EcoWise
Environmental
Consulting

SCOPING ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED SMALL-SCALE MINING ON MINING CLAIMS 76196 & 76197 NEAR OTJAPITJAPI, OPUWO AREA, KUNENE REGION

MEFT PROJECT NO.: 260106006850

DOCUMENT INFORMATION

Title	Scoping Environmental Impact Assessment for proposed small-scale mining on mining claims 76114, 76196 & 76197 near Otjapitjapi, Opuwo Area, Kunene Region
Project location	Otjapitjapi, Opuwo Area, Kunene Region
Owner	Lahya Nandjila Nekuu -PKP
MEFT Project Number	260106006850
Report Version	1
Status	Final
Issue Date	10/03/2026
Document Authentication	This Scoping Environmental Impact Assessment report has been prepared by Eco-Wise Environmental Consulting cc in accordance with the Environmental Management Act No 7 of 2007 (EMA) and its regulations of 2012. We the undersigned certify that the particulars in this report are correct and righteous to the best of our knowledge.
Environmental Consultant	Eco-Wise Environmental Consulting cc P.O Box 40168 Windhoek Cell: +264 813 826460 Email: info@ecowiseec.com Website: www.ecowiseec.com
Project Manager	Ruth ruth@ecowiseec.com

ENVIRONMENTAL AUTHORIZATION INFORMATION

Please note that the environmental clearance certificate should be issued out to the client. All comments and enquiries during the evaluation of this document must be addressed to the Environmental Consultants. Please forward the Environmental Clearance Certificate to the Consultant.

TABLE OF CONTENTS

DOCUMENT INFORMATION 2
LIST OF IMAGES 6
LIST OF TABLES 6
LIST OF APPENDICES 6
ACRONYM 7
EXECUTIVE SUMMARY 8
CHAPTER ONE: BACKGROUND 10
1. INTRODUCTION 10
1.2 NEED FOR THE PROJECT 10
1.2.1 Promote local empowerment 10
1.2.2 Economic development 10
1.2.3 Employment creation 10
1.2.4 Local development 11
1.3 SCOPE OF THE PROJECT 11
1.4 TERMS OF REFERENCE 11
1.5 OBJECTIVES 11
1.5.1 General objective 11
1.5.2 Specific Objectives 11
1.6 METHODOLOGY USED FOR THE STUDY 12
1.7 LAND OWNERSHIP 12
1.8 OVERVIEW OF EIA REPORT 12
CHAPTER TWO: PROJECT DESCRIPTION 13
2.1 PROJECT LOCATION 13
2.2 SURROUNDING LAND USES 13
2.3 PROJECT ACTIVITIES 15
2.3.1 Construction phase 15
2.3.2 Operation phase 16
2.3.3 Decommissioning phase 16
2.5 PROJECT COST 17
CHAPTER THREE: ANALYSIS OF ALTERNATIVES 17
3.1 ALTERNATIVE LOCATIONS 18
3.2 THE "NO PROJECT" ALTERNATIVE 18
3.3 OTHER ALTERNATIVES 18
3.4 ALTERNATIVES ASSESSMENT OUTCOMES 19
CHAPTER FOUR: RELEVENT LEGISLATION 20
CHAPTER FIVE: DESCRIPTION OF THE AFFECTED ENVIRONMENT 26
5.1 BIO-PHYSICAL ENVIRONMENT 26
5.1.1 Climate 26
5.1.2 Topography, Soils & Geology 27
5.1.3 Hydrogeology 29
5.1.4 Vegetation of the study area 29
5.1.5 Fauna 32
5.2 SOCIO-ECONOMIC ENVIRONMENT 32
5.2.1 Population 32
5.2.2 Education Profile 33
5.2.3 Employment Opportunities 33
5.2.4 Archaeology 33
CHAPTER SIX: PUBLIC PARTICIPATION 35
6.1 OBJECTIVES OF THE STAKEHOLDER CONSULTATION PROCESS 36
6.2 PRINCIPLES GOVERNING PUBLIC CONSULTATION 36
6.2.1 Inclusivity 36
6.2.2 Open and transparency 36
6.2.3 Relevance 36
6.3 NOTIFICATION OF INTERESTED AND AFFECTED PARTIES 36
6.3.1 Background Information Document (BID) 36
6.3.2 Advertisement 37
6.3.3 Public Meeting 37
6.3.4 Questionnaires 39
6.3.5 Public Notices 39
6.4 SUMMARY OF STAKEHOLDERS CONSULTATION. 40
CHAPTER SEVEN: ASSESSMENTOF ENVIRONMENTAL IMPACTS 41
7.1 IDENTIFICATION OF POTENTIAL IMPACTS OF THE PROJECT 42

7.2 IMPACT ANALYSIS 42
7.3 IMPACT EVALUATION 45
7.3.1 NEGATIVE IMPACTS ASSOCIATED WITH CONSTRUCTION PHASE (SITE PREPARATION AND INFRASTRUCTURE INSTALLATION) 45
7.3.2 NEGATIVE IMPACTS ASSOCIATED WITH OPERATION PHASE 48
7.3.3 NEGATIVE SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH OPERATION PHASE: 56
7.3.4 POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT 61
7.3.5 DECOMMISSIONING PHASE 63
7.4 SUMMARY & ANALYSIS OF IMPACTS 63
CHAPTER EIGHT: ENVIRONMENT MANAGEMENT AND MONITORING PLAN 63
CHAPTER NINE: CONCLUSIONS AND RECOMMENDATIONS 64
9.1 CONCLUSION 64
9.2 RECOMMENDATIONS 64
BIBLIOGRAPHY 65

LIST OF IMAGES

Image 1: Rocks within the study area 27
Image 2: a & b shows trees around the area of study..... 30
Image 3: a, b, c shows public meeting at Otjiu-West Conservancy..... 38
Image 4: shows public meeting at Otjapijapi Primary School..... 39
Image 5: a & b shows public notices at Otjiu-West Conservancy and Otjapijapi Primary School respectively..... 40

LIST OF FIGURES

Figure 1: Location Map.....14
Figure 2: phases involved in the project 15
Figure 3: Hydrogeology & Vegetation Map.....28
Figure 4: Vegetation Map 31

LIST OF TABLES

Table 1: Size and coordinates for the mining claims 13
Table 2: Services alternatives 18
Table 3: Relevant legislations related to the project 21
Table 4: Some of the key permits for small-scale mining in Namibia..... 25
Table 5: General Climate Data..... 26
Table 6: Geology for the mining claims..... 27
Table 7: Protected plant species..... 29
Table 8: Summary of General Fauna Data 32
Table 9: Details of public notification for the EIA study 37
Table 10: Ranking Matrix..... 43
Table 11: Ranking matrix for Environmental Significance 44
Table 12: Matrix to show environmental significance..... 44

