

ENVIRONMENTAL MANAGEMENT PLAN

FOR THE PROPOSED UPGRADE AND OPERATION OF A FUEL RETAIL FACILITY ON THE EXISTING TRANSNAMIB PREMISES IN OTJIWARONGO, OTJOZONDJUPA REGION-NAMIBIA



ENVIRONMENTAL MANAGEMENT PLAN

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1.1 INTRODUCTION

The planned fuel retail facility project is likely to have an impact on the biophysical and socio-economic environment, as was mentioned in the chapter before. The Environmental Management Plan (EMP) for impacts related to the proposed development is described in this section. The objectives of the EMP include to prevent negative impacts where possible; reduce or minimise the extent of impact during project life cycle; and prevent long term environmental degradation

The expected project area and any potentially affected nearby sites are described in the Environmental Management Plan (EMP), together with the organizational structure, planning, and monitoring for environmental protection.

1.2 EMP ADMINISTRATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (project manager) to ensure the successful implementation of the EMP as highlighted below.

Table 1-1: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
NAMCOR	Responsible to enforce EMP implementation to contractors
Environmental Control Officer	<ul style="list-style-type: none"> • Implement, review and update the EMP. • Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed • Conduct environmental site training (tool box talks) and inductions with the support of an environmental consultant. • Conducts environmental audit at work site with the support of environmental consultant. • Close out all non-conformances. • Ensure materials being used on site are environmental friendly and safe.
The Department of Environmental Affairs	<ul style="list-style-type: none"> • Approve the EMP and any amendments to the EMP. • Approve reports of environmental issues and non-conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation
Environmental Consultant	<ul style="list-style-type: none"> • Conduct and monitor actions required by the EMP if required • Conduct environmental site training (tool box talks) and inductions if assistance is required • Conducts environmental audit at work site

ROLE	ENVIRONMENTAL RESPONSIBILITIES
	<ul style="list-style-type: none"> • Ensure materials being used on site are environmental friendly and safe.
Site Technical Team	<ul style="list-style-type: none"> • Control and monitor actions required by the EMP. • Report all environmental issues to Environmental Control Officer. • Ensure documented procedures are followed and records kept on site. • Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.
Workers	<ul style="list-style-type: none"> • Follow requirements as directed by site technical. • Report any potential environmental issues to site engineer/project manager, indicating spilt oil, excess waste, excessive dust generation, dirty water running off the site and other possible non-conformances

1.3 EMP Management Actions

The management actions aim to avoid potential impacts where possible. Where impacts cannot be avoided, management actions are outlined in order to minimize the significant impacts.

The tables below outline the specific management actions which need to be undertaken during the construction and operational phase of the development to ensure that the site activities are compliant.

1.4 CONSTRUCTION PHASE MANAGEMENT ACTIONS

The table below outlines the management actions to be undertaken during the construction phase of the project to ensure compliance with the EMP.

Table 1-2: Construction EMP

Impact	Description	Effects	Time frame	Responsibility	Action
Noise pollution	<p>Noise will be generated through:</p> <ul style="list-style-type: none"> • Construction of drainage services and water reticulation systems. • Construction of site structures • Moving of vehicles. 	<ul style="list-style-type: none"> • The health of working personnel could be disturbed. • Passers-by could be disturbed by the noise. • General annoyance • Drive away local animal species near the project site 	6-8 months	<ul style="list-style-type: none"> • ECO • Site Manger 	<ul style="list-style-type: none"> • A construction interval will be established, used and adhered to, daytime only (6am to 5pm). • During operation the facility will operate 24 hrs a day. • Workers will be issued ear plugs to protect them from excessive noise. • Public will be notified through printed timetable stating planned operational activities. • Site notices will be erected on and around the site notifying visitors and nearby residents of different hazards on site.
Dust Generation	<p>Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose material during</p>	<ul style="list-style-type: none"> • Can lead to respiratory illnesses especially to those working in the area. • General air pollution. • Nuisance to nearby residents 	6-8 months	<ul style="list-style-type: none"> • ECO • Project Manger 	<ul style="list-style-type: none"> • Dust suppression will be done through watering dust sources surfaces. • Ensure that protective equipment such as respirators are distributed to employees and ensure their use.

