

ENVIRONMENTAL MANAGEMENT PLAN (EMP)



APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE PROPOSED INFRASTRUCTURE UPGRADE AT OTJOVASANDU ANTI- POACHING UNIT (APU) CAMP (A&B), WILDLIFE PROTECTION SERVICES (WPS), OTJOVASANDU, ETOSHA NATIONAL PARK (ENP)

Prepared for:



Ministry of Environment,
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ACRONYMS

BID	Background Information Document
DEA	Department of Environmental Affairs
DSR	Draft Scoping Report
DWNP	Directorate of Wildlife and National Parks
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Compliance Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act (No. 7 of 2007)
EMP	Environmental Management Plan
GHG	Greenhouse Gases
KFW	Kreditanstalt für Wiederaufbau
I&APs	Interested and Affected Parties
IWPP	Integrated Wildlife Protection Programme
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
PPE	Personal Protective Equipment
SM	Site Manager
TEC	Tortoise Environmental Consultant

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1. INTRODUCTION

1.1. Terms of Reference

With support from the Kreditanstalt für Wiederaufbau (KfW) Development Bank, the Integrated Wildlife Protection Project (IWPP), is assisting the Directorate of Wildlife and National Parks (DWNP) to upgrade infrastructure for Wildlife Protection Services (WPS) both inside and outside National Parks, targeting the Anti-Poaching Unit (APU) camps and equipment.

The IWPP appointed Tortoise Environmental Consultants (TEC) to undertake an Environmental Impact Assessment (EIA) process on behalf of the Ministry of Environment, Forestry and Tourism, to obtain an environmental clearance Certificate (ECC) for the upgrading of the Otjovasandu APU camp (A&B).

1.2. Motivation for ECC Application

At present, the Otjovasandu APU camp (sections A and B) lacks adequate accommodation facilities for the staffs. The existing brick structures, which are in good condition cannot accommodate everyone. The other housing units are pre-fabricated Bavarian type structures, which are old, dilapidated and largely non-inhabitable.

The camps also have outdated sewer systems, while they are dependent on diesel powered generators for electricity supply both for household use and water supply. The poor infrastructure exposes them to harsh weather conditions and could somewhat lead to reduced morale and motivation to perform their functions.

As a result, the MEFT intent to upgrade the current APU camp into a much more formalised Wildlife Protection Services (WPS) base camp, through infrastructure upgrades focusing on:

- Housing (Sleeping units)
- Admin and Operational structures
- Water supply and storage
- Wastewater management system
- Solid waste management

The Otjovasandu WPS base camp is crucial to enhance MEFT's capacity in dealing with poaching and other wildlife protection activities in the Etosha National Park (ENP).

1.3. Environment versus Infrastructure Development

It is important to note that, development to take place on land and certain materials are required from the land / environment.

This implies that, for development to take place, some part of the environment may be affected e.g access roads, vegetation clearing, water abstraction, wastewater discharge, solid waste disposal, sourcing of building sand and gravel, etc.

The Otjovasandu APU camps (A and B) already exists and have been used by MEFT for many years. The intention is to upgrade some of the existing infrastructures and also construct new ones within the same boundaries. In this scenario, the APU camp sites are no longer in their natural states and can be quantified as disturbed sites. In environmental terms, this is referred to as an existing footprint.

The proposed infrastructure upgrades and construction of new structures are not new footprints to the environment, and will contribute to existing footprint.

Although, the site has an existing footprint, the proposed activities should apply mitigation measures to ensure minimal damage to the environment.

1.4. Environmental Management Plan (EMP) Context

This document constitutes the Environmental Management Plan (EMP) for the application of an Environmental Clearance Certificate for the Proposed Infrastructure Development at Otjovasandu APU Camp (A&B). The development of the EMP is in accordance with the provisions of the Environmental Management Act (Act No.7 of 2007), the EIA Regulations of 2012 and any other relevant/applicable legislation (across all sectors).

1.5. What is an EMP?

The Environmental Management Plan (EMP) is a tool used to mitigate potential environmental risks associated with the proposed project/activity and provides a risk management strategy and logical framework for the implementation of the activities associated with the proposed infrastructure upgrade. This is done to minimize potential environmental and social impacts identified during the EIA process, in accordance with the provisions of the Environmental Management Act (Act No.7 of 2007), EIA Regulations of 2012 and any other relevant/applicable legislation.

As a result, the EMP recommends mitigation measures in order to ensure that the recommended upgrading and operation of the APU camp and associated activities are conducted in an environmentally friendly manner and in accordance with the provisions of the Environmental Management Act and EIA regulations

Furthermore, the EMP outlines specific roles and responsibilities for role-players against which they can be evaluated and non-compliance is punishable.

1.6. Purpose of the EMP

The purpose of the EMP is to identify potential environmental and social impacts associated with the upgrading and operation activities, in-order to ensure compliance to the EMA.

The aim of the EMP is to ensure that the activities undertaken during the upgrading of the APU camps are conducted in accordance with the following:

- i. Environmental Management Act (No. 7 of 2007),
- ii. EIA regulations of 2012 (GN: 30), and
- iii. Best environmental practices (benchmarks)
- iv. Any other applicable legislation (*as presented in Table 3.1 to 3.3*)

The EMP provides environmental guidelines to be adhered to, throughout the lifespan of the campsite activities.

1.7. Objective

The objective of the EMP is to prevent/minimize (where possible), unacceptable and adverse environmental, social or economic impacts that may arise from the proposed development. Overall, the EMP aims to minimise negative impact/s (real, potential or perceived) that may result from the proposed APU camp upgrading activities.

1.8. EMP Scope

The EMP does not only focus, and it is not limited to the upgrading/ construction and operation activities of the APU camp. It includes the bigger picture, and serve as the guiding tool to protecting the natural, bio-physical and socio-economic environment on both the specific site and the surrounding area. The bigger picture is important because some impacts may not be confined to the APU camp.

1.9. Possible adjustments to the EMP

The EMP is an open-ended document and may be considered inconclusive. In other words, the EMP should allow room for adjustments if new information becomes available at a later stage, in which new/additional mitigation measures may become necessary.

The necessity of possible adjustments to the EMP at a later stage may be attributed to:

- a) Lack of information at the time of drafting the initial EMP,
- b) Evolution or addition of new activities, or
- c) Unintended omission of potential impacts during the initial EIA scoping exercise and development of the initial EMP.
- d) Development of industry best practice.

This implies that, in-addition to the information contained herein, any other relevant information that may surface during the renovation, construction and operations, through internal monitoring or auditing by the Environmental Compliance Officers (ECOs), can be added to the EMP (evolution of activities), and such changes or inclusions will be binding to the proponent and all contractors / sub-contractors.

1.10. Implementation Framework and Accountability to the EMP

For effective implementation of the EMP, the Institutional roles are presented below. However, the institutional framework, as well as the specific roles and responsibilities are defined and broken down in Sections 4 and 5 respectively.

Table 1-1: Role players, Institutional Framework

Role-player	Company / Institution	Role
Proponent	Ministry of Environment, Forestry and Tourism	Compliance to the EMP
Environmental Consultant	Tortoise Environmental Consultants (TEC)	Development of the EMP
Environmental Compliance Officer/s (ECO)	Ministry of Environment, Forestry and Tourism – Department of Environmental Affairs (DEA)	Monitoring Compliance to EMP: ➤ Un-announced spot checks, ➤ Corrective measures, warnings, penalties/fines, license suspension, etc
Public	Interested and affected parties (I&APs)	Report to the ECO, any activity of environmental concern (e.g. Pollution, safety risks, etc.)

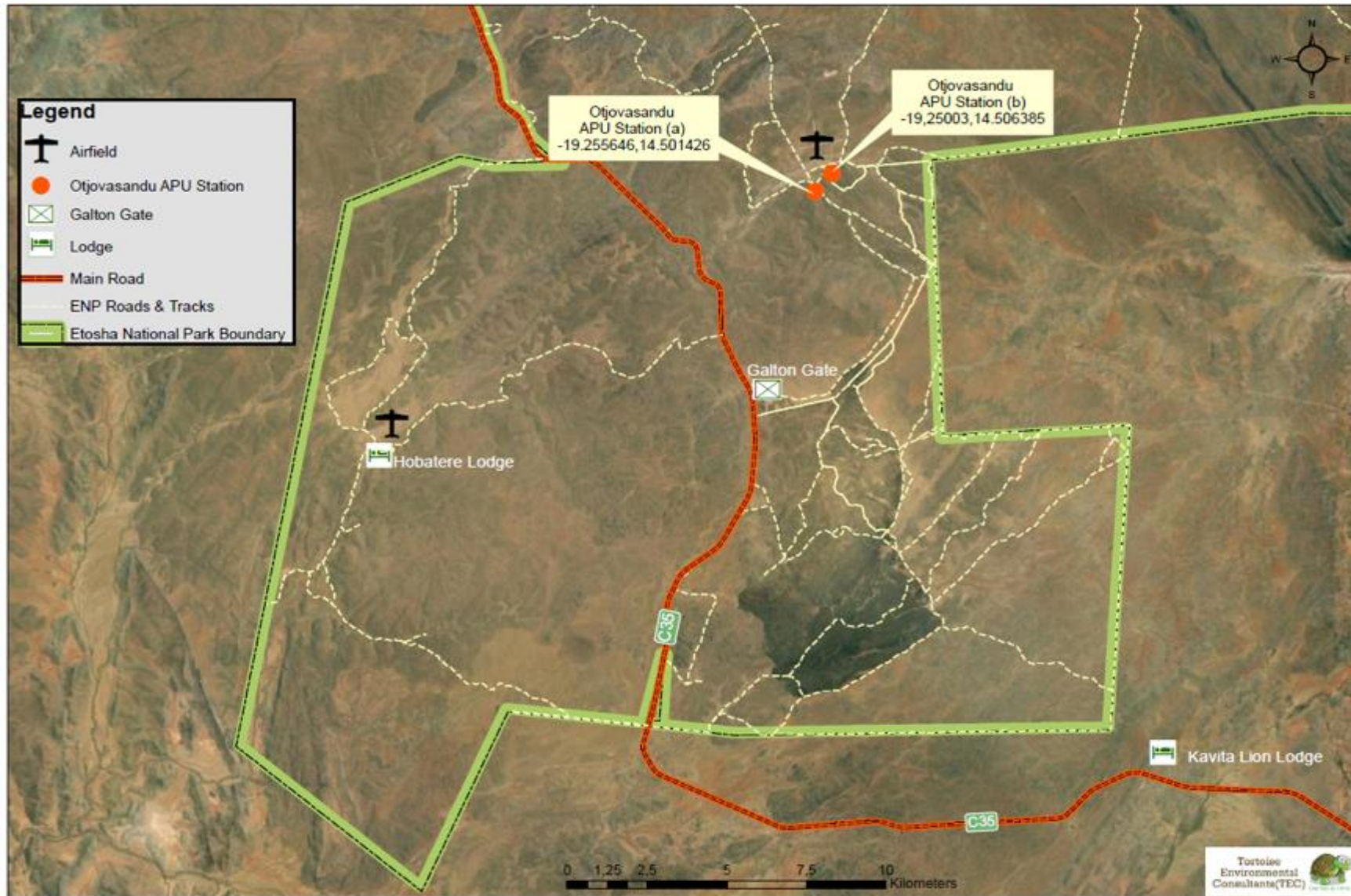


Figure 1-1.1: Locality map showing Otjovasandu A & B APU Camps

2. CURRENT FOOTPRINT

The Otjovasandu APU camp is divided into two sections (A and B). The 2 sections are located about 1.5km apart, on either side of the main road from Olifantsrus to Galton gate and occupy a combined area of about 12ha.

