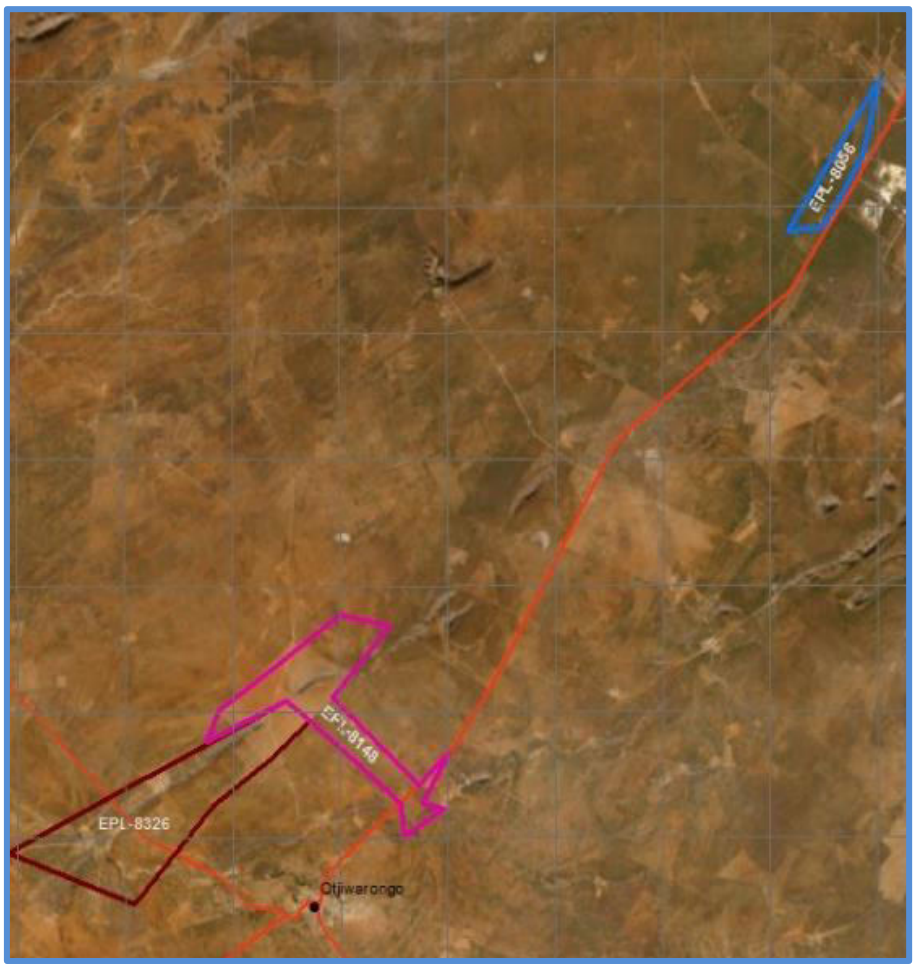
ENVIRONMENTAL IMPACT ASSESSMENT

FOR PROPOSED EXPLORATION ACTIVITIES ON EPL 8148, 8326 & 8056 IN OTJIWARONGO DITSRICT, OTJOZONDJUPA REGION, NAMIBIA



ENVIRONMENTAL MANAGEMENT PLAN

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1.1 INTRODUCTION

As was noted in the previous chapter, the proposed project is expected to have an effect on the biophysical and socioeconomic environment. This section describes the Environmental Management Plan (EMP) for issues connected to the proposed development. The EMP's goals include avoiding negative effects whenever possible, minimizing their severity over the project's life cycle, and preventing long-term environmental degradation.

The Environmental Management Plan (EMP), which outlines the organizational structure, planning, and monitoring for environmental protection, also includes information about the anticipated project area and any surrounding sites that could potentially be impacted.

