superintendent
<b>Aesthetics</b>	New vehicles tracks	Use existing maintenance roads and no off-road driving should be allowed.	Scheme Superintendent

<b>Environmental Issue/Impacts</b>	<b>Source of Impact</b>	<b>Mitigation Measures</b>	<b>Responsibility</b>
	The aboveground section of pipeline may be a significant visual impact to the surrounding area.	<ul style="list-style-type: none"> <li>Use the same materials and design as those used in Phase 1 of the pipeline replacement, so the whole pipeline looks the same.</li> <li>Upon, decommissioning, the aboveground pipeline should be removed entirely.</li> </ul>	Scheme Superintendent
	Landscape impacts	<ul style="list-style-type: none"> <li>Backfill all trenches/excavations.</li> <li>Waste generated should be collected and disposed of regularly.</li> </ul>	Scheme Superintendent
<b>Handling of complaints and grievances</b>	<ul style="list-style-type: none"> <li>Grievance may be received from residents, customers with regards to operation or maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>All complaints and grievances shall be reported in the Form (Annexure G) and submitted to the Scheme Superintendent.</li> <li>The Scheme Superintendent shall handle the grievance as per the grievance response procedure in Section 7.4</li> </ul>	Scheme Superintendent
<b>Disturbance to local flora and fauna in the Dorob National Park</b>	<ul style="list-style-type: none"> <li>Part of the existing pipeline is in the Dorob National Park. National parks are gazetted with the aim of preserving wild animal life, fisheries, wild plant life and objects of geological, archaeological, historical and other scientific interest and for the benefit</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to all Dorob National Park Rules and Regulations as attached in Annexure H.</li> <li>Comply with the instructions of signposts, signboards, pamphlets or instructions communicated in any other manner.</li> <li>Obey any legal order or instruction given by a Law-Enforcement Officer.</li> </ul>	Contractor Resident Engineer/ All drivers accessing the area including NamWater Employees



Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
	<p>and enjoyment of the inhabitants of Namibia.</p> <ul style="list-style-type: none"> <li>Construction activities such as off-road driving at unauthorised places, poaching of wildlife, illegal fishing and all other activities prohibited in the park will have negative impacts.</li> </ul>		
	Loss of plants or plant parts due to illegal collection for fuel or the ornamental trade	<ul style="list-style-type: none"> <li>No collection of any plants or plant parts should be permitted, including fuel for fires.</li> </ul>	Scheme Superintendent
	Aboveground pipeline is a barrier to ungulates and ostrich	<ul style="list-style-type: none"> <li>Monitor wildlife “crossing points” to determine their effectiveness (i.e. determine if crossing points used by observing ungulate/ostrich tracks, etc.).</li> <li>Create new/more “crossing points” in areas not initially known/expected to be barriers.</li> <li>These new “crossing points” would have to be raised in areas with aboveground pipeline sections.</li> </ul>	Scheme Superintendent

Environmental Issue/Impacts	Source of Impact	Mitigation Measures	Responsibility
		<ul style="list-style-type: none"> <li>• These new “crossing points” should mimic existing pipeline crossing points.</li> <li>• These new “crossing points” should be greater than 30-50m in length, recommended length is &gt;100m in order to be effective.</li> </ul>	

#### 4.5 Proposed enhancement measures: Positive impacts

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
<b>Job opportunities</b>	The proposed project will create job opportunities both direct and indirect for local people in technical and non-technical fields such as civil, electrical, mechanical, security, etc., especially during the construction phase.	As part of the tender requirements, Contractors must be encouraged to give priority to locally qualified people.	Project Manager/Contractors/Resident Engineer
<b>Gender roles</b>	Equal opportunities for men and women.	Equal opportunities for men and women.	Project Manager/Contractors
<b>Business opportunities</b>	<ul style="list-style-type: none"> <li>• The construction works will create business opportunities for consultants, building Contractors, and local suppliers of building materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Building materials must be sourced from local businesses as far as possible.</li> <li>• Qualified Namibian construction companies should be given a fair chance to compete in the bidding process</li> </ul>	Contractors/NamWater Internal Procurement Committee

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
	<ul style="list-style-type: none"> <li>Other local businesses such as hotels, guest houses, and street vendors will also benefit indirectly from the construction works.</li> </ul>		
<b>Economic prosperity</b>	<ul style="list-style-type: none"> <li>During the construction phase, it is expected that the local economy will be beneficially impacted by increased temporary employment opportunities and business opportunities.</li> <li>Improved water security will contribute to the growth of the local economy by attracting investments and development in the area.</li> </ul>	<ul style="list-style-type: none"> <li>Local people and businesses must be given a fair chance to benefit from the project.</li> <li>There must be a water demand management plan for the area and all major economic activities proposed in the area should be subjected to the water demand management plan.</li> </ul>	<ul style="list-style-type: none"> <li>Head: Coastal Business Unit/Resident Engineer</li> </ul>
<b>Provision of water supply</b>	<p>One of the significant positive impacts that will result from the proposed project is the improved water supply to the area. Hence, the increased supply capacity will ensure a reliable supply of safe drinking water to the Central Coast.</p>	<ul style="list-style-type: none"> <li>Ensure timely fixing of leaks and breaks on the pipeline to minimise water supply interruptions.</li> <li>Residents must be sensitised to use water sparingly.</li> </ul>	<ul style="list-style-type: none"> <li>Head: Coastal Business Unit/Planning Division</li> </ul>

## 5 DECOMMISSIONING AND LAND RESTORATION

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Decommissioning and post construction land restoration process should be well planned to avoid further damages and to ensure adherence to the Dorob National Parks rules and regulations. Decommissioning will be done for the newly constructed pipeline and also for the 2.7 km pipeline between Orano Desalination Plant and Swakopmund.

### 5.1 Recovery of the decommissioned DCI above-ground pipes in Section 4

These pipes will be salvaged and transported to the construction site to be re-used during Phase 2 of this project.

#### **Mitigation Measures**

- This EMP should be part of the tender/BID documents and contract for decommissioning contract
- Once approved, NamWater should submit all documents EIA, EMP, and Environmental Clearance Certificate to MEFT offices in Swakopmund.
- NamWater should give environmental induction training to their staff and Contractors.
- Construction staff members should all be issued with name tags, and uniforms, and all vehicles should be branded/easy to identify.
- Entry permit should be applied for entry into Dorob National Park, the permit application should include names of all personnel to work on the pipeline and registration details of the vehicles.
- Once issued, all staff members and Contractors should be in possession of a copy of the Entry Permit copy at all times and be able to present it to MEFT staff upon request.
- A field visit together with MEFT – Dorob National Park officials must be conducted before and after decommissioning.
- Ideally, all visible above-ground structures should be removed, and the site should be left in an aesthetically acceptable manner to the satisfaction of MEFT officials.
- All old pipelines, concretes, metals, and construction materials should be removed from the site and disposed of at the Municipal waste disposal site
- All park rules and regulations to be adhered at all times.

## 5.2 Decommissioning of the existing supply pipeline

Once the new pipeline has been commissioned, the old pipeline will be decommissioned, and a switchover will be done without causing any interruption of the water supply. The typical ways to decommission pipelines are dismantling and local decommissioning. Local decommissioning entails the process of pigging, segmenting, plugging, and filling pipelines. The other decommissioning option is to leave the pipe in the ground (in-situ).

### 5.2.1 Abandoning of pipeline in the ground

The existing underground pipeline should not be removed to avoid disturbing the current flow of water and environmental disruption due to blasting of hard rocks as well as to save financial resources. The existing pipeline is a 700 mm underground pre-stressed concrete pipes, which does not pose a threat to the environment if left in the ground.

## 5.3 Decommissioning method for the new water supply pipeline

**Table 3: Mitigation procedures**

Section	Material	Procedure
<b>Phase 2: (34.4 km to 44.7 km aboveground)</b>	Class 30 for the DN 700mm DCI (Zinc–aluminum 85/15 alloy coating) section	<ul style="list-style-type: none"> <li>Recover all materials which are still in good condition.</li> <li>Pipeline should be removed completely</li> <li>Follow mitigation measures presented in Section 5.1</li> </ul>
<b>Phase 3 (0km to 13.2km underground):</b>	Class 12.5 for PE100 and DN 800mm HDPE	<ul style="list-style-type: none"> <li>Pipeline can be left in ground as it does not pose any threat to the environment and will remain in the registered servitude.</li> </ul>
<b>Phase 3: (13.2 km to 23.3 km aboveground):</b>	Class 25 for the DN 700mm DCI (Zinc–aluminum 85/15 alloy coating) section	<ul style="list-style-type: none"> <li>Recover all materials which are still in good condition.</li> <li>Pipeline should be removed completely.</li> <li>Follow mitigation measures presented in Section 5.1.</li> </ul>

## 5.4 General proposed mitigation measures: Decommissioning Phase

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
<b>Loss of downstream vegetation due to disruption of flow because of trenching and heaping of soil</b>	Loss of plant structure and diversity in drainage lines due to trenching and heaping of soil	Water flow in washes should not be impeded by heaped up sand or rocks. After construction such ridges should be levelled down carefully.	Project Manager Contractor/s
<b>Loss of plants or plant parts due to illegal collection</b>	<ul style="list-style-type: none"> <li>Collection of plants, parts of plants or seeds for the horticultural trade is illegal and compromises populations and recruitment, particularly of endemic and restricted range species.</li> <li>Illegal collection of wood, or other plant material in a national park, for burning reduces the resources available for fauna and reduces debris that eventually degrades and becomes soil nutrients.</li> </ul>	<ul style="list-style-type: none"> <li>No collection whatsoever of any plants or plant parts should be permitted, including fuel for fires.</li> <li>All Contractors and sub-contractors must be fined (as per the MEFT fine list). Responsibility for damage must lie with the main contractor, regardless of whether it was done by a sub-contractor, in order to prevent “passing of the buck”.</li> </ul>	Project Manager Contractor/s
<b>Loss of vertebrate fauna habitat</b>	<ul style="list-style-type: none"> <li>Loss of vertebrate fauna habitat during removal of pipelines.</li> </ul>	Sensitive habitats – i.e. 1) ephemeral drainage lines – e.g. Omaruru River & other drainage lines, 2) black dolerite ridges/outcrops potentially serving as habitat to endemic reptiles, and	Project Manager Contractor/s

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
		<p>3) lichen fields – e.g. areas serve as potential nesting site for Damara terns – should be avoided and/or mitigations followed regarding above- or below ground pipeline infrastructures:</p> <ul style="list-style-type: none"> <li>• Remove all aboveground pipeline infrastructures; and</li> <li>• Rehabilitate disturbed area (i.e. close trenches, smooth disturbed soil)</li> </ul>	

## 5.5 Site closure and post-construction rehabilitation

Post construction/maintenance rehabilitation is the process of returning the land in a given area that has been disturbed by construction and earthworks to some degree of its former state, or an otherwise determined state. Many projects, if not all, will result in the land becoming degraded to some extent. However, with proper rehabilitation most impacts associated with the Omdel-Wlotkasbaken Pipeline Replacement (Phase 2 & 3) project, could be mitigated and restored to an acceptable level. Poorly rehabilitated construction areas provide a difficult legacy issue for governments, communities and companies, and ultimately tarnish the reputation of developers as a whole.

Construction will have temporary effects on several areas and these will require rehabilitation. Impacts may be short in duration (lay down areas) and rehabilitation could occur immediately after the impact ends; or permanent (construction of the pipeline and associated infrastructure) and rehabilitation is impossible. However, rehabilitation management is an ongoing process which should continue, if necessary, for long after completion of the construction project.

Objectives of proper site closure and rehabilitation include the following:

- Reduction or elimination of the need for a long-term management program to control and minimise the long-term environmental impacts;
- Clean-up, treatment or restoration of contaminated areas (e.g. soils contaminated by oil or fuel spills, concrete spills, etc.). Excavation of contaminated material and disposal thereof in an acceptable manner.

Rehabilitation measures to implement:

- a) A site inspection will be held after completion of the project to determine if the necessary rehabilitation work was done. Rehabilitation will be done to the satisfaction of NamWater and MEFT.
- b) Rehabilitation work should be done as soon as construction work is completed.
- c) All excess construction material should be removed from construction sites.
- d) All newly established roads no longer required must be rehabilitated. Tracks can be rehabilitated by raking the area or dragging tyres or branches (or other suitable material) behind a vehicle. Make sure that the central ridge in the road is removed. Remove all windrows.
- e) Remove all waste, rock stockpiles, construction equipment, surplus materials and temporary structures, fences and demarcation material established by the contractor.



- f) Breaks up all bunds, concrete slabs and remove these with all waste concrete to an appropriate waste dump.
- g) Make sure all polluted soil is stored in drums and removed to an appropriate waste dump.
- h) Make sure all windblown litter is removed.
- i) Make sure that all potential hazards (i.e. the sewerage pit) are properly closed and left in a safe and neat position.
- j) Newly established borrow pits should be neatly worked off.
- k) Repair all fences and gates if damaged by the contractor.
- l) All rehabilitated areas shall be considered “no go” areas and the Contractor shall ensure that none of his staff or equipment enters these areas.

During operation and pipeline maintenance exercises, the Scheme Superintendent shall conduct a site inspection after every maintenance work and ensure rehabilitation of disturbed areas. Rehabilitation measures during the operation phase will include.

- Clean up all soil polluted during maintenance work and disposal to an appropriate waste dump site.
- Remove all windblown litter once maintenance has ceased.
- Remove all potential hazards and ensure the area is left safely and neatly.
- Any temporary work camps/lay down areas setup should be dismantled, and the area rehabilitated as far as practicable, to their original state.
- Pickup all worn out parts/pieces and pipes which has been replaced.

### 5.5.1 Post construction land restoration management actions

Parameter	Management Action	Responsibility
<b>Overall</b>	Progressive rehabilitation shall be undertaken to minimise the amount of disturbance time. The disturbed area will be re-profiled to original or stable contours, re-establishing surface drainage lines and other land features.	Resident Engineer Construction Contractor
<b>Infrastructure</b>	All temporary infrastructure, signage and other installations other than those required for environmental, or safety reasons shall be removed once backfilling and tie-ins are completed.	Construction Contractor
<b>Waste</b>	All waste materials (e.g. bags, pegs, skids, pillows) shall be removed from the construction areas once backfilling and tie-ins are completed.	Construction Contractor
<b>Soils</b>	Compaction relief shall be undertaken by scarifying or ripping as required along the contours, followed by raking and levelling.	Construction Contractor
<b>Erosion</b>	<ul style="list-style-type: none"> <li>The beds of watercourses to be restored to the original gradient and the bank to the natural contours post disturbance.</li> <li>Backfill crown to be graded and shaped as closely as practicable to pre-existing contours and flow patterns of riverbed and riparian zone.</li> <li>Banks to be reinstated in a manner that minimises erosion potential and does not alter natural streamflow - this may include the installation of rock gabions, rip rap, cement/s and hessian bags.</li> </ul>	Construction Contractor

## 5.6 Proposed mitigation measures for existing environmental issues

Environmental issue/impacts	Source of impact	Mitigation measures	Responsibility
<b>Vehicles tracks by tourists and locals</b>	<ul style="list-style-type: none"> <li>The service road is currently open for use by the public, leading to lack of sufficient control on compliance with the park rules.</li> <li>As a result, there are many new tracks created by illegal driving by tourists and locals through restricted and sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>Therefore, it is recommended that NamWater sponsor park rules signage along the service road), especially signage (one sign at every 10 km which serves to remind road users that they are within the Dorob National Park and they should adhere to the park rules such as: staying on the road, not to create new tracks, not to litter and so on.</li> <li>The above ground section of the pipeline will also act as a deterrent for road users to cross over to the eastern side of the service road which is prohibited and will protect the sensitive lichen fields.</li> <li>Vehicles should make three-point turns, not loop turns (see Figure 2).</li> </ul>	Project Manager
<b>Old pipelines left during repair works</b>	Along the pipeline route, there are visible old pipes that were exhumed during repair and are left along the pipeline route. They are an eye sore.	<ul style="list-style-type: none"> <li>NamWater should clean up all old pipeline left along the pipeline route and NamWater should inform MEFT after the clean-up for inspection purposes.</li> </ul>	Area Manager Scheme Superintendent



**Figure 10: Damage to lichen field caused by loop turns of vehicles**

## 6 ENVIRONMENTAL MONITORING

To ensure continual improvement in environmental performance and reduce adversity of potential negative impacts, it is advisable to keep monitoring the identified environmental receptors.