2.1 Project Location

Otjovasandu APU camp is the located at the old Otjovasandu Ranger Station, in the western part of the Etosha National Park.

The Otjovasandu APU camp is divided into two sections (A and B). The 2 sections are located about 1.5km apart, on either side of the main road from Olifantsrus to Galton gate and occupy a combined area of about 12ha.

Camp location: GPS coordinates: Latitude -19.255646 and Longitude 14.501426

2.2 Otjovasandu A (Senior Camp) – Overview

An old and dilapidated, about 2.3m mesh wire fence encloses the Otjovasandu A APU camp. Most parts of this game proof fence is damaged. The camp consist of a prefabricated Bavaria type office block, 4 x brick houses some of which are old, 2 x prefabricated Bavarian houses, a garage, workshop, storeroom, laboratory, and an old parking bay. There are also other old and outdated structures, which are no longer useful.

Table 2-1: An overview of the current infrastructures and equipment at Otjovasandu A APU camp

Item	Description
4 x Brick houses	4 x Two-bedroom houses with a separate kitchen and sitting room of which 2 are currently occupied and the other 2 appears to be a in a poor condition
2 x prefabricated Bavarian houses	Each prefabricated Bavarian house comprise of 1 x bedroom and sitting room
Prefabricated Bavarian office	This structure is in good condition and is currently used as the WPS office
3 x Sewer manholes	3 x sewer manhole structures, of which only one manhole is currently functional and serves 2 of the 4 housing units (brick houses), which are currently occupied
Workshop and garage	The workshop and garage are made of concrete. These two structures are still in good condition, and are suitable for upgrading
Old fuelling point	An old fuelling point with pulleys to load fuel drums

Solar panels	There are two solar panels installed for Wi-Fi and internet server for the office block
Two diesel powered pumps	These two diesel pumps, located at about 1km outside perimeter of the camp, are the mean of water and power supply to both cam A and B
Other structures	An old zinc storeroom, 3 structures constructed from slates, an old weather station, swimming pool, damaged braai stands and other old prefabricated structures

2.3 Existing Camp Infrastructure

2.3.1 Access Road

Otjovasandu A is situated along the main road from Galton gate to Olifantsrust. The camp is located about 12km from Galton gate and about 30m from the main road (figure 2).





Figure 2-1: Existing access road to Otjovasandu A (senior camp)

2.3.2 Perimeter Fence

The camp perimeter is enclosed by a 2.3m high game-proof fence, supplemented with mesh wire of approximately 1m high from the ground. Some sections of the perimeter fence are damaged.

Table 2-2: The current state of the perimeter fence (Otjovasandu A)

Description	Picture
The perimeter fence of the APU camp (Otjovasandu A)	
Some parts of the camp perimeter fence are damaged	

2.3.3 Housing Units

There are four (4) brick houses. Two of the houses have been renovated recently and are in a decent condition, while the other two are in a poor condition.



Figure 2.2: One of the renovated staff house (left), and office block (Otjovasandu A).

Apart from the recently renovated houses, there are also other structures such as the small office, which is in a good condition. There are also prefabricated Bavaria staff houses are mostly in a dilapidated condition.


2.3.4 Water source and storage

Table 2-3: Water source and storage

Description	Picture
<p>Water is sourced from a borehole, pumped with diesel-powered engine.</p>	
<p>Water Storage - The borehole pumps water into a reservoir, located on a hill between the two base camps, and then piped to the 2 camps via gravity</p>	

2.3.5 Energy source

Table 2-4: Current power sources for the senior camp


Description	Picture
<p>The 2 camps are powered by one (1) diesel generator (which is centrally located).</p> <p>The generator operates at 2 intervals, from 07h00 – 13h00 and 17h00 – 22h00.</p>	



2.3.6 Sanitation (sewer management)

There is a number of manholes and a conservancy tank. Only the conservancy tank seem to be functional, onto which two houses are connected. However, in the absence of a sewage removal truck to empty the conservancy tank, the effluent overflows into the nearby riverbed.

Table 2-5: The sewer collection infrastructure at Otjosovandu base camp A

Description	Disposal method	Picture
<p>Conservancy tank and manholes</p>	<p>The effluent is supposed to be pumped out and disposed elsewhere, but there is no removal truck and the effluent currently overflows into the environment</p>	



2.3.7 Solid Waste

Household waste (plastics and cans) is collected in waste bins and 200 L steel drums. Once the bins are full, solid waste is collected and transported to the dumping site for disposal (about 4km from the APU camp).

Combustible waste materials are burned to prevent waste such as plastics and tissue from piling up or been blown all over the park.

Although enclosed in a fence, the gate does not close and there are holes in the fence, and thus the dumpsite is accessible by wild animals (wild animals might end-up feeding on some of the waste e.g cardboardes, plastics, tissues, etc)

Table 2-6: Current state of waste disposal at the camp

Description	Disposal method	Picture
General household waste	Household waste is collected in marked plastic (green) and steel waste bins (orange)	
Bones and other wastes	Other solid wastes such as bones, bottles, tin/cans and plastic bottles visibly seen scattered inside the base camp.	

2.4 Otjovasandu B (Junior Camp) - Overview

Otjovasandu B APU cam comprises of 7 x brick houses, 10 x Bavarian type houses (prefabricated), 4 x Kimbo houses (wooden) and several concrete platforms suitable for camping. The seven brick housing units are still in good condition and are currently occupied by APU / WPS staff. The prefabricated Bavarian and Kimbo houses are in very poor conditions (dilapidated) and are currently not occupied.

Otjovasandu B camp also includes a section that served as the base camp for the road contractors called OTESA. This entity was contracted by MEFT to rehabilitate roads in the park. The road rehabilitation work has been completed, but the contractor (OTESA) left behind broken equipment and makeshift accommodation structures.

OTESA's abandoned equipment include 6 broken trucks, 4 large steel containers, concrete diesel mixing tanks/structures, concrete water tank holder, a heap of concrete, bricks, mechanical wastes and solar batteries.

Table 2-7: An overview of the physical infrastructures at Otjovasandu B APU camp

Item	Description
7 x Brick houses	7 x Two-bedroom unit with a separate kitchen and sitting room (currently occupied).
10 x Bavarian houses	10 x 1 bedroom, 1 sitting room prefabricated Bavaria type structures and an outside storage room (very poor condition)
4 x Kimbo houses	Old and dilapidated wooden houses, which are no longer being used
Sewer Manholes	5 sewer manholes connected to / serving the 7 x brick houses
Ablution block	5 x toilets and 5 x showers, initially connected to / serving 10 x prefabricated Bavarian and 4 x Kimbo houses, but currently non functional
Steel containers	4 x large steel containers used as accommodation and storage facilities for the road contractor (OTESA)
6 x Broken Trucks	2 x Tipper, 4 x Tanker trucks, broken and abandoned by road contractor (OTESA)
Diesel handling concrete platform	Concrete platform diesel storage and handling
Water reservoir	Concrete structure, previously used for temporary water storage (reservoir)
Other	Concrete floors with no structures, suitable for use as camping platforms

2.5 Existing Camp Infrastructure

2.5.1 Access road

Otjovasandu B is situated along the main road, about 12km from Galton gate to Olifantsrus, and about 1.5km from Otjovasandu A (figure 4).



Figure 2.3: Access road to Otjovasandu B APU camp

2.5.2 Perimeter fence

The camp perimeter is enclosed by a 2.3m high game-proof fence, supplemented with mesh wire of approximately 1m high from the ground. Generally, the fence is in a relatively good condition, but certain sections may require strengthening.





Figure 2.4: Perimeter fence of the APU Camp – Otjovasandu B

2.5.3 Water source and storage

The two APU camps (Otjovasandu A & B) get water from the same water source.


Table 2-8: The 2 APU Camps (Otjovasandu A & B) depends on the same water source

Description	Picture
<p>Water is sourced from a borehole, pumped with diesel-powered engine</p> <p><i>Same as Otjovasandu A</i></p>	
<p>Water Storage - The borehole pumps water into a reservoir, located on a hill between the two base camps, which then gravitates to the 2 APU camps</p> <p><i>Same as Otjovasandu A</i></p>	

2.5.4 Energy Source

Similar to camp A, the main source of power is a diesel generator, supplying them with power only between 07h00 – 13h00 and 17h00 – 22h00.




Table 2-9: Otjosovandu B APU camp depends on the same source of power as camp A

Description	Picture
<p>A diesel engine generator, which is centrally located, powers the 2 APU camps.</p> <p>The generator operates at 2 intervals, from 07h00 – 13h00 and 17h00 – 22h00.</p> <p><i>Same as Otjovasandu A</i></p>	

2.5.5 Sanitation





The sewer from the seven brick houses collect into five (5) conservancy tanks. The Bavaria and Kimbo houses do not have bathrooms and the occupants initially made use of the ablution block, which are currently not functional.

