ENVIRONMENTAL MANAGEMENT PLAN

FOR PROPOSED EXPLORATION ACTIVITIES ON EPL 7438, IN OTJAPITJAPI, OPUWO AREA KUNENE REGION



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TABLE OF CONTENTS

LIST OF TABLES
1.1 BACKGROUND
1.2 PROJECT ACTIVITIES
2. EMP AIMS AND OBJECTIVES
3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK
4. ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION FRAMEWORK
4.1 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN ADMINISTRATION AND TRAINING 8
4.2 ROLES AND RESPONSIBILITIES
5. ENVIRONMENTAL MANAGEMENT PLAN
5.1 MANAGEMENT OF NEGATIVE IMPACTS ASSOCIATED WITH EXPLORATION PHASE10
5.2 MANAGEMENT OF SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH EXPLORATION
5.4 POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT
5.5 MANAGEMENT OF IMPACTS AT POST-EXPLORATION PHASE
6. ENVIRONMENTAL MONITORING23
7. CONCLUSIONS
LIST OF TABLES
Table 1: Relevant legislation and policies related to the project
Table 2: Monitoring of identified impacts 23

1.1 BACKGROUND

Eco-Wise Environmental Consulting cc has been appointed by Kaoko Mining Namibia (Pty) Ltd as an independent environmental consultancy to undertake the Environmental Impact Assessment (EIA), develop an Environmental Management Plan and apply for an Environmental Clearance Certificate for the proposed exploration activities on EPL 7438 in Otjapitjapi Village, Opuwo area, Kunene Region.

This Environmental Management Plan (EMP) has been developed to manage all the impacts, which were identified during the environmental assessment of the project. The EMP has been developed in terms of the Environmental Management Act (EMA) No 7 of 2007, EMA regulations of 2012, international environmental treaties and conventions binding to Namibia. Exploration is listed as an activity, which cannot be undertaken without an EIA. The project therefore falls under mining and quarrying activities.

1.2 PROJECT ACTIVITIES

The following activities will be done under exploration:

- Research and reconnaissance
- Trenching and drilling
- Geochemical sampling and analysis
- Mapping

2. EMP AIMS AND OBJECTIVES

The environmental management plan (EMP) aims to take a pro-active route by addressing potential problems before they occur. The objectives of the EMP are therefore;

- To outline mitigation measures in order to manage environmental and socioeconomic impacts associated with the project
- Provide a framework for implementing the management actions recommended in the EIA for exploration activities.
- To ensure that the project will comply with relevant environmental legislations of Namibia and other requirements throughout its activities.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Legislations are used as guiding tools during the development of an EMP. The proponent will be required to abide to different policies, laws, regulation relating to the project. The Environmental Management Act No. 7 of 2007 was the main legislative, which was used as a guiding tool during the development of the EMP. Table 1, indicate the relevant legislations related to the project.

Table 1: Relevant legislation and policies related to the project

Aspect	Legislation	Relevant Provisions	Relevance to the Project
The Constitution	Namibian Constitution First Amendment Act 34 of 1998	 According to article 91(c) it provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia" Article 95 (I) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources. 	 During exploration activities, sustainable practices should be performed.
Environmental	Environmental Management Act 7 of 2007	 States that, projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions on a project (Section 2). 	 The EMA should guide the management of this project. Adverts should be published in two local newspapers twice. The public and relevant authorities should be consulted during the process of public participation as per the requirement of the act The EMP which will guide on the management of the environment should be drafted as per the requirement of the act

EIA Regulations (2012)	 Lists all activities, which cannot be undertaken without an EIA. 	 This project is listed under mining and quarrying activities. Activity 3.3 states that resource extraction, manipulation, conservation and related activities require an EIA.
Convention on Biological Diversity (1992)	- Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	- The proponent should consider the impact of the project on the biodiversity of the area.
Nature Conservation Ordinance No. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	- Indigenous and protected plants should be protected within the areas of works.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term "environment" is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	- The EIA considers this term of "environment".
Minerals (Prospecting and Mining) Act,1992 (Act 33 1 of 1992)	To provide for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto. "mineral" means any	- The intended activity involves exploration of minerals mainly copper ore.