### 6.1 Monitoring during the construction phase

Monitoring of all activities during the construction period will be under the responsibility of the Contractor, whose environmental performance will be controlled by the RE and the ECO or NamWater's Environmental Section.

**Table 4: Monitoring plan during construction**

Element	Location	Type of monitoring	Frequency of monitoring	Purpose of monitoring
Dust	At the construction sites	Visual monitoring	During periodic site visits	To ensure adherence to environmental protection requirements
Wastewater flows generated at the construction sites	At the construction sites	Visual monitoring	During monthly site visits	To ensure adherence to environmental protection requirements
Collection of solid waste	At the construction sites	Visual monitoring	During periodic site visits	To ensure adherence to environmental protection requirements
Use of dangerous materials (paints with heavy metals, lead compositions, cement slabs, pipes, inflammable, toxic substances, etc.)	At the construction sites with the right documentation	Visual monitoring and study of documentation	Each month	To ensure adherence to environmental protection requirements
Protective measures at the construction site	At the construction sites with the right documentation	Visual monitoring	Each month	To ensure adherence to environmental protection and safety requirements
Earth restoration after excavation works	At the construction sites	Visual monitoring	After construction works	To ensure adherence to environmental protection requirements
Noise & vibrations resulting from equipment work	Project area/close to settlements	Portative noise metering device	During periodic site visits, daily	To ensure adherence to environmental protection requirements
Traffic operation /movement	At the construction sites	Visual monitoring of machinery and trucks carrying construction materials	During periodic site visits	To ensure adherence to environmental protection requirements
Vehicle and pedestrian safety when there are no construction activities	At the construction sites	Visual monitoring by supervisor	On daily basis during the construction phase	To ensure adherence to requirements

## 6.2 Monitoring during the operation phase

During the operation phase, the Scheme Superintendent must ensure that compliance monitoring is conducted at different intervals/frequencies throughout the Omdel - Wlotzkasbaken pipeline operational life span as indicated in the table below.

**Table 5: Monitoring plan during the operation phase**

The issue to be monitored	Monitoring Objectives	What needs to be monitored	Frequency and means of Monitoring
<b>Production and distribution losses</b>	Prevent water wastage and ensure water conservation.	-Overflows, leakages, pipe bursts, etc.	Daily inspections and meter reading
<b>Public Health risks</b>	Operate the Omdel - Wlotzkasbaken pipeline replacement and pump station in an environmentally friendly and socially acceptable manner.	- Reeds and overgrown vegetation. - Presence of mosquitoes, snakes, rodents, etc.	Monthly inspections and physical observation.
<b>Occupational health risks</b>	Ensure health and safe working conditions	Chemical exposure and the presence of health hazards	Daily physical observations.
<b>Water quality</b>	Supply of safe and quality drinking water in line with the Water Quality Guidelines of the Water Act.	- Physical quality of raw, settled, and treated water ( <i>Chlorine level, N.T.U, pH, Conductivity, and Temperature</i> ). - Microbiological/ bacteriological quality ( <i>Free Chlorine, Heterotrophic Plate count, Total Chlorine, Coliforms &amp; Faecal Coliforms</i> ).	Daily water sampling and testing.  -Monthly sampling and laboratory testing
<b>Water Balance</b>	Ensure water security of the supply area.	Production figures vs. sales figures and demand management	Monthly water balance checks.
<b>Waste management</b>	Prevent environmental pollution and contamination.	Litter, chemical storage & handling, cleanliness, Chemical composition of sludge.	-Daily inspections and physical observation.
<b>Implementation of the EMP</b>	Ensure compliance to this EMP and adherence to the regulative measures	Implementation of specified measures and compliance to the EMP and	Biannual environmental report to MEFT.

	<p>during planning &amp; design, construction, operation, maintenance, and decommissioning of the envisaged Omdel - Wlotzkasbaken pipeline replacement and pump station .</p>	<p>other relevant legal requirements.</p>	
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## **7 EMERGENCY RESPONSE PLAN**

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This section provides an emergency response plan which entails the types and effects of emergencies associated with the proposed Omdel - Wlotzkasbaken pipeline as well as procedures and actions to be taken in case of emergency during the construction, operation, and maintenance of the Omdel - Wlotzkasbaken pipeline.

### **7.1 Types and effects of emergencies**

Emergencies can occur at any time or place either during the construction, operation, and maintenance of the Omdel - Wlotzkasbaken pipeline. These emergencies may affect the Omdel - Wlotzkasbaken pipeline operation and disrupt the quality and quantity of water supply to the area. Some of the emergencies which are associated with the proposed construction, operation, maintenance, and decommissioning of the Omdel - Wlotzkasbaken pipeline replacement and pump station, are as follows.

- Substance spillage i.e., oil, concrete, chemicals, etc.
- Construction accidents
- Fire outbreak
- Power failure
- Equipment failure

### **7.2 Sources of Emergencies**

#### **7.2.1 Accidents**

Accidents may occur during construction, operation or maintenance works and can cause an unavoidable interruption to the Omdel - Wlotzkasbaken pipeline works, personal injury, and/or property damage.

#### **7.2.2 Faulty maintenance**

Faulty maintenance may cause unexpected breakdowns on the Omdel - Wlotzkasbaken pipeline which may have a direct bearing on its operation and the life span Omdel - Wlotzkasbaken pipeline. Good maintenance will result in the infrastructure performing throughout the design period; however, poor maintenance or faulty maintenance will shorten the expected life of the infrastructure. Although some breakdowns can be repaired during a regularly scheduled repair program and probably do not represent an emergency, the regular



occurrence of such breakdowns will affect the continued satisfactory operation of the Omdel - Wlotzkasbaken pipeline which may constitute an emergency condition.

### **7.2.3 Negligent operation**

Certain operational procedures need to be followed to ensure the satisfactory performance of the Omdel - Wlotzkasbaken pipeline. Not following correctly, the established procedures constitute negligent operation. Although the negligent operation may not be as readily noticeable as faulty maintenance, the emergency condition resulting from it could be more severe because it could affect the operation before being discovered. The Scheme Superintendent shall ensure routine maintenance of the Omdel - Wlotzkasbaken pipeline, keep an extra supply of parts that require frequent replacements and ensure to always stock of enough chemicals to maintain operations for at least 30 days.

## **7.3 Emergencies response procedures**

### **7.3.1 Response priorities**

Depending on the nature of the emergency, the following response plan must be implemented as an integral part of the Omdel - Wlotzkasbaken pipeline routine operations to lessen the severity of the emergency. All response actions should be geared toward the following priorities in the order below:

- Safety of People (always First)
- Protection of the Environment
- Protection of Assets

### 7.3.2 Emergency response procedures

NO.	Type of Emergency	Response actions	Responsible
1.	<b>Substance spill</b> i.e., concrete, oil, chemicals, etc.	<ul style="list-style-type: none"> <li>• Stop and control the spill at the source first.</li> <li>• Contain the spill/leakage with appropriate containers i.e., drip trays, sumps, etc., and in an approved manner to the satisfaction of the RE.</li> <li>• Clean the affected area with water or an approved cleaning product.</li> <li>• The contaminated soil should be removed and disposed of at the Henties Bay or Swakopmund Waste Disposal Site.</li> <li>• Repair vehicle or machinery with leakage.</li> <li>• If it cannot be repaired, such vehicle or machinery should not be used until it is safe to do so.</li> <li>• Report the incident to the RE and record it in the logbook.</li> <li>• A spill kit must be available at the construction site (during construction phase) and at the Aroab Scheme (during the operation phase) and there must be at least one person with appropriate authority who is trained in hazmat response.</li> <li>• Refuelling vehicles should be equipped with specific vehicle spill kits</li> </ul>	Contractor Safety Representatives Resident Engineer
2.	<b>Power failure</b>	<ul style="list-style-type: none"> <li>• Ensure there is an emergency power supply capable of maintaining minimum water treatment operations.</li> <li>• The emergency power equipment should be checked at least monthly to ensure that they remain in good operating condition.</li> <li>• Provide a log to document a monthly check of emergency power supply operations.</li> <li>• List name and number of power supplier: Erongo Regional Electricity Distributor</li> <li>• In case of power loss.               <ul style="list-style-type: none"> <li>○ Check if the power failure is local (site) or the whole suburb/town.</li> </ul> </li> </ul>	Scheme Superintendent

		<ul style="list-style-type: none"> <li>○ If the whole town, contact Erongo RED.</li> <li>○ If locally, inspect the source of power loss, and restart the main switch.</li> <li>○ If necessary, inform critical customers.</li> <li>○ Record source of power shortage in the power supply logbook</li> </ul>	
<b>3.</b>	<b>Fire outbreak</b>	Follow the holistic Fire Approach as presented in Annexure D	Scheme Superintendent
<b>4.</b>	<b>Chemical leakage</b> i.e., chlorine leak	<p>In case of Chlorine or CO<sub>2</sub> gas leakage</p> <ul style="list-style-type: none"> <li>● Make sure storerooms are built according to legal requirements for the storage of chlorine with appropriate ventilation.</li> <li>● Wear a face mask with a B2P3 filter.</li> <li>● Evacuate all persons in the affected room.</li> <li>● Shut down all the dosage system valves.</li> <li>● Check information on the dosage system control panel.</li> <li>● Isolate the faulty dosage system and replace the gas cylinder with the leak.</li> <li>● Record in the incident report form.</li> </ul>	Scheme Superintendent
<b>5.</b>	<b>Accident</b> i.e., injury to a person	<ul style="list-style-type: none"> <li>● The priority after a construction accident should be to get medical attention for an injured person.</li> <li>● Assess the injured person's situation by checking breath, pulse.</li> <li>● Notify the First Aid Person</li> <li>● Assist the First Aid Personnel</li> <li>● Record in the incident report form.</li> <li>● Report incident to the Scheme Superintendent</li> </ul>	Contractor/Scheme Superintendent
<b>6.</b>	<b>Equipment failure</b> i.e., pumps failure, loss of pressure, etc.	<p>In case of faulty pump/s</p> <ul style="list-style-type: none"> <li>● First analyze the source of emergency by checking information displayed on the SCADA system.</li> </ul>	Scheme Superintendent

		<ul style="list-style-type: none"><li>• Check the flow rate of each pump to identify the fault.</li><li>• Ensure that the standby pump is switched on.</li></ul>	
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## 7.4 Grievance handling process

A complaint /grievance is hereby defined to be any, complaint or misunderstanding arising from the interpretation, application or observance or enforcement of the provisions of projects` environmental and social performance.

This procedure outlines the procedure for receiving and dealing with concerns and complaints of employees and members of the affected public relating to the construction, operation, maintenance, and decommissioning of the Omdel - Wlotzkasbaken pipeline replacement and pump station.

**The Resident Engineer** is responsible responsible for receiving and handling complaints and must ensure that:

- All complaints are taken seriously and dealt with appropriately
- Any immediate actions required are implemented
- All complaints are investigated, to identify the remedial actions required, the root cause, and preventative measures necessary to avoid recurrence
- Further to the investigation, any actions requiring approval are addressed promptly, added to the Site Improvement Plan, and actioned in a timely manner in collaboration with the ECO.
- A record is made of all complaints, along with any response and/or actions taken (Annexure G)
- Periodically, the complaints records are reviewed to identify any trends, and appropriate steps required.
- Avail a lockable grievance / complaint/ suggestion (specifically assigned to this project) box for unanimous submission of of written complaints on site and at NamWater Offices in Swakopmund and Henties Bay.
- Periodically (bi – monthly) open the grievance boxes

**All employees (including contractors) must:**

- Report any complaint that is received to the RE immediately and such enquiries / complaint shall be recorded and tracked in the log sheet maintained by the RE.
- Report any incident which may cause a nuisance, or give rise to a complaint, to the responsible RE immediately.

- Write their complaint/ grievance (using the form in annexure G) and submit it to the RE or in the grievance/ complaint box unanimously.

**Members of the Public**

- Report complaint / grievance in writing and submit them into the grievance/ complaint box at NamWater offices in Swakopmund or in Henites Bay.

