Environmental Management Plan

For The Proposed Exploration Activities Of Base and Rare Metals, Dimension Stone, Industrial Minerals, Nuclear Fuels Mineral, Precious Metal and Semi-Precious Metals On Exclusive Prospecting Licenses 8643 between Otavi and Grootfontein, Otjozondjupa Region

CONSULTANT:    PROPOONENT
Mr. Ipeinge Mundjulu (BSc, MSc)  Mr. Andreas Palfi
Red-Dune Consulting CC    Metalex Mining and Exploration (Pty) Ltd
P O Box 27623 Windhoek    P O Box 23532, Windhoek
Cell: +264 81 147 7889
<table>
<thead>
<tr>
<th>DOCUMENT STATUS</th>
<th>FINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLICATION NO:</td>
<td>REF # 221017000134</td>
</tr>
<tr>
<td>CLIENT</td>
<td>Metalex Mining and Exploration (Pty) Ltd</td>
</tr>
<tr>
<td>PROJECT CONSULTANT</td>
<td>Mr. Ipeinge Mundjulu</td>
</tr>
<tr>
<td>LOCATION</td>
<td>Between Otavi and Grootfontein, Otjozondjupa Region</td>
</tr>
</tbody>
</table>
Table of Contents

ACRONYMS ................................................................................................................................... i
1. Overview .................................................................................................................................... 1
2. Purpose of the EMP ................................................................................................................ 1
3. Compliance to the EMP .......................................................................................................... 1
4. Roles and Responsibility ......................................................................................................... 1
   4.1. Proponent ........................................................................................................................ 1
   4.2. Site Manager ................................................................................................................... 2
   4.3. Employees ....................................................................................................................... 2
   4.4. Environmental Compliance Officer ................................................................................ 2
5. Disciplinary Action .................................................................................................................. 2
6. Policy, Legal and Administrative Framework ........................................................................ 3
7. The EMP table ........................................................................................................................ 6
8. Closure / Decommissioning Plan ............................................................................................ 14
9. Conclusions and Recommendations ..................................................................................... 15
   9.1. Conclusion .................................................................................................................... 15
   9.2. Recommendations ......................................................................................................... 15
10. References ................................................................................................................................ 16

List of Figures

Figure 1 RC drill hole are after rehabilitation (Photo for illustration purpose) .......................... 14

List of Tables

Table 1. Regulatory framework applicable to the project .......................................................... 3
ACRONYMS

DEA  Department of Environmental Affairs
EA   Environmental Assessment
EAP  Environmental Assessment Practitioner
EC   Environmental Commissioner
ECC  Environmental Clearance Certificate
ECO  Environmental Compliance Officer
EIA  Environmental Impact Assessment
EMA  Environmental Management Act (No. 7 of 2007)
EMP  Environmental Management Plan
EPL  Exclusive Prospecting License
I&APs Interested and Affected Parties
MET  Ministry of Environment and Tourism
PPE  Personal Protective Equipment
RC   Reverse Circulation
RD   Red-Dune Consulting CC
TORs Terms of Reference
1. Overview

This Environmental Management Plan (EMP) is developed based on an Environmental Impact Assessment (EIA) for the EPL 8643. A comprehensive project description and impact assessment are contained in the EIA report.

2. Purpose of the EMP

This Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programme, mitigation measures, and management control strategies to minimize environmental impacts. It further stipulates the roles and responsibility of persons involved in the project. These strategies are developed to reduce the levels of impacts for the projects.

3. Compliance to the EMP

This EMP is a legally binding document as given under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). Metalex and its contractors must adhere to the framework of this document.

4. Roles and Responsibility

4.1. Proponent

The proponent, Metalex Mining and Exploration (Pty) Ltd shall take overall responsibility for proper implementation of the EMP. It remains the responsibility of the proponent to appoint key personnel for the implementation of the EMP such as Site Manager and ensure that all employees and contractors are conversant with the EMP.
4.2. **Site Manager**

The Site Manager (SM) represents the proponent on site. He/she shall be responsible for daily activities in ensuring environmental protection. All communication with regard to the implementation of EMP must be channelled through the SM.

4.3. **Employees**

It shall be responsibility of employees to adhere to the provision of EMP at all times when on site.

4.4. **Environmental Compliance Officer**

Compliance to EMP is enforced by the environmental inspector as provided for under Environmental Management Act (No. 7 of 2007) (EMA).