Impact	Description	Effects	Time frame	Responsibility	Action
	construction and tipping.				<ul style="list-style-type: none"> • Site notices to be erected on and around the site to inform visitors and surrounding residents. • Avoid construction operations during windy days. • Regular testing of dust levels during construction period (PPM), maintain dust levels at minimum by monitoring construction activities, stop operations if dust levels are high.
Debris Accumulation	Debris will accumulate due to construction activities, removal of existing dilapidated infrastructure on site	<ul style="list-style-type: none"> • Can be an eyesore. • Can be source of water and soil pollution. • Can result in scenic pollution 	2-3 months	ECO	<ul style="list-style-type: none"> • Reuse reusable material such as bricks. • Recycle where possible • Reduce debris accumulation by acquiring/procuring only material that is sufficient, avoid over stocking of construction material.
Loss of Biodiversity	<ul style="list-style-type: none"> • Vegetative plants on site will be removed • Habitat destruction for both ground dwelling species and tree dwelling species. 	<ul style="list-style-type: none"> • The clearing of vegetation will result in the breaking of the ecosystem processes in the area. • Loss of aesthetic value of the proposed project area. 	Construction phase	<ul style="list-style-type: none"> • ECO • Site Manager 	<ul style="list-style-type: none"> • The proposed project area surroundings are already developed, hence there is little vegetation to be affected by the development.

Impact	Description	Effects	Time frame	Responsibility	Action
	<ul style="list-style-type: none"> Soil disturbance on and around the site. 	<ul style="list-style-type: none"> The few small animals still habituating the place such as small rodents and birds will be forced away. The ecosystem food chain on and around the area will be broken. 			
Greenhouse gas emissions	<p>Green House Gasses (GHGs) emissions will be produced from the following activities:</p> <ul style="list-style-type: none"> Fuels combustion for transport (construction vehicles and equipment) Ground excavation releases phosphorus found underground 	<p>-Global climate change - Air pollution</p>	12 Months	<ul style="list-style-type: none"> ECO Project Manager Department of Environmental Affairs. 	<ul style="list-style-type: none"> Adopt the use of ethanol blended fuels wherever necessary. Design an operation system that cuts on fuel consumption. Promote the use of energy efficient machinery, equipment and electricals during construction and operation

Impact	Description	Effects	Time frame	Responsibility	Action
	and releases particulate matter into the atmosphere.				
Pollution from construction activities	Construction is associated with a lot of raw material and activities that results in pollution	<ul style="list-style-type: none"> • Chemical pollution from oil spills resulting from the handling of various machineries used during the construction phase • Construction rubble, empty packaging containers/bags and materials remnants. • Construction workers can also pollute the surrounding environs if they are not provided with adequate toilet facilities and a waste management system for domestic waste. 	Constru ction phase	<ul style="list-style-type: none"> • ECO • Project Manger 	<ul style="list-style-type: none"> • Ensure that all waste from construction activities is stored and contained in designated skip containers and transported to a nearby waste disposal site. • Bulky waste such as building rubbles must be collected and disposed of at any of the various municipal satellite sites or for landfilling. • Adequate mobile toilets must be provided at the construction camps for the use of the workers. • A skip container will be put on site and regularly emptied to handle domestic waste.

Impact	Description	Effects	Time frame	Responsibility	Action
<p>Hydrocarbons release into the environment</p>	<p>The storage of fuel in underground tanks poses a risk of spillage of hydrocarbons additionally also from vehicles and machinery operations, maintenance through leakages and spillages which may result in environmental contamination</p>	<ul style="list-style-type: none"> • Washing away of contaminated soils by rains into nearby rivers • Pollution of soil and affecting small living organisms habituating the soil • Result in possible groundwater pollution. • Possible fire risk on and around the site 	<p>Construction Phase</p>	<ul style="list-style-type: none"> • ECO • Project Manager • Department of Environmental Affairs. 	<ul style="list-style-type: none"> • Implement a maintenance programme to ensure all vehicles, machinery and equipment are remain in proper working order • Vehicle maintenance should be Conducted in designated areas only, preferably off-site. • Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler. • Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site. • No bins containing organic solvents such as paint and thinners shall be cleaned on site, unless containers for liquid waste disposal are provided on site.