**Procedure**

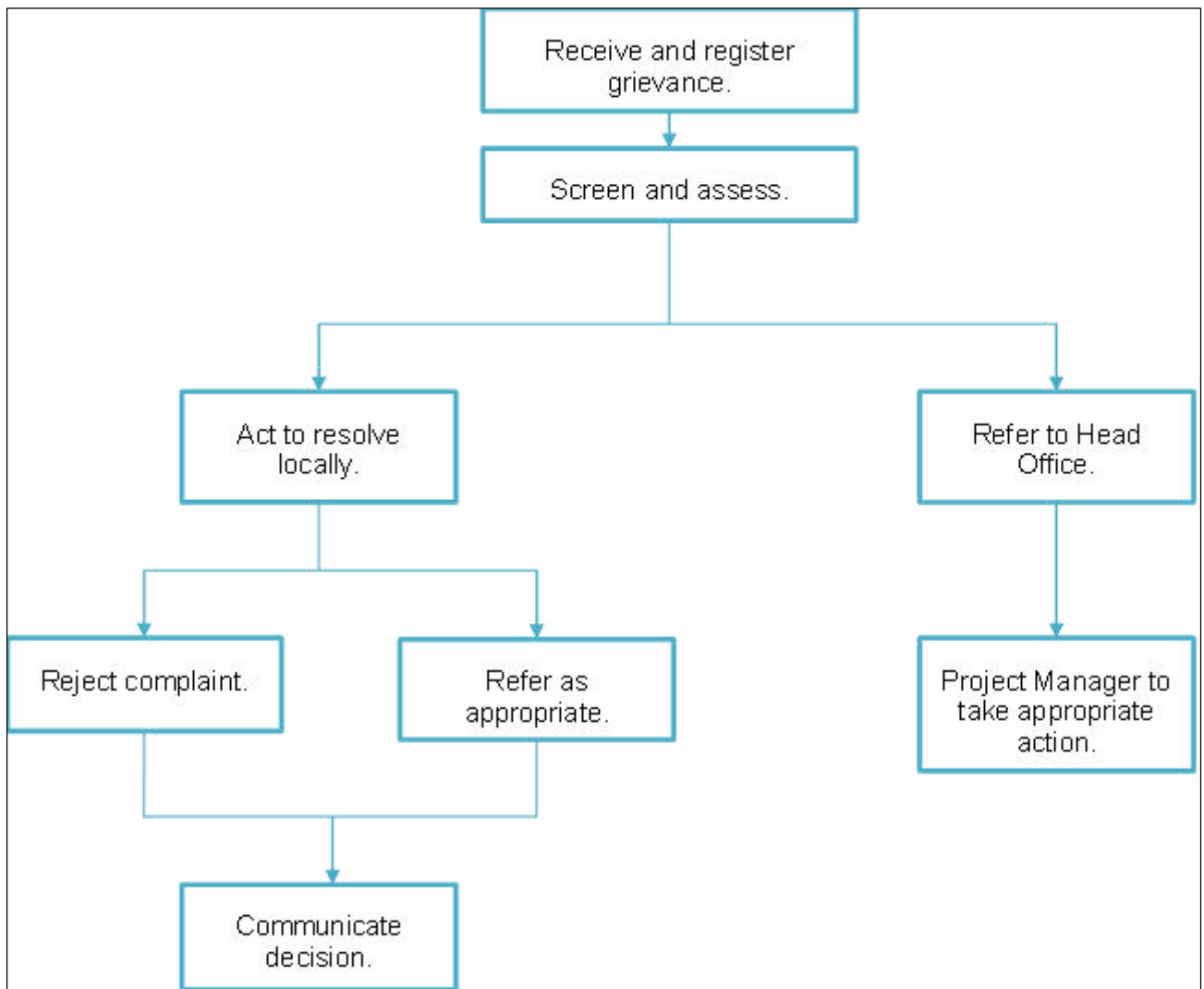


Figure 11: Grievance response procedure

Upon receipt of the registered grievance forms, the Resident Engineer or Scheme Superintendent shall screen and assess to either act to solve the grievance locally or refer it to head office. If the grievance is referred to the head office, the line manager should decide. If

the grievance is to be solved locally, it should either be rejected or handled appropriately of which the decision should be communicated to the aggrieved person.

## 8 CONCLUSION

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The preparation of this EMP is based on the current information provided, any changes or deviations concerning the proposed pipeline route and /or the proposed ground-level reservoir site shall trigger changes to this EMP. If all mitigation measures are implemented as outlined in the EMP, it is anticipated that the consequences and/or probability of the predicted negative impacts will be managed/reduced.

Although the implementation of this EMP requires a multitude of administration, NamWater should play a central role in the implementation as outlined in this report. NamWater should also ensure proper coordination with all parties involved in the project activities during all project phases. NamWater shall also ensure to avail of necessary resources (i.e., human, financial, etc.) and training to enable the full implementation of this EMP. The implementation of this EMP can be combined with NamWater's s environmental code of conduct. Monitoring of certain environmental parameters must be conducted regularly as outlined in this EMP. Environmental biannual reports must be kept available for possible submissions to the MEFT and ensure the renewal of the project's ECC.

Upon approval by the MEFT, this EMP should be used as an on-site reference document for the design, construction, operation and maintenance, and decommissioning phase of the Omdel - Wlotzkasbaken pipeline replacement and pump station. The EMP documents are applicable for all project phases, thus a copy of this EMP shall be always kept onsite. It is a legally binding document, thus, any deviation or transgression from this EMP is punishable by law as per the Environmental Management Act 07 of 2007. Parties responsible for transgressing may be held responsible for any rehabilitation that may need to be undertaken.



## 9 ANNEXURES

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Annexure A: kmz file for the possible location of animal crossings

Annexure B - Environmental compliance monitoring checklist

Annexure C: Emergency contacts

Annexure D: Fire response procedures

Annexure E: Incident / Accident Sreport form

Annexure F: Nam Water's environmental code of conduct

Annexure G: Grievances register form

Annexure H: Dorob National Park Rules and Regulations

Annexure I: MEFT Fine list (2010-211) Dorob National Park 266/2010 (GG 4622)

Annexure J: Chance Finds Procedure (CFP) management guideline for Archaeology

Annexure K : KfW Development Bank Sustainability Guideline

## **Annexure A: kmz file for the possible location of animal crossings**

## Annexure B: Environmental Compliance Monitoring Checklist

The following checklist should be used during compliance monitoring.

### PART 1: ADMINISTRATIVE INFORMATION

Project Title:		Date:
Project location:	Reporting period	Individual Preparing Checklist:
Region:		Department:
Scheme Superintendent:		Phone No.:

### PART 2: ENVIRONMENTAL ASPECTS

ENVIRONMENTAL ASPECT/IMPACT	ENVIRONMENTAL COMPLIANCE (AS PER EMP REQUIREMENT?)		Remarks (specify the location, a good practice observed, causes of non-conformity, and proposed action)
	YES	NO	
<i>Waste management</i>			
<i>Water quality testing</i>			
<i>Water balance check</i>			

### PART 3: RECOMMENDATION

**FOR EACH ITEM CHECKED IN PART 2, DESCRIBE THE CORRESPONDING CONTROLS TO BE IMPLEMENTED TO REDUCE POTENTIAL ENVIRONMENTAL IMPACTS** (e.g., spill prevention, erosion controls, air emission controls including dust suppression, selection of materials, etc.). Provide details of the activities and impacts for each box and the proposed mitigations. Include attachments where appropriate. Use the same number system for your input.

ECO: Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Scheme Superintendent: Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_

## Annexure C: Contact Details for Emergency Services

Emergency	Response Plan	Contact details
<b>Fire outbreaks</b>	Henties Bay Fire Brigade	064 502 011 081 291 2374 (After Hours)
	Swakopmund Fire Brigade	081 128 5613 – All Hours
		081 127 9872 – All Hours
		Office Number: 064 410 4646 – Office Hours from 07h30 to 16h30, Monday to Friday
<b>Chemical exposure or Injury Loss of Life</b>	Henties Bay Clinic	064 500020
	Swakopmund State Hospital	064 40 5731
	Ambulance	064 410 6000 (Swakopmund Hospital)
	E – Med Services	064 61 4116000 (from any landline) 085 9247 (from cell phone)
	Ambulance	064 410 6000 (Swakopmund Hospital) E-Med Services 061 4116000 (from any landline) 085 9247 (from cell phone)
<b>Theft or Robbery</b>	Police Station -Henties Bay	064 500 201 (Police Station). 10111 (Toll Free) 0814039778 (Insp Sakala) 0812175222 (Insp Isaaks)
	Police Station Swakopmund	064 415 007 064 1-0111 (Toll Free)
<b>Power Loss Or incident related to Powerline/ electricity</b>	Erongo RED	<b>Henties Bay:</b> 500-560 or 500-570 After hours (Technical): 081-149 0179  <b>Swakopmund</b> Technical: 413-600 or 413-601 Apex Park Office: 413-650 or 461-887 Mondesha: 413-618/9 or 461-198 After hours (Technical): 081-128 5561
<b>Water and Sewerage</b>	Municipality of Henties Bay	064 502000 0811276338 (After Hours)
<b>Local Snake Rescuer</b>	Mr. George Hummel Mr. Leo	0813490817 0857263420
	<b>Coastal – Swakopmund, Walvis Bay and Henties Bay</b>	Simon or William McGowan 0812339242/0818904841 (All hours)
<b>Wildlife Issues</b>	Dorob National Park	<b>Mr. Riaan Solomon</b> Control Warden: Dorob National Park 0812527474 <b>Ms. Frienda Shikongo</b> Warden: Dorob National Park

## Annexure D: Fire Response Procedures

### Things you must-do if you discover a fire!!!



#### STEP 1

- Do not panic
- Press the nearest alarm button
- Rescue any person in immediate danger, if safe to do so



#### STEP 2

- If possible, commence fighting the fire
- Call fire brigade



#### STEP 3

- Leave the building by the nearest emergency exit
- Ensure all other personnel are warned along the way
- Do not stop to collect personal belongings



#### STEP 4

- Report to the assembly point
- Do not return to the building until authorized to do so

## Annexure E: Incident / Accident Report Form

This form is to be completed in case of an environmental incident and shall be forwarded to the Project's RE during the construction phase and NamWater's Environment Section during the operation and maintenance phase.

**Note:** This form is not intended to replace other NamWater's internal reporting procedures.

Section 1. GENERAL DETAILS	
<b>Date:</b> <b>Time:</b> am / pm	<b>Reported By:</b> <b>Name:</b> <b>Position:</b> <b>Company:</b> <b>Phone:</b>

Section 2. RESPONSIBLE PARTIES	
<b>Name:</b>	<b>Phone:</b>
<b>Company Name:</b>	<b>Email:</b>
<b>Witness Details (if applicable)</b>	
<b>Name:</b>	<b>Phone:</b>
<b>Witness Statement Taken?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	

Section 3. INCIDENT DETAILS		
<b>Type of Incident:</b>	<input type="checkbox"/> Spill <input type="checkbox"/> Waste/rubbish <input type="checkbox"/> Wildlife disturbance <input type="checkbox"/> Vegetation disturbance/damage <input type="checkbox"/> Acid Sulphate Soils disturbance	<input type="checkbox"/> Cultural Heritage disturbance/damage <input type="checkbox"/> Chemicals/herbicide Use <input type="checkbox"/> Water pollution/contamination <input type="checkbox"/> Nuisance (noise, air quality) <input type="checkbox"/> Other:
<b>Incident Description</b>		
<b>Immediate Response Actions Taken:</b>		

**Section 5. NAMWATER ENVIRONMENT OFFICE ONLY**

## Section 4. CONTRIBUTING FACTORS AND PREVENTATIVE ACTIONS

(to be completed by Manager/Supervisor)

<b>Cause, Circumstances, and Contributing Factors:</b>			
<b>Measures that were in place to prevent this type of incident:</b>			
<b>Measures to be implemented to prevent/minimize this type of incident from occurring again</b>			
<b>Comments :</b>			
<b>Name:</b>	<b>Position:</b>		
<b>Company:</b>	<b>Signature:</b>	<b>Date:</b>	
<b>Assessed Level of Potential or Actual Harm:</b>			
<b>Is an Investigation Required?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Investigation Team:</b>		
<b>FOLLOW UP ACTION:</b>			
<b>COMMENTS</b>			
<b>Name:</b>	<b>Position:</b>		
<b>Signature:</b>	<b>Date:</b>		

## **Annexure F: NamWater environmental code of conduct**

### **What is an Environmental Code of Conduct?**

It is a set of rules that everybody has to follow to minimize damage to the environment.

### **What is the ENVIRONMENT?**

The ENVIRONMENT means the surroundings within which people live. The ENVIRONMENT is made up of the **soil, water, plants, and animals**, and those characteristics of the soil, water, air, and plant and animal life that influence **human health and well-being**. **People and all human activities** are also part of the environment and have to be considered during the operation of the Scheme.

### **Do these ENVIRONMENTAL RULES apply to me?**

YES, The Environmental Rules apply to EVERYBODY. This includes all permanent, contract, or temporary workers as well as any other person who visits the Scheme. Every person will be required to adhere to the Environmental Code of Conduct.

### **ALL PERSONNEL must study and keep to the Environmental Code of Conduct**

The SCHEME SUPERINTENDENT/CONTRACTOR will issue warnings and will discipline ANY PERSON who breaks any of the Environmental Rules. Repeated and continued breaking of the Rules will result in a disciplinary inquiry and which may result in that person being asked to leave the Scheme permanently.

### **What if I do not understand the ENVIRONMENTAL RULES?**

ASK FOR ADVICE, if any member of the WORKFORCE does not understand, or does not know how to keep any of the Environmental Rules, that person must seek advice from the SCHEME SUPERINTENDENT/CONTRACTOR. The PERSON that does not understand must keep asking until he/she can keep to all the Environmental Rules.

### **Safety and Security**

1. Only enter and exit roadways and construction areas at demarcated entrances.
2. Wear protective clothing and equipment as per signboards at the Scheme and according to instructions from your SCHEME SUPERINTENDENT/CONTRACTOR.
3. Report to your SCHEME SUPERINTENDENT/CONTRACTOR if you see a stranger or unauthorized person in the construction area.
4. Never enter any area that is out of bounds or that is demarcated as dangerous without permission of your SCHEME SUPERINTENDENT/CONTRACTOR.
5. Never climb over any fence or enter private property without permission of the landowner or your SCHEME SUPERINTENDENT/CONTRACTOR.
6. Do not remove any vehicle, machinery, equipment, or any other object from the construction site without the permission of your SCHEME SUPERINTENDENT/CONTRACTOR.



7. Keep clear of blasting sites. Follow the instructions of your SCHEME SUPERINTENDENT/CONTRACTOR.
8. Never enter or work in the Scheme while under the influence of alcohol or other intoxicating substances.
9. All staff should know the emergency procedures in case of accidents.

### **Waste Disposal**

10. Learn the difference between different types of waste, namely:
  - general waste, and
  - hazardous waste.

Containers will be provided for different types of waste.

**General Waste includes wastepaper, plastic, cardboard, harmless organic (e.g. Vegetables), and domestic waste**

**Hazardous Waste includes objects, liquids, or gases that are potentially dangerous or harmful to any person or the environment. Sewage, fuel, tyres, diesel, oils, hydraulic and brake fluid, paints, solvents, acids, soaps and detergents, resins, old batteries, etc. are all potentially hazardous.**

11. Learn how to identify the containers for the different types of wastes. Only throw general waste into containers, bins, or drums provided for general waste.
12. Recycle drums, pallets, and other containers.
13. Never bury or burn any waste on-site, all waste is to be disposed of in allocated refuse disposal containers, bins, or bags.
14. Never overfill any waste container. Inform your SCHEME SUPERINTENDENT/CONTRACTOR if you notice a nearly full container.
15. Do not litter.
16. Do not bury litter or rubbish in the backfilled trench.

### **Plants and Animals**

21. **Do not ever pick any plants, or catch any animal.** People caught with plants or animals in their possession will be handed to the authorities for prosecution.
22. Never feed, tease, play with, or set devices to trap any animal or livestock. Wild animals are not to be domesticated.
23. Keep off the rock outcrops unless given specific permission by the SCHEME SUPERINTENDENT/CONTRACTOR to be there.
24. Never cut down any tree or branches for firewood.
25. Never leave rubbish or food scraps or bones where it will attract animals, birds, or insects.
26. Rubbish must be thrown into allocated waste disposal bins/bags.
27. Always close the gates behind you.

### **Preventing Pollution**

28. Only work with hazardous materials in bunded areas.
29. Never discard any hazardous substances such as fuel, oil, paint, solvent, etc. into stream channels or onto the ground. Never allow any hazardous substances to soak into the soil.
30. Clean up spills immediately.
31. Immediately report to your SCHEME SUPERINTENDENT/CONTRACTOR when you spill, or notice any hazardous substance overflow, leak or drip, or spill on-site, into the streambeds, or along the road.
32. Immediately report to your SCHEME SUPERINTENDENT/CONTRACTOR when you notice any container, which holds hazardous substances overflow, leak, or drip. Spillage must be prevented.
33. Only wash vehicles, equipment and machinery, containers, and other surfaces at work site areas designated by your SCHEME SUPERINTENDENT/CONTRACTOR.
34. Do not change the oil on uncovered surfaces.
35. If you are not sure how to transport, store, use, or get rid of any hazardous substances ask your SCHEME SUPERINTENDENT/CONTRACTOR for advice.