LIST OF APPENDICES

Appendix A –Public Participation Process (Adverts, Register, Meeting Minutes, Questionnaires, Background Information Document (BID), Letters sent to relevant authorities)

Appendix B - Consent letters from Relevant Authorities

Appendix C - Environmental Management Plan (EMP)

Appendix D - CV's of Consultants

ACRONYM

ACRONYM	MEANING
BID	Background Information Document
EIA	Environmental Impact Assessment
EAP	Environmental Assessment Practitioner
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
LTD	Limited Company
MC	Mining Claim
MEFT	Ministry of Environment Forestry and Tourism
MIME	Ministry of Industries Mines and Energy
PPP	Public Participation Process
PTY	Proprietary
ToR	Terms of Reference

EXECUTIVE SUMMARY

The mining claims belongs to Lahya Nandjila Nekuu and the proposal is to conduct an Environmental Impact Assessment (EIA) for small-scale mining on mining claims 76196 & 76197 near Otjapitjapi Settlement, Opuwo area, Kunene Region. The commodities for the mining claims will include; Base and Rare Metals, Dimension Stone, Industrial Minerals and Precious metals.

The small-scale mining will involve the following activities; removal of selective topsoil if present, drill blast holes for explosives, blast selected areas being fenced in with the required safety precaution, load the ore and transport to a central processing plant. The loading will vary between hand sorting and bulk loading by a small excavator or backhoe. Possible negative impacts which might be associated with these activities might include; impact on fauna, impact on vegetation, generation of dust, noise, impact on landscape, possible spillages from drilling machines, impact on soil, and occupational health and safety hazards. While positive impacts will include; employment creation, empowerment of the local people, transfer of skills, boosting Namibia's copper supplies and mineral exports, community development etc. An average of 15 people will be employed per mining claim.

The Environmental Impact Assessment (EIA) for the proposed small-scale mining was conducted by Eco-Wise Environmental Consulting cc. The study was carried out according to the requirements of the Environmental Management Act (Act No.7 of 2007) and its regulations of 2012. The Environmental Consultants undertook this EIA study, to predict the impacts of the proposed activity on the environment and to propose mitigation measures. The EIA covered the following aspects; project description, baseline studies, public participation process, environmental, socio-economic impact assessment and environmental management. All identified impacts were addressed and mitigation measures were brought forward.

The following methodologies were used during the Environmental Impact Assessment study; desktop studies, observations through site assessment, public consultation through advertisement, public meetings, consultation with relevant authorities e.g Kunene Regional Council, Ozondundu Conservancy and the traditional authority, placing of notices and distribution of questionnaires.

Generally, the main objective of the study was, to identify environmental and socio-economic impacts associated with the small-scale mining activities and to propose mitigation measures.

Specific objectives included:

- To determine the potential environmental impacts derived from the proposed small scale mining activities.
- To establish baseline environmental conditions so that relevant impacts could be projected and sufficient mitigation measures could be designed
- To consult with key, interested and affected stakeholders so that their concerns are considered in the formulation of the EIA report and implementation of the Environmental Management Plan
- To propose alternative measures where it is noticed that adverse effects may occur and to set up an Environmental Management Plan that will govern all activities of the project for the better protection of the environment.

The main findings indicate that the project will be associated with both negative and positive impacts, with the negative impacts ranging from medium to low environmental significance. With the implementation of the proposed mitigation measures, these medium impacts can pose less or no harm to the environment.

CHAPTER ONE: BACKGROUND

1. INTRODUCTION

Lahya Nandjila Nekuu proposes to conduct small-scale mining activities on mining claims 76196 & 76197 near Otjapitjapi Settlement, Opuwo area, Kunene Region. Lahya Nandjila Nekuu shall be working with Precious Kaoko Prospecting (PKP) and laudian Group. The commodities for the mining claims will include; Base and Rare metals, Dimension Stone, Industrial Minerals and Precious metals. MC 76196 & 76197 were checked on the Ministry of Industries, Mines and Energy portal and were found not to be falling under environmental sensitive areas or withdrawn areas.

Eco-Wise Environmental Consulting being an independent consultant was therefore hired to conduct a scoping EIA for the proposed small scale mining activity. The consultant was mainly guided by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (2012) during the process of the environmental assessment. The EIA regulations (2012) states all the activities which require an EIA and among the listed activities is annexure 3, mining and quarrying activities where this project is classified under. Annexure 3.2 states that other forms of mining or extraction of any natural resources whether regulated by law or not and 3.3 resource extraction, manipulation, conservation and related activities require an EIA. The competent authority will be, Ministry of Environment Forestry and Tourism (MEFT).

1.2 NEED FOR THE PROJECT

1.2.1 PROMOTE LOCAL EMPOWERMENT

Local empowerment will be promoted given that the mining claim holder will be a shareholder in the mining venture with Precious Kaoko Prospecting (PKP) and laudian Group (companies which will be working with the owner of the mining claims). These companies have created a collective agreement with the owner to govern this opportunity with the ultimate goal to create value and empower Namibians.

1.2.2 ECONOMIC DEVELOPMENT

The motivation for Namibia to support the project is economic and strategic in nature. Given that, medium to large minable copper deposits are mined, this will boost Namibia's copper supplies and mineral exports. In addition, the operations of the small-scale mining will generate revenue for the government through taxes. Revenue generated through taxes will be used for economic development.

1.2.3 EMPLOYMENT CREATION

An average of 15 people will be employed per mining claim. The type of jobs will range from skilled, semi-skilled and unskilled. Type of jobs will range from core mining operations personnel (mine claim supervisors, miners, driller, blaster), equipment

and machinery operators (excavator operator, front-end loader operator, tipper truck driver), safety, environmental personnel and support and administrative staff.

1.2.4 LOCAL DEVELOPMENT

Generally, the area of Opuwo rural is remote hence this project will have a potential to boost the development of the area. If the project is carried out this might likely lead to an increase of people which will have a consequence of increasing demand hence promoting local sells and products.

1.3 SCOPE OF THE PROJECT

The scope of the study includes carrying out an environmental investigation in line with current provisions on environmental legislations. The Environmental Management Act (No 7 of 2007) and its regulations of 2012 were used as guidelines for the scoping EIA study. The report is aimed at identifying and evaluating environmental and socio-economic impacts associated with the project.