Impact	Description	Effects	Time frame	Responsibility	Action
Safety and Health risks	Construction related Safety and Health hazards	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Construction phase	Project manager	<ul style="list-style-type: none"> Equip workers with Personal Protective Equipment (PPE), provide trainings on how to effectively use the PPE. Provide platforms for briefings and meetings about possible safety and health hazards in the workplace. Provide site signs warning and informing about different hazards on site.
Population Influx	The project will bring in skilled and unskilled workforce into the areas 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 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 	Construction phase	<ul style="list-style-type: none"> ECO Project Manger 	<ul style="list-style-type: none"> Train and brief employees to respect local cultures and leaders, Engage on massive sexual health training and awareness and providing contraceptives such as condoms, as well as provide means counselling for those that are affected by HIV/AIDS and other STDs, Provide environmental trainings and continue a regular basis briefing the employees about nature conservation (animal and plants) and

Impact	Description	Effects	Time frame	Responsibility	Action
					discourage indiscriminate vegetation clearance.
Land use change	The existing environment will drastically change from a dormant piece of land to a modernised urban development.	Sudden change in landscape appearances may be unfavourable to the residents who frequent the area.	Permanent	<ul style="list-style-type: none"> • ECO • Project Manger 	<ul style="list-style-type: none"> • The development should blend into the existing area through designing and colour coding. • Green designing will bring life to the site and blend with surrounding areas. • The project area is already within an existing depot, hence there are no anticipated impacts to the land use change, since the proposed development will have a low significance in impacting current land uses.
Employment creation	The construction exercise provides an opportunity of outsourcing work	Improves disposable income to those employed and their immediate families.	Project lifetime	Project Manger	Work with local leadership (councillor) on acquiring non-skilled labour from the residents.
Business linkages	Raw materials acquiring and contracting companies	<ul style="list-style-type: none"> • Local suppliers will be presented with an opportunity to empower their businesses. 	Construction phase	Project Manger	The proponent will outsource most of its materials and services from the CBD.

Impact	Description	Effects	Time frame	Responsibility	Action
	provide an opportunity for businesses.	<ul style="list-style-type: none"> Construction workers can be provided with accommodation, food and services from the local community increasing business activities. 			

1.5 OPERATIONAL PHASE

The operational phase is the most critical component of project implementation since it is more on a long term, however and it is normally associated with less impacts as compared to construction phase. This phase will comprise of the actual day to day running of the service station. This phase is expected to last permanently, but with upgrading activities occasionally. There will be several impacts that will occur on a daily basis or other sequential routine. The phase forms the basis of an Environmental Management Plan that is detailed in Chapter and will be followed by the decommissioning phase. The major impacts identified by this study for the operational phase are as detailed in the previous chapter.

Table 1-3 Operation EMP

Aspect	Description	Effects	Time Frame	Responsibility	Action
Noise pollution	<ul style="list-style-type: none"> • Vehicle movements • People at the operational sites 	<ul style="list-style-type: none"> • 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. 	Project lifetime	ECO	Provide public notices through printed timetable showing schedule of planned work.
Air Quality	<ul style="list-style-type: none"> • Noxious Smells • Fumes 	<ul style="list-style-type: none"> • Dizziness amongst employees • General environmental nuisance • Intoxication • Fumes poses fire risk 	Project lifetime	ECO	<ul style="list-style-type: none"> • Tanks must have vent pipes installed on the tanks • During fuel tank refilling, a vapour containment system must be installed.
Occupational health and safety risks and accidents	Dealing with hazardous substance can pose threats to workers and the surrounding people.	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Project lifetime	ECO	<ul style="list-style-type: none"> • Equip workers with Personal Protective Equipment (PPE). • Provide trainings on how to effectively use the PPE. • Provide platforms for briefings and meetings about possible safety and health hazards in the workplace • OHS legal appointments on site in accordance with the Labour Act and the OHS regulations.

Aspect	Description	Effects	Time Frame	Responsibility	Action
					<ul style="list-style-type: none"> • Specific safety measures should be in place in case of fire and explosion. • On site staff should be trained in firefighting
Water and soil quality	Hydrocarbons release into the environment	Ground and surface water contamination: Both chemical and physical contamination	Project lifetime	DEA / Namwater	<ul style="list-style-type: none"> • Visual monitoring and photographic record of any surface and/or groundwater intersected during construction. • There is need to drill monitoring wells around the service station facility to monitor water samples quarterly, to check for pollution. • Visual monitoring during rainfall events to measure the level of contamination of runoff water • Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks. • 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. • The Aboveground storage tanks should be double walled bunded to ensure that spillages are contained • A stormwater management system with an oil separator shall be fitted to

Aspect	Description	Effects	Time Frame	Responsibility	Action
					<p>ensure that any wastewater is free of hydrocarbons and will not contaminate the environment.</p> <ul style="list-style-type: none"> Leak detection systems and alarms shall be installed on all tanks and pipes, to ensure swift response to spills and leakages. There shall be spill cleaning kits on site at all times, and employees shall be trained on use and storage of used spill cleaning materials
Energy usage	Operation of the service station consume electrical energy daily on some cases generators and standby, this can affect the atmosphere	Energy supply through the main grid will be strained	Permanent	Building/Site manager	The proponent should explore the use of energy efficient appliances.
Solid Waste	Solid waste will be generated by the activities and operations at the service station. It is therefore very important to construct appropriate infrastructure to management thus waste types like bins etc.	<ul style="list-style-type: none"> Eyesore to the environment Unwanted nutrient disposal into the soils, Detrimental to livestock health 	Permanent	-Site manager	<ul style="list-style-type: none"> Visual inspections and monitoring All waste will be managed by the municipality from collection to dumping, the developer will ensure that domestic waste handling facilities such as solid waste bins and skip containers are available at the service station.