5. **Disciplinary Action**

This EMP is a legally binding document, non-compliance to the EMP is punishable in accordance to the provision of EMA.
6. Policy, Legal and Administrative Framework

Table 1. Regulatory framework applicable to the project

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Summary</th>
<th>Applicability to Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Namibian Constitution</td>
<td>The State shall actively promote and maintain the welfare of the people by adopting policies aimed at … The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future</td>
<td>Protection of the environment and biodiversity. Ensures that these principles are enshrined in the EIA documentation</td>
</tr>
<tr>
<td>Environmental Management Act No. 7 of 2007</td>
<td>To promote sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters</td>
<td>The Act provides a list of activities that may not be undertake without an environmental clearance certificate to prevent environmental damages.</td>
</tr>
<tr>
<td>Draft Pollution Control and Waste Management Bill</td>
<td>This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management.</td>
<td>To protect the Environment from possible hydrocarbons and oil leaks from the machinery, trucks and vehicles.</td>
</tr>
<tr>
<td>Legislation</td>
<td>Summary</td>
<td>Applicability to Assessment</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Environmental Policy framework (1995)</td>
<td>This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment.</td>
<td>Consideration of all possible impacts and incorporate them in the development stages</td>
</tr>
<tr>
<td>Regulations Related to the Health and Safety of Employees at Work. Reg No. 156</td>
<td>Promotes the Safety and Health of employees at the work place</td>
<td>To ensure employees health and safety at work</td>
</tr>
<tr>
<td>Public Health Act No. 36 of 1919</td>
<td>To Protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.</td>
<td>To ensure that the project is not a nuisance to land owners and the public at large</td>
</tr>
<tr>
<td>Labour Act No. 11 of 2007</td>
<td>This Act outlines the labour laws which encompass protection and safety of employees at work.</td>
<td>Fair labour practises to be observed with regard to this act</td>
</tr>
<tr>
<td>Water Act No, 54 of 1956</td>
<td>All water resources belong to the State. It prevents pollution and promotes the sustainable utilization of the resource</td>
<td>Prevention of discharging contaminated water at unauthorised places</td>
</tr>
<tr>
<td>Soil Conservation Act No. 76 of 1969</td>
<td>To promotes the conservation and compacting of soil erosion</td>
<td>Uncontrolled movement of heavy vehicles and truck at areas surrounding the site may cause land degradation</td>
</tr>
<tr>
<td>Legislation</td>
<td>Summary</td>
<td>Applicability to Assessment</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Public Health Act no. 36 of 1919</td>
<td>The Act gives provision for the protection for the health of all people.</td>
<td>The noise and dust level emanating from the project could affect the surrounding community and vegetation in the vicinity.</td>
</tr>
<tr>
<td>National Heritage Act No.27 of 2004</td>
<td>The Act gives provision of the protection and conservation of places and objects with heritage significance.</td>
<td>The chance find of Human Remains due to colonial history or crime, Artefacts, and or heritage materials within the EPL</td>
</tr>
<tr>
<td>Minerals (Prospecting and Mining) Act No 33 of 1992</td>
<td>Section 50 (i) requires “an environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations”</td>
<td>The proposed activity is prospecting for minerals, hence it requires an EIA to be carried out and adhere to the act’s provisions.</td>
</tr>
</tbody>
</table>
7. The EMP table

