

Environmental & Social Impact Assessment: The Proposed Fuel retail facility at Mpungu Vlei, Kavango West Region - Namibia

Environmental and Social Management Plan (ESMP)



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DOCUMENT DATA SHEET

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Project Name	ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A FUEL RETAIL FACILITY AND ASSOCIATED INFRASTRUCTURE AT MPUNGU, KAVANGO WEST REGION-NAMIBIA		
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ACRONYMS

TERMS	DEFINITION
BID	Background Information Document
DR	District Road
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EPL	Exclusive Prospecting license
GHGs	Greenhouse Gasses
HAIA	Heritage and Archaeological impact Assessment
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
MEFT: DEAF	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs and Forestry
NHC	National Heritage Council
NEMA	Namibia Environmental Management Act
RA	Roads Authority
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

DEFINITION OF TERMS

The **'Consultant'** – this refers to the team that is conducting the ESIA and the preparation of the EMP for the development

The **'Proponent'** – this refers to the institutions/departments that are directly involved in the implementation of the project, i.e. MAWF.

The **'Stakeholders'** – this refers to the people, organisations, NGOs that are directly or indirectly affected and interested by the project.

The **'Environment'** – this refers to the ecology, economy, society and politics.

1.0. CHAPTER ONE: BACKGROUND

1.1. Overview

The proponent, DAPPS Enterprises has identified the need to establish a service station at Mpungu, Kavango West Region. The proponent was given a 1.5 hectares (ha) by the Traditional authority of Ukwangali for the development. This Environmental Assessment (EA) scoping report was compiled for the project under discussion because the proposed development falls under listed activities that cannot be undertaken without a clearance certificated as stated in the **EMACT No 7 of 2007-Part (VII) of No 27: and its regulations**. In summary of these activities involves projects relating to; land use transformation, any activity entailing a scheduled process referred to in the **Atmospheric Pollution Prevention Ordinance, 1976**, the manufacturing, **storage, handling** or processing of **Hazardous Substance (HS)** defined in the **HS Ordinance 1974**, the **storage and handling** of a **dangerous good** including **petrol, diesel, liquid petroleum gas or paraffin**, in containers with a combined capacity of **more than 30 cubic meters at one location and construction of filling stations or** any other facility for the underground and above ground storage of dangerous goods, **including petrol, diesel, liquid, petroleum , gas or paraffin**. In addition to this, the proposed project involves various activities associated with the pre- planning, construction and operational phases as follows:

- ❖ *Construction of a 2-pump service station with a steel canopy*
- ❖ *Construction of underground tanks for fuel storage*
- ❖ *Construction of a convenience shop*
- ❖ *Operation of a fully registered service station*

1.2. The Environmental Consultant

DAPPS Enterprises has appointed EnviroPlan Consulting cc as the appointed Environmental Consultant to conduct an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the undertaking of mineral exploration activities and to apply for an Environmental Clearance Certificate with the Directorate of Environmental Affairs.

1.3. Project Location

Mpungu Vlei is located in North Eastern Namibia, Kavango West Region (Fig 1 overleaf) shows the locality map and below are the project site coordinates.

Table 1: Proposed Site Coordinates

CODINATE NUMBER	LATITUDE	LONGTUDE
A	-17 ⁰ 39' 08''S	18 ⁰ 14'26''E
B	-17 ⁰ 39'11''S	18 ⁰ 14'27''E
C	-17 ⁰ 39'09''S	18 ⁰ 14'30''E
D	-17 ⁰ 39'07''S	18 ⁰ 14'30''E



Figure 1: Project site Locality.

1.4. Scope of Work

This scoping study was carried out in accordance with the Environmental Management Act (EMA) (7 of 2007) and its 2012 EIA Regulations (GG No. 4878 GN No. 30).

This Environmental and Social Management plan (ESMP) was developed as a working document for the proponent ensure that there is environmental conservation, social acceptance and sustainability in their operation. The ESMP only covers activities occurring during project development.

1.5. Project Description

The service station will offer the following services on sell on site:

- Petrol and diesel fuel;
- Small grocery shop and vehicle accessories; Further service infrastructures to be established for the operation of the fuel station include: Service area building;
- Solid and sewer management facilities;
- Liquid petroleum fuel station;
- Surface water drainage • Firefighting equipment
- Fill pipes and Lighting; and

- access roads

The project shall involve the setting up of modern fuel dispensing pumps, 1 for petrol and 1 for diesel. Tanks shall be buried underground. All the pumps shall operate under a canopy (shed). A localized drainage system shall be in place to capture fugitive leak fuel which will be directed to an oil separator for sound environmental stewardship

1.5.1. Construction Phase

The study will specifically look at the activities in the following phases;