		substance, whether in solid, liquid or gaseous	
		form, occurring naturally in, on or under any	
		land and having been formed by, or	
		subjected to, a geological process, excluding-	
		(c) subject to the provision of subsection (2),	
		soil, sand, clay, gravel or stone (other than	
		rock material specified in Part 2 of schedule	
		1).	
Soil		This act covers the prevention and	- Limited trenching will leave earthed
	Soil Conservation Act	combating of soil erosion; the conservation,	soils hence it should not be left un-
	6 of 1969	improvement and manner of use of the soil	rehabilitated.
		and vegetation; and the protection of water	
		sources	
Water	Water Act 54 of 1956	- Prohibits the pollution of underground	If drilling activities go below the level of
		and surface water bodies.	the water table, they might be
			possibilities of pollution. Hence the
			pollution of water resources should be
			avoided during the exploration process.
Health and Safety	Labour Act (No 11 of	 This act emphasizes and regulates basic 	The proponent will be obliged to create
	2007)	terms and conditions of employment, it	a safe working environment for the
		guarantees prospective health, safety	employees.
		and welfare of employees and protects	
		employees from unfair labour practices.	

– The act mainly emphasis on proper	- Proper waste management should be
management of the environment, to	promoted to prevent nuisance, which
prevent negative health impacts.	can consequently affect public health.
– The act promotes proper waste	- Recycling, reuse and reduce must be
management.	practised at all times thus if any waste
	is generated.
- The Heritage Act of 2004 makes provision	- In an event that the proponent comes
for the developer to identify and assess	across any archaeological or historical
any archaeological and historical sites of	sites of significance, they should report
significance. The existence of any such	immediately to the Monuments Council
sites should be reported to the	
Monuments Council as soon as possible.	
The Council may serve notice that	
prohibits any activities as prescribed	
within a specified distance of an	
identified heritage/archaeology site.	
	management of the environment, to prevent negative health impacts. The act promotes proper waste management. The Heritage Act of 2004 makes provision for the developer to identify and assess any archaeological and historical sites of significance. The existence of any such sites should be reported to the Monuments Council as soon as possible. The Council may serve notice that prohibits any activities as prescribed within a specified distance of an

4. ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION FRAMEWORK

4.1 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN ADMINISTRATION AND TRAINING

This Environmental Management Plan (EMP) shall clearly state the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. The proponent shall appoint an overall responsible person (Environmental Control Officer) to ensure the successful implementation of the EMP. The Environmental Control Officer needs to have qualifications and knowledge in environmental management implementation.

4.2 ROLES AND RESPONSIBILITIES

Proponent (Kaoko Mining Namibia Pty Ltd): has the overall responsibility for all financial and work force provisions, which will facilitate the implementation of this EMP. The proponent is responsible for the appointment of other personnel responsible for the implementation of this EMP.

Competent and Monitoring authority (The Department of Environmental Affairs: Ministry of Environment and Tourism): Responsible for the review and approval of the EIA and EMP documents.

Project Manager - Required in carrying out the overall responsibility for the implementation of the EMP to ensure that all required resources and mechanisms for environmental management are in place. Report all environmental issues to HSEO officer.

Health Safety and Environmental Site Officer (HSEO) - responsible of all environmental issues (waste management) and safety of employees. The HSEO should record and report all incidents on site.

Environmental Control Officer (ECO) - required to take independent responsibility of the implementation of this EMP. ECO is contracted to conduct periodic auditing of the sites, compilation of all reports to be submitted to MET: DEA for renewal of the environmental clearance certificate.

Employees - Required to follow requirements as directed by the project manager. Report any potential environmental issues to the project manager.

