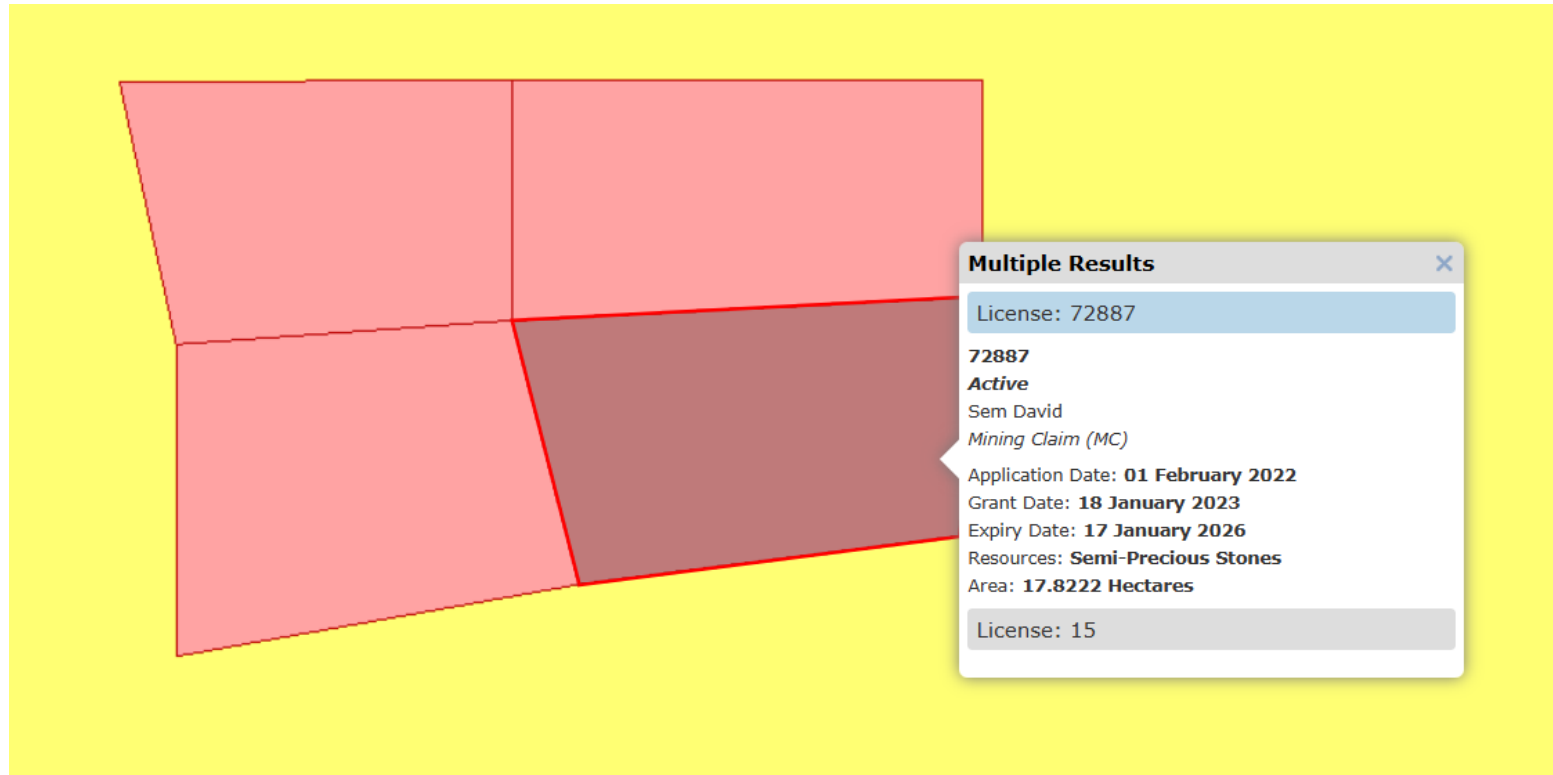


Environmental Management plan

For Small Scale Mining Activities of Semi-Precious Stones on Mining Claim 72886, 72887, 72888 and 72889 at Otjohorongo Reserve, Omaruru, Erongo Region.