1.4 TERMS OF REFERENCE

The approach to undertake the work was guided by the following ToR, which were provided by the Proponent;

- Determine the possible environmental and socio-economic impacts of the project.
- Conduct a public participation process to gather the views of Interested and Affected Parties.
- Design an Environmental Management Plan with sound and relevant mitigation measures for monitoring purposes.
- Compile a scoping EIA report for submission to Ministry of Environment Forestry and Tourism (MEFT) and Ministry of Industries Mines and Energy (MIME).
- Coordinate the whole application process of the Environmental Clearance Certificate (ECC) until the issuance of the certificate.

1.5 OBJECTIVES

The objectives of the study were derived from the ToR and they are as follows:

1.5.1 GENERAL OBJECTIVE

- To determine the potential environmental and socio-economic impacts derived from the proposed small scale mining activities

1.5.2 SPECIFIC OBJECTIVES

- To determine the potential environmental impacts derived from the proposed small scale mining activities.
- To establish baseline environmental conditions so that relevant impacts could be projected and sufficient mitigation measures could be designed

- To consult with key, interested and affected stakeholders so that their concerns are considered in the formulation of the EIA report and implementation of the Environmental Management Plan
- To propose alternative measures where it is noticed that adverse effects may occur and to set up an Environmental Management Plan that will govern all activities of the project for the better protection of the environment.

1.6 METHODOLOGY USED FOR THE STUDY

a) **Desktop Study**- This involved review of documents and relevant legislatives. Documents containing geological, vegetation, climatic, demographic and hydrological data for Namibia were also reviewed.
b) **Site Visits –**The EIA team visited the sites on 04/12/2025. The field visit was meant for physical inspections of the sites in order to gather information on the state of the environment.
c) **Public Participation**-The study also sought public views through advertisement and public meetings. The meetings were held on 05/12 2025 at Otjiu-West Conservancy at 12:28pm and at Otjapitjapi at 5:00pm.
d) **Mapping-**More data was obtained from the maps which were produced by the GIS consultant. The maps included vegetation, hydrogeology and location maps.
e) **Reporting**- all data gathered was used to compile a scoping EIA and EMP report which was submitted to MEFT and MIME.

1.7 LAND OWNERSHIP

The land is under communal land, see Appendix B consent letter from the traditional authorities. The owner of the mining claims was however allocated the mining claims by MIME.

1.8 OVERVIEW OF EIA REPORT

The remaining part of this report has been designated for the following aspects;

- Project Description.
- Legal and Policy Analysis.
- Environmental Baseline.
- Public Consultation.
- Impact Identification and Analysis.
- Environment Management, Monitoring and Evaluation Plan.
- Conclusions and Recommendations.

CHAPTER TWO: PROJECT DESCRIPTION

The following issues will be clarified under project description;

- Project location.
- Project activities.
- Project cost.

2.1 PROJECT LOCATION

The mining claims 76196 & 76197 are located near Otjapitjapi Settlement, Opuwo Rural Constituency in Kunene Region. All the mining claims are located within EPL 7438, **see figure 1, Location Map** and table 1 for coordinates, size and conservancies within the study area.

The mining claims are located near Otjapitjapi which is a small settlement situated approximately 1.8km from the mining claims.

Table 1: Size and coordinates for the mining claims

Mining Claim Number (MC)	Area (Hectares)	Conservancy	Corner 1
76196	17.8309	Ozondundu	18° 51' 46" S 13° 53' 29" E
76197	17.8287	Ozondundu	18° 52' 02" S 13° 53' 39" E

2.2 SURROUNDING LAND USES

Generally, the mining claims are surrounded by EPLs and open spaces. On the eastern side there is EPL 7079, western side there is EPL 11141, south there is EPL 7442 and north there are MC 76115 & 76116 and EPL 7082. To the west there is Otjapitjapi which is approximately 1.8km. Furthermore, the mining claims are located within the Ozondundu Conservancy.