Contractors - all contractors (including subcontractors) and service providers are ultimately responsible for:

• Complying with the Environmental Management Plan specifications where applicable;

- Provide Environmental; Method Statements to the Project Manager with regards to how certain activities on-site will be conducted.
- Adhering to any environmental instructions issued by the Project Manager
- Arrange that all the contractor's employees receive training. Trainings have to be appropriate for the level of the tasks and functions undertaken.

The Environmental Method Statement referred to above will cover applicable details with regard to:

- Equipment to be used;
- Getting the equipment to and from site;
- How the equipment will be moved while on-site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Identified potential impacts of the activity and mitigation measures thereof;
- Compliance/non-compliance with the Environmental Specifications; and
- Any other information deemed necessary by the Project Manager.

5. ENVIRONMENTAL MANAGEMENT PLAN

The following tables form the core of this EMP for the exploration phase. The below information shown in the tables, should be used as a checklist on site.

5.1 MANAGEMENT OF NEGATIVE IMPACTS ASSOCIATED WITH EXPLORATION PHASE:

1. Impact on landscape

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Landscape	During trenching and drilling, rocks will be disturbed hence affecting the general scenery view of the area.	 Limited trenching should be done to understand the surface geology but when need arise to understand the subsurface geology, drilling should be used. Removed rocks and soil should be replaced back and levelling of the area done so as to try to restore the area to its natural state. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

2. Impact on fauna

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Fauna	Exploration activities such as walking, trenching and drilling might disturb animals. Noise generated from these activities might scare away animals. In addition, wild animals might also be at risk if exploration personnel practice poaching activities for meat. Pits created might pose a hazard to both animals and people therefore the proponent should stick to limited trenching and use drilling for examination of subsurface geology.	 Maintain shallow trenches for surface geology exploration and drilling for subsurface geology examination Poaching of wildlife shall not be allowed. A drilling interval should be established, used and adhered to Working hours should be limited to minimum of 8 hours per day Noise should be addressed and mitigated at an early stage. Proper and timely maintenance of machineries and vehicles to prevent noise. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

3. Dust

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Dust	Dust might accumulate during	Soil watering when soil works are being	Exploration	Kaoko Mining
	trenching, movement of vehicles and machines. People at risk are likely to be employees working on the area. Accumulation of dust might lead to respiratory problems.	 executed and where dust is emitted People at site should be provided with respirators Regular monitoring and review to ensure safe operation. 	Phase	Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

4. Impact of waste

Impacts		Description	Mi	itigation	Project Phase	Responsi	bility	
			M	easures				
Impact	of	Waste will be generated from	•	Contaminated wastes in the form of soil,	Exploration	Kaoko	M	ining
waste		trenching in the form of		litter and other material must be disposed	Phase	Namibia	Pty	Ltd,
		unearthed rocks and soils. In		off at an appropriate disposal site.		Project	Mana	ager,
		addition, exploration	•	Strictly, no burning of waste on the site or at		Contracto	ors	and
		personnel might also generate		the disposal site is allowed as it possess		ECO		
		waste in the form of empty		environmental and public health impacts				
		food containers, food	•	After completion of exploration activities				
		leftovers, plastics, papers,		such as trenching, removed soil layers and				
		bottles etc.		rocks must be replaced and levelling must be				
				done so that the original condition is				
				restored.				

5. Noise

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Noise	Noise will be generated through: -Exploration drilling activities -Frequent movement of exploration vehicles Noise generated might affect animals and result in some animals changing their habitant. If noise is generated, it might cause annoyance to passers-by. Villagers are unlikely to be affected given that the villages are far away from the sites.	le Employees to be equipped with ear	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Site Manager & appointed ECO

6. Vegetation Loss

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Vegetation	No massive clearing shall be done. Existing roads shall be used, those in bad state shall be upgraded and only if there is need to create cutlines for vehicle accessibility then maybe vegetation might be affected. Vegetation might also be affected when there is need to conduct exploration activities in an area where there is vegetation. In cases that vegetation is removed this will cause habitat destruction for both ground dwelling species and tree dwelling species. The ecosystem food chain on and around the area will also be broken.	 Protected plant species shall not be removed Massive clearing shall not be allowed Maintain the stated boundaries, no activates shall be carried outside the demarcated boundaries All the major trees will be preserved and the activities will fit into the environment without affecting the trees. Upon completion of drilling activities, it is encouraged to plant more trees around the sites to restore the sites When necessary a permit must be obtained from the Directorate of Forestry before removing a major tree species. Exploration personnel shall not be allowed to cut trees for firewood 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, ECO