### **Health**

36. Drink lots of clean water every day.
37. Use toilets that have been provided.
38. Take the necessary precautions to avoid contracting HIV / AIDS. Condoms are available at most Clinics.
39. Inform your SCHEME SUPERINTENDENT/CONTRACTOR when you are sick.
40. Do not work with any machinery when you are sick.
41. If you are working in malaria areas, you must take the necessary precautions.

### **Dust Control**

42. Do not make any new roads or clear any vegetation unless instructed to do so by your SCHEME SUPERINTENDENT/CONTRACTOR.
43. Keep to established tracks and pathways.

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44. Keep within demarcated work areas.

### **Saving Water**

47. Always use as little water as possible. Reduce, re-use, and recycle water.
48. Never leave taps or hose pipes running. Close all taps after use.
49. Report any dripping or leaking taps and pipes to your SCHEME SUPERINTENDENT/CONTRACTOR.

### **Working Hours**

50. You may only work on weekends and after hours with the consent of the SCHEME SUPERINTENDENT/CONTRACTOR.

### **Archaeological and Cultural Objects**

52. If you find any archaeological, cultural, historical, or pre-historical object on the construction site you must immediately notify your SCHEME SUPERINTENDENT/CONTRACTOR.
53. Never remove, destroy, or disturb any cultural, historical, or pre-historical object on site.

**Cultural and Historical Objects include old buildings, graves or burial sites, milestones, old coins, beads, pottery, and military objects.**

**Pre-Historical objects include fossils and old bones, old human skeletal remains, pieces of pottery, and old tools and implements.**

### **Sensible Driving**

54. Tracks and roads should be kept to a minimum. Where possible follow existing roads.
55. No off-road driving is allowed.
56. Never drive any vehicle without a valid license for that vehicle class and do not drive any vehicle that is not road worthy.
57. Never drive any vehicle when under the influence of alcohol.
58. **Always** keep your headlights on when driving on dusty roads.
59. Keep to the roads as specified by your SCHEME SUPERINTENDENT/CONTRACTOR. Vehicles may only be driven on demarcated construction roads. Drivers should always use three-point turns, "u-turns" are not allowed. Do not cut corners.
60. Do not drive on rocky outcrops.

### **Noise**

61. Keep noise levels as low as possible.
62. Do not operate noisy equipment outside normal working hours.

### **Fire Control**

63. Do not make open fires, use a drum or tin, and do not collect any vegetation to burn.
64. Do not smoke or make fires near refueling depots or any other area where fuel, oil, solvents, or paints are used or stored. Fireplaces should be at a safe distance from fuel and explosive storage sites as well as vehicle parking sites.
65. Cigarette butts should always be thrown in allocated refuse bins. Make sure that the cigarette butt is out before throwing it into the bin.
66. Immediately notify your SCHEME SUPERINTENDENT/CONTRACTOR. if you see an unsupervised fire at the campsite or construction site.

### **Dealing with Environmental Complaints**

67. If you have any complaints about dangerous working conditions or potential pollution to the environment, talk to your SCHEME SUPERINTENDENT/CONTRACTOR.
68. If any person complains to you about noise, lights, littering, pollution, or any harmful or dangerous condition, immediately report this to your SCHEME SUPERINTENDENT/CONTRACTOR.

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## Annexure G: Grievances Register Form

Grievance Registration	
Case No:	Date:
Name of the complainant (optional):	Cell no:
	Email address:
Details of grievance: (Date, location, persons involved, frequency of occurrence, effects of the ensuing situation, etc.)	
Name of person recording grievance:	Cell number:
Proposed date of response:	
Signature of recording person:	Signature of the complainant:
Date of redress:	
Decision and action:	

## **Annexure H: Dorob National Park Rules and Regulations**

### **Dorob National Park Rules and Regulations**

Published by the Ministry of Environment and Tourism: December 2012

The unique Dorob National Park caters for both conservation and leisure activities

All visitors should please obey the park rules and regulations

Being one of the most unique parks in the world, the Dorob National Park along the central Namibian coast caters for various leisure, tourism and sports activities while also providing for conservation measures and specific conservation areas.

The Dorob National Park was declared in Government Notice No. 266 of 1 December 2010. Under section 84 of the Nature Conservation Ordinance, 1975 (Ordinance No. 4 of 1975), Regulation 36 of the Regulations Relating to Nature Conservation GN 240/1976 has been amended by the addition of specific regulations for Dorob National Park under Government Notice No. 210 of 15 August 2012. The Nature Conservation Ordinance 4 of 1975 and Regulations Relating to Nature Conservation GN 240/1976 remain in effect.

The Dorob National Park stretches from the Kuiseb Delta (south of Walvis Bay) northwards to the Ugab River; and eastwards from the low water mark of the Atlantic Ocean towards the boundary of the Swakopmund district (See the included maps for the go- and no-go areas and routes).

It includes the Walvis Bay Lagoon, a Ramsar Site, but excludes the municipal areas of Walvis Bay, Swakopmund, Henties Bay and the settlement area of Wlotzkasbaken.

It also excludes the railway line between Walvis Bay, Swakopmund and Arandis, the road reserves of the major B2 route; the minor routes C14, C28, C34, C35, C39; the district roads D1983, D1984, D1986, D1991, D1901, D1918 and D2302; and farms under private ownership or belonging to a parastatal institution.

Visitors to the Dorob National Park, who would wish to enjoy the various leisure, sports and tourism activities in the park, are notified that they should familiarize themselves with and obey the regulations, laws and rules, contained in this pamphlet. For further clarification they can also consult with the coastal offices of the Ministry of Environment and Tourism at Swakopmund or Walvis Bay.

Regarding the fishing regulations anglers should consult with the offices of the Ministry of Fisheries and Marine Resources in Walvis Bay and Swakopmund.

The Nature Conservation Ordinance Section 14 protects and preserves wild animal life, fisheries, wild plant life and objects of geological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of Namibia. Therefore some activities in the Dorob National Park are allowed, while others are not.

Activities causing the least damage to park resources are regulated less, while those that would be the most damaging, are strictly regulated.

### **People & domestic animals in park**

All people who enter the park must:

- Comply with the stipulations of the Ordinance, the regulations and the Environmental Management Act of 2007;
- Comply with the instructions of signposts, signboards, pamphlets or communicated in any other manner;
- Obey any legal order or instruction given by a Law-enforcement Officer.

When entering by foot people may:

- Go without a permit except in an area that is closed or exclusionary; and
- Go on foot if being young adults or younger than 16 without adult supervision, but do so at their own risk.

### **Domestic animals in the park:**

- A person may take a domestic animal into the park without a permit, except in areas where it is indicated that such animals are not allowed;

- Such animals should be under control by the person at all times;
- The person and animal should adhere to all regulations;
- The person must remove the faeces of the animal; and
- The animal shall not cause any inconvenience, nuisance, damage or injury to other people, animals and any plants or any other aspect of the environment.

### **Entering the park by vehicle**

Any person entering the Off-Road Vehicle (ORV) area in the Dune Belt between Langstrand and Walvis Bay by vehicle will need a permit (See information box about Permits on the other side of this pamphlet).

Currently a permit is not yet required for the use of a vehicle in other permitted areas or when driving on park routes in the Dorob National Park published herein.

Permitted and prohibited areas for sedans, 4x4s, bakkies and beach buggies:

- These vehicles may only drive in the ORV area with a permit (the Dune Belt between Langstrand and Walvis Bay) and without a permit on proclaimed roads and clearly marked MET routes, tracks and roads (except where prohibited).
- Where allowed, beach driving is only authorised on MET designated and clearly marked routes, tracks and roads.
- No driving is allowed on the beaches at the sea fronts of Henties Bay, Wlotzkasbaken, Swakopmund, Cape Cross and the Namibia Wildlife Resorts (NWR) managed camping sites at Mile 14, Jakkalsputz, Mile 72 and Mile 108.
- East of the minor C34 routes, self-drives are only allowed on the 4x4 tracks indicated on the attached maps. Detailed maps and GPS coordinates should be obtained from the Henties Bay Tourism Association.

Permitted and prohibited areas for quad bikes and other motorised bikes:

- Quad bikes and other motorised bikes may only drive in the ORV area with a permit (the Dune Belt between Langstrand and Walvis Bay) and without a permit west of the coastal



road between Swakopmund and Henties Bay, only on proclaimed roads and clearly marked

- MET tracks and roads (except where prohibited).
- Where allowed, beach driving is only authorised on MET designated and clearly marked tracks.
- Quad bikes and other motorised bikes are prohibited on beaches between Walvis Bay and Swakopmund, in all areas north of Henties Bay, and on the beaches at the seafronts of Henties Bay, Wlotzkasbaken, Swakopmund, and the Namibia Wildlife Resorts (NWR) managed camping sites.
- Quad bikes are strictly prohibited north of the Omaruru River up to the Ugab River and other motorised bikes are prohibited off the proclaimed roads north of the Omaruru River up to the Ugab River.
- Quad bikes and other motorised bikes are permitted 10 km upstream from Henties Bay within the Omaruru River but not beyond.

#### **General:**

- People may use a vehicle in the park with their permit at any time except
- between 21:00 and 05:00. This provision does not apply to proclaimed roads and people may use those roads at any time.
- Young people aged 16 years or younger may only drive or use a vehicle if an adult accompanies him/her.
- A valid driver's license will be required to use any motor vehicle in the park.
- No person shall drive or use any vehicle in the park whilst under the influence of alcohol or any other narcotic substance or in such a way that is dangerous to human life or that may cause damage to any property or the environment.
- Between Walvis Bay and Swakopmund, no person shall offload their
- quad bike or motorised bike at any other area than the designated off loading areas in the Dune Belt between Langstrand and Walvis Bay.

#### **Specific conservation provisions**

Although many activities are allowed in the park, no person may:

- Angle on the beach in such a way that is inconvenient to other people;

- Leave or use angling tackle in a place where it may cause inconvenience or injury to other persons or animals;
- Throw away or get rid of any part of a fish, bait, refuse or rubbish other than in the refuse bins provided;
- Collect or remove any shell, shell grit, sand, rock or stone;
- Use water or electricity in excessive quantities or for any other purpose other than for reasonable domestic use;
- Pollute or degrade the environment;
- Kill, injure, hunt, capture, disturb or feed any wild animal or remove any part of any wild animal, whether alive or dead;
- Remove, destroy, damage or disturb any egg, nest or burrow;
- Pick, collect, mutilate, destroy, damage, tamper with, disturb or remove any tree, plant, shrub, herb, mineral or any other object of botanical, zoological, geological, archaeological, historical or any other scientific interest, or part thereof;
- Collect or gather firewood;
- Remove, damage, destroy, soil, mutilate or interfere with any form of State property;
- Possess or use any weapon, explosive, trap or poison; or
- Throw away a burning or smouldering object or put or leave it at a place where it may possibly ignite another object.

### **Entering the park by Air**

- Although aircraft and helicopters may fly above a game park, it is unlawful to fly at the altitude of less than 1 000 metres, except for lawfully landing or taking off.
- It is illegal to land in, take off from, enter or fly over the Dorob National Park in such a way that is dangerous to human life or that may cause damage to any property or the environment.

### **Commercial activities and business**

A permit is required from the Ministry of Environment and Tourism to do any of the following in the park:

- Carry on, transact, or conduct any trade, business or tourism;
- Hold any organised competition or event;

- Undertake any construction activities of any nature; or
- Engage in any kind of commercial activity.

### **Camping**

- People may overnight or camp in the Dorob National Park but only with a permit and only at officially designated sites.
- Domestic animals may not be brought into a camping site unless the officer in charge grants permission indicating where the animal may stay overnight.
- Although people may enter a camping site by vehicle, they may not: (i) use a buzz-bike, power driven cycle, quad bike or motor cycle in the campsite; (ii) drive any other vehicle faster than 20 kilometres per hour in any place within a camping site; and (iii) drive or use a vehicle on any portion of the beach that is situated between a camping site and the sea.

**Annexure I: MEFT Fine list (2010-211) Dorob National Park  
266/2010 (GG 4622)**

## **Annexure J: Chance Finds Procedure (CFP) management guideline for Archaeology:**

(Extracted from - Archaeological Guidelines for Exploration & Mining in the Namib Desert, Kinnanhan, 2012.

**INTRODUCTION:** Areas of proposed mining and related activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work. The personnel and Contractor heritage induction process is intended to sensitize people so that they may recognize heritage “chance finds” in the course of their work. The procedure set out here covers the reporting and management of such finds.

**SCOPE:** The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation by a trained archaeologist or other appropriately qualified person.

**INTENT:** The “chance finds” procedure is intended to ensure compliance with the AMP, which is based on archaeological best practice, and the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “a person who discovers any archaeological ... object ... must as soon as practicable report the discovery to the Council.” The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

### **RESPONSIBILITIES:**

Operator:	To exercise due caution if archaeological remains are found
Foreman:	To secure the site, and advise management timeously
Superintendent:	To determine safe working boundary and request inspection
Archaeologist:	To inspect, identify, advise management, and recover remains

**PROCEDURE:**

Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment, stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to Foreman

**Action by Foreman:**

- a) Report findings, site locations and actions taken to Superintendent
- b) Cease any work in immediate vicinity

**Action by Superintendent:**

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Add site location and details to AMP GIS for field confirmation by archaeologist

**Action by Archaeologist:**

- a) Inspect site and confirm addition to AMP GIS
- b) Advise NHC and request written permission to remove findings from work area
- c) Recover, package and label finds for transfer to National Museum

In the event of discovering human remains

- Actions as above
- Field inspection by archaeologist to confirm that remains are human

- Advise and liaise with NHC Guidelines
- Recovery of remains and removal to National Museum or National Forensic Laboratory, or as directed.