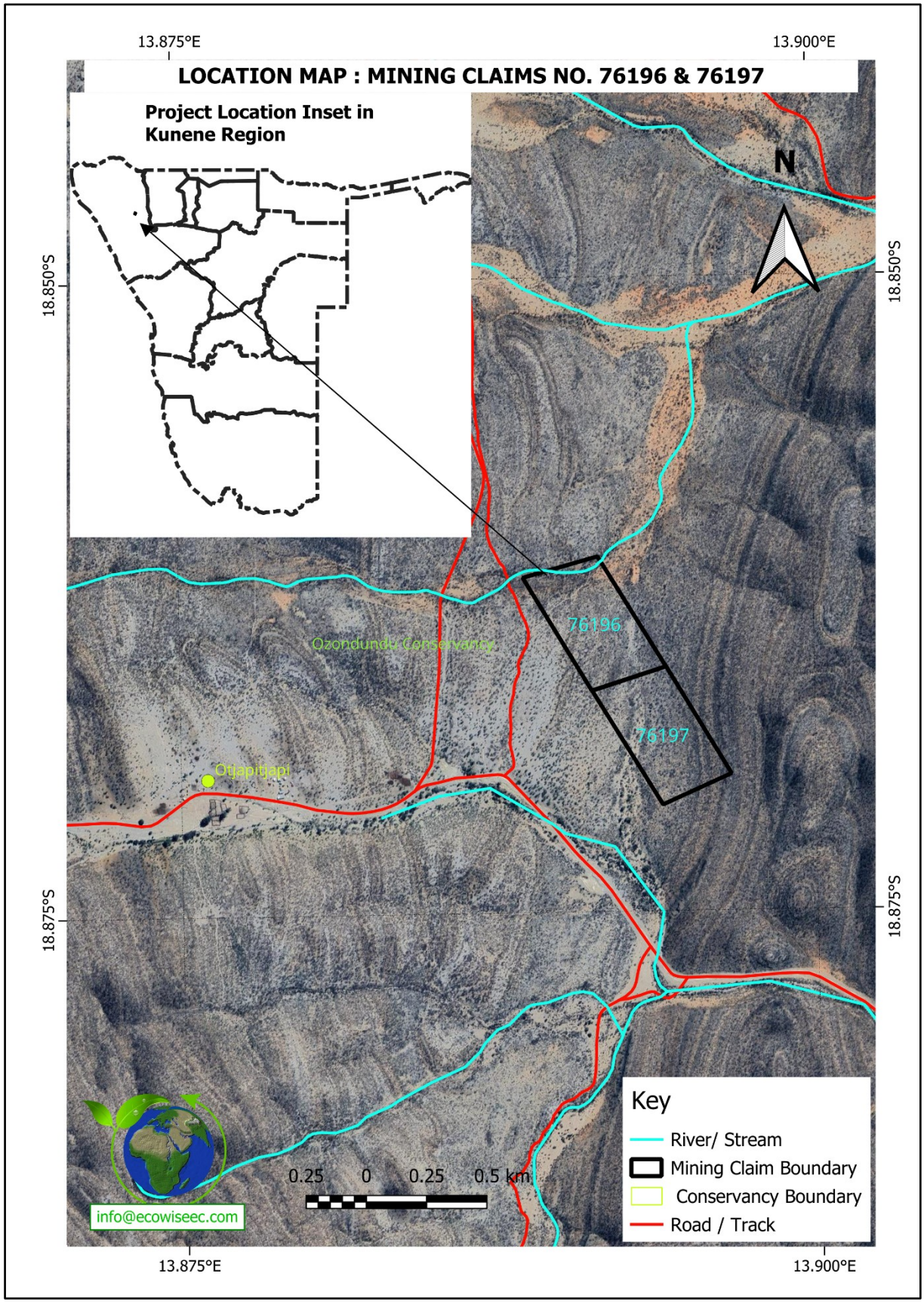


Figure 1: Location Map

2.3 PROJECT ACTIVITIES

In the paste, the Proponent has conducted exploration around the area of study. The Proponent now intends to move to the next phase which is small scale mining. Figure 2 below shows the phases involved;

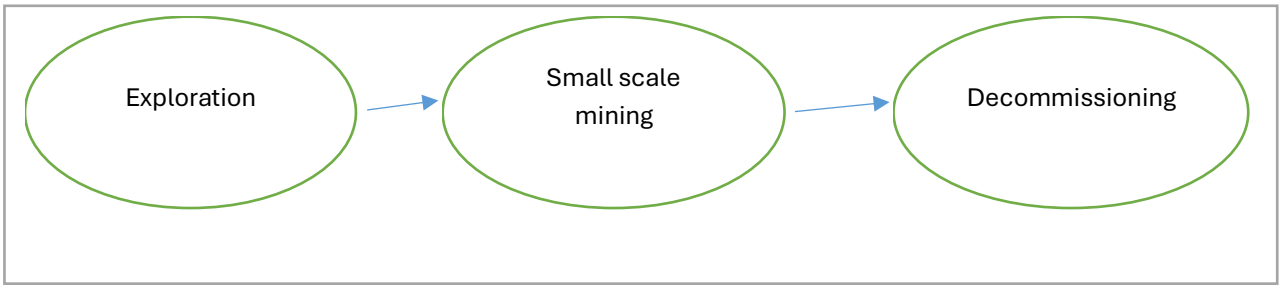


Figure 2: phases involved in the project

The following will be conducted, small scale mining prospecting and continuous exploration during day shift. For the past five years, exploration has been conducted around the area and they have been identifies of some areas with an outcrop indicating positive mineralization. Hence the need to extend the process to prospecting by small scale mining. The process will be overseen by an appointed manager and responsible people on site. As prospecting develops the management team shall evaluate the operation and if material changes are proposed respective amendments will be conducted. To note, only mining of the ore body, loading and transportation will be done on site. The ore will be transported to a central processing plant which is off site. In addition, existing roads will be used hence reducing the impact of clearing vegetation. Roads in bad conditions will be upgraded and where the mining claims are inaccessible, cut lines will be created for accessibility of vehicles. The following will be the phases and activities which will be involved during the small-scale mining;

2.3.1 CONSTRUCTION PHASE

1. **Site Preparation & Development**

- Fencing of the area
- Land clearing which will involve vegetation removal
- Topsoil stripping and stockpiling (to be used during rehabilitation)
- Upgrading of access road and preparation of cutlines when necessary

2. **Infrastructure Installation**

- Temporary office and storage structures (likely to be in the form of containers)
- Fuel storage setup

- Basic power supply (generator)
- Safety signage installation

2.3.2 OPERATION PHASE

3. Mineral ore extraction by open cast mining

- Manual digging
- Drilling- - basically selective drilling and blasting due to the hardness of the material
- Blasting
- Shallow open pit excavation
- Overburden removal
- Ore extraction
- Hauling of ore
- Stockpiling of ore
- Waste rock dumping

Waste Management Activities

During the operation phase, waste will be generated mainly in the form of waste rock. In addition, hydrocarbon waste in the form of oils, greases, fuel spillages might also be produced.

- ❖ Waste rock disposal
- ❖ Spill prevention and containment

4. Loading and Transportation

Mined ore will be transported from the site to the central processing plant and tipper trucks will be used to transport the ore. From the mining claims track roads will be used and then the existing district road, D3708. The type of tipper trucks which will be used will depend on the production scale. It should be ensured that the trucks are covered to prevent material spillage and that the trucks comply with Namibian road traffic regulations.

2.3.3 DECOMMISSIONING PHASE

The main issue at this stage will be rehabilitation. All affected areas will be rehabilitated so as to try to restore the environment to what it was before. Activities which will be done include, backfilling all pits.

5. Mine Closure & Rehabilitation

- Backfilling of pits
- Removal of available infrastructure
- Topsoil replacement
- Revegetation
- Closure reporting

During the small-scale mining phase, there will be resources which will be required and some of them will include;

Required Resources

- Drills,
- Truck(s);
- 4x4 vehicle(s);
- Compressor and generator(s); and
- Fuel to power the drills
- Picks and shovels
- Containers for storage and office use

2.5 PROJECT COST

The total funding required to set up the project is not yet established.

CHAPTER THREE: ANALYSIS OF ALTERNATIVES

The following chapter will focus on the alternatives to the project. Alternatives to the project are different options, other possibilities or other course of action, which can be adopted. The alternatives to the proposed project are:

Option 1 – Alternative locations

Option 2 – No project alternative

Option 3 – Continue with the project

3.1 ALTERNATIVE LOCATIONS

Option 1, which is alternative locations, implies that a different location to carry out the development must be acquired somewhere else other than the chosen site. Nevertheless, the fact that there are possibilities of copper deposit basing on previous exploration activities justify the use of the proposed sites to conduct small scale mining.

3.2 THE "NO PROJECT" ALTERNATIVE

Option 2, which is "no project alternative", implies that the project must not be undertaken on the proposed land rather the land should remain undisturbed. However, the "no project alternative" will be less favorable from the socio-economic perspective due to the following factors:

- **Local Empowerment-** the owner of the claims is a Namibian hence by promoting this project, a local will be empowered.
- **Transfer of skills**- the project will probably enable locals to obtain skills and knowledge through work experience and trainings.
- **Growth and development**- the project has the potential to benefit the locals if medium deposit are discovered and mined, this will result in growth and development of the area in terms of human capital and infrastructure.
- **Employment creation**-an average of 15 employees will be employed per mining claim hence creating employment mainly to the locals.