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1. ENVIRONMENTAL MANAGEMENT PLAN

1.1 PURPOSE OF THIS EMP

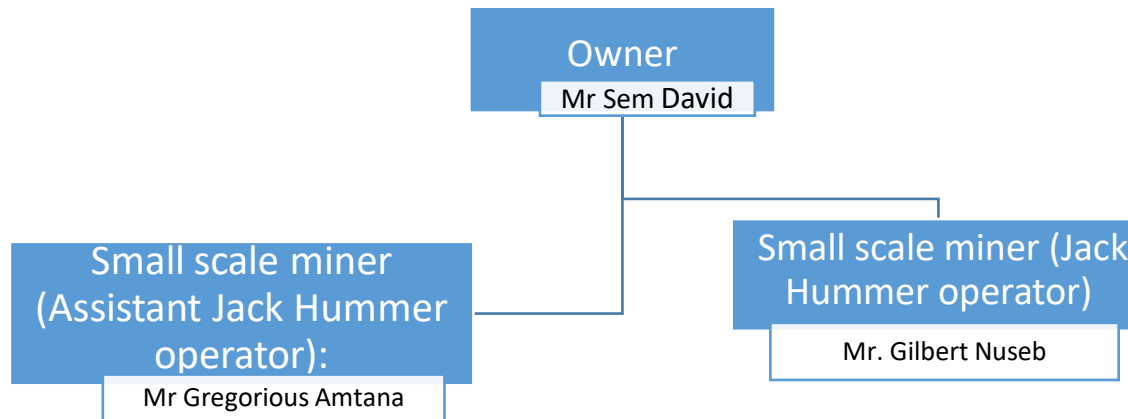
This Environmental Management Plan (EMP) has been developed to ensure that the Mining Claim 72886-72889 is compliant to the Environmental Management Act (No. 7 of 2007) and to provide a framework for implementing the management actions to minimise environmental damage throughout the mining claim project lifecycle.

1.2 PROJECT STRUCTURE, ROLES AND RESPONSIBILITIES

This EMP will provide a clear organizational structure of the small scale mining project that includes the positions of personnel responsible for environmental management. The roles and responsibilities of each identified persons will be documented as wells as the environmental manager of the project who resumes custodianship of the environmental management plan and its implementation. This environmental manager may delegates the environmental management responsibilities to the various personnel on the structure to ensure implementation of the EMP.

1.2.1 ORGANIZATIONAL STRUCTURE

The following is the structure, the roles and responsibilities for the small scale mining claim.



1.2.2 Roles & responsibilities

1.2.2.1 The Owner of Mining Claim 72886-72889

The Owner of the small scale mining claim retain sole ownership of the mining claim and is responsible for investment, overseeing the mining claim from planning, operation and future decommissioning. The implementation of the environmental management plans rests with the owner who is serving as the environmental manager

Among the owners responsibilities are;

- Ensure the implementation of all management measures
- Ensure the implementation of all safety management measures
- Provide safety training to employees and maintain a safe working environment
- Reporting of all incidences and ensure corrective actions taken
- Review and update of the EMP
- To implement and uphold best environmental practices in line with the Environmental Clearance Certificate (ECC)
- Plan and manage transport logistics for the mining claim
- Transportation of personnel, necessary equipment, supplies and materials to the site.
- Transportation of products to market places, testing laboratories, polishing centers and Ministry of Mines & Energy.

1.2.2.2 Small scale miner (Jack Hammer operator and Assistant Jack Hammer operator)

The small scale miner will be responsible for operating the jack hammer and digging for semi-precious stones on the claim.

Among the small scale miners responsibilities are;

- Operate the jack hammer to extract semi-precious stones
- Maintaining a safe working environment
- Moving sand out of pit
- Compliance to the environmental management plan
- Rehabilitation of excavated pits
- Setting up of equipment.