## **Annexure K : KfW Development Bank Sustainability Guideline**



# **MET FINE LIST 2010-2011**

## **DOROB NATIONAL PARK**

**GN 266/2010 (GG 4622)**



## **RELEVANT LAWS**

**NATURE CONSERVATION ORDINANCE 4 OF 1975**

**REGULATIONS RELATING TO NATURE CONSERVATION GN 240/1976 (OG 3556)**

“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975

“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976

SEC/REG.	CODE		DESCRIPTION	FINE
<b>OFF ROAD DRIVING AND TRAFFIC</b>				
Sec.18(1)(a)			entered a game park without a permit from MET	500
Reg.9(a)			drove a vehicle any place other than a road indicated by a road sign (drove off a demarcated road)	500
Reg.9(b)			drove a vehicle on a road that was indicated to be closed	500
Reg.9(c)			drove a vehicle faster than 60km per hour on any road that is not proclaimed thoroughfare	500
Reg.9(d)			drove a vehicle faster than 20km per hour within the territory of a officially designated camping site or rest camp	500
Reg.9(e)			drove or parked a vehicle that caused inconvenience to other person	500
Reg.9(t)			made unnecessary noise or made noise that may have disturbed any other person or game	500
Reg.9(u)			did something that was a nuisance or hindrance to the public	500
Reg.13			a person aged 16 years or younger entered a game park without being accompanied by an adult who shall be held responsible for him/her	Issue warning to guardian 500
Sec.18(3)			contravened or failed to comply with a condition requirement or restriction of any permission granted to enter a game park (such as going against a permit condition)	500
Reg.12			did not obey a legal order given to him by an officer	500
Sec.18(1)(c)			wilfully or negligently injured, captured or disturbed an animal or removed or destroyed a egg or nest of any bird	500
Sec.18(1)(d)			wilfully or negligently damaged an object of geological, ethnological, archaeological, historical or other scientific interest	500
Sec.18(1)(g)			uprooted, damaged, or destroyed an indigenous plant (any Namibian plant)	500
<b>LITTERING/DUMPING OF RUBISH</b>				
Reg.9(f)			threw away a burning or smouldering object or put or left it at a place where it may have possibly ignited another object	500

“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975

“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976

SEC/REG.	CODE		DESCRIPTION	FINE
Reg.9(k)			threw away, put or left refuse or rubbish at any place other than in provided containers	500
Reg.9(p)			threw stones, rubbish, bottles, tins, refuse, oil or any other offensive or dangerous object material or liquid into the water of a lagoon, dam, river or other water-course or allowed it to land therein	500
<b>FIRE AND WOOD COLLECTION</b>				
Sec.18(1)(h)			chopped, cut, or destroyed a tree	500
Reg.9(f)			threw away a burning or smouldering object or put or left it at a place where it may possibly have ignited another object	500
Reg.9(i)			made a fire at any place other than at the officially designated fire-places provided	500
Reg.9(j)			made an exceptionally large fire at an officially designated fire-place	500
Sec.18(1)(d)			wilfully or negligently caused veld fire	500
<b>EXPLOSIVES AND WEAPONS</b>				
Sec.18(1)(b)			possessed a weapon, explosive, trap or poison	500
Reg.9(v)			took an unsealed fire-arm or air gun into park	500
<b>CAMPING, PARK ACCOMODATION AND PARK FACILITIES</b>				
Sec.18(1)(a)			resided in game park without a permit	500
Reg9(d)			drove a vehicle faster than 20km per hour within the territory of a officially designated camping site or rest camp	500
Reg.14(1)			made use of or occupied Administration property in a game park and failed to leave or return it in the same condition in which he received it	500
Reg.15			removed something from accommodation which is Administrative property	500

“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975

“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976

SEC/REG.	CODE		DESCRIPTION	FINE
Reg.17			occupied a camping site or accommodation which was not allocated to him by an officer	500
<b>GENERAL RECREATION</b>				
Reg.9(t)			made unnecessary noise or made noise that may have disturbed any other person or game	500
Reg.9(u)			did something that was a nuisance or hindrance to the public	500
Reg.9(h)			relieved himself/herself anywhere except in the sanitary conveniences provided	500
Reg.13			a person aged 16 years or younger entered a game park without being accompanied by an adult who shall be held responsible for him/her	Issue warning to guardian 500
<b>TOURISM COMPANIES AND EVENTS</b>				
Sec.18(1)(a)			entered a game park without a permit from MET	500
Reg.9(q)			presented public entertainment or collected money from the public without a permit	500
Reg.9(s)			organized, held or addressed any meeting or assembly without a permit	500
Reg.10(a)			took photos or films for commercial purposes without a permit	500
Sec.18(3)			contravened or failed to comply with a condition requirement or restriction of any permission granted to enter a game park (such as going against a permit condition)	500
Reg.12			did not obey a legal order given to him by an officer	500
Sec.18(1)(c)			wilfully or negligently injured, captured or disturbed a animal or removed or destroyed a egg or nest of any bird	500
Sec.18(1)(d)			wilfully or negligently damaged an object of geological, ethnological, archaeological, historical or other scientific interest	500
Sec.18(1)(g)			uprooted, damaged, or destroyed an indigenous plant (any Namibian plant)	500

“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975

“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976

SEC/REG.	CODE		DESCRIPTION	FINE
<b>AIRCRAFT</b>				
Reg.25A(1)			landed or took off in a game park in an aircraft or helicopter outside of a designated landing field	500
Reg.25A(2)			flew over a game park at an altitude of less than 1000 metres (except for lawful landing or taking off)	500
<b>PLANT PROTECTION INSIDE A GAME PARK</b>				
Sec.18(1)(g)			uprooted, damaged, or destroyed an indigenous plant (any Namibian plant)	500
Sec.18(1)(d)			wilfully or negligently caused a veld fire or damaged an object of geological, ethnological, archaeological, historical or other scientific interest	500
Sec.18(1)(h)			chopped, cut, or destroyed a tree	500
<b>PLANT PROTECTION THROUGHOUT NAMIBIA</b>				
Sec.73(1)			picked or transported a protected plant without a permit	250 (2 <sup>nd</sup> offense-500)
Sec.74(1)			sold, donated, exported, or removed protected plant from Namibia without a permit	250 (2 <sup>nd</sup> offense-500)
Sec.76(1)			purchased, offered to purchase or came into possession of a protected plant (except from a lawful seller)	250 (2 <sup>nd</sup> offense-500)
Sec.77(1)			picked an indigenous plant (any Namibian plant) on land of which he/she is not the owner or lessee	250 (2 <sup>nd</sup> offense-500)
<b>WILD ANIMAL PROTECTION INSIDE A GAME PARK</b>				
Sec.18(1)(c)			wilfully or negligently injured, captured or disturbed an animal or removed or destroyed a egg or nest of any bird	500
Sec.18(1)(d)			wilfully or negligently damaged an object of geological, ethnological, archaeological, historical or other scientific interest	500
Sec.18(1)(f)			removed an animal (whether dead or alive) or a part of an animal	500
Sec.20(1)			hunted an animal without a permit	up to 200,000
Reg.9(t)			made unnecessary noise or made noise that may have disturbed any other person or game	500

“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975

“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976

SEC/REG.	CODE		DESCRIPTION	FINE
<b>WILD ANIMAL PROTECTION THROUGHOUT NAMIBIA</b>				
Sec.26(1)			hunted specially protected game without a permit	up to 200,000
Sec.27(1)			hunted protected game without a permit	4000
Sec.34(1)			hunted exotic game without a written permission	750-1500
Sec.34(2)			hunted wild animal without written permission	750-1500
Sec.40(1)(a)(i)			killed game or other wild animal by other means than by shooting with firearm	250 (2 <sup>nd</sup> offense 500)
Sec.40(1)(a)(ii)			captured game or other wild animal by snare, pitfall, trap, springtrap, net, birdlime, drug or other device	250 (2 <sup>nd</sup> offense 500)
Sec.40(1)(a)(iii)			kept game or other wild animal	250 (2 <sup>nd</sup> offense 500)
Sec.44(1)			removed, destroyed, sold, hawked or purchased eggs of huntable game birds or protected birds in Schedule 4 of the Nature Conservation Ordinance	250 (2 <sup>nd</sup> offense 500)
Sec. 49(1)			imported or exported game or a wild animal or the raw skin or meat of any game or wild animal without a permit	250 (2 <sup>nd</sup> offense 500)
<b>HISTORICAL/SCIENTIFIC OBJECTS AND SITES</b>				
Sec.18(1)(d)			wilfully or negligently damaged an object of geological, ethnological, archaeological, historical or other scientific interest	500

**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

## APPENDIX

### Penalties:

1. For offenses relating to game parks, the penalty is N\$500, and/or imprisonment for a period not exceeding 6 months [Nature Conservation Ordinance 4 of 1975 Section 18(3)].
2. For general offenses outside of game parks, the penalty is N\$250, and/or imprisonment for a period not exceeding 3 months [Nature Conservation Ordinance 4 of 1975 Section 87(a)]. If a person has been previously convicted of an offense, then N\$500, and/or imprisonment for a period not exceeding 6 months [Nature Conservation Ordinance 4 of 1975 Section 87(b)].
3. Higher penalties apply to the hunting of protected game, exotic game, and wild animals. The details of these penalties can be found in the Nature Conservation Ordinance 4 of 1975 Sections 20, 26, 27, and 34.
4. A court may order the forfeiture of a vehicle (including a quad bike), vessel, raft, or aircraft [Nature Conservation Ordinance 4 of 1975 Section 89(1)(d)].
5. A nature conservator, tourist officer, or person of higher rank may also order any person who commits or has committed an offense in that game park to leave the game park immediately. Any person who has been ordered to leave the game park may not enter the game park for a period of six months [Regulations Relating to Nature Conservation GN 240/1976, Section 22(1) and 22(2)].

### Court:

A magistrates' court has jurisdiction to impose any punishment prescribed by the Nature Conservation Ordinance [Nature Conservation Ordinance 4 of 1975 Section 89A].

### Important Notes:

1. Driving through the park on a prescribed road is permitted under section 18(2)(a). Driving off-road without a permit is a violation. Under GN 266/2010 (GG 4622), Municipal areas and the following roads and their road reserves are excluded from the Gazetted Park: the major route B2; the minor routes C14, C28, C34, C35, C39; the district roads D1983, D1984, D1986, D1991, D1901, D1918, D2303, and D2302.
2. Under GN 266/2010 (GG 4622), the Dorob National Park extends to the low water mark. This means that it is an offense to injure, capture, or disturb seals, mussels, crabs or other sea animals if they are above the low water mark [Nature Conservation Ordinance 4 of 1975 section 18(1)(c)]. For example, if a car drives over white mussels above the low water mark, MET may penalize under the Nature Conservation Ordinance.
3. Firecrackers and fireworks are considered explosives and it is illegal for persons to be in possession of or use explosives in a game park [Nature Conservation Ordinance 4 of 1975 section 18(1)(b)].
4. It is illegal for a person aged 16 years or younger to be in a game park without being accompanied by an adult. This means that it is an offense for any quad biker aged 16 years or younger to drive/ride in the park without being accompanied by an adult. In the case of offenses committed by minors, a special warning form (in terms of the Criminal Procedure Act) must be served to the parent or guardian of the minor.

**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

Relevant Definitions:

1. **“game”** means specially protected game, protected game, huntable game, huntable game birds and exotic game (listed in schedules 3-6 of the Ordinance). All species of birds are considered to be protected game except: weavers, sparrows, mousebirds, redheaded quelea, bulbul and pied crow [Nature Conservation Ordinance 4 of 1975 section 1(xviii)].
2. **“indigenous plant”** means a species of plant, shrub or tree which is indigenous to the Territory, irrespective of whether it is or has been cultivated and whether it is no longer growing in a wild state or has for some period not been growing in a wild state and includes the flower, seed, fruit, bulb, tuber, stem or root or any other part of such plant, shrub or tree, but not any plant declared under any law to be a weed [Nature Conservation Ordinance 4 of 1975 section 1(xxviii)].
3. **“pick”** includes to cut off, chop off, pick off, take, gather, uproot, damage or destroy [Nature Conservation Ordinance 4 of 1975 section 1(xxxviii)].

Who Can Enforce:

1. Nature Conservator (includes NAMPOL and NDF members). Except for NAMPOL and NDF members, Nature Conservators are appointed by the Minister [Nature Conservation Ordinance 4 of 1975 section 79].
2. Honorary Nature Conservators can only investigate violations and report to MET [Nature Conservation Ordinance 4 of 1975 sections 79 and 81(4)].

Enforcement Powers:

A Nature Conservator may, under the Nature Conservation Ordinance 4 of 1975 sections 81(1):

- (a) investigate
- (b) enter upon land, premises, vehicle;
- (c) conduct a search;
- (d) stop vehicles;
- (e) seize items;
- (f) question person;
- (g) order persons to provide information
- (h) demand names and addresses;

\* Note: all powers relate to information or evidence of the commission of an offence or to persons suspected of committing an offence; powers to enter, search or seize without a warrant are subject to limitations.

\* Nature Conservators have all the powers of a peace officer to arrest under terms of the Criminal Procedure Act [Nature Conservation Ordinance 4 of 1975 sections 81(2)].

\* Details of the powers of Honorary Nature Conservators are spelled out clearly in the Nature Conservation Ordinance 4 of 1975 section 81(4).



**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

## **SCHEDULES: NATURE CONSERVATION ORDINANCE 4 OF 1975**

### **SCHEDULE 3.**

#### **SPECIALLY PROTECTED GAME.**

Mountain Zebra (*Equus zebra hartmannae*)  
Giraffe (*Giraffa camelopardalis*)  
Klipspringer (*Oreotragus oreotragus*)  
Elephant (*Loxodonta africana*)  
Rhinoceros (*Diceros bicornis*)  
Impala (*Aepyceros melampus*)  
Hippopotamus (*Hippopotamus amphibius*)  
Black-faced Impala (*Aepyceros petersi*)  
White Rhinoceros (*Ceratotherium simum*)  
Zebra (*Equus burchelli* species)  
(Subst. Act 31/90/3)  
(GN 75/87 Zebra (*Equus burchelli* species))

### **SCHEDULE 4.**

#### **PROTECTED GAME.**

(i) *Animals.*  
Aardwolf (*Proteles cristatus*)  
Bat-eared Fox (*Otocyon megalotis*)  
Roan Antelope (*Hippotragus equinus*)  
Tsesseby (*Damaliscus lunatus*)  
Dikdik (*Madoqua kirki damarensis*)  
Blue Wildebeest (*Connochaetes taurinus*)  
Bushbuck (*Tragelaphus scriptus*)  
Duiker (*Sylvicapra grimmia*)  
Antbear (*Orycteropus afer*)  
Clawless Otter (*Aonyx capensis*)  
Scaly Anteater (*Manis tem mincki*)  
Cheetah (*Acinonyx jubatus*)  
Spotted-necked Otter (*Lutra maculicollis*)  
Hedgehog (*Erinaceus frontalis*)  
Monitor (*Veranus niloticus*; *Veranus niloticus*; *V albigularis*)  
Leopard (*Panthera pardus*)  
Pythons (*Python sebae*, *Python anchietac*)  
Bush Baby (*Galago Senegalensis*)  
Oribi (*Ourebia ourebi*)  
Honey Badger (*Mellivora capensis*)  
Reedbuck (*Redunca arundinum*)  
Red Hartebeest (*Alcelaphus buselaphus*)  
Silver Jackal (*Vulpes chama*)  
Tortoises (*Testudinidae*)  
Steenbok (*Rhaphicerus campestris*)  
Sable Antelope (*Hippotragus niger*)  
Waterbuck (*Kobus ellipsiprymanus*)  
Sitatunga (*Tragelaphus spekei*) {GN 75/87 names added}  
Eland (*Taurotragus oryx*)  
Lechwe (*Kobus leche*)  
Crocodile (*Crocodylus niloticus*)  
Puku (*Kobus vardoni*)  
Sharp's grysbok (*Rhaphicerus sharpei*)  
(GN 90/88; GN 75/87 names added)

**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

**SCHEDULE 4.**  
**PROTECTED GAME.**  
**(CONTINUED)**

(ii) *Birds.*

All species of birds except the huntable game birds mentioned in Schedule 6 and the following birds:

Weavers (All *Ploceus* spp.)  
Sparrows (All *Passer* spp.)  
Mousebirds (*Colius colius*; *Urocolius indicus*)  
Redheaded Quelea (*Quelea quelea*)  
Bulbul (*Pycnonotus nigricans*; *P. barbatus*)  
Pied Crow (*Corvus albus*).