3.3 OTHER ALTERNATIVES

Table 2: Services alternatives

Services	***Proposed source***	***Alternative source***
Water	▪ Water will be sourced from selected boreholes close to the site. ▪ Potable water in containers for drinking water	▪ Collecting water from other sources out of the project area so as to supplement local water supplies can also be an alternative ▪ In a case that the need arises, the proponent can also try to survey for water around the site, and drill a borehole. Installation of water tanks powered by solar system can then be used.
Power for drilling	▪ Diesel generators	▪ Solar
Power for cooking	▪ Gas stoves	▪ Fire wood

Employees accommodation	▪ Living units at the nearest village ▪ Other employees for manual labor will be sourced from the nearest villages.	
Road (site accessibility)	▪ Mining Claims to be accessed from C43 road (Opuwo Sesfontein road) then into D3708 then use track roads to reach the site	▪ No alternative route was seen viable to use
Waste Management		
Ablution facilities	▪ Portable toilet to be used and these are advantageous because they are easy to transport and environmentally friendly (if properly disposed)	▪ Ventilated improved pit (VIP) latrine.
Waste rock	▪ Waste rock generated during the mining activities shall be disposed at a designated area within the site.	▪ No alternative location other than the site was seen viable to dispose the waste rock

3.4 ALTERNATIVES ASSESSMENT OUTCOMES

Option 3, which promotes the continuation of the project, has been seen as the preferred alternative. Option 3, was viewed as beneficial given the benefits that come with the project. Furthermore, water for the proposed activity will be sourced from selected boreholes close to the site and potable water for drinking in container tanks. In cases that the water from selected boreholes have low yields, water will be transported by trucks from other villages around the area. The Proponent can also try to look into the alternative of drilling a borehole and installing a solar powered system at the site. If this alternative becomes a solution in future, the proponent should apply for necessary permits. Apart from that, power for drilling will come from a diesel-powered generator. Furthermore, portable toilets shall be used at the living unit where the employees will be staying and also at the site. Portable toilets are easily transportable and environmentally friendly (if properly disposed). Waste generated at the site will be frequently collected by a contractor appointed by the proponent. In addition, waste rock generated during the operations shall be disposed at the site on an area which will be designated for that.

The route which can be used is C43 road (Opuwo Sesfontein road) and then D3708. The route along the C43 road is more favourable as this road is in a better condition

and you travel most of the distance along it only to branch into the D3708 when you are about to get to the mining claims.

CHAPTER FOUR: RELEVENT LEGISLATION

This chapter reviews various applicable legislations, which govern the project. The objective is to ensure that the proposed project comply with Namibia's relevant laws, policies and regulations. Table 3 below indicates laws and policies, which relates to the project.

Table 3: Relevant legislations 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 (l) deals with the 'maintenance of ecosystems, essential ecological processes and biological diversity' and sustainable use of the country's natural resources.	- During the proposed small scale mining activities, sustainable practices should be performed. - Ensure rehabilitation of the sites after closure of the operations
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. - Proper channel of communication between the project owner/s and the community should be established - The public and relevant authorities should be consulted during the process of public consultation as per the requirement of the act - The EMP which will guide on the management of the environment should be drafted and used as an onsite guideline document.
	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; the MCs are located within the Ozondundu Conservancy
	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".
	Hazardous Substances Ordinance No. 14 of 1974	This ordinance gives provision to control the handling of hazardous substance in all circumstances	- To ensure proper handling of fuel and explosives which will be used during blasting.
	Petroleum Product and Energy Act No, 13 of 1990	This Act provides a framework for handling and distribution of petroleum products which may include purchase, sale, supply, acquisition, possession, disposal, storage or transportation thereof.	- Ensure safe handling of the petroleum products such as fuel and lubricants.

	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 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 will involve mining of copper bearing minerals, Base Metals and Precious metals.
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	- The mining activities will leave earthed soils hence rehabilitation must be done during the decommissioning phase. - Ensure safe operations so as to avoid oil, grease and fuel spillages which can cause soil contamination
Water	Water Act 54 of 1956	– Prohibits the pollution of underground and surface water bodies.	– Fuel and oil leakages from operating machinery and vehicles might be experienced hence this can result in environmental contamination with possibilities of negatively affecting groundwater if the quantities and frequency are high – 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 operation phase
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. – To follow legal labour requirements on remuneration
	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. – Ensure public safety from noise and dust
	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 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.	– In an event that the Proponent comes across any archaeological or historical sites of significance, they should report immediately to the Monuments Council
	Regional Council Act, 1992 (Act No.	– The Regional Councils Act legislates the establishment of	– To observe the regional by laws

	22 f 1992)	Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to initiate, supervise, manage and evaluate development at regional level.	

N.B: The Proponent shall be required to comply with the legislations. Where there is need to engage private consultants to facilitate compliance, the Proponent is encouraged to consult qualified personnel. The Environmental consultant is supposed to conduct legal compliance audits and produce bi-annual reports, which will be required during renewal of environmental clearance certificate. The Proponent is also required to seek permits or consents were necessary. Some of the permits might include;

Table 4: Some of the key permits for small-scale mining in Namibia

Permit / Licence	**Issuing Authority**	**Purpose**
Mining Claim (MC)	Ministry of Mines and Energy	Legal right to mine
Environmental Clearance Certificate (ECC)	Ministry of Environment, Forestry and Tourism	Environmental approval
Explosives Permit	Namibian Police	Blasting and explosives
Water Abstraction Permit	Department of Water Affairs	Water use
Land Access Consent	Traditional Authority	Use of communal land
Heritage Clearance	National Heritage Council	Protection of cultural sites
Road / Transport Permit	Roads Authority	Ore transport
Labour Compliance	Ministry of Labour	Worker safety and employment

CHAPTER FIVE: DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the environmental setting of the project, which includes the biophysical environment and the socio-economic environment. The baseline information will assist in the monitoring of the environmental impacts during the small-scale mining phase.

5.1 BIO-PHYSICAL ENVIRONMENT

5.1.1 CLIMATE

The area under study is located on the north-west part of Namibia and is classified under a semi-arid climate. In the absence of site-specific climatic data, the climate data from Opuwo was used in this report. According to Mendelsohn et al (2003) the area receives an average annual rainfall ranging from 300-350 mm per annum. Moilanen (2015) during a study also noted that the area of Opuwo receives around 379mm rainfall per year and of the 379 mm of annual rainfall, approximately 84% is lost to evapotranspiration, 15% contributes to surface runoff, and only 1% recharges groundwater resources. In general, the area receives little rainfall which most of it is lost to evapotranspiration hence impacting of the water which reaches the groundwater sources.