Construction phase

- Excavation of trenches and pits for services and infrastructure
- Installation of engineering services, underground storage tanks, oil separator, spill control infrastructure, submersibles, generator and dispensing pumps
- Electrical reticulation above and below ground
- Construction of buildings, paving, pump islands, storm water drainage, site access streets and related infrastructure
- Transportation of equipment, components, machines and building material to site
- Site clean-up and housekeeping

1.5.2. Operational Phase

- *Decanting fuel to the underground storage tanks from street tankers*
- *Fuel dispensing into vehicles and approved containers*
- *Car wash operations*
- *Operations of a quick shop*
- *Site clean-up and housekeeping*
- *Running water management*

1.5.3. Decommissioning/Closure Phase

This phase will involve the removal of equipment and dismantling of facilities and safe closure as follows:

- Demolition and removal of physical structure not to be reused for further land use
- Site rehabilitation and clean-up

Stakeholder Consultation will be undertaken during all phases of the project to ensure a focused and effective public consultation process as required by the EMA Act and its regulations. Stakeholder consultation will form the basis of the entire EA process ensuring that all Namibians are informed and have an opportunity to participate in the process.

1.6. Environmentally sensitive areas identified

The proposed exploration activities are not in any sensitive protected areas such as community forests, conservancies, and areas with memorial sites. A Specialist Heritage and Archaeological impact Assessment was commissioned for the project area.

2.0.CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

1.7. Introduction

An important part of the ESMP is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in the project development and implementation. This section looks at the legislative framework within which the proposed project will operate under. The focus is on compliance with the legislation during the planning, Exploration and operational phases. All relevant legislation, policies and international statutes applying to the project are highlighted in Table 2 below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

The pursuit of sustainability by an Organisation is operationalised by a sound policy and legislative framework that gives operating parameters within its sphere of operation. In this section, relevant legal instruments, as well as their relevant provisions, are identified and analysed on their relevance to the proposed project. A concise explanation is given of the applicability of each of the identified pieces of legislation as well as how the Roads Authority is supposed to implement environmental compliance to the project.

Table 2: Policies, legal and administrative regulations

Legislation	General Provisions
<p>The Environmental Management Act 7 of 2007</p>	<p>The regulations that accompany this act lists a number of activities that may not be undertaken without an environmental clearance certificate issued in terms of the Act. The act further states that any clearance certificate issued before the commencement of the act (6 February 2012) remains in force for one year. If a person wishes to continue with activities covered by the act, he or she must apply for a new certificate in terms of the Environmental Management Act.</p>
<p>Environmental Impact Assessment Regulations 2012</p>	<p>These regulations are very important in the implementation of the Project because this project fall under prescribed projects that has to have an Environmental Impact Assessment undertaken before the project is given a green light for implementation. This Act and its regulations should enlighten and guide this EIA process. Cost and benefits analysis of the project are weighed systematically to find suitability of the project in terms of economic, social and bio-physical environmental.</p>
<p>Water Resources Management Act of 2004</p>	<p>Line Ministry: Ministry of Agriculture, Water and Forestry The act provides for the management, protection, development, usage and conservation of water resources; to provide for the regulation and monitoring of water resources and to provide for incidental matters.</p>
<p>Nature conservation ordinance, ordinance No. 4 of 1975,</p>	<p>Line Ministry: Ministry of Environment and Tourism The Nature Ordinance 4 of 1975 covers game parks and nature reserves, the hunting and protection of wild animals (including reptiles and wild birds), problem animals, fish, and the protection of indigenous plants. It also establishes a nature conservation board. The basic set of regulations under the ordinance is contained in GN 240/1976 (OG 3556).</p>

Legislation	General Provisions
Petroleum Products and Energy Act No. 13 of 1990	Line Ministry/Body: Ministry of Mines and Energy The act regulates the importation and usage of petroleum products. The act reads as “To provide measures for the saving of petroleum products and an economy in the cost of the distribution thereof, and for the maintenance of a price thereof; for control of the furnishing of certain information regarding petroleum products; and for the rendering of services of a particular kind, or services of a particular standard; in connection with motor vehicles; for the establishment of the National Energy Fund and for the utilization thereof; for the establishment of the National Energy Council and the functions thereof; for the imposition of levies on fuel; and to provide for matters incidental thereof”.
Atmospheric Pollution Prevention Ordinance (1976)	Line Ministry/Body: Ministry of Health and Social Services This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, with the exception of East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.
Hazardous Substance Ordinance, No. 14 of 1974	Line Ministry/Body: Ministry of Safety and Security The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage and handling.
Namibian Water Corporation (Act 12 of 1997)	Line Ministry/Body: Namibian Water Corporation The act caters for water rehabilitation of related areas, environmental impact assessments and for minimizing or preventing pollution.