Table 2-10: Current sewerage collection and management situation at the Otjovasandu B APU camp

Description	Disposal method	Picture
Conservancy Tanks / Wastewater	The toilet effluent collects in the existing conservancy tank. The effluent is supposed to be honey-sucked into a sewer tanker for disposal at the oxidation ponds at the ranger station, at Galton gate	
Shower effluent	Shower effluent is discharged into the environment, just outside the APU camp, thereby forming a wastewater pond	
Ablution block with 5 toilets and 5 showers	The ablution block was initially meant for serving the 10 x prefabricated Bavarian and 4 x Kimbo houses, but it is currently not functional	

2.5.6 Solid Waste Management

Table 2-11: Current solid waste management at Otjovasandu B APU camp

Type of waste	Disposal method	Picture
General household waste	<p>Household waste is collected in waste bins and 200 L steel drums. Once the bins are full, solid waste is collected, and transported to the dumping site (about 4km from the APU camp) for disposal.</p> <p>Combustible waste is burned to prevent plastics and tissue from piling up or being blown out into the park.</p>	
Ash	<p>Firewood is the main source of energy for cooking and the resultant ash is disposed / piled next in the camp for potential reuse.</p>	
Bones and other wastes	<p>Other solid waste such as bones, old tires, bottles, and cans / metals are scattered around the APU camp</p>	
Otjovasandu dumping site, located close to Galton gate, about 4km from Camps A & B	<p>Although enclosed in a fence, the gate does not close and there are holes in the fence, and thus the dumpsite is accessible by wild animals (wild animals might end-up feeding on some of the waste e.g cardboard boxes, plastics, tissues, etc)</p>	

3. PROPOSED INFRASTRUCTURE DEVELOPMENT

The proposed infrastructure upgrades for Otjovasandu APU camp (A & B) entails;

- Demolition and rebuilding of old buildings / structure
- Renovation / upgrading of existing buildings / structures
- Construction of new buildings / infrastructure

The proposed infrastructure upgrades is outlined in table 3.1 and the further illustrated in figures 6 and 7 below.

3.1 Otjovasandu A – Senior Camp

Table 3-1: Proposed infrastructure development at Otjovasandu A (Senior Camp)

Component	Description of the plans
Conversion of 3-bedroom house into an administration building.	The existing 3-bedroom house will be renovated and converted into an administration building with ops room, reception, offices, strong room, meeting room, kitchen and ablution facilities.
Conversion of Hangar into a service building with storerooms.	The Hangar (workshop) will be renovated and converted into a service building with storerooms
Three (3) brick houses	The other three (3) existing brick houses are to be renovated and become houses for the chief warden, warden, one ranger and administration officer
Existing Bavaria-type structure	Conversion of existing Bavaria-type house and office into storerooms
Renovation of existing garage	The existing garage doors are damaged, the building will be renovated
New carport with 4 parking bays	The existing dilapidated carport will be removed and new one erected.
Demolition of obsolete structures	These will be completely demolished and removed
PV system with batteries and standby generator	PV system with batteries will be installed to ensure constant power supply to the station at all time
Rehabilitation of sewer reticulation system and conservancy tank	Old sewer reticulation system and conservancy tanks will be refurbished
Repair/upgrading of the perimeter fence	The damaged perimeter fence will be renovated.



Figure 3.1: Proposed infrastructure upgrade and layout for Otjovasandu – A (photo: IWPP 2023)

3.2 Otjovasandu B - Junior Camp

Table 3-2: Proposed infrastructure development at Otjovasandu A (Junior Camp)

Component	Description of the plans
Construction of new houses	Ten new 1-bedroom houses for rangers and assistant rangers
Upgrading of existing houses.	Renovation of 7 existing brick houses for rangers and assistant rangers
Existing Bavaria structures	Conversion of existing Bavaria-type structures into storerooms
Existing ablution block	Renovation of existing ablution block for the campsite
PV system with batteries and standby generator	PV system with batteries and standby generator(housed in a container) will be installed to ensure constant power supply to the station at all time
Kennels for K9 unit	Installation of Kennels for K9 unit
Sewer reticulation system and conservancy tank	The existing sewer reticulation system and conservancy tank will be refurbished
Perimeter fence	Repair/upgrading of the perimeter fence

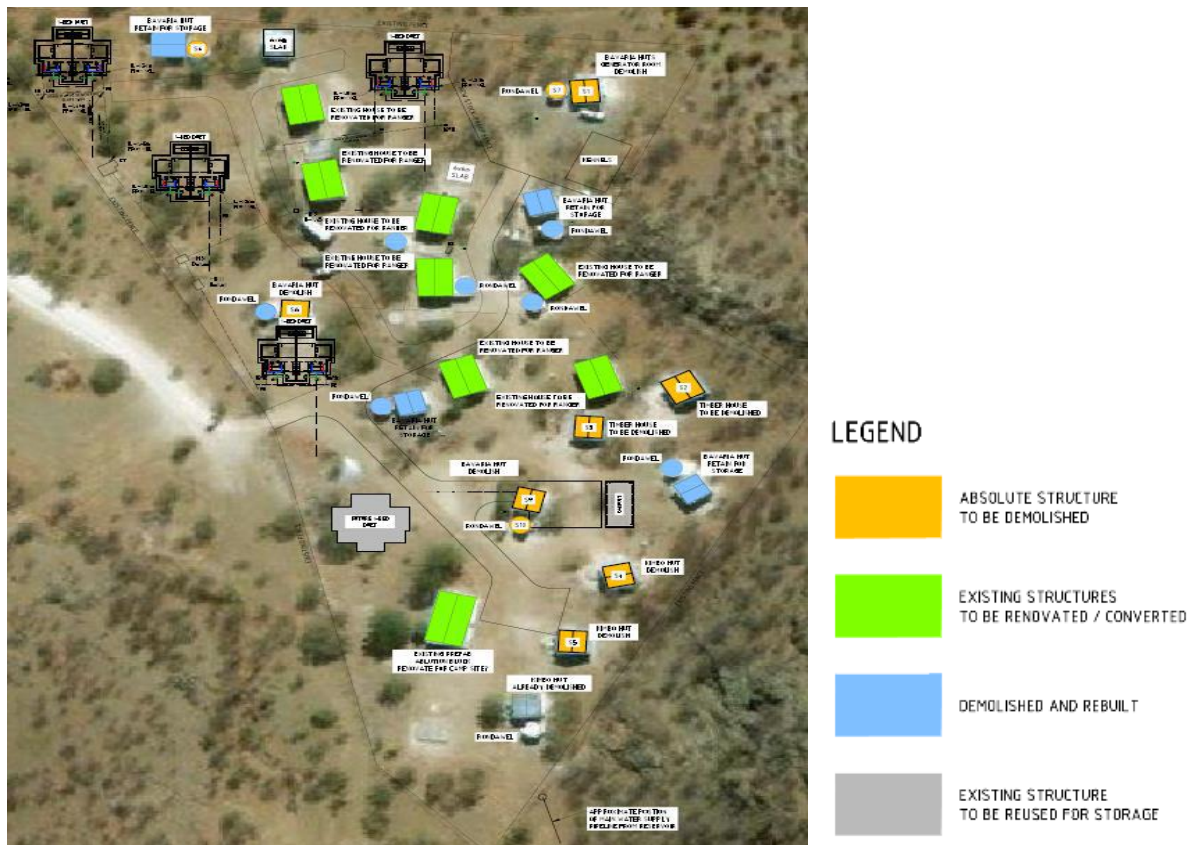


Figure 3.2: The proposed infrastructure layout at Otjovasandu B (photo: IWPP 2023)

4. AFFECTED ENVIRONMENT

4.1 Existing Footprint

As outlined in the Section 2, the Otjovasandu APU camps (A & B) already exist. Meaning that the proposed infrastructure upgrades are **not** new footprints to the environment.

- Existing access road (main road from Galton gate to Olifantsrus)
- Existing access road (from the main road to the camps A & B)
- Vegetation clearing for existing infrastructure
- 11 x brick houses (concrete)
- 12 x Bavaria houses (prefabricated)
- 7 x Kimbo houses (wood)
- Ablution blocks
- Sewer Manholes
- Conservancy Tanks
- Borehole – water supply
- Solar system for the internet server

Nonetheless, despite that there are already existing footprints at both camps (A & B), it is important to identify and assess potential environmental and social impacts associated with the proposed infrastructure upgrades, as aggregated into two categories below.

4.1.1 Potential construction impacts

Table 4-1: Summary of the potential construction impacts

Component	Potential impact
Broken machinery	Impacts on the aesthetic and wilderness value, eyesore and potential soil and groundwater pollution from oil leaks
Building Rubble	Impacts on the aesthetic and wilderness value, eyesore, thus the need for removal and potential re-use of building rubble (after demolition of old and unwanted structures)
Air, noise and land pollution	Dust and noise pollution from moving vehicles, spillages of liquid effluents (oil, fuel and chemical storage and handling)
Sensitive flora and fauna	May be inadvertently disturbed or damaged during construction.
Borrow pits	Proposed borrow areas or areas to be excavated for subbase materials, wearing course material, etc.
Backfill or stockpile sites	The impacts on zones designated for rubble from demolition works

Safety & Security	Human safety during construction, poaching
Vegetation clearing	The clearing of trees, and shrubs within the camp to make way for buildings
Soil Erosion	Earthworks and excavation may result in erosion if cleared spaces are not minimized

4.1.2 Potential Operational Impacts

Table 4-2: Description of potential operational impacts

Component	Potential impact
Sewer discharge at the disposal site	Could result in the contamination of groundwater,
Oxidation ponds	<p>The sewer effluent is supposed to be pumped from the conservancy tank into a tanker and transported for disposal at the oxidation ponds, located close the ranger station, at Galton gate.</p> <p>At present, the effluent (shower wastewater) is discharged into the environment, thereby forming wastewater ponds, which are accessible by wildlife. Meaning, wildlife would potentially be drinking contaminated water (effluent), which is not advisable. For Otjovasandu, we have observed and documented evidence of wildlife drinking waste water.</p>
Increased water extraction and use	Increased groundwater extraction and use at the camp as a result of increased camp capacity
Solid waste	More solid waste as a result of increased camp capacity.

5. COMPLIANCE AND LEGAL FRAMEWORK

This chapter outlines the regulatory framework applicable to the proposed project. Table 4.3 provides an overview of applicable policies, plans and strategies, while table 4.4 provides a list of other applicable national legislation.

5.1 Compliance to the EMP

The EMP is binding to the proponent, and all contractors / sub-contractors. This implies that each and every entity that may have any kind of engagement or involved in / with the activities of the APU camp upgrading, should comply with the EMP throughout the project lifespan. Non-compliance may have serious consequences e.g. license withdrawal.

5.2 Environmental Management Act (No.7 of 2007)

Section 27 of the Environmental Management Act 2007 (Act No.7 of 2007) (EMA) provides a list of activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (herein referred to as: listed activities). The proposed upgrading of the APU camp triggers some listed activities (table 4.2).

The EMP should conform to the provisions of the Environmental Management Act (EMA), Act No. 7 of 2007 and EIA regulations of 2012 (Government Notice: 30).

The EIA Regulations defines a '*Management Plan*' as:

"...a plan that describes how activities that may have significant impacts on the environment are to be mitigated controlled and monitored."

5.3 EMP Requirements

Table 5-1: EMP Requirements as outlined in Section 8 of the EIA Regulations

Requirement
<p><i>(j) a draft management plan, which includes –</i></p> <p><i>(aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure;</i></p> <p><i>(bb) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to</i></p>

its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and

(cc) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.