<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
</table>
| Farm access                   | To avoid conflict between the proponent and Farm Owners | 1. Prepare an access / entry contract agreement and present it to the farmers for the scrutiny  
2. Inform farm owner well in advance before your planned activities  
3. All people entering the farm must carry identification documents  
4. Do not enter the farm without owner’s consent  
5. This must be confirmed by their health certificates.  
6. implemented (wearing of mask and hand sanitizers) | Recorded conflict Identification documents | Site Manager |
| Induction                     | To ensure that all employees are familiar with the requirements of the EMP | 1. All employees must go through an induction course for the provision of the EMP.  
2. Staff operating specialised equipment and heavy vehicle must be properly trained | Induction Minutes, report and Attendance Register | Site Manager |
| Employment                    | Although significant employment is not expected, the proponent must abide to the relevant labour laws | 1. Ensure that all general work is reserved for local people unless in circumstances where specialized skills are required.  
2. Fair compensation and labour practise as per Namibian Labour Laws must be followed | Employees records and their nationalities  
Labour unrest over unfair compensation | Site Manager |
<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
</table>
| **HIV/AIDS, Alcohol and Drug abuse** | To sensitise employees about the danger of alcohol, drugs and HIV/AIDS | 1. Provide awareness to the employees on danger of alcohol, (HIV/AIDS) and drug abuse  
2. Provide Condoms to workers  
3. Do not bring alcohol on the farm, unless otherwise agreed with the farm owner | Awareness meeting minutes | Site Manager |
| **General Safety** | To ensure good health and safety for the employees and public | 1. Abide by the Occupational Health and Safety and Labour Act of Namibia and other statutory requirement such as International Labour Practise (ILO)  
2. Develop a health and safety plan / policy  
3. Ensure that every employee went through an induction course about safety;  
4. Employees must be equipped with all necessary Personal Protective Equipment (PPE). These includes, Helmet, Overall, Safety Shoes, Safety Glasses, Gloves, Earmuff etc;  
5. During operation, minor accidents are eminent, hence there must be a first aid kit; | Induction Minutes  
Valid driver licenses for heavy vehicles  
Complain of health issues by employees  
PPE for all employees | Site Manager |
<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
</table>
|                               |            | 6. Only qualified and licenced personnel must be allowed to operate machinery and vehicles;  
7. No employee must be allowed to be onsite without PPE;  
8. Adequate safety signs must be displayed on site;  
9. Unauthorised fire shall not be permitted on site |                      |                   |
| Health                        | To ensure good health for the employees | 1. Implement COVID-19 preventative measures  
2. Employees must NOT be exposed to noise levels above the required -85dB (A) limit over a period of 8 hours.  
3. Adhere to the Labour act, non-toxic human dust exposure levels may not exceed 5mg/m3 for respiratory dust and 15mg/m3 for total dust.  
4. Supply clean drinking water to the site, such as portable water tank;  
5. Used mobile toilets  
6. Ensure that supervisor has gone through occupational health and first aid course,  
7. Train employee on hazard and risk avoidance | Complain from farmers Health complaints from employee and employees fitness certificate | Site Manager         |
<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8. Provide insect repellent, mosquito nets and if necessary immunization to prevent deadly diseases such as malaria 9. All employees must be in possession of the health certificate and screened for communicable diseases such as TB and COVID-19.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Impact</td>
<td>To prevent litter / waste scattered all over and preserve aesthetic value</td>
<td>1. Maintain good house keeping 2. Trenches, access roads, camping places must be rehabilitated and kept clean</td>
<td>Scattered Litter, Visual inspection</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Impact on Flora</td>
<td>To ensure sustainable conservation the vegetation</td>
<td>1. Mature trees must be avoided to be cut down 2. Do not plant alien trees 3. Don not harvest firewood</td>
<td>Complain and records</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Impact on Fauna</td>
<td>To ensure protection of animals especially wild animals</td>
<td>1. Do not kill animals if found on site (unless it is an eminent danger to human life) 2. There must be ZERO tolerance to poaching 3. The food must be stored in the closed place in order not to attract baboons</td>
<td>Complaints from farmers and record of poaching</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Conservation of Ground Water Resource</td>
<td>To prevent exposure of ground water</td>
<td>1. Ensure that drilled holes are properly closed to prevent ground water exposure unless otherwise as agreed with the farm owner</td>
<td>Rehabilitated drilled sites</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Environmental / Social Impact</td>
<td>Objectives</td>
<td>Proposed Mitigation Measures</td>
<td>Monitoring Indicator</td>
<td>Party Responsible</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>------------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
</tbody>
</table>
| **Surface and Ground water pollution** | To prevent water pollution | 1. Fueling of heavy vehicle on site must be well coordinated at designated places agreed with the farm owners  
2. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluids leakages  
3. All vehicle and machinery must be well service to avoid leakages  
4. Provide and train on oil spill emergency response  
5. Servicing of vehicles and machinery must take place at designated sites agreed with the farm owners | Physical inspection | Site Manager |
| **Land Degradation** | To prevent soil erosion | 1. Movement of heavy vehicles must be coordinated and restricted to be on access roads  
2. Normally, farm roads are meant for light vehicles, exploration vehicles have the potential to damage the farm access roads. Hence proper road maintenance must be implemented to ensure that the roads are left on good state | Physical inspection | Site Manager |
<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
</table>
| Waste Generation              | To ensure good housekeeping and prevent littering | 1. Provide Skip bins to collect waste and be disposed of at an approved disposal site  
2. Do not bury waste on site  
3. Excavate a small biodegradable waste site that would be dump filled at the end of the project which must first be agreed with farm owner alternatively, provide mobile toilets that will be disposed at an approved municipal site  
4. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site. | Waste bins on site  
Physical inspection | Site Manager |
| Noise Impacts                 | To prevent noise pollution from flying aircraft | 1. The aircraft must fly at heights which may not cause noise nuisance to animals  
2. A fixed wind aircraft is recommended than a helicopter  
3. Confirm flying schedules with farmers, whose operation is tourism related | Complaints from farmers and members of public | Site Manager |
| Traffic                       | To ensure coordinated movement of heavy vehicles | 1. Trucks must be installed with a rotating headlight beam lights | Records of public complain  
Visible warning signs | Site Manager |
<table>
<thead>
<tr>
<th>Environmental / Social Impact</th>
<th>Objectives</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring Indicator</th>
<th>Party Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Truck must maintain a low speed to prevent excessive dust and accident</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. The roads must be maintained by scrapping and compacting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Install warming signs where necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Oil Leakages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manage fuels, oils and lubricants leakages from Vehicles and Machinery to prevent pollution</td>
<td>1. Ensure all vehicle are well service and leak inspection are done;</td>
<td>Physical verification and routine monitoring</td>
<td>Management or Site Manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Provide drip trays to stationary vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Servicing of vehicle must be done at an approved site or at areas agreed with the farm owner.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Re-fuelling, oil replacement must be done on approved sites;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Archaeology / Heritage Resources / Artefacts</strong></td>
<td>1. Employee must be trained on the possible find of heritage and archaeological material in the area;</td>
<td>Sighting report/s of heritage resources / artefacts</td>
<td>Management or Site Manager</td>
</tr>
<tr>
<td></td>
<td>Preserve Heritage</td>
<td>2. Implement a chance find and steps to be taken for heritage or archaeological material finding (Heritage (rock painting and drawings), human remains or artefacts) are unearthed Stopping the activity immediately i. Informing the operational manager or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental / Social Impact</td>
<td>Objectives</td>
<td>Proposed Mitigation Measures</td>
<td>Monitoring Indicator</td>
<td>Party Responsible</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>-----------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii. Cordon the area with a danger tape and manager to take appropriated pictures. iii. Manager/supervisor must report the finding to the competent authorities National Heritage Council of Namibia (061 244 375) National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Closure / Decommissioning Plan