Legislation	General Provisions
Climatic Change Polices	2.5.1 National Climate Change Strategy & Action Plan 2013 – 2020 The climate change action plan which identifies Climatic Change (CC) as a critical threat to sustainable development. Therefore, it must be addressed in a holistic and multisector manner.
Soil Conservation Act 76 of 1969	The soil Conservation Act makes provision for the prevention of soil erosion. It promotes the protection and up keeping the soil structure and vegetation and all-natural resources in the soil of the Republic of Namibia
Labor Act 1992. (Government Gazette No. 388)	Part XI focuses on Health and Safety and Welfare at Work of Employees. Section 96 expresses those Duties of employers on health, safety and welfare at work of employees. (1) It shall be the duty of every employer or person in charge of any premises or place where employees are employed to take, free of charge to such employees, all such steps as may be prescribed by regulation under section 101, in order to ensure the safety, health and welfare at work of all employees in his or her employment.
Public and Environmental Health Act, 2015	AIM: To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters. The objects of this Act are to - (a) Promote public health and wellbeing; (b) Prevent injuries, diseases and disabilities; (c) Protect individuals and communities from public health risks; (d) Encourage community participation in order to create a healthy Environment; and (e) Provide for early detection of diseases and public health risks .

Legislation	General Provisions
Pollution and Waste Management Bill (draft)	<p>The draft of Pollution and waste management bill clearly defines different types of pollution. It also notifies on how the Government intends to control different types of pollution to uphold a clean and safe environment for all.</p> <p>The bill expresses the mandatory for everyone to comply with waste management to reduce pollution in any form. The failure to comply with the obligatory is considered as an offense which is punishable.</p>
Waste Management Regulations: Local Authorities ACT (1992)	<p>Waste Management Regulation: Local Authorities of 1992 provides guidelines on waste management, it mandates the occupier of properties must provide a secure, hygienic, adequate and readily accessible waste storage place or area on the premises.</p>

2.2. Key Industry Standard Requirements

Below is the best environmental best practice, engineering design controls and standards that must be adhered to and required by Oil Companies and the Ministry of Mines and Energy (MME) in order to mitigate the risk that service stations pose;

- SANS 100131 (1977): The storage and Handling of Liquid Fuel. Part 1: Small Consumer Installations;
- SANS 100131 (1979): The storage and Handling of Liquid Fuel. Part 11: Larger Consumer Installations;
- SANS 10400 (1990): The application of the National Building Regulations
- SANS 10089-1 (1999): The petroleum industry Part 1: Storage and distribution of petroleum products in above-ground bulk installations;
- SABS 0131 (1999): The petroleum industry Part 3: The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations;
- SANS 10089-2 (2002): The petroleum industry Part 2: Electrical installations in the distribution and marketing sector;
- SANS 1186-1 (2003): Symbolic safety signs Part 1: Standard Signs and General Requirements; SANS 10142-1 (2003): The wiring of the premises Part 1: Low-voltage installations; SANS 1535 (2003): Glass-reinforced polyester-coated steel tanks for the underground storage of hydrocarbons and oxygenated solvents and intended for burial horizontally.
- SANS 10131 2004, Above-ground storage tanks for petroleum products;
- SANS 10089-3 (2010): The petroleum industry Part 3: The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations.
- SANS 1020 (2013): Power-operated dispensing devices for flammable liquid fuels

2.3. Legislative process

The proposed development and construction activities requires compliance with the EIA Regulations of 6 February 2012 Government Notice No 28, 29 and 30, promulgated in terms of the EMA, Act no. 7 of 2007.

The proposed activity requires an EMA EIA Scoping Process in terms of the activities below. GN no. R4878 Activity no.:

- 9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.
- 9.4 The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.
- 9.5 Construction of service stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.

3.0. CHAPTER THREE: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

3.1. EMP Organization, Responsibility and Authority

This section describes the key functionaries in the planning, implementation and monitoring of the EMP. Copies of this EMP shall be kept at the site office and will be distributed to all senior contract personnel. All senior personnel shall be required to familiarise themselves with the contents of this document.

The implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase.

3.1.1. Site instruction entries

The Site Instruction Book entries will be used for the recording of general site instructions as they relate to the works on site and EMP measures. It will also be used for the issuing of stop-work orders issued by the ECO for the purposes of immediately halting any particular activities of the Contractor in lieu of the environmental risk that they may pose.

3.1.2. ECO diary entries

The purpose of these entries will be to record the comments of the ECO as they relate to activities on the site including infringements, possible changes to the EMP or work stop orders.

3.1.3. Method statements

Method statements from the Contractor will be required for specific sensitive actions on request of the authorities or ESM. A method statement forms the baseline information on which sensitive area work takes place and is thus considered a "live document" in that modifications can be negotiated between the Contractor and EC if or as required. The Contractor (and, where relevant, any subcontractors) must also sign the Method Statement, thereby indicating that the works will be carried out according to the approved methodology. Changes in the methodology must be reflected by amendments to the original approved Method Statement. Amendments must be signed by both the EC and PM, denoting that the change is environmentally acceptable. The Contractor must also sign the amended Method Statement.