Aspect	Description	Effects	Time Frame	Responsibility	Action
					<ul style="list-style-type: none"> Waste separation will be provided for to allow for recycling of recyclable materials.
Sewerage and effluent waste	Sewer and wastewater release into the environment	<ul style="list-style-type: none"> Health hazard Communicable diseases Eutrophication of rivers Groundwater Contamination 	Permanent	Site Manager	<ul style="list-style-type: none"> All sewerage waste will be channelled into the town council sewer reticulation system. Wastewater and solids on site will be cleared (desludged) regularly and the interval depends on actual tank capacity and disposal habits. Wastewater from the oil and water separation pits to be analysed regularly to ensure that it's within acceptable quality. General maintenance of all pipes and temporary tanks on site.
Spillages and leakages	Underground tanks can leak or surface leaks and spillage during refilling	Adverse environmental contamination	Project lifetime	ECO	<ul style="list-style-type: none"> Sand buckets to be on site to clean minor spillages during fill up Spillages above 200 litres are to be reported immediately to Ministry of Mines and Energy and MET:DEA., Fuel, oils and chemicals are to be stored in bunded areas. Hazardous chemicals (such as fuels) are to be handled over areas provided with impervious surfaces.

Aspect	Description	Effects	Time Frame	Responsibility	Action
					<ul style="list-style-type: none"> • Spills of hazardous chemicals are to be contained and cleaned-up to ensure protection of the environment. • All the necessary PPE required for the safe handling and use of petrochemicals and oils shall be provided to, and used or worn by, the onsite staff • Chemicals, oil and fuel must be stored securely to prevent any accidental spills. • 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. • All fuel storage and handling facilities in Namibia must also comply with strict safety distances as prescribed by SANS 10089.
Increased storm water flow	The area is undeveloped hence most water quickly infiltrates as it reaches the	<ul style="list-style-type: none"> • Enhance the chances of flood occurrences 	Permanent	<ul style="list-style-type: none"> • Site Engineer • ECO 	Standard storm water drainage will be part of the water reticulation designs indicating the storm water deposit areas.

Aspect	Description	Effects	Time Frame	Responsibility	Action
	ground, but due to the paving and hard surfaces storm water will increase	<ul style="list-style-type: none"> Chances of soil erosion and gully formation will be increased 			
Infrastructure hazards	Infrastructure hazards are potential risks that building pose to its inhabitants, local environment or surrounding residents.	<ul style="list-style-type: none"> There is potential for building collapse. Firebreaks potential 	Permanent	<ul style="list-style-type: none"> Site Engineer Contractor-Project proponent Buildings inspectorate Ministry of Health and Social Services. Ministry of Safety and security 	<ul style="list-style-type: none"> Sewerage infrastructure will be regularly monitored and inspected over time. Standard buildings will be constructed Fire emergency evacuation plan will be put in place to avoid fatalities and injuries in case of an emergency.
Development of the area	The project will further develop the project area.	Ripple effects will result in construction of supporting infrastructure such as schools,	Permanent	Regional council	The Development should be regulated in such a way that the local people are empowered and benefit from the development activities.

Aspect	Description	Effects	Time Frame	Responsibility	Action
		hospitals, car services and supermarkets.			
Revenue generation	The development is bound by to pay tax and rates to the Regional Council and the government.	-The municipality and other service providers will benefit from revenue generation from the development -Business facilities will be paying tax to the government benefiting the country at large.	Permanent	<ul style="list-style-type: none"> Project proponent 	The project will benefit the locals, authorities and the government if all dues, rates and taxes are adhered to.
Rehabilitation maintenance of the environment.	Currently the project environment is already degraded	-After construction trees will be planted and a green zone created improving the aesthetic value of the environment to a better position than it was before.	Permanent	Building/site manager	<ul style="list-style-type: none"> During operation phase tree planting will continue and maintenance of the green zone. Regular watering of the lawns that will be planted.