5.4 Listed Activities

Listed Activities may not be undertaken without an Environmental Clearance Certificate (ECC), and hence an Environmental Impact Assessment (EIA) is required.

As the organ of state responsible for management and protection of its natural resources, the MEFT: DEA is committed to pursuing the principles of environmental management. The EMA provides a list of activities that requires an EIA and the proposed upgrading is among the listed activities, or activities that may not be conducted without an ECC. The purpose of listed activities for projects is to ensure that the associated impacts on the environment are carefully considered

The proposed project triggers a number of Listed Activities as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) (herein referred to as the EMA) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) (herein referred to as the EIA Regulations).

The EIA entails the development of the EIA Scoping Report and Environmental Management Plan (EMP), which should be submitted to the MEFT as part of the application for the ECC.

Table 5-2: Listed Activities triggered by the proposed project

Listed Activity	Activity Description	Relevance to the proposed project
Activity 2: Waste Management, Treatment, Handling and Disposal	2.1 The Construction of facilities for waste sites, treatment, and disposal of waste.	The project entails the refurbishment of the existing sewerage conservancy tank.

Listed Activity	Activity Description	Relevance to the proposed project
Activity 3: Mining and Quarrying Activities	3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not.	The excavation or extraction of gravel from borrow pits and harvesting of sand for construction purposes
Activity 8: Water Resource Developments	8.1 The abstraction of ground or surface water for industrial or commercial purposes	Abstraction of surface and groundwater for the construction and operation of the proposed development

5.5 Extended Developmental and Legal Framework

In addition to the EMA and Environmental Assessment Policy, there exists a host of legal and policy documents and guidelines that must be considered when undertaking an EIA as indicated in tables 4.3 and 4.4 below. The proponent has the responsibility to ensure that the construction/ upgrading operations confirms to all other National Development Plans and legal framework.

Table 5-3: Policies, Plans and Strategies

Policy / Plan	Relevancy/Summary	Applicability to the Proposed Project
5 th National Development Plan (NDP) and Vision 2030	Outlines the country's national development ambitions, in line with the Harambee Prosperity Plan, and Vision 2030. NDP5 incorporates the principles and recommendations contained in the Stockholm Declaration on the Human Environment (1972) and associated Action Plan, as well as Agenda 21 which merged from the Convention on Biological Diversity, Rio De Janeiro (1992).	The proposed project is a development that forms part of the bigger picture of achieving economic progression, social transformation and environmental sustainability.

Table 5-4: Other Legal Instruments / National Statutes

National Statutes	Relevance/Summary	Applicability to the Proposed Project
Environmental Management Act, 2007 (Act No. 7 of 2007) and associated regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011).	The Act aims to promote sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment. It sets the principles of environmental management as well as the functions and powers of the Minister. The Act requires certain activities to obtain an environmental clearance certificate before project development. The Act states that an EIA may be undertaken and submitted as part of the environmental clearance certificate application.	This EIA report (and EMP) documents the findings of the EIA process undertaken for the proposed project, which will form part of the environmental clearance application. The EIA process and associated report have been undertaken in line with the requirements under the Act and associated regulations.
Water Act, 1956	This rather out-dated Act that remains in force, provides for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects, of the use of sea water for certain purposes; and for the control of certain activities on or in water in certain areas. The Ministry of Agriculture, Water and Land Reform (MAWLR) Department of Water Affairs is responsible for administration of the Water Act.	Water pollution is an offence as per Section 23 of the Water Act. The Act stipulates obligations in Part 13 of general provisions relating to water pollution and prohibits the discharge of wastewater, effluent or waste without licence and sets forth specific requirements for such licence. The EMP sets out measures to avoid polluting the environment.
Water Resources Management Act 2004 (Act No. 24 of 2004)	Whilst approved and published in the Government Gazette, it is not legally enforced.	Whilst not in operation, it is best practice to adhere to the conditions in this Act.

National Statutes	Relevance/Summary	Applicability to the Proposed Project
	Based on the National Water Policy and provided for the management, development, protection, conservation, and use of water resources; and it established the Water Advisory Council, the Water Regulatory Board and the Water Tribunal	The 2013 Act would repeal this Act, therefore conditions in the 2013 Act have been reviewed.
Water Resources Management Act, 2013 (No. 11 of 2013)	Whilst enacted it has not yet come into operation, and needs approval from the Government. This Act provides a framework for managing water resources based on the principles of integrated water resource management. It provides for the management, protection, development, use and conservation of water resource, and for the regulation and monitoring of water services and for incidental matters	Whilst not in operation, it is best practice to adhere to the conditions in this Act. The Act sets out obligations in order to avoid water pollution Section 44 stipulates the requirements for a licence to be held for the abstraction and use of water. Section 68 makes provisions for water pollution. Section 69 and 72 makes provisions for waste water treatment plants and stipulates the requirement for a licence to operate waste water treatment plant and discharge effluent. These have been incorporated into the EMP to minimise water pollution.
Soil Conservation, 1969 (Act 76 of 1969) and the Soil Conservation Amendment Act (Act 38 of 1971)	Makes provision for the prevention and control of soil erosion and the protection, improvement and the conservation, improvement and manner of use of the soil and vegetation.	Through vegetation removal there may be the risk of affecting soil quality. Measures shall be taken to avoid this which are set out in the EMP.
Forest Act 12 of 2001 Forest Act Regulations 2015	To provide for the protection of the environment and the control and management of forest. The Act and Regulations have the following stipulations that	There shall be some vegetation removal as part of the proposed project. The total area of the development site is

National Statutes	Relevance/Summary	Applicability to the Proposed Project
	<p>may be relevant to the proposed project:</p> <ul style="list-style-type: none"> - Approval from the Director may be required for the clearance of vegetation on more than 15 hectares (Section 23, subsection 1 (b)). - Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (Section 22, subsection 1 (b)) - Provision for the protection of various plant species. This includes the proclamation of protected species of plants and the conditions under which these plants can be disturbed, conserved, or cultivated. 	<p>approximately 1.5 hectares and it is unlikely that an area of more than 15 hectares shall be cleared.</p> <p>There is no vegetation falling within 100m of the river, no permit shall be obtained prior to clearance.</p> <p>The proponent shall undertake all activities in line with the conditions stipulated in the Permit and a valid permit shall be obtained throughout vegetation clearance activities.</p> <p>It is unlikely that a permit shall be required.</p>
National Heritage Act, No. 27 of 2004.	The Act provides for the protection and conservation of places and objects with heritage significance.	There is potential for heritage objects to be found on the development site, therefore the stipulations in the Act have been taken into consideration and are incorporated into the EMP.

5.6 EMP Implementation Context

Environmental management is not only concerned with the final results of the Proponent's operations, but also with how such operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standards of the day-to-day operations required to complete the Works.

The EMP is an important tool and necessary to mitigate / counter negative environmental or social impacts that may arise from the project. However, in the absence of audits and monitoring, it will become ineffective.

5.7 Disciplinary Action

The EMP is a legally binding document and non-compliance with the EMP shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- ✓ Fines / penalties,
- ✓ Legal action,
- ✓ Withdrawal of license/s
- ✓ Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

5.8 Non-Compliance

The Proponent and Site Manager shall be deemed to have **not** complied with the EMP if:

- There is evidence of contravention of the EMP and associated indicators.
- The Proponent and SM have failed to comply with corrective or other instructions issued by the ECO or qualified authority.
- The Proponent and SM fail to respond to complaints from the public.

6. ROLES AND RESPONSIBILITIES

This section outlines the roles and responsibilities of the key personnel responsible for the day-to-day management of activities to ensure effective implementation of the EMP.

6.1 Roles and Responsibilities

To ensure accountability, it is necessary to assign responsibilities. The key role-players for project implementation are;

- a) **The Environmental Compliance Officer (ECO):** representing the Ministry of Environment, Forestry and Tourism (MEFT), or an appointed independent environmental officer, who is responsible for monitoring and auditing.
- b) **The Proponent:** Ministry of Environment, Forestry and Tourism, represented by the appointed Consulting Engineers, Lund Consulting Engineers as the Project Managers.
- c) **The Site Manager:** the representative of the appointed Construction Company tasked with the assignment. This Site Manager is the person responsible for the day-to-day management of the project on behalf of the Contractor.
- d) **The Environmental, Social, Health and Safety (ESHS) Manager:** Appointed by the Contractor to develop a detailed Environmental, Social, Health and Safety (ESHS) Management plan for the Contractor, to ensure the Contractor's adherence and fulfilment of the conditions specified in the EMP.

6.1.1 The Environmental Compliance Officer (ECO):

The ECO refers to the party responsible for the environmental monitoring and auditing to ensure that the provisions of the EMP are complied with.

The ECO shall have adequate environmental knowledge to understand and interpret the EMP and pertaining environmental aspects associated with the project. The specific tasks of the ECO are as follows:

- To undertake all monitoring and auditing activities in-order to ensure compliance with the EMP.
- Conduct site inspection prior to the commencement of activities; and at reasonable intervals (e.g. every month, quarterly or annually),

throughout the duration of the project. Depending on the risks, some projects may be inspected more frequently (e.g. every month).

- Conduct regular inspections (unannounced spot checks) and shall submit compliance or non-compliance reports to the respective authorities (MEFT or any other relevant authority).
- Compile Progress Reports immediately after site inspections, Compliance Reports, pertaining to any non-compliance incident/s, and a Rehabilitation Report following the conclusion a specific activity.
- The ECO shall liaise closely with all key stakeholders i.e. the Site Manager and the Environmental Commissioner.
- Shall provide guidance on any environmental management issues, incidents or emergencies that may arise throughout the project lifespan.
- Shall assist in providing recommendations for remedial action in the event of non-compliance.
- Auditing or monitoring activities may involve investigation, as well as structured observation, measurement, and evaluation of environmental data over a period of time.

6.1.2 The Proponent:

The proponent (Client), hereinafter referred to as MEFT – DWNP. It is recommended that the client should appoint a Project Manager who will be responsible for monitoring the project (construction) activities on a daily basis.

The specific responsibilities of the Proponent are as follows:

- Appoint a Project Manager (PM) to oversee the daily onsite activities.
- Liaise closely with the PM and ECO on any environmental management issues, incidents or emergencies.
- Ensure that all activities on and around the site are conducted in accordance with the requirements of the EMP at all times.
- Ensure that all sub-contractors and visitors to the site are conversant with the requirement of the EMP, relevant to their roles on site.
- Shall develop a **communication strategy** between The Proponent, Site Manager, workers, the ECO and any other relevant stakeholder.
- Shall develop an **organisational structure** to ensure that:
 - There are clear channels of communication;
 - There is an organisational hierarchy for effective implementation of the EMP; and
 - Conflicting or contradictory instructions are eliminated;

- Ensure that all instructions and official communications regarding environmental matters shall follow the organisational structure as determined
- Ensure that that EMP requirements are assigned to specific people / positions with the capacity and experience required for implementation.