1.2 EMP ADMINISTRATION

For the EMP to be properly implemented, it is imperative that the roles and responsibilities of all stakeholders be clearly defined. In order to guarantee the EMP is implemented successfully, it is also necessary for the proponent to name a general accountable individual (project manager), as shown below.

Table 2-1: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Olupale Investments	Responsible to enforce EMP implementation to contractors
Environmental Control Officer	• 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 (toolbox 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	• 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	• Conduct and monitor actions required by the EMP if required • Conduct environmental site training (toolbox talks) and inductions if assistance is required • Conducts environmental audit at work site

ROLE	ENVIRONMENTAL RESPONSIBILITIES
	• Ensure materials being used on site are environmental friendly and safe.
Site Technical Team	• 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	• 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 AND OPERATIONAL PHASE MANAGEMENT ACTIONS

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

Table 2-2: Construction and Operation EMP

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
Noise pollution	• Noise will be generated through: • Exploration activities - Moving vehicles and machinery.	• The health of working personnel could be disturbed. • Community residents could be disturbed by the noise. • General annoyance - Driving away of local animals' species near • the project site	Environmental	Construction and operation	• Environmental Control Officer • Site Manger	• Workers will be issued earplugs to protect them from excessive noise. - Public will be notified through printed timetable stating planned operational activities. • Where feasible exploration activities will be conducted during daytime. • Site notices will be erected on, around the site-notifying visitors, and nearby residents of different hazards on site. - No go areas marked as sensitive environments, especially for birds needs to be avoided during construction and operation.	**Construction & Operation**
Dust Generation	Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose material.	• Can lead to respiratory illnesses especially to those working in the area. • General air pollution.	Environmental	Construction and operation	• Environmental Control Officer • Site Manager	• Dust suppression will be done through watering dust sources surfaces. • Watering down dusty surfaces, • Ensure that protective equipment such as respirators are distributed to	**Construction & Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
		• Nuisance to nearby residents • The process can also drive away wild animals within the project area surroundings				employees, and ensure their use. • Site notices to be erected on and around the site to inform visitors and surrounding residents.	
Excavations, Steep slopes and unprotected areas	• Exploration activities may result in ground excavations during extraction of samples	Unprotected excavation are a safety hazard for those in the project area as well as animals	Safety	Construction and operation	• Environmental Control Officer • Site Manager	• Ensure all dangerous areas are protected and barriers put in place. • All disturbed areas are to be rehabilitated to ensure public safety	**Construction & Operation**
Loss of Biodiversity	• Vegetative plants on site will be removed • Habitat destruction for both ground dwelling species and tree dwelling species. • Soil disturbance on and around the site.	• 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. • The few small animals still habiting the place such as small	Environmental	Construction and operation	• Environmental Control Officer • Site Manager	• Ground disturbance will only be limited to the boundary area to avoid affecting a large area. • Upon completion of exploration works activities rehabilitation of the exploration footprint affected area is recommended. A rehabilitation expert can be engaged.	**Construction & Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
		rodents and birds will be forced away.					
Bush fires	In areas that have vegetative cover bush fires may arise	This may cause property damage as well affect habitats of any animals that dwell in and round the project area	Environmental	Construction and operation	• Environmental Control Officer • Site Manager	• Where necessary construction of fire breaks • Carry out awareness programmes on prevention of fire	**Construction & Operation**
Greenhouse gas emissions	Green House Gasses (GHGs) emissions will be produced from the following activities: • Fuels combustion for (machinery, vehicles and equipment) • Ground excavation releases releases particulate matter into the atmosphere.	• Global climate change • Air pollution	Environmental	Construction and operation	• Environmental Control Officer • Site Manager • Department of Environmental Affairs.	• Adopt the use of ethanol blended fuels wherever necessary. • Design an operation system that cuts on fuel consumption. • Use of solar energy system for lighting and other minor energy needs.	**Construction &Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
Waste Generation	• Construction and operation are associated with a lot of raw material and activities that results in pollution	• Pollution from oil spills resulting from the handling of various machineries used • Construction rubble, empty packaging containers/bags and materials remnants.	Environmental	Construction and operation	• Environmental Control Officer • Site Manager	• Ensure that all waste from exploration activities is stored and contained in designated containers and transported to an approved waste disposal site. • Visual inspections monitoring	**Construction &Operation**
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.	Health and safety	Construction and operation	ECO	• 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 work place • Provide site signs warning and informing about different hazards on site. • Safety signs during construction and operation should be put on site, no go areas should be labelled, PPE specifications should be clear to maintenance personnel.	**Construction and operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
Land use change	There will be change in land use and visual aesthetics	• The area will no longer be suitable for agriculture. • Sudden change in landscape appearances may be unfavourable to the conservatives.	• Social • Terrestrial environment	Permanent	• Environmental Control Officer • Site Manager	• The area is to be rehabilitated after exploration activities in order to ensure that it is in state that is useful for the local community.	Construction and operation
Positive Impacts							
Employment creation	The development provides an opportunity of outsourcing work	• Improves disposable income to those employed and their immediate families.	Socio-economic	Project life time	Site Manager	Work with local leadership (councillor) on acquiring non-skilled labour from the residents.	Construction and operation
Business linkages	Raw materials acquiring and contracting companies provide an opportunity for businesses.	• Local suppliers will be presented with an opportunity to empower their businesses. • Construction workers can be provided with accommodation, food and services from the local	Socioeconomic	Construction and operation	Site Manager	The proponent will outsource most of its materials and services from surrounding areas in the region.	Construction and operation