All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP main document. The Method Statement shall cover applicable details with regard to:

- Land preparation
- Materials and equipment to be used;
- How and where materials will be stored;
- The containment of accidental leaks or spills;
- Timing and location of activities; and
- Any other information deemed necessary by the ESM.

The Contractor must submit the method statement two weeks before any particular construction activity is due to start, especially with respect to impacts on sensitive ecosystems. Work may not commence until the method statement has been accepted by the ECO, and clearly communicated to the workforce. The Contractor shall,

except in the case of emergency activities, allow 14 days for consideration and approval of the Method Statement. The ECO may require changes to a Method Statement if the proposal does not comply with the specifications or if, in the reasonable opinion of the ECO, the proposal may result in damage to the environment in excess of that permitted by the specifications. Approved Method Statements shall be communicated to all relevant personnel.

All Method Statements listed below, shall be provided by the Contractor before the activity commences:

- (i) Camp establishment and fencing
 - Location and layout of the Contractor's Camp.
 - Method of installing fences required for working areas and Contractor's Camp.
- (ii) Demolition

Proposed method of demolition, including handling and disposal of materials.
- (iii) Dust

Dust control protocol.
- (iv) Fire and hazardous substances
 - Handling and storage of hazardous wastes.
 - Emergency spillage procedures and compounds to be used.
 - Emergency procedures for accidental fire.
 - Methods for the disposal of hazardous materials.
- (v) Fuels and fuel spills
 - Methods of refuelling vehicles.
 - Details of methods for fuel spills and clean-up operations.
- (vi) Protection of archaeological resources

Methods for dealing with archaeological resources in the event that any are found.
- (vii) Protection of environmentally sensitive resources (fauna and flora)
 - Methods for dealing with conservation areas or areas identified as environmentally sensitive requiring protection.
 - Locality and preparation of onsite nursery to house vegetation relocated from Exploration areas or propagated locally for replanting purposes.
 - Details of methods dealing with the identification, transportation and transplanting of flora species of conservation value.
 - Details of methods dealing with the identification, capture and relocation of fauna species of conservation value.
- (viii) Rehabilitation

Rehabilitation of disturbed areas after earthmoving/ excavations is complete.
- (ix) Solid waste management

Solid waste control and removal of waste from Site.
- (x) Topsoil handling and stockpiling

Details on stripping, handling and stockpiling of topsoil.
- (xi) Wash areas

Location, layout, preparation and operation of all wash areas.

(xii) **Storm water management**

Details of how storm water is to be handled on site.

3.2. Environmental Education

Before any work is commenced on the Site, the entire Contractor's staff including foremen shall attend an environmental education talk, presented by the EC with. The Contractor shall liaise with the EC prior to the commencement date to fix a date and venue for the talk. The Contractor shall ensure that all the employees attend the talk.

Follow-up education talks shall be held for any new employee/s coming onto Site from time to time. The EC shall ensure that all attendees sign an attendance register, and shall provide the ECO with a copy of the attendance register.

3.3. Record Keeping

All records related to the implementation of this management plan (e.g. site instruction book, ECO diary, induction records, method statements) must be kept together in an office where it is safe and can be retrieved easily. All relevant records should be kept for a minimum of two years after Exploration and should at any time be available for scrutiny by any relevant authority or stakeholder.

It is recommended that photographs (fixed-point photographs for better comparisons before/during/after) are taken of the site prior to, during and immediately after Exploration as a visual reference. These photographs should be stored with related documents and other records related to this EMP.

3.4. Environmental Completion Statement

An Environmental Completion Statement will be prepared by the EC for submission to the Department of Environmental Affairs (Ministry of Environment and Tourism) indicating completion of the project and compliance with the EMP and conditions. This statement will be prepared after the final audit after the rehabilitation phase.

3.5. Roles and Responsibilities

3.5.1. Duties and Powers of the Environmental Consultant (EC)

The Environmental Consultant is ultimately responsible for:

- The environmental and social consultant will be responsible for the periodic monitoring and evaluation of EMP implementation.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Monitoring the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site.
- Advising on the removal of person(s) and/or equipment not complying with the specifications via the PM.
- Auditing the implementation of the EMP and EMP compliance on a monthly basis.

- Undertaking a continual review of the EMP and recommending additions and/or changes to the document.
- The management and continuous monitoring of the implementation of the EMP on a daily basis will be the responsibility of the Resident Engineer.