6.1.3 The Contractor:

The Contractor shall assume overall responsibility to ensure adherence to and implementation of the EMP. The Contractor will be held accountable against the remedial measures outlined herein. It is recommended that the Contractor appoint a Site Manager (SM) and an Environmental, Social, Health and Safety (ESHS) Manager to perform the following responsibilities

The **Site Manager (SM)** should:

- Ensure that each team recruited to work at the sites, adheres to the EMP;
- Ensure that a **copy of the EMP is kept on site at all times and as it may be requested by authorities conducting spot checks at any time.**
- Ensure that all staff attend an induction session before the commencement of any work on site and that they are adequately informed of the requirements of the EMP;
- Shall take special care to prevent irreversible damage to the environment;
- Ensure that activities are within the boundaries of the proposed zones as specified in the Site Map and boundary markings (visible pegs, tape etc).
- Accident/ Incident reporting to Proponent within 24 hours of occurrence
- Ensure that staff is controlled through the implementation of appropriate security measures,

6.1.4 The Environmental, Social, Health and Safety (ESHS) Manager should:

Develop a detailed Environmental, Social, Health and Safety (ESHS) Management plan for the Contractor. The ESHS Manager shall ensure the Contractor's adherence and fulfilment of the conditions specified in the Specifications for Environmental, Social, Health and Safety Management (ESHS) of the Works, as per Section VII. Works Requirement, Volume 2 of the tender documents. In addition, shall perform but not be limited to the following functions

- Share and discuss the EMP with all employees, sub-contractors etc., prior to layout of building,
- Ensure that all contracts with subcontractors should include all recommendations raised in this EMP,

- Ensure that the Contractor reports on the implementation of the EMP at every site inspection meeting with MEFT official (or representative)
- Regular inspections and auditing of compliance to this EMP and any other relevant legal requirements,
- Regular correspondence with relevant Park Warden/Ranger on environmental issues and incidents,
- Copy of EMP included as part of contractors instructions and available to all staff and sub-contractors
- Conduct environmental awareness training during induction training and on an ad hoc basis thereafter,
- Ensure Contractor's compliance to this EMP and obtain all relevant permits
- Ensure there is a sign-off from relevant authority if there is any change to the EMP or should there be any deviation from the clauses or intention of the EMP,
- Carefully manage the handling of hydrocarbons and other hazardous materials,
- Monitor for excessive dust, noise and biodiversity losses and implement control measures if necessary,
- Implement a waste management strategy,
- Monitoring and maintenance of equipment and machinery,
- Ensure the provision of adequate sanitation facilities,
- Implement an environmental awareness plan,
- Installation of emergency plans (fire, evacuation etc.) and first-aid procedures,
- Control of traffic safety and access route conditions,
- Ensure that surface runoff is controlled and impacts on water resources are prevented,
- Issues detailed instructions and foresee the rehabilitation of disturbed areas.

6.2 Instructions

All instructions and official communications shall follow the organizational structure as determined by the proponent. Based on the adopted structure, it is essential that the responsibilities outlined be assigned to specific parties with adequate capacity and experience required to implement the EMP.

6.3 Disciplinary Actions

The EMP is a legally binding document. Non-compliance with the EMP may result in disciplinary action being taken against the Proponent. Such actions may take the form of;

Financial penalties, legal action, fines, and/ or Suspension of work.

The disciplinary actions shall be determined according to the nature and extend of the non-compliance, and exact penalties are to be weighed against the severity of the incident.

6.4 EMP Implementation Context

Environmental management is not only concerned with the final results of the Proponent's operations, but also with how such operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standards of the day-to-day operations required to complete the Works.

The EMP is an important tool and necessary to mitigate / counter negative environmental or social impacts that may arise from the project. However, in the absence of audits and monitoring, it will become ineffective

7. PROJECT DESIGN AND PLANNING

The EMP provides mitigation measures in accordance with the scope of work during the construction and operations of the APU camp. The recommended mitigation measures should be considered at all stages / phases of the development process as follows:

- Design;
- Planning;
- Site preparation, and
- Construction and Operational Phase

7.1 Design phase

The design phase entails the conceptual framework (what, where, how big, etc.) and architectural design (sketch and projected image), and machinery required for the proposed development.

Already at this stage, it is important that, the Architectural and Engineering designs, should take environmental aspects and standards into consideration (e.g. aesthetic value, habitat alteration, visual / image upon completion, waste management, during both the construction and operational phases, etc.).

7.2 Planning phase

During the planning phase, it is imperative that the design is re-evaluated and if any environmental concerns are detected at this stage, corrective measures should be applied. In-addition, a contingency plan should be in place, in case, unforeseen environmental concerns are detected later.

7.3 Site Preparation

To provide a systematic guide for the development of mitigations measures, the proposed development site preparation can be broken down / sub-divided into different development stages / phases as presented in the table 5.1 below.

Table 7-1: Site Preparation Phases requiring mitigation measures

Phase	Description
Phase 1	Access roads and routes
Phase 2	Site Clearing and deployment of machinery
Phase 3	Decommissioning – Removal of all unwanted material, clean-up, landscaping, and rehabilitation

7.3.1 Environmental Permits and Approvals

Relevant environmental permits and approvals may be required. It is the responsibility of both the proponent and contractors to identify the requirements for environmental and social permits during project preparation. Such permits must be obtained from the relevant authorities. Below is a list of permits that may be required:

Table 7-2: list of permits that maybe required

Permit	Descriptions
Water abstraction permit	For abstraction and water use during construction
Wastewater discharge permit	To ensure that wastewater is properly handled to avoid possible contamination of the environment
Sand and gravel extraction permit	For extracting sand and gravel from existing borrow pits in the park
Forestry permit	For possible tree clearing

7.4 Construction and Operational Phase

For ease of reference and monitoring during operation, the EMP is sub-divided into different themes and for each theme, the following aspects are highlighted:

- ✓ Potential Impact,
- ✓ Environmental Management Objective
- ✓ Mitigation Measures / Management Action/s required
- ✓ Indicator/s for Monitoring and Compliance
- ✓ Party responsible for implementation

8. POTENTIAL IMPACTS AND MITIGATION MEASURES

8.1 Impact Themes and Recommended Mitigation Measures

The EMP has been categorised into different themes, which serve as a quick guide to the recommended EMP remedial actions during the construction and Operation stages (Table 8.1 to 8.5).

EMP Themes	Specific Aspects
A – Staff induction	Induction
	Site Demarcation
	Communication
	General park rules/ regulations
B – Health and Safety	General safety at work place
	Road Safety
	Ablution facilities
	Dust and Noise
C – Resources Extraction/ Abstraction	Water Usage
	Sand and Gravel extraction
D – Pollution and Waste Management	Wastewater (Ablution facilities)
	Solid Waste Disposal
	Oil Spills
	Vehicle emissions (smoke)
E – Socio economic	Employment opportunities
	Alcohol and Drug use
	Working hours
	HIV / AIDS
	Safety and Security
F – Cultural Heritage	Heritage resources / artefacts
G – Rehabilitation	Clean-up and maintain natural / original appeal

SECTION A: STAFF INDUCTION

Table 8-1: Mitigation measures pertaining to staff Recruitment and Induction

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Employees working without employment contracts (recipe for labour disputes) ✓ Lack of adequate induction to inform the workers about the Do's and Don'ts ✓ Poor Communication ✓ No formal presentation of the EMP and employees are not aware of the content and risks associated with the activities/actions ✓ Employees not adhering to the general park rules and regulations (recipe for injuries, deaths, poaching etc.) ✓ Non permitted presence of people in the park - poaching 				
Impact	Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Recruitment	To ensure that all workers have employment contracts (Labour Act No. 11 of 2007)	<p>Formalize recruitment of all staff with Contracts, stating nature of employment, duration and remuneration to protect both parties and to avoid labour disputes later on</p> <p>No recruitment of new staff will take place on site. Recruitment of staff must take place prior to commencement of work and formalized by employment contracts. Employees should be fully vetted and should keep a copy of their employment contract at all time.</p>	<p>Copies of staff contracts</p> <p>Copies of staff Identification Documents</p>	Proponent / Site Manager

Staff Induction	To ensure that all staff / employees are conversant with the requirements of the EMP	<p>Induction for all workers on the provisions of the EMP before work commencement, covering but not limited to: Safety, Health and Environmental (SHE) measures, emergency response, reporting of incidents, HIV/AIDS awareness, alcohol and substance abuse, etc</p> <p>Staff operating equipment (such as trucks, loaders, jack hammers, compressors etc.) shall be adequately trained and sensitised against potential hazards</p> <p>Conduct Quarterly induction reviews and reflect on workers conduct</p>	<p>Induction Minutes and Attendance Register, Signed by each and every staff members</p> <p>Staff members appointed at a later stage should also undergo induction</p> <p>Quarterly minutes</p>	Site Manager
	Availability of the EMP on site for ease of reference	Ensure that a copy of the EMP is kept on site and accessible by team leaders	Availability of EMP on site and accessibility by team leaders	Site Manager
	Punitive measures for staff, to ensure compliance	Adopt a disciplinary system to discipline staff for non-compliance, for offences such as littering, speeding, safety risk (both to themselves and to others), not using ablution facilities, etc.	Number of fines issued daily / per month	Site Manager
General Park rules and regulations	Ensure compliance with park rules and regulations	Provide and regularly explain park rules to all contractors, all direct workers and contracted workers, in relation to park entry and exit, entry permits, parks operational hours etc.	Monthly and quarterly staff meeting minutes	Proponent/ Site Manager

		<p>Poaching and plant theft will not be tolerated, and is ground for immediate termination of the staff found in possession of any materials will be arrested and prosecuted according to Namibian Laws.</p> <p>Removal of items, such as firewood or anything in the park whether or not protected species or plants is prohibited. Anyone found wanting will not be allowed into the park</p>	Number of arrests and prosecution	
	Reduce injuries and deaths of persons from wildlife	<p>Inform and regularly warn contractors and all workers to stay alert as they are operating in a dangerous environment with wild animals</p> <p>Prohibit walking around in the park other than the construction site and staff camp</p>	Number of transgressions recorded	Proponent/ Site Manager
	Avoid the presence of non-permitted in the park	Ensure that staffs (all direct workers and contracted workers) have valid park entry permit at all time.	Copies of valid park entry permit	Site Manager
Communication	Ensure effective communication throughout the project lifespan	<p>Develop a communication strategy (Chanel & medium of communication)</p> <p>All correspondence should be written and signed off by witnesses (e.g Site Manager / team leaders)</p> <p>The contact numbers for the Site Manager and Team Leaders must be available onsite (displayed) in case of emergencies.</p>	<p>Communication Strategy</p> <p>Letters, e-mail, Notices, Minutes</p> <p>List of contact numbers available on site</p>	Site Manager

