

ENVIRONMENTAL MANAGEMENT PLAN

FOR THE PROPOSED EXPLORATION ACTIVITIES ON MINING CLAIMS, 70996,
70997, 70994, 70995, 68753, 68755, 70310, 70754, 70755, 70756, 70757, 70758,
70759, 70992, 70993 NEAR OTWANI AREA, OPUWO CONSTITUENCY
KUNENE REGION



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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 the following mining claims 70996, 70997, 70994, 70995, 68753, 68755, 70310, 70754, 70755, 70756, 70757, 70758, 70759, 70992, 70993 in Opuwo constituency, Kunene Region. All the mining claims are located in EPL 7082.

Kaoko Mining Namibia Pty Ltd proposes to conduct exploration activities in Opuwo area, Kunene Region. This Environmental Management Plan (EMP) has therefore 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, EIA Regulations of 2012 and other related legislation 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 socio-economic 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 and EIA Regulations of 2012 were the main legislation used as guiding tools 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	<ul style="list-style-type: none"> - 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 (l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources. 	<ul style="list-style-type: none"> - During exploration activities, sustainable practices should be performed.
Environmental	Environmental Management Act 7 of 2007	<ul style="list-style-type: none"> - 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). 	<ul style="list-style-type: none"> - 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.
	Minerals (Prospecting and Mining) Act, 1992 (Act 33 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 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).	- The intended activity involves exploration of minerals mainly copper ore.

Soil	Soil Conservation Act 6 of 1969	This act covers the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources	- Limited trenching will leave earthed soils hence it should not be left unrehabilitated.
Water	Water Act 54 of 1956	- Prohibits the pollution of underground and surface water bodies.	- If drilling activities go below the level of 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 2007)	- This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices.	- The proponent will be obliged to create a safe working environment for the employees.
	Public Health and Environmental Act, 2015	- The act mainly emphasis on proper management of the environment, to prevent negative health impacts. - The act promotes proper waste management.	- Proper waste management should be promoted to prevent nuisance, which can consequently affect public health. - Recycling, reuse and reduce must be practised at all times thus if any waste is generated.
	Heritage Act	- 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	- In an event that the proponent comes across any archaeological or historical sites of significance, they should report immediately to the Monuments Council

		<p>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.</p>	
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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 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 Measures	Project Phase	Responsibility
Landscape	Exploration activities ie drilling and limited trenching will leave scars on the landscape. Disturbance on the land can consequently affect animals in the area in terms of their habitancy and also the general aesthetic value of the land.	<ul style="list-style-type: none"> 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. Dust

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Dust	Exploration activities which might generate dust are expected to be the following, movement of vehicles given that the roads are dust roads, drilling and limited trenching. Employees working in the area are the ones who might be at risk hence they are expected to cover themselves with dust masks to avoid contracting diseases like pneumoconiosis.	<ul style="list-style-type: none"> Soil watering when soil works are being executed and where dust is emitted People at site should be provided with respirators Regular monitoring and review to ensure safe operation. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

3. Impact on fauna

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Fauna	Fauna might be affected by the following activities, drilling, limited trenching, creating of cut lines and movement of vehicles and prospectors. Noise generated from these activities might scare away animals. These activities can lead to habitat loss for a diversity of fauna ranging from microorganisms to large animals.	<ul style="list-style-type: none"> • 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. • No massive vegetation clearing shall be allowed. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Project Manager and appointed Environmental Control Officer

4. Impact of waste

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Impact of waste	Waste will be generated from trenching in the form of unearthed rocks and soils. In addition, exploration personnel might also generate waste in the form of empty food containers, food leftovers, plastics, papers, bottles etc.	<ul style="list-style-type: none"> • Contaminated wastes in the form of soil, litter and other material must be disposed off at an appropriate disposal site. • Strictly, no burning of waste on the site or at the disposal site is allowed as it possess environmental and public health impacts • After completion of exploration activities such as trenching, removed soil layers and rocks must be replaced and levelling must be done so that the original condition is restored. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Project Manager, Contractors and ECO

5. Noise

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Noise	<p>During exploration, noise above the ambient levels of the area might be generated locally from exploration activities such as drilling and frequenting vehicles. Noise generated is not expected to affect outside the boundaries of the mining claims. Noise generated might affect employees working at the site hence posing a risk of ear damage.</p>	<ul style="list-style-type: none"> • A drilling interval will 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 • Employees to be equipped with ear protection equipment. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors, Site Manager & appointed ECO

6. Vegetation Loss

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Vegetation Loss	<p>It is essential to note that the areas do not have dense vegetation and they are devoid of grass. The areas are rocky and most of the places have poor soils which cannot sustain growth of dense vegetation. However, flora might be affected during the following activities, drilling, limited trenching and creation of cut lines for accessibility of vehicles. Protected plant species are most severely affected since the slightest disruption in their habitat can result in extinction.</p>	<ul style="list-style-type: none"> • Protected plant species shall not be removed but cooperated in the project. • Massive clearing shall not be allowed • Maintain the stated boundaries, no activities 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 Measures	Project Phase	Responsibility
Soil	Drilling and limited trenching will definitely disturb the soil on the sites. Soil might also be partly affected by oil or fuel leakages from vehicular and drilling machines.	<ul style="list-style-type: none"> • 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 Measures	Project Phase	Responsibility
<p>Surface and groundwater contamination</p>	<p>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. It is essential to note that, no rivers pass through or near the mining claims hence reducing the risk of surface water contamination.</p>	<ul style="list-style-type: none"> • Implement a maintenance programme to ensure all vehicles, machinery and equipment remain in proper working condition • Vehicle maintenance should be conducted in designated areas only, preferably off-site. • Waste oils and fuels 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. 	<p>Exploration Phase</p>	<p>Kaoko Mining Namibia Pty Ltd, Contractors, appointed HSEO</p>