7. Impact on soil

Impacts	Description	Mitigation	Project	Responsibility
		Measures	Phase	
Soil	Soil will be disturbed during drilling and limited trenching. Soil might also be partly affected by oil or fuel leakages from machines and vehicular movement.	 After completion of exploration activities such as trenching, removed soil layers must be replaced and levelling must be done so that the original condition is restored. Proper care should be taken so that there is no spill that would cause soil contamination If any hazardous waste is produced it should be properly handled and sent for disposal to appropriate disposal areas Fuels shall not be kept/stored at the site 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

8. Impact on surface and groundwater

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Surface and groundwater contamination	There will be no storage of oils and fuel on site, however there is risk of spillage of hydrocarbons from vehicles and drilling machine which may result in groundwater contamination.	 Implement a maintenance programme to ensure all vehicles, machinery and equipment remain in proper working condition 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, appointed HSEO

5.2 MANAGEMENT OF SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH EXPLORATION

1. Occupational Health and Safety

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
OHS	Noise, dust and occupational stress are hazards, which are likely to be encountered during exploration phase.	 Conduct Hazard identification and risk assessments Comply with all Health and Safety standards specified in the Labour Act. Provide all staff on site with protective equipment (helmets, gloves, respirators, work suits, earplugs, goggles and safety shoes where applicable). Use of dust suppression measures Reduce noise exposure by isolating noisy equipment and rotate tasks Provision of First Aid at the site Provisions of immediate accident/incident reporting and investigation. Safety Posters and slogans should be exhibited at conspicuous places. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors

2. Heritage impact

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Heritage	At the site, there are no known	• The Proponent should consult the	Exploration Phase	Kaoko Mining
impact	heritage areas or artefacts deemed to	headman of the area before conducting		Namibia Pty
	be impacted by the exploration	any work.		Ltd, Contractors
	activities.	All works are to be immediately ceased		
		should an archaeological or heritage		
		resource be discovered.		
		• The National Heritage Council of		
		Namibia (NHCN) should advise with		
		regards to the removal, packaging and		
		transfer of the potential resource.		

3. Population Influx

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Population	At the stage of exploration, few	• Local employment should be a	Exploration Phase	Kaoko Mining
Influx	people will be employed hence the impact will be of low environmental significance.	priority so as to reduce the number of outsiders entering Opuwo area		Namibia Pty Ltd

4. Risk and spread of HIV/AIDS

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
HIV/AIDS	Even though a few people will be employed at this stage, the disease might still spread.	 Employer should allocate time for employees to visit their families. Free distribution of condoms 	Exploration Phase	Kaoko Mining Namibia Pty Ltd,

5. Cumulative impacts

Impacts	Description	Mitigation	Project Phase	Responsibility
		Measures		
Cumulative impacts	Alternation of existing landscape caused by limited trenching and drilling might result is loss of habitancy for some animals which can further affect the food web of the ecosystem.	Limited trenching should be done to understand the surface	Phase	Kaoko Mining Namibia Pty Ltd

5.4 POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT

1. Local empowerment

Impacts	Description	Enhancement Required	Project Phase	Responsibility	
Local	The shareholders of Kaoko Mining	Continue to promote locals	Exploration Phase	Kaoko Mining	
empowerment	Namibia (Pty) Ltd are all Namibian			Namibia Pty Ltd	
	citizens who managed to group their				
	licenses together in a bid to explore				
	for the possible discovery of a				
	medium to large minable copper				
	deposit.				