SECTION B: OCCUPATIONAL HEALTH AND SAFETY

Table 8-2: Mitigation measures pertaining to Health and Safety

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Inadequate awareness of employees or contractors on general health and safety risks ✓ Safety hazards associated with the equipment handling ✓ Employees not receiving the correct Personal Protective Equipment (PPE) ✓ Employees not adhering to safety rules implemented at the site 				
Impact	Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
General Occupational Health and Safety of the employees (injuries)	To ensure safe working conditions and adhere to the Health and Safety Regulations, Government Notice 156/1997 (GG 1617)	<p>Develop a Health and safety Plan</p> <p>Identify potential hazards to minimize potential health and safety risks.</p> <p>Provide adequate and appropriate personal protective equipment for all workers</p> <p>Training on relevant aspects of occupational health and safety for all workforce involved in construction activities in the project context</p> <p>All workers should be covered by a basic occupational insurance</p>	<p>Health and Safety Plan</p> <p>Hazard risk report and Safe work condition audit</p> <p>Adequate protective gear for all staff (issue register)</p> <p>Training schedule, attendance register, report, pictures, etc</p> <p>Proof of occupational insurance</p>	Site Manager/ Proponent
Accidents and incidents	To ensure safe working conditions	Document and report occupational injuries, illness and fatalities, including near misses.	Accidents and incidents register/ reports (including near misses)	Site Manager

		<p>Investigate causes and take appropriate action to eliminate risks where possible</p> <p>Provide adequate access to first aid and medical assistance in cases of work-related accidents or injuries</p> <p>Constant reminder to staffs/workers to stay alert, vigilant and safe from wild animals in the park.</p>	<p>Root causes analysis report</p> <p>Incident review (cause and elimination of hazard)</p> <p>First aid kit availability and adequacy audit report</p> <p>Incident reporting to proponent if serious incident/ accident happens</p>	
Road Safety	To prevent traffic hazards / inconveniences from earth moving machinery during and construction period	<p>Signage for vehicles and earth moving machinery</p> <p>All trucks transporting materials (e.g sand / gravel) should be covered with suitable material (e.g net, tarpaulin, canvas etc).</p> <p>Obey and adhere to park rules with respect to speed limits in the park</p>	<p>Public Complaints / Incident report/s</p> <p>Records of fines for over speeding</p>	Site Manager
Ablution Facilities	To reduce health risks and environmental pollution and ensure healthy working environment with appropriate and user-friendly ablution facilities	<p>Ensure adequate, hygienic (clean) and user-friendly ablution facilities for all staff. Mobile chemical toilets are recommended during construction</p> <p>Wastewater should be discharged in accordance with the effluent discharge regulations. No faecal waste should be discharged on site</p>	<p>Inspect ablution facilities regularly (daily)</p> <p>Availability of toilets, cleanliness and hygienic ablution facilities</p> <p>Incidents or complaints of waste discharge into the environment</p>	Site Manager

		<p>Appoint a cleaner or rotate cleaning responsibilities among workers. If necessary, designate Male and Female toilets</p> <p>Ablution facilities must be located at least 100 m away from streams or freshwater systems and regularly serviced</p>		
Dust and Noise	To mitigate dust and noise impacts to both employees and the public	<p>Adopt applicable dust suppression measures to mitigate dust impacts,</p> <p>Provide dust masks and ear muffs to all employees operating in a dusty or noisy environment</p>	<p>Dust and Noise Incident Reports</p> <p>Issue register</p>	Site Manager
Fire Risk / Hazard	To mitigate fire risk	<p>Fires should only be started at designated fire areas in the camp, such as cooking place.</p> <p>Avail sufficient fire extinguishers and train staff on how to use them</p> <p>Demonstrate the use of fire extinguishers and fire hydrants</p>	<p>Monitoring of illegal fire places and handing of fines</p> <p>Availability of fire extinguishers and service record.</p> <p>Training report, attendance register, pictures, etc.</p>	Proponent/ Site Manager

SECTION C: RESOURCES EXTRACTION/ ABSTRACTION

Table 8-3: Mitigation Measures pertaining to water resources development and mining and quarrying

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Over extraction and pollution of underground water during construction and operation ✓ Excavation of borrow pits for gravel and sand construction 				
Impact	Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Water Usage	To ensure sustainable water use during construction and operations.	Obtain borehole properties (depth, rest water level, dynamic water level and borehole yield) and install pumping system which does not exceed the borehole's sustainable yield	Borehole monitoring repots	Proponent / Site Manager
	To prevent point source pollution	Avoid the use of diesel pumping system	Solar pumping system	Proponent/ Site Manager
Sand and Gravel	To ensure that no new borrow pit are developed for the supply of material for project infrastructure	No new borrow pits are excavated – the volumes of materials required for construction is not significant. Hence construction materials must be sourced from existing borrow pits Conduct regular monitoring of extraction activities at existing borrow pits.	Borrow pit monitoring activities Fines for noncompliance	Proponent/ Site Manager

SECTION D: POLLUTION AND WASTE MANAGEMENT

Table 8-4: Mitigation measures pertaining to Waste Management

Potential Sources of Impacts:				
<ul style="list-style-type: none"> ✓ Poor waste disposal (often considered insignificant e.g. littering, oil spills, cement mixers, wash, wastewater, etc) ✓ Leaking or broken sewerage pipes ✓ Storage of unwanted waste (e.g. old / waste tyres) 				
Impact	Objective	Mitigation Measures	Indicators for Monitoring and Compliance	Responsible Party
Waste Water	To avoid effluent discharge into the environment	<p>Refer to regulations on effluent disposal and recommended septic tank and drainage design</p> <p>Be on the look-out and repair any leaking or broken sewer pipes (regardless of how small it may be perceived).</p> <p>Use of the best available technologies to prevent possible wastewater leakages</p>	No leakage of sewer pipes	Site Manager or dedicated Plumber
Solid Waste	To prevent pollution and maintain a clean environment	<p>Classify waste into different categories e.g. Material waste (wood, steel, corrugated iron etc), Building rubble (concrete), Garden Waste (tree stumps, branches etc), and Domestic Waste (Litter – cans, plastics, tissues etc)</p> <p>Ensure appropriate removal and disposal of all construction and mechanical wastes (building</p>	<p>Scattered waste, Littering and any other unsightly waste at the site (eyesore)</p> <p>No traces of construction,</p>	Site Manager / dedicated Waste Disposal Officer

		<p>rubble, concrete, iron steels, damaged equipment, vehicles etc.)</p> <p>Ensure appropriate waste collection and removal from the site and dispose at appropriate municipal waste disposal sites.</p>	<p>materials, equipment are left behind</p>	
Vehicle emissions	<p>Reduce greenhouse gas (GHG) emissions from poorly maintained or malfunctioning equipment (vehicles / machinery</p>	<p>All vehicles and equipment shall be kept in good working order and serviced regularly (in accordance with the servicing frequency of the specific machinery), in order to prevent emission of poisonous smoke etc.</p>	<p>Vehicle servicing records</p> <p>Reports of smoke emissions from machinery</p>	<p>Site Manager</p>
Oil Spills	<p>Ensure waste oil is managed appropriately and pollution is prevented at all costs</p>	<p>Provide concrete bund/s for fuel storage and transfer on site. The bund should be bigger than the fuel storage tank/s to allow a bit of working space around tank/s (e.g. 20% bigger than the tank/s)</p> <p>Use of sheeting to prevent soil contamination (e.g. during vehicle servicing)</p> <p>Waste oil should not be stored onsite indefinitely and should be recycled (transfer to oil recycling companies)</p> <p>If an oil spill occurs, collect the contaminated soil, store in drums and dispose at appropriate waste disposal site (e.g. Municipal disposal site)</p>	<p>Concrete bund at all fuel storage and handling sites</p> <p>Drums or containers for oil recycling and proof of oil transfer to recycling companies</p>	<p>Site Manager</p>

SECTION E: SOCIO-ECONOMIC

Table 8-5: Mitigation measures pertaining to Socio Economic impacts

Sources of impacts:				
<ul style="list-style-type: none"> ✓ Unfair labour practices and unwillingness to recruit locals ✓ Gender-based violence (GBV) and sexual harassment ✓ Inability to deal with workforce and stakeholder (public) concerns and grievances ✓ Lack of awareness on HIV-AIDS ✓ Drug and alcohol abuse 				
Impact Description	Objective	Mitigation Measures / Management Actions	Indicators for Monitoring and Compliance	Responsible Party
Employment opportunities for Locals	Promote benefits to the local community Promote benefits to local communities	Recruit locals for unskilled labour Local labour requirements: <ul style="list-style-type: none"> • Job descriptions and the levels of qualifications required • Recruitment procedure and deployment schedule • Initial training to be provided by the Contractor for each job description • Whenever possible, use locally sourced materials 	Employee structure and proportion of local employment	Site Manager
Code of Conduct	Establish a Code of Conduct taking into consideration legislation, safety rules,	Ensure that all employees and contractors working at the Site have	Signed Code of Conduct by all employees	Site Manager

	environmental sensitivity in the Protected Area, Gender-Based Violence (GBV) and sexual harassment	committed to adhere to the Code of Conduct. Application of zero tolerance for failure to comply with Code of Conduct.	Regular meetings to emphasize conducts at the workplace	
Alcohol abuse and Drug use	Prevent alcohol and drug use (substance abuse) at the APU camp development site	Ban and warn the employees against alcohol abuse and consumption of prohibited substances e.g. drugs at the site Provide awareness on the dangers and health impacts of alcohol abuse and drugs	Drunk / Misbehaving employees Monitor presence of prohibited substances	Site Manager
Excessive working hours	Adhere to the Labour Act No. 11 of 2007 Redress grievances and concerns of the workforce and stakeholder (public)	Adhere to prescribed working hours as per the Namibian Labour laws and regulations. Provision for overtime or compensatory time off for long hours worked. Protect the work force and prevent child labour and forced labour Establish a Grievance Mechanism, or equivalent procedure, for receiving and facilitating resolutions for concerns and grievances	Verification of working hours against the labour Act Verification of the ages of all workers (i.e. ID) Suitable lines of communication such as liaison officer, suggestion boxes, telephone hotline etc.	Site Manager
HIV / AIDS	Prevention of HIV/AIDS and other communicable diseases among employees	Provide HIV / AIDS awareness at induction	Availability of condoms at and construction site	Site Manager

		Avail condoms (e.g in toilets) free of charge		
Security	Orientation of workers about security for both equipment and themselves	Orientate workers about security for equipment and themselves & provide contact numbers for Police and other emergency services e.g. Ambulance	Proof of security orientation and emergency contact numbers	Site Manager

SECTION F: CULTURAL HERITAGE

Table 8-6: Mitigation measures pertaining to Cultural Heritage impacts

Sources of impacts:				
✓ Disregard of Cultural Heritage and artefacts				
Impact Description	Objective	Mitigation Measures/	Indicators for Monitoring and Compliance	Responsible Party
Heritage Resources / artefacts	Reduce the impacts of and construction and associated earthworks on heritage resources / artefacts	Heritage remains or artefacts discovered on site must be reported to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461)	Sighting report/s of heritage resources / artefacts	Site Manager
		No artefacts must be removed or be interfered with prior to authorisation from the Namibian National Heritage Council (NHC) Recovery of heritage remains or artefacts discovered and removal thereof should be directed by the National Museum		

9. REHABILITATION

8.1 Importance of Rehabilitation

MEFT continues to develop strategic infrastructure in and outside the parks for the purpose of effective biodiversity management. The APU camps are a vital component for wildlife protection and conservation.