In addition, maximum temperatures can reach 34°C-36°C during the summer months (Mendelsohn et al 2003). Agriculture and many other human activities in the area of study are severely limited by the shortage of moisture and high temperatures. Table 5 below briefly describe the general climatic conditions experienced within the area of study, as deduced from the Atlas of Namibia, by Mendelsohn et al 2003.

Table 5: General Climate Data

Average Annual rainfall:	Average annual rainfall in the area is between 300-350mm per year
Variation in rainfall:	Variation in annual rainfall is averaged to be 40-50 % per year
Average evaporation:	Average evaporation in the area is between 2240-2380mm per year.
Precipitation:	January-March receives high rainfall, with January being the wettest. June and July being the driest month
Water Deficit:	Average water deficit in the area is between 1700-1900mm per year.
Temperatures	Annual temperatures are 20-22 °C per year Average maximum temperature 34°C-36°C Hottest month February Average minimum temperatures 6°C-8°C Coldest month July
Wind direction	Wind directions in the area are predominantly from the south.
Humidity	Most humid month is March with 80%-90% and September being the least with 10%-20%

(Source: Atlas of Namibia, 2003)

5.1.2 Topography, Soils & Geology

Kunene Region consists of a variety of rock formations, most of them exposed in a rugged landscape of valleys, escarpments, mountains and large open plains. The topography of the region is mainly mountainous. The elevation of the region above sea level is 772m, Opuwo 1,155m (https://en-nz.topographic-map.com/place-ss1h/Namibia/) and 1283m for Otjapijapi (Otjapitjapi, Namibia Elevation Map 2020).

The study area is mainly covered by lithic leptosols soils which are very thin and shallow. Leptosols typically form in actively eroding landscapes, especially in the hilly or undulating areas that cover much of southern and north-western Namibia (Mendelsohn 2000). Leptosols are coarse-textured soils which are characterized by their limited depth caused by the presence of a continuous hard rock, highly calcareous or cemented layer within 80cm of the surface. The leptosols are, therefore the shallowest soils to be found in Namibia and they often contain much gravel. Their water holding capacity is low and vegetation in areas in which they occur is often subject to drought (Mendelsohn 2000). Rates of water run-off and water erosion can be high when heavy rains fall.

Geology of the study area is classified mainly under the Otavi Group (Ls). In addition, the subgroup being the Abenab and the Damara sequence. Dominate rock type around the mining claims is limestone and dolomite, **see figure 3 below, Hydrogeology Map**. Table 6 below also shows possible types of mineral deposits on the mining claims.

Table 6: Geology for the mining claims

MC	GEOLOGY	COMMODITIES
76196	Lithology:dolomite,limestone,shale, quatzite (Na)	Base and Rare Metals, Dimension Stone, Industrial Minerals, Precious Metals
76197	Lithology:dolomite,limestone,shale, quatzite (Na)	Base and Rare Metals, Dimension Stone, Industrial Minerals, Precious Metals