5.2 MANAGEMENT OF SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH EXPLORATION

1. Occupational Health and Safety

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
OHS	Noise, dust and occupational stress are hazards, which are likely to be encountered during exploration phase.	<ul style="list-style-type: none"> • 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 Measures	Project Phase	Responsibility
Heritage impact	At the site, there are no known heritage areas or artefacts deemed to be impacted by the exploration activities.	<ul style="list-style-type: none"> During exploration, the contractor might come across archaeological features or objects that possess cultural values. If archaeological remains or objects with cultural values (e.g. Pottery, bones, shells, ancient clothing or weapons, ancient cutlery, graves etc) are uncovered on the sites or surroundings, it should be barricaded off and the relevant authorities should be contacted immediately 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, Contractors

3. Population Influx

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
Population Influx	The proponent is expecting to hire a few people given that this stage of the project is not labor intensive as compared to mining.	<ul style="list-style-type: none"> Local employment should be a priority so as to reduce the number of outsiders entering Opuwo area 	Exploration Phase	Kaoko Mining Namibia Pty Ltd

4. . Risk and spread of HIV/AIDS

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
HIV/AIDS	Even though a few people will be employed at this stage, the disease might still spread.	<ul style="list-style-type: none"> • 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 Measures	Project Phase	Responsibility
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.	<ul style="list-style-type: none"> • 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

5.4 POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT

1. Local empowerment

Impacts	Description	Enhancement Required	Project Phase	Responsibility
Local empowerment	It is definite that the project will promote local empowerment. The shareholders of Kaoko Mining Namibia Pty Ltd are all Namibian 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.	<ul style="list-style-type: none"> Continue to promote locals 	Exploration Phase	Kaoko Mining Namibia Pty Ltd

2. Employment creation

Impacts	Description	Enhancement Required	Project Phase	Responsibility
Employment creation	Employment will be created during the exploration phase. Job type will range from skilled, semi-skilled and unskilled. Geologist and the assistant will be considered as the permanent employees of the company. Contractors for drilling and locals for manual labour will work on a contract basis.	<ul style="list-style-type: none"> 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 utilisation for the benefit of people	The mining claims were granted to the locals but most of the shareholders did not have funds to start exploration activities. 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 hence benefiting the people.	<ul style="list-style-type: none"> The whole community must benefit in future 	Exploration	Kaoko Mining Namibia Pty Ltd

5. Generation of Revenue

Impacts	Description	Enhancement Required	Project Phase	Responsibility
Generation of Revenue	Kaoko Mining Namibia (Pty) Ltd will pay tax hence generating revenue.	<ul style="list-style-type: none"> The contractors will pay taxes as stipulated by the law of Namibia. 	Exploration Phase	Kaoko Mining Namibia Pty Ltd, appointed contractors

5.5 MANAGEMENT OF IMPACTS AT POST-EXPLORATION PHASE

Impact on landscape

Impacts	Description	Mitigation Measures	Project Phase	Responsibility
<p>Post-exploration stage (Landscape)</p>	<p>The stage of exploration is expected to have minimum damage to the environment as compared to mining. However, the major issue 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.</p>	<ul style="list-style-type: none"> • All pits shall be backfilled or contoured to a stable angle of repose. • Stockpile disturbed bedrock on site in a safe and stable manner. 	<p>Post-exploration Phase</p>	<p>Kaoko Mining Namibia Pty Ltd</p>

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	<ul style="list-style-type: none"> • Inspection 	Period of limited trenching and drilling
Dust	Employees	<ul style="list-style-type: none"> • Regular site inspections 	Daily
Impact on fauna	Environment	<ul style="list-style-type: none"> • Inspection 	Period of trenching and drilling
Pollution	Environment	<ul style="list-style-type: none"> • Tests on the nearby surface water body and boreholes 	Once in a year
Noise	Employees Surrounding areas	<ul style="list-style-type: none"> • Noise monitoring 	Daily
Vegetation loss	Environment	<ul style="list-style-type: none"> • Inspection of protected plant species and incorporate them into the development 	<ul style="list-style-type: none"> • Period of limited trenching, drilling and creating cutlines.
O.H. S	Employees	<ul style="list-style-type: none"> • Site inspection • Conducting Hazard and Risk Assessments • Health and safety incident monitoring 	<ul style="list-style-type: none"> • Daily
Impact on soil	Environment.	<ul style="list-style-type: none"> • Monitoring moisture content & texture of soil 	<ul style="list-style-type: none"> • Quarterly
Generation of waste (solid)	Land	<ul style="list-style-type: none"> • Site inspection on housekeeping • Regular collection of waste 	<ul style="list-style-type: none"> • Daily • Weekly
HIV/AIDS	Employees	<ul style="list-style-type: none"> • Free testing 	<ul style="list-style-type: none"> • Annually

7. CONCLUSIONS

If the proponent implements this EMP, the identified impacts will be manageable and remain of low environmental significance. It will be 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 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.