1.3 Regulatory & legislative compliance

Legislative instruments	Requirement	Action	Responsible
Environmental Management Act No. 7 of 2007 and Environmental Impact Assessment Regulations GN of 2012	The application for Renewal of ECC for this activity is highly required.	Complete Renewal application for ECC	Owner
Soil Conservation Act 76 Of 1969	The Act makes provision for the combating and prevention of soil erosion, and for the conservation, protection and improvement of the soil, the vegetation and the sources and resources of the water supplies. Under section 4 the Minister may by means of a direction order the owner of land to Construct the soil conservation works.	Ensure mining activity designs consider soil stability to prevent erosion processes.	Owner and Small Scale miners
Atmospheric Pollution Prevention Ordinance 11 of 1976	Section 24 requires persons located in dust protection zones to take prescribed steps or (where no steps have been prescribed) adopt the best practicable means for preventing dust from becoming so	Although the act relates mostly to emissions of dust and noxious gases in prescribed areas, necessary measures need be taken to ensure release of dust is minimized on the mining claim.	Owner and Small Scale miners

1.4 Management activities for implementation

Potential impact	Mitigation measures	Responsible Party	TIMEFRAME
Pollution and Waste	• Have dust bins on the mining claim to collect normal litter such as cans, bottles and papers • No industrial waste will be generated, however old machinery should not be kept on the site but rather be taken to recycling plants • Minimise the use of single use plastics on the mining claim • Use excavated sand and gravel to rehabilitate excavated pits • Make use of mobile toilets and discourage open defecation	Owner and Small Scale miners	Throughout the mining phase
Vehicle, earthmoving equipment, drilling and blasting	• Use only a sedan or a pick up bakkie to minimize dust • Minimal environmental damage by only driving on existing roads and routes in the area and set a reasonable speed limit to. • Only use a rock breaker (jack hummer) to dig for gemstones mostly using manual labour to minimize dust and noise. • Mine on a small scale and only mine during the day (from 08:00 -18:00). • No blasting to take place on the mining claim	Owner and Small Scale miners	Throughout the mining phase
Water	• Monthly water use is only 1000L per month, and water will be used sparingly and reuse water as much as possible. • Water will be brought in from Omaruru, Okombahe or from the local water points • Do not use chemicals in the mining area and ensure that there is no spillage or leaking of oil from the car or	Owner and Small Scale miners	Throughout the mining phase

	generator and discourage open defecation to avoid water pollution.		
Community	• The economic activity of people living in the community is mostly small scale/ subsistence livestock farming. • A Good relationship with the people will be maintained through consultative meetings, communicating openly and honestly with the locals. • Employ locals and have cooperate social responsibilities towards them. • Rehabilitate pits to prevent farm animals from getting stuck in them	Owner and Small Scale miners	Throughout the mining phase
Plants and Wildlife	• Educate the workers and community on the importance of conservation. • Concurrently rehabilltee the mining pits • No cutting down of trees, no plant collection and encourage trees to be preserved.	Owner and Small Scale miners	Throughout the mining phase
Historical, Archaeological and Cultural Heritage	• If rock arts or graves are found on the mining claim while mining, pause the mining activities and inform the relevant authorities (Heritage Council of Namibia) • Accept new conditions if archaeological sites are found on the mining claim	Owner and Small Scale miners	Throughout the mining phase
Rehabilitation	• Practice concurrent rehabilitation of excavated pits • Mine semi-precious stones on the mining claim using picks, spades, shovels and a jack hammer to reduce noise, dust and environmental damage by mining on a small scale.	Owner and Small Scale miners	Throughout the mining and decommissioning phase

2. Monitoring requirements

The following monitoring is recommended on the mining claim.

Component	Receptor	Type of monitoring	Frequency
littering	Claim area	Site Inspections	Weekly
Noise Monitoring	Claim area and local community	Site Inspections	Weekly
Dust Monitoring	Environment and local community	Site Inspections	Weekly
Water Pollution monitoring	Environment	Site Inspections	Weekly
Machinery Inspection	Environment	Site Inspections	Daily

3. Conclusion

This Environmental Management Plan if properly implemented, will address all assessed significant adverse impacts of the mining claim on the environment to acceptable levels. An EMP is not a policy document but is an evolving document as a result it needs to be kept updated on a regular basis to ensure that significant impacts are kept in check at all times while also take-up new un-anticipated impacts.

While this document is comprehensive and essential to ensure protection of the environment and socio-economic matters identified for the mining claim, it should not be used as justification for not taking sound actions and or advice to manage unintended and unforeseen impacts.

This EMP forms a reference document for the mining claim during the mining phase and decommissioning phase. All stakeholders should be made aware of their roles and responsibilities in this EMP and ensure implementation. Regular review of the implementation will ensure intended objective are achieved.

References

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Mareddy, A. R. (2017). *Environmental Impact Assessment Theory and Practice*. Oxford: Elsevier.