Image 1: Rocks within the study area

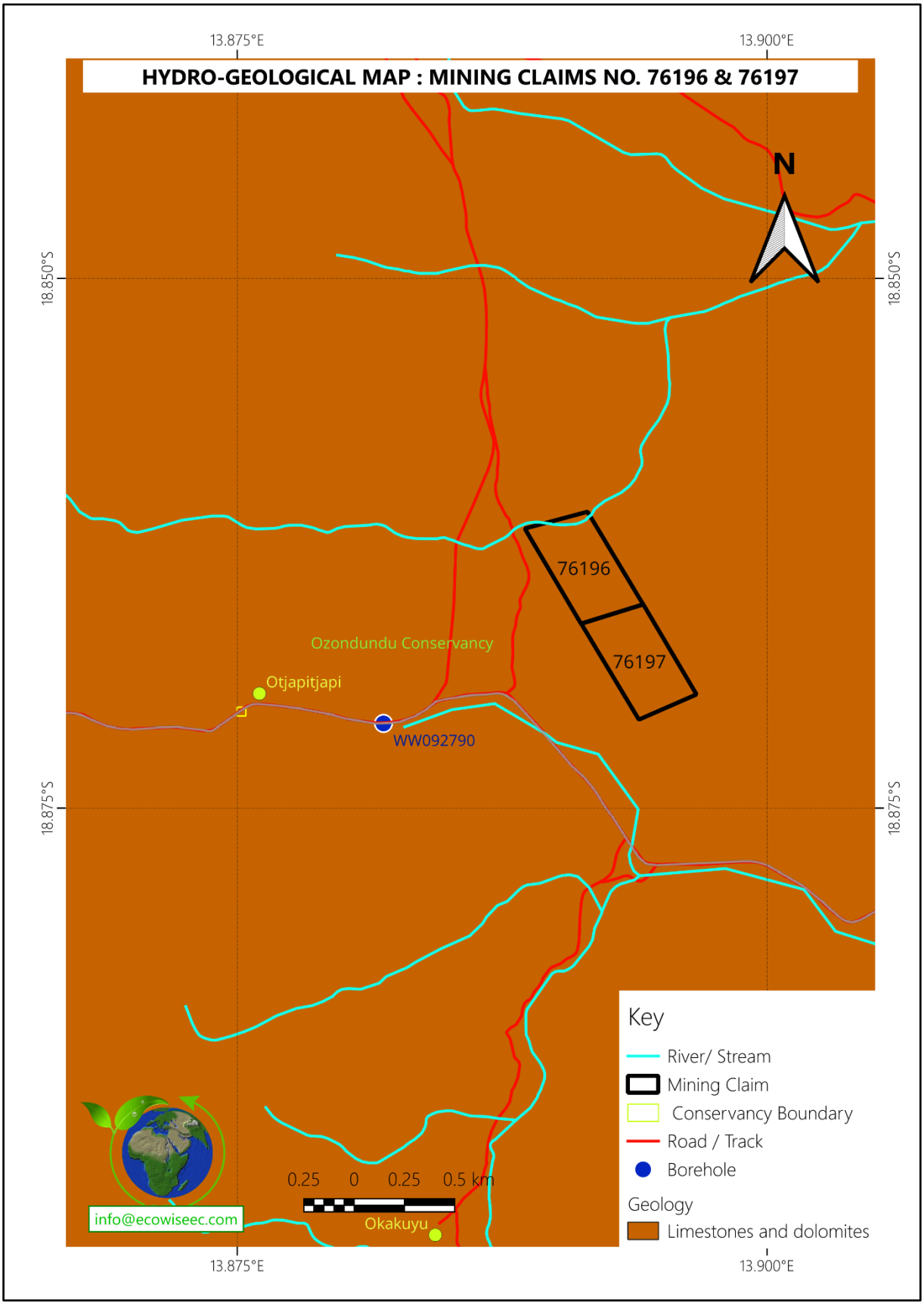


Figure 3: Hydrogeology Map

5.1.3 HYDROGEOLOGY

Generally, the region has low groundwater potential aggravated by the sparse knowledge of the aquifers. The settlement of Otjapitjapi has a spring that provide water for animals and the villagers. The quality of groundwater is potable with total dissolved solids amounting to less than 1000mg/l. However, around the mining claims the nearest ephemeral river is Noideb Rivier which is approximately 16km to the west of the claims. The nearest borehole is WW092790 to the west and is approximately 1.2km from the mining claims.

5.1.4 VEGETATION OF THE STUDY AREA

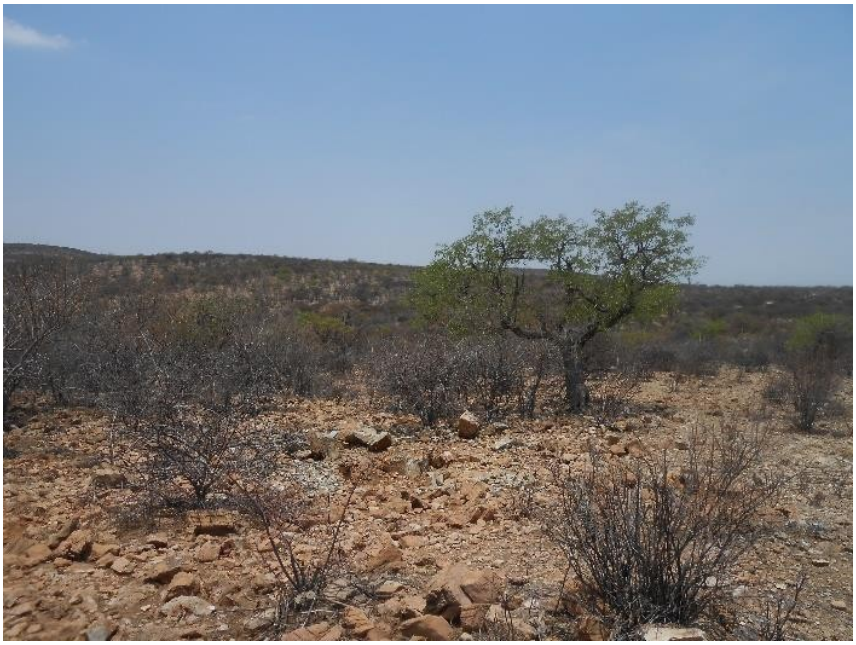
The vegetation structure of the study area is woodlands, **see figure 4 below, Vegetation Map**. The vegetation is structurally defined as open to moderately dense woodland. The tree species are adapted to low rainfall, high evapotranspiration rates and shallow soils. The vegetation is also structurally distinct as seasonal herbaceous layer dominated by grasses such as stipagrostis uniplumis and cenchrus ciliaris which are highly seasonal. For protected plant species obtained around the mining claims, see table 7 below. Protected plant species around the mining claims are not abundant but fall within the range of uncommon to rare occurrence. To note, the density of vegetation around the area of study is sparse and dry. Image below shows vegetation around the study area.

Table 7: Protected plant species

Species Name	**Tree Name**	**Occurrence**
Albizia Anthelmintica	Worm-cure albizia/ Oumaboom	Common to abundant
Boscia Albitrunca	Shepherd's tree/ Witgat	Uncommon to rare occurrence
Sclerocarya birrea	Marula	Uncommon to rare occurrence
Ziziphus mucronata	Buffalo thorn / Wag-'n-bietjie	Uncommon to rare occurrence
Colophospermum Mopane	Mopane	Uncommon to rare occurrence

Key: Abundant, Occasional occurrence, Common to abundant, Uncommon to rare occurrence

a)



b)