3.5.2. Duties and Powers of the Project Manager

The Project Manager is ultimately responsible for:

- The Project Manager (PM) of the proponent will act with restricted powers and responsibilities as delegated by the proponent in writing.
- For this project it is envisioned that the function of the Environmental Control Officer (ECO) will only require part time inputs. The PM may fulfil the function of the ECO thereby taking responsibility of the ECO's duties (see below) on this project.
- Any on-site decisions regarding environmental management are ultimately the responsibility of the PM with consultation with the environmental Consultant. Therefore, the PM must assign the role of ECO to a competent member of its site supervising team. The PM shall assist the ECO where necessary and will have the following responsibilities in terms of the implementation of this EMP:
 - Ensuring that the necessary environmental authorisations and permits have been obtained by the Contractor.
 - Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary.
 - Ordering the removal of person(s) and/or equipment not complying with the EMP specifications.
 - Issuing fines for transgressions of site rules and penalties for contravention of the EMP.

3.5.3. Duties and Powers of the Environmental Control Officer

The Environmental Control Officer (ECO) will be a competent person determined by the PM and EC to fulfil the role as the Employer's representative to monitor and review the on-site environmental management and implementation of this EMP by the Contractor.

The ECO's duties will include the following:

- Assisting the PM in ensuring that the necessary environmental authorisations and permits have been obtained.
- Maintaining open and direct lines of communication between the PM, Employer, Contractor, and interested and affected parties with regard to environmental matters.
- Facilitating all communication between the local community and the contractor.
- Regular site inspections of all Exploration areas with regard to compliance with the EMP.
- Monitoring and verifying adherence to the EMP by verifying that environmental impacts are kept to a minimum.
- Taking appropriate action if the specifications are not followed.
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP via the PM.

3.5.4. Duties of the Contractor

The contractor shall be responsible for the implementation of the EMP and the action plan, onsite monitoring and evaluation of the EMP through the following;

On the on-set of the project, the contractor through an Environmental Officer shall:

- Develop a Hazard Identification and Risk Assessment report on the on-set of the project to be approved by the environmental Consultant.
- Developing a waste and contractors camp management plan to be approved by the environmental consultant
- Submit a monthly Environmental Performance report to the Environmental Consultant.

In addition, the Contractor shall furthermore ensure that adequate environmental awareness training of senior site personnel takes place and that all Exploration workers receive an induction presentation on the importance and implications of the EMP.

The presentation shall be conducted, as far as is possible, in the employees' language of choice.

As a minimum, training should include:

- Explanation of the importance of complying with the EMP.
- Discussion of the potential environmental impacts of Exploration activities.
- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the specifics of this EMP and its specification (no-go areas, etc.) and of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the management structure of individuals responsible for matters pertaining to the EMP.
- The contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

The induction programme should be developed and submitted to the PM and environmental consultant for approval.

NB: The Contractor shall clearly describe the overall methodology proposed for the task specific related activities in particular method statements.

All method statements must take environmental requirements into account.

3.6. Financing of Environmental Control

Financing of the environmental requirements as outlined in this document, apart from the appointment of the ESM and specialists, is the sole responsibility of the Proponent and the exploration contractor.

3.7. Amendments of the EMP

Any party involved with the project can suggest changes to the EMP via the EC or PM. Such suggestions will be discussed with the Environmental Forum. Approved changes will be minute and drafted into the existing EMP in the form of an appendix or amendments.

3.8. Procedures for non-compliance

The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the PM to impose a penalty. This applies to the Environmental Management Plan (EMP).

In the event of non-compliance, the following recommended process shall be followed:

- The PM shall consult the environmental consultant and if agreed, issue a notice of non-compliance to the Contractor, stating the nature and magnitude of the contravention. A copy shall be provided to the ECO.
- The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The Contractor shall provide the PM with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. A copy shall be provided to the ECO.
- In the case of the Contractor failing to remedy the situation within the predetermined time frame, the PM shall impose a monetary penalty based on the conditions of contract.
- In the case of the Contractor being unable to remedy the situation due to permanent environmental damage already incurred, the PM shall impose a monetary penalty based on the conditions of contract.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the PM shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- In the event of a dispute, difference of opinion etc, between any parties in regard to or arising out of interpretation of the conditions of the EMP, disagreement regarding the implementation or method of implementation of conditions of the EMP etc., any party shall be entitled to require that the issue be referred to independent specialists for determination.
- The PM shall at all times have the right to stop work and/or certain activities on site in the case of safety and EMP non-compliance or failure to implement remediation measures.

3.9. Administration and Training

The roles and responsibilities of all stakeholders involved in the project development are to ensure that this EMP is fully implemented. The proponent should appoint an overseer (Environmental Control Officer) to guarantee the successful implementation of this EMP. The Environmental Control Officer needs to have qualifications and knowledge in environmental management, and understanding of EMP administration. Under the management administration, each action is allocated to a responsible person to safeguard environmental

quality management. All stakeholders including contractors involved during the construction of the services must be well-versed and familiarised about the contents of this EMP. This can be done through structured training programs, regular site meetings and conferences.