2. Employment creation

Impacts	Description	Enhancement Required	Project Phase	Responsibility
Employment creation	Even though few people will be employed during the exploration phase, but if medium to minable deposits are found and mining activities start, many people will be employed. This project therefore is definitely going to be beneficial in future.	 Employ locals in all casual labour and ensure gender equality. Equity, transparency, to be put into account when hiring and recruiting 	Exploration Phase	Kaoko Mining Namibia Pty Ltd

3. Land utilisation for the benefit of people

Impacts	Description	Enhancement Required	Project Phase	Responsibility
Land	Locals were granted EPLs in Kunene Region	• The whole community must	Exploration	Kaoko Mining
utilisation for	but most of the shareholders and not have	benefit in future		Namibia Pty
the benefit of	funds to start exploration activities.			Ltd
people	Therefore, the formation of the company			
	helped most of the shareholders. Given that			
	exploration activities are done and minable			
	deposits are obtained, this can result in			
	utilisation of the land.			

4. Generation of Revenue

Impacts	Description	Enhancement Required	Project Phase	Responsibility	
Companyation	L Kaala Mining Namihis Dha Lad will assu too	- 1	Fundamentian Disease	Manha Mining	
Generation o	f Kaoko Mining Namibia Pty Ltd will pay tax	• The contractors to pay	Exploration Phase	Kaoko Mining	
Revenue	hence generating revenue.	taxes as stipulated by the		Namibia Pty Ltd,	
		law of Namibia.		appointed	
				contractors	

5.5 MANAGEMENT OF IMPACTS AT POST-EXPLORATION PHASE Impact on landscape

Impacts	Description	М	itigation	Project Phase	Respons	ibility
		М	easures			
Post-	The stage of exploration is expected to have	•	All pits shall be backfilled or	Post-exploration	Kaoko	Mining
exploration	minimum damage to the environment as		contoured to a stable angle of	Phase	Namibia	Pty Ltd
stage	compared to mining. However, the major issue		repose.			
(Landscape)	which need to be looked after the phase of exploration is how the project has impacted the landscape. Exploration activities like limited trenching will leave pits although they are expected to be shallow. Pits created during limited trenching need to be rehabilitated.		Stockpile disturbed bedrock on site in a safe and stable manner.			

6. ENVIRONMENTAL MONITORING

A monitoring programme will be in place to ensure conformance with the EMP. The Environmental Control Officer will ensure compliance with the EMP, and carry out monitoring/auditing activities. The Environmental Control Officer must have the appropriate experience and qualifications to undertake the necessary tasks. The Environmental Control Officer will report to the proponent should any non-compliance be evident or corrective action necessary. The suggested monitoring details are outlined in table 2 below.

Table 2: Monitoring of identified impacts

IMPACT	RECEPTORS	TYPE OF MONITORING	PERIOD/TIME
Alternation of existing landscape	Environment	• Inspection	Period of limited trenching and drilling
Dust	Employees	Regular site inspections	Daily
Impact on fauna	Environment	Inspection	Period of trenching and drilling
Surface & groundwater Pollution	Environment	Tests on the nearby surface water body and boreholes	Once in a year
Noise	Employees Surrounding areas	Noise monitoring	Daily
Vegetation loss	Environment	 Inspection of protected plant species and incorporate them into the development 	 Period of limited trenching, drilling and creating cutlines.
Heritage	Land	• Inspection	Period of exploration
O.H. S	Employees	 Site inspection Conducting Hazard and Risk Assessments Health and safety incident monitoring 	• Daily
Impact on soil	Environment.	Monitoring moisture content & texture of soil	Quarterly
Generation of waste (solid)	Land	Site inspection on housekeepingRegular collection of waste	DailyWeekly
HIV/AIDS	Employees	Free testing	Annually

7. CONCLUSIONS

It is the applicant's responsibility to ensure that this EMP is made binding on the contractor by including the EMP in the contract documentation. The contractors should thoroughly familiarise themselves with the requirements of the EMP.

The above Environmental Management Plan, if properly implemented, will help to minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts.

The Environmental Management Plan should be used as an on-site reference document during the proposed development and auditing should take place in order to determine compliance with the EMP for the proposed sites. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.