However, such developmental activities should be conducted in a thoughtful and forward-looking manner. Therefore, to ensure that the land remains valuable for other land uses in the future, rehabilitation should be part and parcel of such developmental activity right from the beginning and throughout the project lifespan. Maintaining the wilderness and aesthetic characteristics of the park.

8.2 What is Rehabilitation?

Rehabilitation is the process of repairing and taking all the necessary actions to limit, minimize and mitigate the damage caused by the developmental activity, in-order to make the land suitable for other uses or to simply beautify the affected area (so that it does not become an eyesore). Rehabilitation can also be referred to as the measures taken to repair damaged environments (example refilling of excavated pits with the overburden, re-vegetating, removal of unwanted infrastructure, cleaning up pollution etc.).

8.3 Designing a Rehabilitation Plan

A rehabilitation plan refers to a set of steps or measures to be taken in-order to ensure that negative impacts associated with the development at hand are mitigated. This however requires prior planning and integration of rehabilitation activities throughout the project lifespan. Meaning, rehabilitation measures should be taken right from the beginning of the project.

The environmental characteristics of an area where a project is located plays a vital role in designing a rehabilitation plan.

SECTION G: REHABILITATION

Table 9-1: Potential impacts and Mitigation measures pertaining to Rehabilitation

Sources of impacts:				
<ul style="list-style-type: none"> ✓ Landscape alteration due to lack of rehabilitation ✓ Loss of topsoil due to lack of restoration measures ✓ Construction pits may become a death trap for animals ✓ Waste (Left over of broken equipment, material offcuts etc.) 				
Impact Description	Objective	Mitigation Measures/	Indicators for Monitoring and Compliance	Responsible Party
Habitat alteration and permanent environmental scars of the and construction operations	To minimize habitat alteration and environmental scars	Limit environmental damages e.g. the overburden may be collected and piled and used for re-filling of pits Plant indigenous trees to fill the gaps for trees removed during construction	Re-filling of and construction pits with the overburden Indigenous Trees planted	Site Manager
	Landscaping	Landscaping – refers to re-shaping man-made landforms to blend in with the environment and in order to limit the damage to the natural landscape	Landscaping efforts and modification towards natural state	Site Manager
Waste discarded all over the place	Clean-up	Remove any foreign objects (including infrastructure, equipment, bricks and concrete, machinery and equipment remains), that is not needed at site upon project completion	Clean-up after project closure	Site Manager

10. CONCLUSION

It is important to note that, development takes place on land and certain materials are required from the land / environment.

This implies that, for development to take place, some part of the environment may be affected e.g access roads, vegetation clearing, water abstraction, wastewater discharge, solid waste disposal, sourcing of building sand and gravel, etc.

Thus, the proposed activities should be undertaken in a responsible and environmental friendly manner.

The EMP recommends measures to be implemented by the proponent, the contractor and sub-contractors in order to manage the infrastructure development activities at Otjovasandu APU Camps (A&B) on behalf of MEFT (the Proponent), in an environmental friendly manner, and in accordance with the provisions of the Environmental Management Act and EIA regulations.

In-addition, the aim of the EMP is to ensure legal compliance to prevent environmental fatal flaws as mitigation for any impacts arising from the construction process at the end of the construction phase.

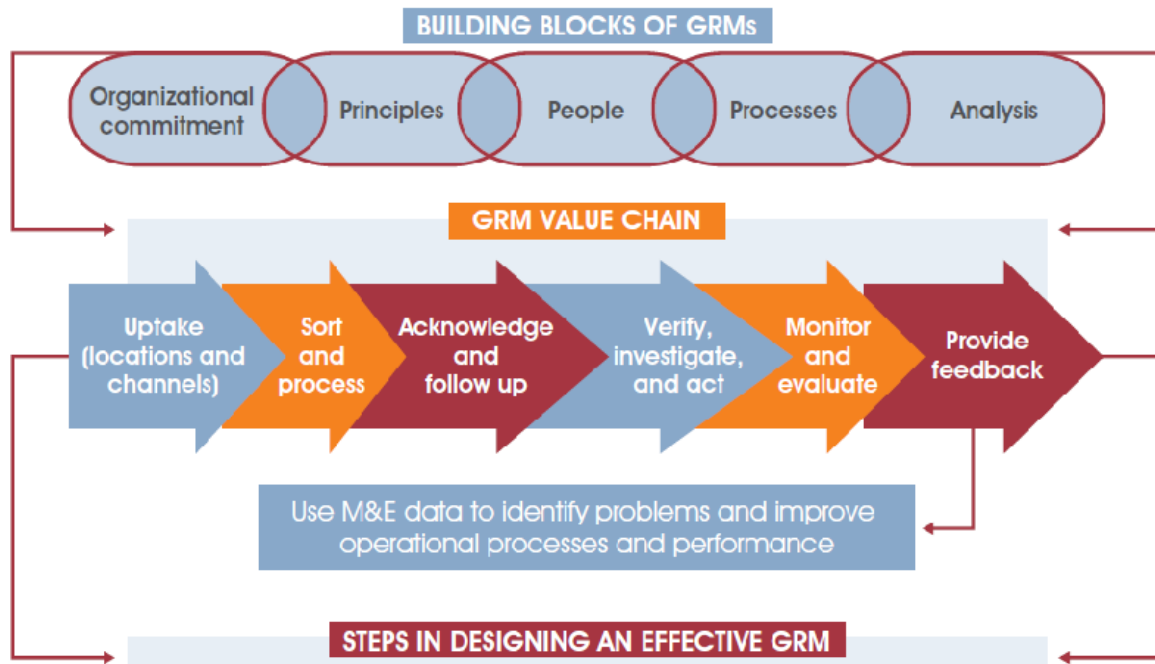
Non-compliance against the EMP is punishable and specific responsibilities has been assigned to role players, in-order to ensure that the EMP is implemented. The key role-players (Proponent, Contractor, and Site Manager) as defined under section 4 should:

- **Read** the EMP (particularly the Site Manager) and ensure that they are fully conversant with provisions of the EMP,
- If need be, **Ask for clarity** from the Environmental Assessment Practitioner (EAP), Environmental Compliance Officer (ECO) or relevant authority,
- Ensure implementation of the recommended mitigation measures, and
- Communicate defaults / challenges to the ECO as soon as possible.

It is recommended that an Environmental Control Officer (ECO) should monitor (conduct periodic and unannounced EMP audits) throughout the development phase, in-order to ensure compliance in-accordance with the mitigation measures prescribed in the EMP.



GRIEVANCE REDRESS MECHANISM



Grievance Redress Mechanism – Value Chain (World Bank, 2019)

Proposed Infrastructure Development for Wildlife Protection Services (WPS), in Etosha National Park (Leeudrink and Otjovasandu), and Sesfontein APU Camps

Prepared for:



13 August 2024

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1. BACKGROUND

The Ministry of Environment, Forestry, and Tourism (MEFT) in Namibia is undertaking the Integrated Wildlife Protection Project (IWPP) with support from the Kreditanstalt für Wiederaufbau (KfW) Development Bank. The IWPP aims to establish a comprehensive wildlife protection service in Namibia's protected areas, focusing on infrastructure development and equipment procurement.

The project interventions focus on the Etosha National Park and the North-western regions, and the North-eastern Parks, including the subdivision Kavango and the subdivision Zambezi and other selected sites with significant rhino and elephant populations. Furthermore, the Project supports the MEFT through infrastructure investments, in particular base camps and operation rooms, for the procurement of equipment for patrol staff, operation rooms as well as general wildlife protection activities of the WPS.

As such, the project contributes to the conservation, restoration, and sustainable use of ecosystems and the preservation of biodiversity in the focal areas. One of the intervention areas that is being financed under the grant is the support of the below-given intervention which the result and activities concern this consultancy.

2. OBJECTIVE

The purpose of this Grievance Redress Mechanism (GRM) is to establish a system for receiving and resolving stakeholder concerns and grievances regarding the environmental and social performance of the Proposed Infrastructure Development for the Wildlife Protection Services, Ministry of Environment, Forestry, and Tourism (MEFT) Project.

Thus, the overall objective of this GRM is to ensure that concerns, complaints, grievances, claims, and suggestions from construction workers, communities, or other stakeholders involved in project implementation are promptly collected, recorded, analyzed, and handled. This will allow for the identification of causes and the implementation of intervention. and preventative actions to avoid aggravation and recurrence which may be outside the project's control.

The principles of an effective GRM are:

1. Accessibility:

- The GRM should be easy for all stakeholders to access, regardless of their location, literacy level, or technological capacity.
 - Multiple channels (in-person, email, phone, online) should be available for submitting grievances.
 - Stakeholders should be well-informed about the GRM, how it works, and how they can submit grievances.
 - This information should be disseminated through various means, such as community meetings, posters, brochures, and websites.
2. **Predictability:** GRM should be time-bound at each stage and have specified time frames for the responses.
3. **Fairness:** All the procedures therein should be widely perceived as unbiased regarding access to information and meaningful public participation.
4. **Rights compatibility:** The outcomes of the mechanism should be consistent with international and national standards. It should also not restrict access to other redress mechanisms.
5. **Transparency and accountability:** The entire GRM process should be done out of public interest.
6. **Capability:** For an effective GRM, the system needs to be endowed the necessary resources, that is, technical, financial and human resources.
7. **Feedback:** It should serve as a means to channel citizen feedback to improve project outcomes for the people.