3.10. Construction Phase Impacts

The proposed fuel retail station and truck port construction phase marks the fundamental part of the project growth progression. The development entails activities that will pose threats to the surrounding environs and impacts ranging from de bushing, construction waste, and noise and air pollution among other impacts. As assessed in the impact assessment chapter the Interested and Affected Parties noted crucial environmental impacts associated with the construction phase and as follow up to the impacts identified and evaluated, this EMP is intended to reconcile every impact with Environment.

Table 3: Impacts associated with the Construction Phase

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Noise pollution	Noise will be generated through: -Gully reclamation and landscaping -Construction of site administration offices -Moving vehicles.	-The health of working personnel is most likely disturbed. -Residents could be disturbed by the noise. - General annoyance -Driving away of local animal species near the project site	Environmental	2-4 months	Environmental Control Officer	- A construction interval will be established, and adhered to. - Workers will be issued and provided with personal protective equipment. - Public will be notified through printed timetable stating planned operational activities. - All construction activities will be conducted during daytime unlike during the night.
Dust Generation	Dust will accumulate because of the land preparation and ground excavation by movement of heavy construction equipment	- Can lead to respiratory illnesses especially to those working in the area. -increase Particulate matter levels in the air and cause visual pollution	Environmental/occupational	2-3 months	Environmental Control Officer Contractor	- Dust suppression will be done through watering dust source surfaces.
Rubbles Accumulation	Rubbles will accumulate due to construction activities	- Can be an eyesore. - Can be source of water and soil pollution. -disrupts scenery view	Environmental	2-3 months	Environmental Control Officer	- Reuse reusable material such as bricks. - dispose all non-reusable debris following waste management procedures.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Soil pollution	Garbage, cement, concrete, sewage, chemicals, fuels, oils or any other objectionable or undesirable material.	<ul style="list-style-type: none"> Hazardous waste should be disposed of in the prescribed manner in order to prevent contamination of soils (see waste management heading). <p>In case of accidental spills, the contaminated soil must be suitably disposed of in a container for hazardous waste.</p>	Environmental	Daily monitoring and regular visual inspection by contractor.	EC, Contractor	Daily monitoring and regular visual inspection by contractor.
Occupational health and safety risks and accidents	Construction related Safety and Health hazards	-Injuries to workers such as Occupational Dermatitis, blunders and objects falling from heights, musculoskeletal disorders, among others.	Health & safety	Project life time	Environmental Control Officer	<ul style="list-style-type: none"> Equip workers with Personal Protective Equipment (PPE). provide trainings on how to effectively use the PPE. -Conducting safety awareness programs and meetings on how to increase hazard attentiveness
Employment creation	The construction phase offers an opportunity of subcontracting work	- Increased income to those employed and their immediate families.	Socio-economic	Project life time	Human Resources Officer	- Work with Mpungu Village headman on acquiring non-skilled labour from the residents.

Impact	Description	Effects	Class	Time frame	Responsibility	Action
Population Influx	The project will bring in skilled and unskilled workforce into Mpungu Village from other places increasing population density in the area.	<ul style="list-style-type: none"> -There is potential for cultural systems conflict between locals and new people in the area -Overpopulation around local surroundings, i.e. exceeding local area carrying capacity -Potential for rife prostitution and spread of HIV/AIDS and other STDs -Potential for scaring away of local wild animals, poaching and removal of protected indigenous vegetative species in the nearby environs 	Socio-economic	Project life time	Human Resources Officer	<ul style="list-style-type: none"> -Train and brief employees to respect local cultures and leaders, -Conduct an immense sexual health training and awareness, providing contraceptives, condoms, counselling for those that are affected by HIV/AIDS and other STDs, - Regular trainings and awareness on nature conservation (animal and plants), and discourage hunting of wildlife and unnecessary cutting down of trees.
Littering	The project will make use of plastics and paper as a result of material unpacking as well as domestic papers.	<ul style="list-style-type: none"> -Suffocation of pets, children and animals -Natural aesthetics/ eyesore threat 	Environmental	Project life time	ECO	<ul style="list-style-type: none"> - Make use of well labelled waste receptacles separating rubbles from plastics - education and awareness - Daily clean ups

3.11. Operational Phase

The operational phase is the most critical component of project implementation and it is normally associated with several severe impacts. The phase comprises of the actual operation of the truck port facility and fuelling behaviours. This phase is expected to last for over 50 years of operation if the project is still viable. There will be several impacts that will occur daily or other sequential routine. The phase forms the basis of an Environmental Management Plan that is detailed in this Chapter and will be followed by the decommissioning phase. The major impacts identified by this study for the operation phase are as detailed in the previous chapter.