**SCHEDULE 5.**  
**HUNTABLE GAME.**

Bushpig (*Potamochoerus porcus*)  
Buffalo (*Syncerus caffer*)  
Eland (*Taurotragus oryx*)  
Oryx (*Oryx gazella*)  
Kudu (*Tragelaphus Strepsiceros*)  
Springbok (*Antidorcas marsupialis*)  
  
Warthog (*Phacochoerus aethiopicus*).

**SCHEDULE 6.**  
**HUNTABLE GAME BIRDS.**

Guinea Fowl (*Numida meleagris*)  
Namaqua Sandgrouse (*Pterocles namaqua*).  
Kurrichane buttonquail (*Turnix sylvatica*)  
Common quail (*Cortunix cortunix*)  
Harlequin quail (*Cortunix delagorguei*)  
Crested francolin (*Francolinus sephaena*)  
Redbilled francolin (*Francolinus adspersis*)  
Swainson's francolin (*Francolinus swainsonii*)  
Orange River francolin (*Francolinus levaillantoides*)  
White faced duck (*Dendrocygna ciduata*)  
Egyptian goose (*Alopochen aegyptiacus*)  
Cape teal (*Anas capensis*)  
Hottentot teal (*Anas hottentota*)  
Turtle dove (*Streptopelia capicola*)  
Laughing dove (*Streptopelia senegalensis*)  
Rock pigeon (*Columba guinea*)  
Burchell's sandgrouse (*Pterocles burchelli*)  
and  
Doublebanded sandgrouse (*Pterocles bicinctus*)

**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

**SCHEDULE 9**  
**PROTECTED PLANTS.**

Common name. Scientific name.

**AIZOACEAE.**

Vygies

Mountain Vygie  
 Window plant, yellow  
 Window Plant, white  
 Herero Vygie  
 Jensenobotrya  
 Juttadinteria  
 Vygie

Plains Vygie Vygie

Rusch's Vygies Vygie

Kalk Vygie Vygie

**APOCYNACEAE.**

Bottle tree

Elephant's trunk

**ASCLEPIADACEAE**

Carrion-flower species

Ghaap species

**CRASSULACEAE.**

Aridaria noctiflora Astridia  
 all species Cephalophyllum  
 all Species  
 Chasmatophyllum -  
 musculinum Cheiridopsis  
 all species Conophytum all  
 species Dinteranthus all  
 Species  
 Ebracteola all Species  
 Fenestraria aurantiaca  
 Fenestraria rhopalophylla  
 Hereroa all species  
 Jensenobotrya lossowiana  
 Juttadinteria all species  
 Lapidaria margaretae  
 Lithops all Species  
 Nananthus abides  
 Ophthalmophyllum  
 all species  
 Psammophora all Species  
 Ruschia all Species  
 Schwantesia all  
 species Stoeberia all  
 species  
 Titanopsis all species

Pachypodium lealii  
 Pachypodium namaquanum

Caralluma all Species  
 Ceropegia all Species  
 Decabelone barklyi  
 Duvalia all species  
 Hoodia all species  
 Huernia all species  
 Huerniopsis all species  
 Piaranthus all species  
 Stapelia all species  
 Tavaresia: sec Derabelone  
 species

Trichocaulon all species

Adromischus all species  
 Crassula all species

**“Sec.” used for sections of the Nature Conservation Ordinance 4 of 1975**  
**“Reg.” used for Regulations Relating to Nature Conservation GN 240/1976**

**SCHEDULE 9**  
**PROTECTED PLANTS.**  
**(CONTINUED)**

LILIACEAE.

Small Aloe  
Variegated Aloe

Gloriosa  
Small Haworthia

MORINGACEAE.

Moringa

ORCHIDACEAE.

Orchids

PEDALEACEAE

Grapple plant  
(GN 247/77)

PORTULACACEAE.

Small Elephant's Foot  
VITACEAE.

Butter Tree species  
Stem Succulent species

WELWITSCHIAEAE.

Welwitschia

Aloe all species  
Chortolirion bergerianum  
Gasteria (ernesti-ruschii)  
pillansii  
Gloriosa virescens  
Haworthia tessellata var.  
engleri

Moringa ovalifolia

Orchidaceae all genera and  
species

Hepagophytum  
procumbens

Anacampseros all species  
Portulacaria pygmaea

Cyphostemma (Cissus)

Welwitschia mirabilis.

KfW Development Bank

# »»» Sustainability Guideline

## Assessment and management of Environmental, Social, and Climate Aspects: Principles and Procedures

28 February 2022

Author: KfW Development Bank

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## Abbreviations

BMZ	Federal Ministry for Economic Co-operation and Development (Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung)
EHS	Environmental Health and Safety
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards (of the World Bank)
EU	European Union
FC	Financial Cooperation
FI	Financial Intermediary
FPIC	Free, Prior, Informed Consent
FSC	Forest Stewardship Council
GHG	Green House Gas
GPN	Good Practice Note
HRIA	Human Rights Impact Assessment
IATI	International Aid Transparency Initiative
IFC	International Finance Corporation
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change, IPCC
KfW	Kreditanstalt für Wiederaufbau
LRP	Livelihood Restoration Plan
NAP	National Adaptation Plan
NDC	Nationally Determined Contributions
NGO	Non-Governmental Organisation
PBA	Programme-Based Approaches
PBF	Policy Based Financing
PS	Performance Standards (of IFC)
RAP	Resettlement Action Plan
RBF	Results Based Financing
RPF	Resettlement Policy Framework
SDG	Sustainable Development Goals
UNCBD	United Nation Convention on Biological Biodiversity
UNCCD	United Nation Convention to Combat Desertification
UNFCCC	United Nation Framework Convention on Climate Change
VGGT	Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security
WB	World Bank
WCD	World Commission on Dams

# 1. Preamble

**1.1.** For more than five decades, the business area KfW Development Bank of the KfW Group (referred to hereinafter as KfW Development Bank) has financed measures in numerous areas to protect the environment and the climate and support social development. The principles of sustainable development are central to KfW Development Bank's funding activities, along with associated environmental and social sustainability and climate protection.

**1.2.** KfW Development Bank adheres to the KfW Group Sustainability Mission Statement<sup>1</sup> and to the Paris-compatible sector guidelines<sup>2</sup> to contribute to

- The sustainability strategy of the Federal Republic of Germany;
- The achievement of the 2030 Agenda together with the objectives of Sustainable Development Goals (SDGs); and
- The fulfilment of the Paris Climate Agreement.

This Guideline defines KfW Development Bank's implementation approach in line with this Mission Statement.

**1.3.** All the Financial Cooperation measures (referred to hereinafter as "FC-measures") financed by KfW Development Bank are therefore subject to a comprehensive and systematic assessment of environmental and social aspects as well as other relevant development aspects. Furthermore, KfW Development Bank aims to actively support the implementation of international human rights in its business operations through the existing instruments at its disposal and in line with KfW's human rights declaration.

**1.4.** This Guideline applies to all forms of financing of KfW Development Bank.

## 2. Mission of KfW Development Bank

**2.1.** KfW Development Bank finances investments and related advisory services in developing and emerging countries on behalf of the German Federal Government, which are implemented by local partners as the executing agency. More specifically, KfW Development Bank uses funds from the federal budget, which are topped up by the bank's own funds, in order to support the construction of economically and socially beneficial infrastructure, the development of efficient financial sectors, and the implementation of environmental and climate protection measures as well as adaptation on climate change and programmes to preserve natural resources. The most important objective of KfW Development Bank's promotional activities is to help the Federal Government of Germany and its partner countries to achieve their overarching development goals.

**2.2.** The priority areas of KfW's activities in developing countries include social development, environmental and climate protection, adaptation to climate change, and the conservation of natural resources. Its work also encompasses FC-measures which make a crucial contribution to implementing international agreements on environmental and climate protection, and on

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<sup>1</sup> [KfW Group Sustainability Mission Statement \(German version\)](#)

<sup>2</sup> [Paris-compatible sector guidelines](#)



the conservation of natural resources such as the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (UNCBD) and the Convention to Combat Desertification (UNCCD). For FC-measures where the primary objective is not environmental, climate or resource protection, KfW Development Bank seeks to nevertheless incorporate climate and/or environmental outcomes or adaptation to climate change into the scope of the FC-measure.

### 3. Objectives of this Guideline

**3.1.** This Guideline describes principles and procedures to assess the environmental, social and climate aspects during the preparation and implementation of FC-measures financed by KfW Development Bank. In this context, this Guideline has the following objectives, in particular:

- to define a common binding framework to incorporate environmental, social and climate standards into the planning, appraisal, implementation, and monitoring of FC-measures; and
- to enhance transparency, predictability and accountability in the decision-making processes of the internal environmental and social due diligence (ESDD) and climate mainstreaming.

**3.2.** In line with the overall objective of promoting sustainability and avoiding adverse environmental, social and climate impacts and risks, KfW Development Bank aligns its FC-measures the following principles:

- to avoid, reduce or limit environmental pollution and environmental damage including climate-damaging emissions and pollution;
- to preserve and protect biodiversity and tropical rainforests and to sustainably manage natural resources;
- to consider probable and foreseeable impacts of climate change including utilising the potential to adapt to climate change. In this context climate change is understood as climate variability and long-term climate change;
- to avoid adverse impacts on the living conditions of communities, in particular indigenous peoples and other vulnerable groups, as well as to ensure the rights, living conditions and values of indigenous peoples;
- to avoid and minimise involuntary resettlement and forced eviction of people and their living space as well as to mitigate adverse social and economic impacts through changes in land use by reinstating the previous living conditions of the affected population;
- to ensure and support occupational health and safety as well as health protection in the workplace;
- to condemn forced labour and child labour, ban discrimination in respect of employment and occupation, and support the freedom of association and the right to collective bargaining;

- to avoid all forms of discrimination;
- to avoid negatively influencing existing conflict dynamics;
- to protect and preserve cultural heritage; and/or
- to support the executing agency in the management and monitoring of possible adverse environmental, social and climate impacts and risks associated with the implementation of the FC-measure.

**3.3.** KfW Development Bank only supports new projects that are in line with the “Exclusion List of KfW Group”<sup>3</sup>. Further, for FC-measures with financial intermediaries (FI) the IFC Exclusion List<sup>4</sup> applies complementary (see 4.8).

## 4. Environmental and Social Due Diligence of FC-measures

### 4.1. Objective and Core Elements

**4.1.1.** All funding activities of KfW Development Bank must be subject to an internal ESDD as defined in this Guideline.

**4.1.2.** The objective of the ESDD is to anticipate and appraise any foreseeable impacts and risks a FC-measure may have on environment and social factors (including human rights), and to identify, avoid and/ or minimise adverse impacts and risks to an acceptable level, or if unavoidable, to offset and compensate for these impacts and risks. In addition, the assessments should identify, monitor and manage any residual risks. Apart from assessing individual FC-measures, ESDDs are designed to demonstrate to partner countries the need to appraise the FC-measures, demonstrate the possibilities for environmentally and socially responsible FC-measures and raise awareness of ecologically and socially sustainable development approaches.

**4.1.3.** The ESDD is a core element of the appraisal procedure of KfW Development Bank. It is, first and foremost, intended as a management tool to steer and shape FC-measures over their entire life cycle (i.e., from preparation to completion). The ESDD and categorization of the FC-measures are performed under involvement of the environmental and social experts of KfW Development Bank.

**4.1.4.** The essential steps of the ESDD include:

- a preliminary appraisal (**screening/categorisation**) to evaluate the environmental and social risks of a FC-measure to determine if an in-depth ESDD is required;

and, if this is affirmed:

- the definition of the scope (**scoping**) to identify and assess the FC-measure's environmental and social impacts and risks more accurately in close cooperation with the executing agency; and

<sup>3</sup> [Exclusion List of KfW Group](#)

<sup>4</sup> [IFC Exclusion List – Version 2007](#) (for Financial Intermediaries of KfW Development Bank)

- the design and implementation of an **ESDD** in order to examine all or individual aspects of the FC-measure, including participatory approaches to involve project affected peoples and public disclosure in the partner country.

**4.1.5.** The steps mentioned above do not only apply to the project components financed directly by KfW Development Bank but consider the entire project. This applies also to the rehabilitation and/or expansion of existing facilities. Moreover, the ESDD considers relevant project alternatives that are available to reach the FC-measure objective. One possible outcome of an ESDD may be that the original FC-measure design or the location has to be modified.

## 4.2. Appraisal Standards

**4.2.1.** When assessing the environmental and social impacts of FC-measures, KfW Development Bank adheres to the KfW Group Sustainability Mission Statement and the specific developmental concepts and guidelines of the German federal government for development cooperation.

**4.2.2.** The foundation of the assessment of environmental and social impacts of a FC-measure is its compliance with relevant national law and legal requirements as well as the assessment requirements of KfW Development Bank. The KfW Development Bank assessment standards are the Environmental and Social Standards of the World Bank Group (i.e., for public agencies the Environmental and Social Standards (ESS) as well as relevant Operational Policies of the World Bank and the IFC Performance Standards (PS) for cooperation with the private sector, General and sector-specific Environmental, Health and Safety (EHS) Guidelines<sup>5</sup> as well as the Core Labour Standards of the International Labour Organization (ILO). Within the framework of donor harmonisation (Paris Declaration), KfW Development Bank can also use comparable standards of other development banks. This can be done through assessment of individual cases or in accordance with rules that have been agreed upon as part of the cooperation agreement. If the FC-measure involves funds related to the European Union (EU) or is financed in countries with EU membership prospects, the environmental and social standards of the EU apply, as far as they go beyond the above-mentioned standards and guidelines. The underlying evaluation standards in each case are disclosed to the executing agency.

**4.2.3.** Furthermore, the assessment takes into account the requirements of the human rights guidelines of the BMZ. This includes the acknowledged principle of free, prior, informed consent (FPIC) if an FC-measures affects the rights of indigenous peoples, the Voluntary guidelines on the responsible governance of tenure of land (VGGT)<sup>6</sup>, and the UN Basic Principles and Guidelines on Development-based Evictions and Displacements. When financing large dam projects, KfW Development Bank refers to the recommendations of the World Commission on Dams (WCD).

**4.2.4.** Deviations from individual sub-standards are only permitted in justified exceptional cases and must be documented accordingly. If the standards cannot be applied immediately by individual executing agencies, a concrete action plan<sup>7</sup> must be agreed or deviations avoided through exclusion of individual investment measures.

## 4.3. Screening and Categorisation of FC-measures

**4.3.1.** As part of the screening process, the planned FC-measure is appraised at an early stage in order to determine its relevance in terms of environmental and social impacts and risks. The screening process is designed to identify and appraise the type and scale of any adverse environmental and social impacts or risks that may arise from the planned FC-measure.

<sup>5</sup> For sectors without sector-specific EHS Guidelines, the respective Good Practice Notes (GPN) of the World Bank Group are applied.

<sup>6</sup> Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security

<sup>7</sup> E.g., an Environmental and Social Action Plan (ESAP)

The appraisal of the environmental and social impacts considers the whole project, even if KfW Development Bank is financing only a component of the project. The next step, once the relevance of such consequences or risks has been established, is to define the type and scope of additional studies which need to be conducted as part of FC-measure preparations.