1.6 ENVIRONMENTAL MONITORING PLAN

Monitoring is very important for identifying the success of mitigation measures formulated for the significant impacts identified. Monitoring of activities will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impacts. Survey records and results must be maintained for these monitoring and inspections, highlighting any problems and the measures taken to address it.

Prior to site preparation and construction activities, the main contractor should present an environmental monitoring plan (including, *inter alia*, location of construction camp and toilet facilities, location of material storage areas, solid waste management plan, dust control measures, activity schedule, etc.) for review and approval by the DEA, the environmental control officer and the project manager. The developer should present a landscape plan and the trees/vegetation earmarked for protection should be flagged and hoarded by the contractor.

The entity selected to carry out environmental monitoring of the construction works should then prepare an environmental monitoring programme based on the above, the requirements of the EIA, and conditions of the development permit. The major elements of the environmental impact monitoring programme to be implemented during the construction phase of the project are as follows:

- Site clearance to ensure that trees marked for protection are left untouched and that large areas of soil are not left exposed and uncovered for extended periods of time.
- Site drainage and surface runoff, especially during and shortly after major rainfall events, to ensure there is no flooding, ponding and runoff of surface water. Compliance of construction works with site management and landscape plans.
- Ensure transportation of earth materials is done by covered trucks and from approved sites.
- The contractor must immediately and completely clean up spills of materials in public areas.
- Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dump.

2 CONCLUSION AND RECOMMENDATIONS

The Environmental Impact Assessment process for the proposed Aboveground Tank, Fuel Management System, Loading and Offloading Equipment at the Existing TransNamib Premises in Otjiwarongo-Namibia was conducted in accordance to the Environmental Management Act 2007 and EMA Regulation 2012. Further consideration was given to relevant legislation throughout the entire process to ensure a successful assessment process.

Impacts likely to occur during project phases (construction and operation) were assessed depicting a positive outlook despite limited details of the magnitude of the proposed development. Based on the assessment, the overall project is less damaging to the environment demonstrating high job creation opportunities and community development. Impacts with negative effects were also identified and summarized in a form of environmental management plan to ensure sustainable implementation.

The site has access to services such as electricity and roads for accessibility. Adding on the site has minimal vegetation such that no trees will be removed during the construction phase. It is important that the proponent observe and maintain accountability to both socio-economic and environmental sensitive activities from the project, such that the project is harmonized with policy, regulations, administrative frameworks and social interface with the public as proposed in the environmental management plan. Failure to observe these measures will significantly affect the local environment and lead to non-compliance. Therefore, implementation environmental protection measures should be executed in consultation with the key stakeholders.

JBIC cc hereby recommends that MET: DEA grant the environmental clearance certificate for the Proposed Aboveground Tank, Fuel Management System, Loading and Offloading Equipment at TransNamib Premises in Otjiwarongo-Namibia, under the condition of full implementation of the project's EMP.

3 REFERENCES

- Enviro Dynamic.2014. Environmental Assessment Keetmanshoop Signal transmission, Namibia
- FAO, 1998. World reference base for soil resources. World Soil Resources Report, vol. 84. FAO, Rome.
- FAO, 1998.World reference base for soil resources. World Soil Resources Report, vol. 84. FAO, Rome.
- Government of Namibia. 2008, Government Gazzette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek
- Government of Namibia.2008, Government Gazette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek
- IFC.2007. Stakeholder Engagement: A good practice handbook for companies doing business in emerging markets. IFC, Washington D.C
- IFC.2007. Stakeholder Engagement: A good practice handbook for companies doing business in emerging markets. IFC, Washington D.C
- Mendelsohn,J., el Obeid, S.2003.A digest of information on key aspects of Namibia's geography and sustainable development prospects. Research and Information Services of Namibia
- MET (Ministry of Environment and Tourism). 2012. *Environmental Management Act no. 7 of 2007*. Windhoek: Directorate of Environmental Affairs, Ministry of Environment and Tourism
- <https://tradingeconomics.com/namibia/unemployment-rate#:~:text=Unemployment%20Rate%20in%20Namibia%20is,macro%20models%20and%20analysts%20expectations.>
- <https://otjozondjuparc.gov.na/otjiwarongo-constituency-profile>

APPENDICES

Appendix A: Public Consultation Documents

1. Background Information Document
2. Newspaper Adverts
3. Site Notice
4. Meeting Attendance Register
5. Meeting Minutes
6. Questionnaires

Appendix B: Site Information

1. Licences/Approvals
2. Locality Map
3. Engineering Drawings

Appendix C: Consultancy Team resumes