Table 4: Impacts associated with the Operation Phase

Impact	Description	Effects	Class	Time Frame	Responsibility	Action
Noise pollution	-Vehicle movements -Periodic road upgrading	- The health of working personnel could be disturbed. - Residents could be disturbed by the noise. - General annoyance -Driving away of local animal's species near the project site.	Environmental	Project life time	Environmental Control Officer	- Schedule road maintenance during day time and avoid upgrades over short periods of time. - Provide public notices through printed timetable showing schedule of planned work
Solid waste pollution	Solid waste emanating from food wastes, packaging materials, containers, household waste, glass, wood, etc	- Can result health issues and some waste can be highly hazardous and toxic to the environment	Environmental	Project Life time	Environmental Control Officer	-An initial waste audit will be conducted to identify areas type and volume of waste -When it is appropriate, materials will be reused and/or sent to recycling agents based in Rundu to minimize the amount of waste generated. -Biodegradable waste will be composted and used on lawns and flowers on and around the site as part of environmental responsibility of the company.

Impact	Description	Effects	Class	Time Frame	Responsibility	Action
Human movements	Visitors to the site will have interests in moving around the bush area and maybe nearby communities	-Movements may drive away animals within the radius of the site. - This can also result in vehicle vibrations which maybe a nuisance to some people in the surrounding area.	-Ecological -Social	Project life time	Operations manager	-Come up with a social contact policy guiding the movement of visitors around the area -Promote the use of wild tracks and no vehicle tracks in the bushes to avoid driving away wild animals.
Water quality	Storm water from the fuel dispensation hub canopy and truck parking paved bay.	-Ground and surface water contamination: Both chemical and physical contamination	Environmental	Project life time	DEA / Namwater	-Frequently monitor effluent waste quality -The conservancy tank will be concretised to avoid contamination of groundwater and any leaks should be fixed timeously.
Occupational Hazards / Workplace accidents	Operating of household equipment such as stoves, irons, boilers etc can cause workplace injuries	-Potential accidents and illnesses.	Health, social	-Project life time	Ministry of Labour	-Health and safety regulations should be enforced on all the workers. -Safety regulations include life and health insurance, first aid kits; protective clothing such as uniforms and gloves. -Proper storage of highly flammable products such as gas etc, and installation of fire extinguishers. Workers should not be allowed to exceed working hours.

<p>Hydrocarbons pollution (Spillages and leaks)</p>	<p>Fuel dispensation process may result in oil spillages, underground fuel storage tanks my leak and stationery trucks parking at the truck port may have fuel and oil leakages</p>	<p>Potential for soil pollution, groundwater contamination</p>	<p>Environmental</p>	<p>Project lifetime</p>	<p>Environmental Control officer</p>	<ul style="list-style-type: none"> -Visual monitoring during rainfall events for runoff of polluted water -hydrocarbons and chemically laden water must not be disposed of into surface water sources or into the bush -Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks. -Chemicals, oil and fuel must be stored securely to prevent any accidental spills. -An oil separator should be installed around the fuel dispensing bay, car washing bay and the truck parking bay to prevent oils being channelled into the main sewerage works. -A leakage detecting system to monitor underground fuel storage tanks should be installed to enable strict and practical detection of leakages. -The underground fuel storage tanks should be replaced on regular as recommended by suppliers as well as depending on environmental conditions and natural disasters.
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Impact	Description	Effects	Class	Time Frame	Responsibility	Action
Employment creation	Employment creation for the residents	<ul style="list-style-type: none"> - Increases disposable income. - Decreased Rural to urban migration. 	Socio-economic	Project Life Time	Mpungu Village headman Operations Manager	<ul style="list-style-type: none"> - Provide information to the local community detailing labour requirements (number of workers and type of skills) - Provide information on social benefits for the employees and the local community. - Conduct transparent recruitment process of workers and of contractors, providing preferences to the locals where feasible.
Immoral Behaviour	Increased inflow of people into the area may result in immoral behaviour and increased sexual activities.	<ul style="list-style-type: none"> -Increased infection of HIV/AIDS and other sexual diseases. -Increased unwanted and teenage pregnancies -Increase in thieving incidences, assaults and robberies. -Increased incidences of drugs and alcohol abuse. 	Socio-economic	Project Life Time	Operations manager and Mpungu Vlei Headman	<ul style="list-style-type: none"> - Conduct awareness campaigns on promiscuity and HIV/AIDS issues. - Conduct awareness programmes on the effect of alcohol and drug abuse. - Support the creation of a nearby police post.
Traffic congestion	Increased flow of motor vehicles	Congestion Accidents	Socio Economic	Project Life Time	Proponent	Clear signage showing one way and parking zone for trucks as well other vehicles.

3.12. Decommissioning Phase

If the project proponent intends to decommission the project well before the completion of its expected lifespan, all the necessary steps will be taken to ensure that the application of the best environmental management practices and adherence to legal and policy legislations is upheld. These progressions shall follow an appropriate decommissioning plan prepared by an appointed Environmental Consultant that will work in the best environmentally friendly manner taking into considerations the principle of sustainable development. The anticipated impacts of a standard and provisional decommissioning plan will only be highlighted in the Environmental decommissioning plan, taking into consideration biophysical, economic, social and political issues related to project decommissioning, thus a decommissioning environmental audit and management plan will have to be undertaken before the project is completely decommissioned to ensure sustainability and rehabilitation.