**4.3.2.** All FC-measures are classified into one of the following four **categories “A”** (high risk), **“B+”** (substantial risk), **“B”** (moderate risk) or **“C”** (low risk), according to the relevance of their potentially adverse environmental and social impacts and risks.<sup>8</sup>

**4.3.3.** FC-measures are classified as **Category A** if it risks having diverse significant adverse impacts and risks on the environment or the social conditions of the affected population. Such impacts and risks may derive from the complex nature of the FC-measure, its scale (large to very large), the sensitivity of the location(s) of the FC-measure or from the potential impacts and risks being irreversible or unprecedented. Such impacts and risks may affect a larger area that is beyond the site of the facility under construction, the facility itself as well as any associated facilities or just the FC-measure area in a narrower sense. Therefore, a FC-measure will be classified as Category A if for example:

- adversely impacts important sites such as tropical forests, coral reefs, nature reserves, wetlands, natural/near-natural forests, and important cultural heritage sites;
- has significant transboundary impacts or is of relevance with respect to international treaties (such as conventions on international waste management regulations or on marine conservation, or agreements on the protection of biodiversity);
- leads to a high consumption of resources, in particular soil, land or water;
- is associated with high risks to human health or safety (e.g., industry or traffic facilities located adjacent to residential areas with considerable noise pollution and harmful emissions during construction and/or operation or handling hazardous substances);
- requires large scale resettlement or lead to a significant loss of livelihood; and/or
- is anticipated to have an adverse impact upon indigenous peoples.

An illustrative list of FC-measures that may be classified as Category A is attached as [Annex](#).

**4.3.4.** For **Category A** FC-measures, it is mandatory to analyse and appraise any adverse environmental and social effects as part of an independent Environmental and Social Impact Assessment (ESIA) study including an Environmental and Social Management Plan (ESMP). The ESMP should describe all measures that need to be taken to avoid, mitigate, offset, and monitor any adverse impacts and risks that have been identified by the ESIA. It should also assign responsibilities for implementing such measures and list the costs involved. For Category A FC-measures, KfW Development Bank requires the executing agency to operate an appropriate monitoring system. If the FC-measures are run by private operators, they are required to have their own Environmental and Social Management System (ESMS) in place. Any such management system must comprise the following elements: (a) adequate organisational capacity and competency, (b) environmental and social assessment procedures, (c) management programmes, (d) specific environmental and social training measures, (e) well-structured relations with the target group, (f) monitoring, and (g) reporting procedures.

**4.3.5.** A FC-measure is classified as **Category B** if it potentially risks having adverse impacts and risks on the environment or the social conditions of those concerned, However, the impacts and risks tend to be less significant than those of Category A FC-measures and can usually be mitigated through standard, best available mitigation approaches (cf. [Annex](#)). Typically, the potential impacts and risks of Category B FC-measures are limited to a local area, are in most cases reversible and easier to mitigate through appropriate measures. For Category B FC-

<sup>8</sup> For FC-measures with financial intermediaries „FI/“ is added as a prefix. See section 4.8.

measures, the need for and the scope, the priorities and depth of an ESIA are determined through a case by case evaluation.

**4.3.6.** If it is expected that a Category B FC-measure has single significantly adverse environmental and social impacts or risks (**Category B+**), an ESIA and an ESMP as well as an ESMS adapted to these impacts and risks are required, as described under Category A.

**4.3.7.** FC-measures will be classified as **Category C** if they are expected to have no or only minor adverse environmental and social impacts or risks, and if the implementation and operation of the FC-measure does not require any particular protection, compensation or monitoring measures. Category C FC-measures usually do not require any additional analysis within the scope of this Guideline or any further ESDD procedures. Category C FC-measures should, however, be monitored for any relevant changes over their life cycle.

**4.3.8.** If a FC-measure is to be implemented in an area in which a critical human rights situation is known or expected, or if the project has effects that may result in conflicts that could significantly harm human rights (e.g., resource use conflicts), KfW Development Bank may require a detailed Human Rights Impact Assessment (HRIA) and additional measures aimed at ensuring that human rights are upheld.

#### **4.4. In-depth Environmental and Social Due Diligence (ESDD)**

**4.4.1.** Depending on the results of the screening, a decision is made regarding the extent of the in-depth assessments of possible adverse environmental and social impacts. An in-depth ESDD of adverse environmental and social impacts and risks is obligatory for FC-measures categorised as Category A, B+ and B. The executing agency or the funding recipient is responsible for providing the relevant information for the assessment of environmental and social impacts. If required, KfW Development Bank will request the information that is needed for the ESDD from the executing agency, and manages the execution of any further investigations. The recommendations of the ESIA are to be written in an action-oriented manner in an ESMP that also includes the required environmental and social monitoring by the executing agency.

**4.4.2.** An in-depth investigation of the possible adverse environmental and social impacts and risks of a FC-measure can, depending on the circumstances, take place as part of a feasibility study. In the event of significant adverse impacts and risks, further stand-alone studies and respective management plans are required. For FC-measures with significant adverse environmental and social impacts the studies should include the following information:

- identification and assessment of the adverse environmental and social impacts and risks of the FC-measure;
- avoidance or mitigation as well as sufficient protection and offset measures for the remaining impacts and risks;
- opportunities for the FC-measure to enhance positive environmentally and socially-relevant impacts (enhancement measures);
- management of environmental protection measures and social measures as well as occupational health and safety;
- monitoring of environmental and social aspects (development, effectiveness of mitigation measures) during implementation and operation of the FC-measure; and
- stakeholder engagement (see section. 4.9).

**4.4.3.** If there is a considerable loss of livelihood due to land taking or if project affected persons are impacted by involuntarily resettlement, a stand-alone Livelihood Restoration Plan

(LRP), a Resettlement Action Plan (RAP) or Resettlement Policy Framework (RPF) must be developed. This plan must be available at the time of the assessment of the FC-measure.

**4.4.4.** The assessment of a FC-measure also considers all necessary associated facilities required to establish and operate the FC-measure, or without which the FC-measure would not be viable (e.g., access roads, power lines for transmitting energy from a power station). If the FC-measure financed by KfW Development Bank is used as associated facility for another investment (e.g., power lines for transmitting energy from a wind farm), KfW Development Bank also assesses whether the other investment aligns with the requirements of KfW Development Bank and if subsequent improvements are possible. The impacts and risks as a result of the cumulative effects with other projects within the region (e.g., hydropower in one catchment and the downstream area) are also to be included in the assessment.

**4.4.5.** The executing agency, in consultation with KfW Development Bank, is responsible for the design and implementation of the required studies which are part of the preparation phase of the FC-measure. During the preparation, relevant bodies and agencies of the partner countries responsible for environmental and social issues are to be consulted. Where major mitigation and/or compensation measures are to be expected, the costs of such measures have to be taken into account in the economic feasibility study and included in the funding scheme.

**4.4.6.** If the ESDD reveals that the FC-measure may have adverse environmental and social impacts or risks which cannot be mitigated or modified through technical changes to an acceptable level and no adequate offset can be envisaged, the FC-measure will not be eligible for funding. Funding will also be denied if the FC-measure does not comply with the legal regulations of the partner country or with international agreements.

**4.4.7.** A conclusive appraisal of the FC-measure's environmental and social impacts will be made in the FC-measure appraisal report.

**4.4.8.** The conclusive appraisal must be based on the following basic principles:

- The main results are the identification of appropriate measures to adequately address the weaknesses identified during the appraisal in order to avoid, minimise or, where appropriate, offset adverse impacts.
- The FC-measure proposes solutions for appropriate protection measures which are commercially viable and socially acceptable.
- Local operators must have adequate technical skills to handle the proposed pollution control measures while ensuring proper operation of their facilities.
- Capacities, management systems and available funds for the implementation the protection measures identified to mitigate or offset adverse social consequences are to be confirmed. In that respect, it is necessary to determine the share of expenditure within in the framework of the KfW financing and the contribution of the executing agencies.

**4.4.9.** The implementation of the mitigation measures identified as a result of the ESDD to avoid or mitigate adverse impacts and risks, as well as – where required – offset measures, will be stipulated as binding for the executing agency in the financing agreements. KfW Development Bank requires regular reports on the implementation, and on corrective actions taken if measures have not been adequately implemented or if the objectives of these measures have not been achieved.

## **4.5. Specifics for FC-Measures with Programmatic Character**

**4.5.1.** If a FC-measure consists of separate smaller or larger sub-projects that will be identified, defined and prepared in more detail only after appraisal stage, categorisation at the

screening stage is based on considering the potential environmental and social risks associated with the project types or sector(s) in which these activities are planned. It is required to develop an Environmental and Social Management Framework (ESMF) for this type of FC-measures, which sets out the principles, rules, guidelines, and procedures to assess the environmental and social risks and impacts as well as the measures and plans to reduce, mitigate and/or offset adverse risks and impacts. If it is conceivable that physical resettlement and/or loss of livelihood will be caused as a result of one or several sub-projects of the FC-measure, a Resettlement Policy Framework (RPF) is usually prepared. No physical resettlement of people shall take place until a project-specific RAP has been developed and agreed by KfW Development Bank. The ESMF and/or the RPF are subject of the ESDD by KfW Development Bank. Their subsequent implementation of the sub-projects is defined within the financing agreement and monitored through reporting and site visits.

**4.5.2.** KfW Development Bank reserves the right to undertake an appraisal or approval of sub-projects in critical areas, on a case-by-case basis, such as for Category A projects.

#### **4.6. Specifics for Programme-Based Approaches (PBA): Results-Based-Finance (RBF) und Policy-Based-Finance (PBF)**

**4.6.1.** The financing of result- and programme-based approaches is characterised by the fact that funding is linked to the achievement of pre-agreed results, relevant for development or the development and implementation of (sector) policy reforms. Unlike to traditional investment projects, costs are not reimbursed but achievements of agreed outcomes are rewarded. In contrast to FC-measures with project or programme characteristics, PBF/RBF are broadly defined and may cover a wide range of measures, from specific project investments to general or sectoral policy reforms or basket financing. Therefore, depending on the structure of the measure, very different types of assessment studies may be needed. The categorisation is based on the potential environmental and social risks that could arise from the planned reforms or outcomes.

**4.6.2.** The analysis and assessment of the potential environmental and social impacts and risks are carried out in the context of the given country system and legislative framework of the sector. This may range from a specific ESIA for an infrastructure measure to a general ESDD of the current legal and institutional context, identifying potential risks and developing approaches to mitigate these risks.

#### **4.7. Specifics for Fast-Track Emergency Procedure (e.g., in the event of natural disasters, crises and conflicts)**

**4.7.1.** Fast-track emergency procedures cover generally emergency aid and/or removal of damages caused by natural disasters, crisis and/or conflict situations, which require immediate response and timely implementation. Hence, a procedure adapted to the specifics of the context is applied for the ESDD. In a shortened screening phase, the FC-measure is categorised as for all FC-measures (see 4.3). The screening determines also if an in-depth ESDD is required, and if so, what scope the ESDD shall have. If impacts and risks are considered moderate, the relevant E&S activities such as preparation of studies and management plans can be carried out in parallel with implementation – meeting both the urgency for fast-tracked procedures as well as the appraisal requirements.

#### **4.8. Specifics for the Financing with Financial Intermediaries (FI)**

**4.8.1.** The objective of the ESDD (as part of the due diligence) for FC-measures with FIs is to anticipate risks and prevent any potential adverse environmental and social impacts and risks that may arise from sub-loans granted by the FI and are refinanced by KfW Development Bank (in accordance with to WB ESS 9). The categorisation is carried out in accordance with section

4.3 with the pre-fix “FI”<sup>9</sup>, whereby in addition to the potential environmental and social impacts and risks of the sub-loans, the organisational capacity of the FIs to manage these impacts and risk also determines the categorisation.

**4.8.2.** The scope of the ESDD of the FI depends on:

- the significance and relevance of environmental and social risks associated with the planned funding area, and
- the FI's procedures and capacity to assess environmental and social concerns and to monitor loans in its existing portfolio.

The ESDD includes an appraisal of the FI's environmental and social management system (ESMS) in particular. As a rule, KfW Development Bank will not carry out an appraisal of the environmental and social impacts and risks of each individual sub-loans, but instead relies on this on the FI's ESMS and screening procedures (for exceptions see 4.8.5).

**4.8.3.** If KfW Development Bank holds shares in an FI e.g., in a fund, a bank or similar, everything under 4.8 applies to the entire FI-portfolio, and is not limited to the financing and the associated sub-loans.

**4.8.4.** The following is to be agreed with the FI:

- a) The development and implementation of an appropriate ESMS, commensurate with the envisaged financing. The ESMS shall meet the requirements of IFC PS 1/WB ESS 1 and include human resources management approaches in accordance with IFC PS 2/WB ESS 2. In addition, KfW Development Bank works with the partner institution towards the basic principles of “responsible finance”<sup>10</sup> in dealing with their clients;
- b) appropriate monitoring of the environmental and social risks in the FI's portfolio;
- c) implementation of a grievance mechanism; and
- d) regular reporting on the implementation and/or modifications of the ESMS as well as the environmental and social aspects of the FC-measure (line of credit) as appropriate.

With respect to the particular sub-loans:

- e) screening of all sub-loans against the Exclusion Lists for FIs of KfW Development Bank;<sup>11</sup>
- f) appraisal and categorisation of the sub-loans by the FI based on their environmental and social risks;
- g) all sub-loans must meet the national requirements and be assessed appropriately in accordance with the national environmental and social laws and regulations;
- h) all sub-loans must be in accordance with IFC PS/WB ESS 1 and 2 as well as WB ESS 10 and the ILO Core Labour Standards;
- i) all sub-loans with one or more of the following environmental and social risks: resettlement, adverse risks or impacts on Indigenous Peoples, significantly adverse impacts on the environment, community health and safety, labour and working conditions, biodiversity or cultural heritage must meet the requirements of the relevant IFC PS/WB ESS 3–8; and

<sup>9</sup> When sub-loans of a FC-measures are likely to fall into different categories, the highest risks determine the category for the FC-measure as part of the precautionary principle

<sup>10</sup> [Responsible Finance – Guiding principle of KfW when developing financial systems \(2019\)](#)

<sup>11</sup> [Exclusion List of KfW Group](#) and [IFC Exclusion List – Version 2007](#) (for Financial Intermediaries of KfW Development Bank)



- j) the borrower of the sub-loan must be required to adequately inform the project affected persons about the impacts and risks of the measures that is financed through the sub-loan.

**4.8.5.** KfW Development Bank reserves the right to approve or reject any sub-loan in critical areas, e.g., sub-loans with potentially high environmental and social risks (Category A) .

**4.8.6.** If the support of a Microfinance institution is focused on a large number of very small sub-loans (e.g., refinancing complete loan portfolios), the assessment needs to determine whether the introduction of an ESMS is commensurate with the number of loans and the scale of the adverse environmental and social impacts and risks that are to be expected. In any event, it is crucial to examine the FI portfolio and its previous track record in dealing with environmental and social concerns.

**4.8.7.** Deviations from the agreements stipulated in section 4.8 are only permitted in justified exceptional cases and must be documented accordingly. If the agreements of individual FIs cannot be implemented immediately, a concrete action plan must be agreed or individual final loans be excluded.