During exploration, evasive processes includes trenching and drilling. Trenching is normally done by hand, the trenches are not deep and they are immediately rehabilitated after sampling. Drilling may necessitate the establishment of access roads to targets site, hence these must be rehabilitated immediately. After geochemical sampling with the drill, the casing must be removed and the drill hole must be properly covered, unless otherwise agreed with the farmers to leave the casing for purpose of making water borehole (Figure 1).

Figure 1 RC drill hole are after rehabilitation (Photo for illustration purpose)
9. Conclusions and Recommendations

9.1. Conclusion

Exploration activities are not known to cause harm to the environment due to their non-physical nature. In Namibia, farms are heavily encroached with think bushes, hence access roads to generated targets are in a way advantageous to the farmers as long as the line cutting avoids mature and protected trees. It is important for the proponent to establish good relation with farm owner to ensure environmental protection. Should this exploration yield into the potential of establishing a mine, a comprehensive EIA must be undertaken which shall include all necessary specialist studies.

9.2. Recommendations

It is recommended to the approving authority that this project is approved and be issued with an Environmental Clearance Certificate with following conditions;

- Bi-annual report for environmental monitoring must undertaken
10. References

A. Balasubramanian 2007., Book Geological Mapping Procedures


Department of Water Affairs., Demarcation of Water Basins on National Level, Namibia

Dr. Martin Pickford and Dr Brigitte Denut 2010., Memoir 21 Karst Geology and Palaeobiology of Northern Namibia, Ministry of Mines and Energy Geological Survey of Namibia

Emma Imalwa - 2016., Analysis of the Management of Twyfelfontein World Heritage Site, Namibia

Enviro Dynamics 2014., Environmental Assessment for the exploration of base metals on exclusive prospecting licenses 5606, 4934, 5712 & 5713), Kavango East Region, Namibia.

GC Conroy, M Pickford, B Senut, P Mein – 1993., Diamonds in the desert: The discovery of Otavipithecus namibiensis

Greg Christelis and Wilhelm Struckmeier 2011., Groundwater in Namibia; An Explanation to the Hydrogeological Map, Ministry of Agriculture Water and Forestry


J.E. Misiewicz 1988., The Geology and Metallogeny of the Otavi Mountain land, Damara Orogen, Swa/Namibia, with particular reference to the Berg Aukas zn·pb-v Deposit - A Model of Ore Genesis


Marion Wallace and JOHN Kinahan - 1990., A history of Namibia from the beginning to 1990.


The archaeologist’s field handbook. Australia: Allen and Unwin.