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
		community increasing business activities.					
Potential mineral resource utilisation	The development presents an opportunity for establishing viability of a mining operations. This promotes enhanced knowledge in the area's economic resources and potential activities that may be undertaken in the area	• Development will facilitate economic growth and will also pave way for future developers to grow interests in the area and result in ripple effects and quick growing of the area.	Socioeconomic	Construction and operation	Site Manager	Ensure exploration work is comprehensive and thorough in order to ensure as much information as possible is captured for planning purposes.	Construction and operation

1.5 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 all the project phases 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.
- Rehabilitation of disturbed areas and protection of any dangerous areas.
- 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 exploration works with site and landscape plans.
- 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

According to Namibia's Environmental Management Act of 2007 and the EMA Regulation of 2012, the Environmental Impact Assessment process for the proposed Exploration Activities on EPL 8646, 8148, 8326, and 8056 Otijiwarongo District, Otjozondjupa Region was carried out. To ensure a successful assessment procedure, relevant legislation was further taken into account throughout the entire assessment.

Although there are a few limitations about the size of the proposed development, the impacts that are projected to occur during project phases (construction and operation) were examined and show an acceptable outlook. According to the study, the project as a whole has less of an impact on the environment than it would have otherwise, as evidenced by enhanced economic growth, numerous prospects for job creation, and community development. In order to assure their implementation in a way that is sustainable, negative impacts were also identified and their management measures addressed in the project's environmental management plan.

Basic services like electricity and roads are available at the location. It is crucial that the project's proponent pay attention to and uphold accountability for socioeconomically and environmentally sensitive project-related activities so that the project is in line with recommended policies, rules, administrative frameworks, and public social interface in the environmental management plan. The local environment will be negatively impacted by not adhering to these rules, which will result in non-compliance. Thus, the implementation of environmental protection measures should be carried out after consulting with the important stakeholders.

JBIC cc hereby recommends that MET: DEA grant the environmental clearance certificate for the Exploration Activities on EPL 8646, 8148, 8326, and 8056 Otijiwarongo District, Otjozondjupa Region - Namibia, under the condition of full implementation of the project's EMP.

3 REFERENCES

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APPENDICES

Appendix A: Public Consultation Documents

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

Appendix B: Site Information

1. EPL ownership
2. Locality Map

Appendix C: Any other relevant documentation

Appendix D: Consultancy Team resumes