## **4.9. Stakeholder Engagement and Grievance Management in FC-measures**

**4.9.1.** An important element of the ESDD planning and decision-making process is to involve the affected communities and keep the public in the partner country informed. Stakeholder Engagement e.g., in form of public hearings, are to be scheduled for the scoping phase of the ESIA process and for the presentation of the draft ESIA report, in order to consult with the affected persons and/or their community representatives, stakeholders, cooperatives or non-governmental organisations (NGOs). The executing agency is required to conduct a meaningful participation and consultation process that allows affected people and interested stakeholders to express their views and concerns on project risks, impacts and the proposed mitigation measures. At the same time, the process shall also enable the executing agency to take these views into account and react. For the sake of transparency, the executing agency is required to disclose relevant information and a non-technical summary on the environmental and social assessment of the FC-measure via appropriate media channels at an accessible location and in a timely, culturally appropriate manner. The whole process shall be comprehensive and be implemented throughout all phases of the FC-measure.

**4.9.2.** The executing agency is to establish a grievance process for the FC-measure for receiving and dealing with concerns and complaints of employees and members of the affected public. The procedure should be culturally appropriate and proportional to the FC-measure. Grievances and their processing and resolution are to be documented and form part of the reporting to KfW Development Bank.

# **5. Climate Mainstreaming of FC-measures**

## **5.1. Objectives and Core Elements**

**5.1.1.** All funding activities of KfW Development Bank must be subject to climate mainstreaming as defined in this Guideline.

**5.1.2.** The objective of climate mainstreaming is to consistently consider climate change from the early start of all FC-measures and therewith align KfW Development Bank's portfolio with

the challenges posed by climate change wherever it is reasonable and needed. These challenges relate to climate change mitigation (reducing green-house gas (GHG) emissions) and adapting to climate change (increasing the resilience of people, countries and economic systems, infrastructure and ecosystems to the negative impacts of climate change). The aim is to achieve positive climate-related effects, leverage potentials associated with climate change and reduce climate-related risks to the sustainability of FC-measures, whenever possible. Therefore, for each FC-measure, possible opportunities for climate mitigation and adaptation aspects are evaluated in the early project planning phase in order to identify all climate-related aspects at an early stage and consider them in the feasibility studies. Since feasibility studies, as well as the subsequent implementation are carried out by the project-executing agencies, it is also possible to support the planning and implementation capacity of the executing agency and partner countries so that they may further benefit from KfW Development Bank's experience in climate-related matters.

**5.1.3.** Climate mainstreaming does not only refer to the FC-measure financed by KfW Development Bank but considers the entire project and ideally also the overall activities of the executing agency. That means that if climate-related potentials or risks are identified, in particular the FC-measures and related project components are taken into account and suitable measures to leverage potentials and address risks are agreed with the executing agency.

**5.1.4.** When implementing climate mainstreaming of FC-measures, KfW Development Bank adheres to the KfW Group Sustainability Mission Statement and the specific developmental concepts and guidelines of the German federal government for development cooperation.

## **5.2. Climate Change Mitigation**

**5.2.1.** For climate Change Mitigation, the focus of the approach is on reducing GHG emissions and avoiding excessive GHG emissions. In order to slow down global climate change and to limit the increase of the average temperature in accordance with the Paris Agreement to well below 2°C – if possible 1.5°C – the emission of greenhouse gases needs to be reduced continuously until a net-zero greenhouse gas neutrality has been achieved. Therefore, climate protection focuses on the reduction, avoidance and sequestration of greenhouse gas emissions.

**5.2.2.** As a first step, an initial screening process is conducted as part of project preparation to evaluate

- if the Exclusion List<sup>12</sup> and Paris-compatible Sector Guidelines<sup>13</sup> of KfW Group are met. and
- which potentials might exist to reduce GHG emissions or further increase the reduction of GHG emissions (in case of FC-measures that specifically focus on mitigation). This may also relate to the potential to sequester carbon in soils and in vegetation.

**5.2.3.** Based on these early findings, the aspects that are relevant to climate change mitigation are incorporated into the feasibility study for the FC-measure. The feasibility study then describes and lays out how GHG emissions are expected to evolve in the project area/sector, whether the FC-measure will contribute to higher or lower GHG emissions, whether it is compatible with the country's climate strategy, e.g., the Nationally Determined Contributions (NDC) under the UN Framework Convention on Climate Change, and whether there are any potentials to reduce GHG even further. On this basis, options are developed for ways to reduce GHG and where applicable – considering the effectiveness in terms of development policy, and cost – these are integrated into the FC-measure. The calculation of the FC-measure related reduction of GHG, and, respectively, the calculation of the carbon footprint, is based on internationally recognized standards that are applied to the relevant sectors.

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<sup>12</sup> [Exclusion List of KfW Group](#)

<sup>13</sup> [Paris-compatible sector guidelines](#)

**5.2.4.** A risk assessment is conducted to examine whether the emissions caused by the FC-measure are proportionate or whether, from a mitigation perspective, implementation should not be carried out.

### **5.3. Adaptation to Climate Change**

**5.3.1.** Here, climate mainstreaming focuses on increasing the population's resilience to the effects of climate change as well as preventing risks generated by climate change.

**5.3.2.** An initial screening process as part of project preparation examines whether the area of implementation of the FC-measure is exposed to climate-related risks that would have an impact on the project concept, or whether such risks could emerge in the future. If the FC-measures involve the construction of long-term infrastructure or if there is a foreseeable risk that the FC-measure could exacerbate the effects of climate-related risks, particular attention is paid to this in the screening process.

**5.3.3.** This initial screening provides the basis for the development of the feasibility study for the FC-measure that contains the aspects relevant for adaptation. The analysis carried out during this process is based on the methodology for analysing climate risks described in the fifth expert report from the United Nations Intergovernmental Panel on Climate Change (IPCC). Based on this method, the first step is to examine what effects could be achieved through the FC-measure that would increase resilience to the impacts of climate change. This could be, for example, to reuse treated wastewater in case of drought or cultivate hardy crops. The next step is to analyse the climate-related risks to the success of the project. The risk assessment covers two key aspects:

- a) It is assessed whether the effects of climate change (such as an increase in extreme weather events) could endanger the sustainability of the FC-measure. In order to mitigate this risk, adequate measures are identified and implemented. These might include adapting the construction methods of the infrastructure, choosing an alternative location or providing accompanying financial support, e.g., by offering access to special insurance products. If no suitable adaptation measures can be identified, consideration must be given to not pursuing the FC-measure further.
- b) It will be ensured that the FC-measure does not exacerbate the effects of climate change on populations or ecosystems outside of the system that the FC-measure is targeting (e.g., building flood protection could increase the flood risk downstream). Again, appropriate countermeasures must be implemented as part of the FC-measure.

**5.3.4.** When designing the FC-measure, attention must be paid that the intended measures are compatible with the country's climate strategy, e.g., with the National Adaptation Plan (NAP) under the UN Framework Convention on Climate Change.

### **5.4. Specifics for FC-Measure with Programmatic Character**

**5.4.1.** If a FC-measure consists of separate smaller or larger individual projects that will be identified, defined and prepared in more detail after the appraisal stage, climate mainstreaming is mandatory for each individual project. The analysis of climate-related potentials, effects and risks is carried out for the individual projects of the FC-measure to the extent possible at appraisal stage. Otherwise, an agreement should be reached with the executing agency that individual appraisals will be carried out in line with the stipulations on climate mainstreaming. KfW Development Bank reserves the right to undertake an appraisal or approval of individual projects in critical areas on a case-by-case basis.

## 5.5. Specifics for Programme-Based Approaches (PBA): Results-Based-Finance (RBF) und Policy-Based-Finance (PBF)

**5.5.1.** The financing of results- and programme-based approaches is characterized by the fact that funding is linked to the achievement of pre-agreed results, relevant for development or the development and implementation of (sector) policy reforms. Analysis and evaluation of potential effects of the reforms on climate-related effects and risks is also part of climate mainstreaming.

## 5.6. Specifics for the Financing with Financial Intermediaries (FI)

**5.6.1.** The objective of climate mainstreaming for FC-measures with FIs is to assess climate related potentials, effects and risks and to prevent potential negative impacts from risks that may arise from sub-loans granted by the FI and are refinanced by KfW Development Bank. The analysis of climate-related aspects is conducted similarly to sections 5.2 and 5.3, but climate mainstreaming also examines the FI's capacity to deal with the effects of climate change. Depending on the FI's institutional capacity to adequately address adaptation and mitigation-related climate risks, additional accompanying measures to ensure the sustainable development of climate-related processes within the FI may be incorporated into the concept of the FC-measure.

**5.6.2.** KfW Development Bank reserves the right to approve or reject sub-loans in areas with a high level of climate risk. The FI has to apply the Exclusion List<sup>14</sup> and Paris-compatible Sector Guidelines<sup>15</sup> of KfW Group to all sub-loans refinanced by KfW Development Bank.

# 6. Sustainable Implementation of FC-measures

## 6.1. Monitoring and Reporting

**6.1.1.** In order to implement an effective monitoring of any adverse environmental, social and climate impacts and risks, the executing agency and/or the recipient of the funds have/has to agree to certain reporting and notification requirements and implement appropriate monitoring tools. Attention should be paid to the enforceability and practicability of the monitoring tools during construction, commissioning and operation and, if relevant, also during decommissioning. In order to monitor the environmental, social and climate impacts and risks of a FC-measure, it is particularly important to track the implementation of the agreed mitigation measures and monitoring procedures. If an ESMP has been developed, it will be used as a basis for monitoring. The same applies to an ESAP. If deemed necessary due to the complexity of the circumstances, KfW Development Bank may require – in consultation with the executing agency – an independent third-party monitoring.

**6.1.2.** The results of the implementation of resettlement and livelihood restoration activities are to be assessed as part of a separate completion audit.

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<sup>14</sup> [Exclusion List of KfW Group](#)

<sup>15</sup> [Paris-compatible sector guidelines](#)

## 6.2. Sustainable Procurement at KfW Development Bank

**6.2.1.** For the implementation of the individual components of a FC-measure, external consultants are usually commissioned with the planning and tendering process, and one or more contractors (e.g., supplier, construction firm, plant manufacturer) are commissioned to implement the measures. In order to take environmental and social aspects appropriately into account for the implementation of the FC-measures – in particular for FC-measures of Category “A” and “B+” – the selection of the commissioned companies and the solutions they propose are extremely important. The procurement process offers the following possibilities to influence E&S mainstreaming in the process:

- planning the tendering process – e.g., reducing environmental impacts through the specification of certain minimum and maximum values or focusing upon the environmental quality label (e.g., FSC - Forest Stewardship Council®);
- bidder pre-qualification – integration of project references and how the companies manage environmental and social as well as occupational health and safety aspects including relevant certifications (e.g., ISO 14001, ISO 45001);
- evaluation of the proposals – e.g., bonus system for eco-friendly systems / products;
- contractual arrangements – contractual embedding of relevant parameters, ILO core labour standards and occupational health and safety measures on the construction site including the definition of penalties in the event of non-compliance.

**6.2.2.** To support the executing agency with the implementation of sustainable procurement, KfW Development Bank provides, besides a toolbox for sustainable procurement,<sup>16</sup> also mandatory Standard Bidding Documents.<sup>17</sup> The toolbox includes explanations of methods and offers procedures that can be used in the individual procurement phases. The Standard Bidding Documents provided by KfW Development Bank include respective requirements and regulations for the tendering of consulting services, construction services and building contracts. If an executing agency may not be able to use these standard bidding documents due to regulatory restrictions, the executing agency must include respective requirements in the bidding documents that are used.<sup>18</sup>

## 6.3. Complaint Management at KfW Development Bank

**6.3.1.** The procedure for managing complaints at KfW Development Bank enables the public to express negative perceptions and criticism about FC-measures, i.e., also related to environmental and social sustainability aspects. Complaints can be filed to KfW Development Bank via a dedicated page on the KfW Development Bank website, where an online complaint form<sup>19</sup> in both German and English is available. Besides transparency, this procedure enables KfW Development Bank to treat complaints in a structured and categorised way, track them systematically and responded quickly. Further, it enables KfW Development Bank to make systematic use of project-related and process-related improvement potentials. Since 2016, the section on KfW Development Bank in the KfW Group Annual Report includes a summary of the complaints received sorted by topic and – where appropriate – any resulting consequences.

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<sup>16</sup> [Toolbox Sustainable Procurement](#)

<sup>17</sup> [Standard Bidding Documents under guidelines and contracts](#)

<sup>18</sup> This requirement arises from the new procurement guideline of KfW Development Bank, valid since January 1<sup>st</sup>, 2019 for all FC-measures appraised thereafter.

<sup>19</sup> [Online Complaint Form](#)

## 7. Transparency at KfW Development Bank

**7.1.** KfW Development Bank uses the Project Database<sup>20</sup> in its Transparency Portal (only available in German) to disclose information of FC-measures with funding agreements signed after March 2013. The database is updated monthly and contains information on FC-measure level. Since mid-2019, the environmental and social risk Category has been included, and from 2020 on, a short summary of the ESDD results will also be added.

**7.2.** Detailed information of all FC-measures that are implemented on behalf of the BMZ is published via the International Aid Transparency Initiative (IATI) information system of the BMZ. The information is updated monthly, according to IATI standards.

## 8. Validity and review of this Guideline

**8.1.** This Guideline is binding for all FC-measures from February 28<sup>th</sup>, 2022. It will be reviewed in 2023 if modifications or adjustments are required.

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<sup>20</sup> [Project database](#) (German only)

# Annex

## **Illustrative list of FC-measures which may have potential significant adverse environmental and social impacts**

The following is an illustrative list of FC-measure types and measures that have the potential to cause significant adverse environmental and/or social impacts and can therefore be assigned to Category A and B+ or B (where adverse impacts are less significant and reversible).

1. Extensive and significant changes to the use of natural resources (e.g., changes in the use of soils as farmland, as forest or pasture land, for rural development, commercial timber production, etc.) as well as extensive land reclamation.
2. Extensive and significant changes to management methods in agriculture and fishery (e.g., introduction of new plant species, large-scale mechanisation, introduction of new fish species) and extensive logging.
3. Use of water resources (e.g., large dams and other impoundments, pumped-storage systems/power stations, irrigation and drainage projects, deep wells, water resource management and management of catchment areas, water supply, sea water desalination plants).
4. Infrastructure (e.g., roads, bridges, airports, ports, transmission lines, pipelines, railroad networks, other rail transport, tourism).
5. Energy generation (e.g., large wind farms, extensive solar parks, biomass plants, geothermal plants, thermal power stations).
6. Industrial activities (e.g., metallurgic works, timber processing plants, chemical factories, cement factories, refineries and petrochemical plants, agro-industries).
7. Use of geological resources, mining, etc. (e.g., mines, quarries, peat exploitation, oil and natural gas production).
8. Waste and wastewater management and removal (e.g., sewerage systems, wastewater treatment plants, landfills, treatment plants for domestic and hazardous waste).

Further classification criteria can be found in section 4.3.3 of the main text.

*NOTE: This is a translation of the German version. In case of divergence, the German version shall prevail.*

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**Editing**

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