This GRM particularly aims to:

- ✓ To address complaints and grievances and enhance conflict resolution arising from, and during project implementation.

- ✓ Ensure transparency and accountability throughout the implementation of the project amongst the relevant stakeholders including project beneficiaries.
- ✓ Resolve any emerging environmental and social grievances in project areas.
- ✓ To promote relations between the project implementers and beneficiaries.

3. GRM SCOPE

The grievance mechanism aims to establish a system to receive and facilitate resolution of the stakeholder’s concerns and grievances about the Project’s environmental and social performance. The grievance mechanism has the Construction Workers and Affected Communities as its primary beneficiaries. It seeks to resolve concerns promptly, using an understandable and transparent consultative process that is culturally appropriate and readily accessible at no cost and without retribution to the party that originated the issue or concern. The mechanism will not impede access to judicial or administrative remedies. The grievance mechanism applies to all phases of the project life cycle (Figure 3.1).

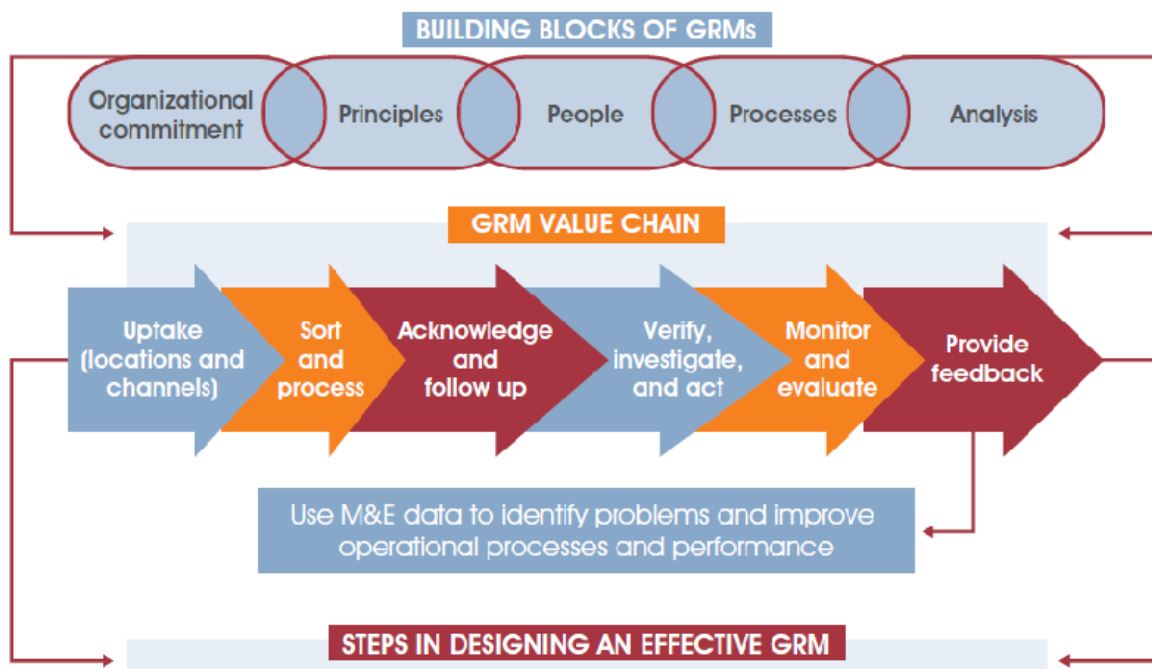


Figure 3.1: Grievance Redress Mechanism – Value Chain (World Bank, 2019)

The Community Grievance Mechanism Procedure applies also to all requests and complaints that might arise from any person (community members or others) considering themselves affected by the Project, including but not limited to the following:

- Damage to public/private assets;
- Degradation/deterioration of local infrastructures (e.g. roads);
- Waste dumping;
- Disturbance from noise, dust, traffic accidents, pollution, excessive speed of project's vehicles;
- Degradation of the environment and disturbance of wildlife;
- Negative behaviour of the construction workforce towards local communities and persons;
- Intentional spread of diseases including TB and HIV/AIDS
- Gender-based violence and harassment;
- Conduct of security providers;

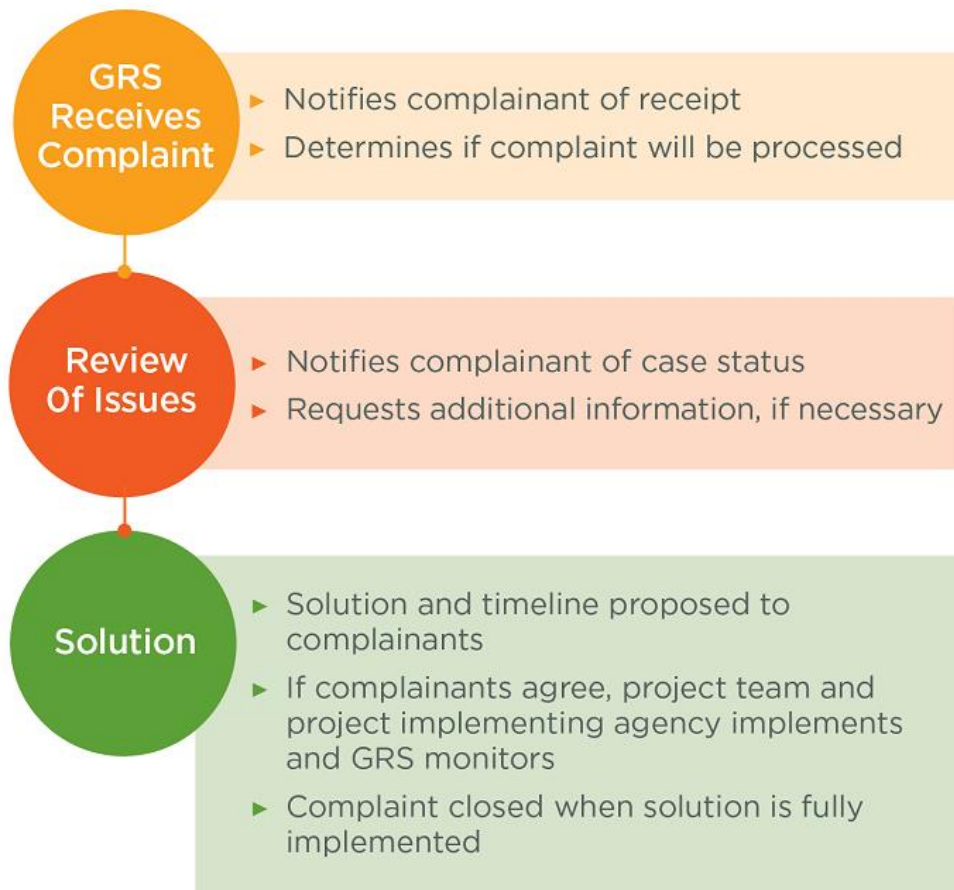


Figure 3.2: Grievance Redress System (World Bank, 2019)

Generally, all claims from affected communities should be accepted, and no judgment should be made before investigation, even if complaints are minor. However, according to best practice, the following claims should be directed outside of project-level mechanisms:

- Complaints unrelated to the Project: All grievances should be accepted and investigated;
- Matters related to governmental policy and government institutions;
- Complaints constituting criminal activity and violence: in these cases, complainants should be referred to the justice system;
- Commercial disputes: commercial matters should be stipulated in contractual agreements, and issues should be resolved through various commercial dispute resolution mechanisms or civil courts. Suppliers will have access to the internal grievance mechanism specified in the previous point.

4. LEGAL FRAMEWORK

The following standards shall be followed in the implementation of this grievance mechanism:

National Legislations	International Standards and Requirements	Project Specific Documents
<ul style="list-style-type: none"> • Labour Act 11 of 2007 • Environmental Management Act 7 of 2007 	<ul style="list-style-type: none"> • International Finance Corporation (IFC) Performance Standard 2: Labour and Working Conditions. Paragraph 20. • ISO 26000: 2010 on social responsibility • United Nations Guiding Principles on Business and Human Rights 	<ul style="list-style-type: none"> • Environmental Impact Assessment (EIA) Report • Environmental Management Plan (EMP)

5. ACCESSIBILITY OF THE GRM

To ensure that the GRM is accessible to all stakeholders, the following channels are available for submitting grievances:

- In-person: Stakeholders can submit grievances at the project site office or at designated community liaison offices.
- Email: Grievances can be sent to
- Telephone: A dedicated hotline (phone number) is available for stakeholders to voice their concerns. The hotline operates from (operating hours).

6. GRIEVANCE SUBMISSION AND REGISTRATION

1. **Submission:** Grievances can be submitted verbally or in writing. For written grievances, a standard form will be available at the project office and online (*see annexure*).
2. **Registration:** Upon receipt, each grievance will be recorded in a Grievance Log (*see annexure*) with the following details:
 - Date of submission
 - Name and contact information of the complainant (if not submitted anonymously)
 - Detailed description of the grievance
 - Any supporting documentation or evidence provided
3. **Acknowledgement:** The project team will acknowledge receipt of the grievance within 5 working days, providing the complainant with a reference number and an outline of the next steps.

ANNEX 1 – Grievance Sheet (adapted from Red Dunes, 2024)

Reference No.	
Full Name:	
Do you wish to remain anonymous?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Contact Information Please indicate how you wish to be contacted and add contact details	<input type="checkbox"/> By Telephone <input type="checkbox"/> By E-mail <input type="checkbox"/> Other (please specify)
Preferred language of communication	<input type="checkbox"/> English <input type="checkbox"/> Other, please specify:
Description of Concerns, Incident or Grievance	What is your concern/grievance/what happened? Where did it happen? What is the result of the problem?
Date of incident, concern or grievance	
Occurrence of incident, concern or grievance	
Any suggestion on how the issue can be resolved?	
..... Signature Date

ANNEX 3 – Grievance Log Sheet (adapted from Red Dunes, 2024)

Ref. No.	How was the grievance submitted	Date of submission of grievance	Name and contact details	Description of grievance	Actions taken to resolve the grievance	Date of communication of solution	Has the grievance been resolved, if not, why?

ANNEX 3 – Grievance Resolution Form (adapted from Red Dunes, 2024)

How was the grievance submitted?	
Reference No.	
Description of concern, incident or grievance	
Date of Grievance	
Has the grievance been resolved?	<input type="checkbox"/> Yes <input type="checkbox"/> No Justification if <i>No</i> ,
<i>Fill out Section A or Section B depending on previous answer</i>	
Section A	
Actions undertaken to resolve grievance	
Date of implementation	
Section B	
Proposed actions to resolve the grievance	
Proposed date for implementation	