3.13. Solid Waste Management

DAPPS Enterprises cc Service Station and Truck port's solid waste management plan will follow the waste management principles of reusing, recycling and reducing. This will imply that at waste generation on site will be minimal to ensure that there is no waste management problem. Waste that can be reused will be put to appropriate use such as reusing plastic packages, and containers during the construction, operation and decommissioning phase.

Waste segregation will be done in relation to biodegradable and non-biodegradable waste. Biodegradable waste such as vegetables, food leftovers and paper will be composted on site and the compost will be used on lawn and flowers to be planted on site. All recyclable waste will be separated and delivered periodically by the proponent to waste recycling companies.

3.14. Sewage and Effluent Waste Management

In the absence of the municipal sewage system, sewage is highly environmental dangerous and remains a hazard to human health if not properly managed according to public health and environmental standards. For this development, a Bierock Sewerage Technology using high grade conservancy tanks will be used for treating the effluent and sewage discharge from the truck port site. The Bio rock treatment technology enhances and combines the principles of primary separation (septic tank) and aerobic biological filtration (conventional trickling filters). This type technology is usually used for domestic purposes including business parks, farms, and lodges and can work independently from the municipal system. The treating process is biological and doesn't require power and produce odour. Treated water from the system will be recycled and used for watering the lawn and the plants while the sludge will be sucked out, (SANS, 2010).

The installation is environmentally friendly and requires servicing twice less than the traditional septic tanks. The tank material is waterproof and durable; however, to enhance environmental safety the holding pit for the tanks will be lined with Structural Epoxy technology which incorporates a high build, fibre reinforced polymer (FRP) epoxy. This Epoxydic system is the highest build liner that is leachate and acid proof. This liner is being used because of the flooding risk of the area and thus there is need for an airtight system that will not be compromised during flooding periods. The Structural Epoxy System offers high flexural strength properties, impressive modulus and 16,000psi compressive strength for structural reclaiming needs and lining as an all-in-one-shot single system. The system is often specified for structures experiencing ultra-high levels of I&I pressure with ultra-high levels of H₂S (up to 800 ppm).

In relation to the sewerage system management on site the following guidelines are recommended:

- A contingency plan must be drawn up to protect against overflow of the conservancy tank. A sump or lined pond can be designed below the conservancy tanks to contain any overflows.
- Ingress of storm water into the conservancy tanks must be prevented by providing appropriate drainage.
- The tanks siting will be located more than 200m from the river bank
- The tanks must have airtight manhole covers to allow access to the tanks for the removal and safe disposal of the tank's contents.

Furthermore, in relation to flooding risk the following specifications will be followed:

- All sewage pipe penetrations through walls/foundations shall be sealed using an expansive sealant, a moulded sleeve, an elastomeric seal, or a neoprene seal.
- The septic tank access cover shall be sealed with a neoprene gasket and bolted down.
- The septic tank inspection pipe shall have a watertight cover (i.e. a screw-on lid).
- The sewage connection pipe exiting the structure shall be either strapped to a vertical supporting component of the structure or embedded in the foundation to protect the pipe from flood damage.

4.0. CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS

4.1. Conclusion

Arising from the analysis by the consultants, the proposed project has land cover/use impacts on the proposed project site. Because land must develop, but with land development, there should not be environmental degradation, thus the EMP provides for the sustainable land development of the facility.

4.2. Recommendations

In order to alleviate any negative impacts that may emanate from the proposed project, the contractor and proponent should follow recommendations as follows:

4.2.1. Environment Management Plan Recommendations

In order to ensure a healthy and safe environment in the proposed site and its environs, a plan for environmental management has to be instituted through monitoring. This involves the collection and analysis of relevant environmental data as well as periodic documentation and reporting.

4.3. External Auditing

The key to a successful ESMP is appropriate monitoring and review to ensure effective functioning of the ESMP and to identify and implement corrective measures in a timely manner. In the event that discrepancies are identified, the problem must be investigated and attended to. All the results obtained during environmental monitoring must be documented for audit purposes.

An audit of the environmental management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards. Audits should be conducted during the operational phase of the facility to ensure adherence to the management measures contained in the EMP.

4.4. Recommendation to MEFT

Having looked at the potential impacts of the proposed project development, the risks associated with the development and the mitigation measures contained in this EMP, EnviroPlan Consulting cc hereby recommends that the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT:DEA) approve the proposed mineral exploration activities and issue an Environmental Clearance Certificate (ECC) on condition that the proponent will ensure complete compliance to the developed Environmental and Social Management Plan (ESMP).