Image 2: a & b shows trees around the area of study

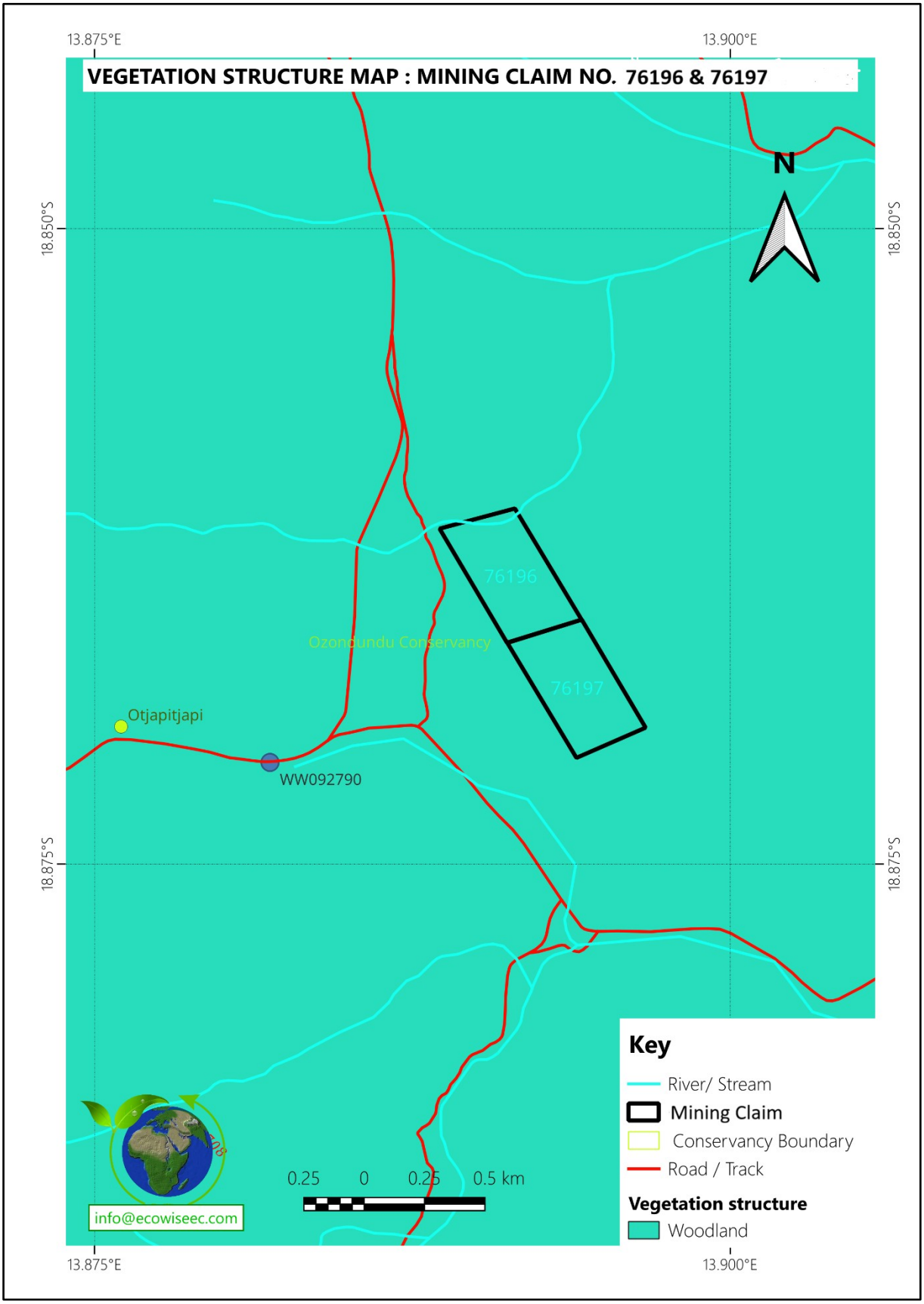


Figure 4: Vegetation Map

5.1.5 FAUNA

The area under study generally receives low rainfall which makes it difficult for domesticated animals to survive in such an area with little water for drinking. Generally small animals like goats are mainly domesticated which can feed on tree leaves and survive in arid like conditions. The area has been seriously affected by drought in recent years which affected the population of the livestock. Table 8 below indicate the general fauna data for small creatures.

Table 8: Summary of General Fauna Data

Type of fauna	Number of different species/genera	Total around Namibia
Mammal Diversity	61-75 Species	217
Bird Diversity	111- 140Species	658
Reptile Diversity	51-60 Species	258
Frog Diversity	1-3 Species	50
Termite Diversity	7-9 Genera	19
Scorpion Diversity	12-13 Species	21

Source: Atlas of Namibia (2003)

5.2 SOCIO-ECONOMIC ENVIRONMENT

The following political constituencies comprises Kunene Region, Opuwo, Sesfontein, Opuwo rural, Epupa, Khorixas, Kamanjab and Outjo. Outjo is classified under municipality, Khorixas and Opuwo as towns, Kamanjab as a village. Sesfontein, Fransfontein and Okangwati have been proclaimed and targeted for urban development. Opuwo Rural is an electoral constituency in the Kunene Region and its' administrative center is the settlement of Otwani.

The mining claims are under Ozondundu Communal Conservancy. Community conservation grew out of the recognition that wildlife and other natural resources are of value in communal areas and the locals are empowered to manage and utilize these resources. In addition, the Himba culture which is also dominate in the area of Opuwo is of significance to tourism. The region offers geo-tourism, eco-tourism and adventure-tourism. The conservancies around Kunene Region hosts wildlife such as desert elephants, rhinos, lions and giraffes. Some of the attractions also found in the region include Epupa Falls, the Skeleton Coast, Hartmann's & Maneuflus valleys, Steep van Zyl's pass, Hoarusib & Hoanib Rivers and Sesfontein.

5.2.1 POPULATION

In the census that was conducted in 2011, the population for Kunene Region was 86 856 of which 43 253 are female and 43 603 are males (NPC 2011). According to NPC (2011), there was an increase in population from 2001 (68 735) to 2011 (86 856). In 2011, Kunene Region had a relatively young population, with about 42 percent of the whole population being below 15 years of age hence it is vital to bring projects which create employment and empower the youths.

By region, Kunene Region among the other regions has the lowest percentage of people living with HIV. By region it has 9.7% people living with HIV/AIDS (MHSS 2015).

5.2.2 Education Profile

According to (EMIS, 2012) there are 41 Primary schools, 12 Combined school and 6 Secondary schools, in total there are 120 schools which is too low as compared to other regions. Of the 120 schools, 114 are state owned and 6 privately owned (NPC 2011). 73 out of 838 teachers in Kunene Region are without training (NPC 2011). Of the population aged 6 years and above in Kunene Region, 35.9 % never attended school, 50% left school and 9% are currently at school (NPC 2011). The major problem in the region is shortage of schools such that learners travel long distances to school which might be a factor to high dropouts in the region. In addition, another challenge is lack of proper teaching facilities and physical buildings to accommodate learners and teachers. As for the study area, the nearest school is Otjapijapi Primary School and some of the learners travel long distances to the school.

5.2.3 Employment Opportunities

According to NPC (2011), 32% of the population in the region relies on farming, 41% on wages and salaries, 5% on cash remittance, 8% on business and 12% on pension. Compared to the rest of Namibia, Kunene Region is relatively underdeveloped and this may be due to the inaccessible mountainous geography of the area and the dryness that does not allow much activities such as farming. Infrastructure such as roads hardly exists especially as one enters in the rural parts of the region. As the region might have an average percentage of 32% relying on farming, this is mainly farming of small livestock like goats. Farming of crops especially deep in the rural parts like Otjapijapi remain difficult given the dryness of the area. Taking a further look at the areas around the study area, to have formal employment remains difficult to almost impossible for the locals. During the public consultations the issue of employment remains their major concern. It is of recent, that proposals regarding mining activities are taking place around the area of Opuwo, if these proposals are activated to mining this might create employment for the people.

5.2.4 Archaeology

This section will describe how the Proponent will handle any unknown heritage sites that might fall within the Proponent's mining claims. It is also worthwhile to note that currently there are no registered or declared heritage sites that fall within the mining claims. Archaeological work was conducted during the phase of exploration and a consent was issued by Namibia Heritage Council (NHC), **see Appendix B, Consent from NHC.** To note, EPL 7438 was the one which was assessed and these mining claims 76196 & 76197 are located within EPL 7438.

According to the Heritage Act (27 of 2004), "heritage" is restricted to places and objects, including those of archaeological, cultural, historical, scientific and social significance. The act also defines "archaeological" as any remains of human habitation or occupation that are more than 50 years old found on or beneath the

surface on land or in the sea, and especially notes rock art, being any form of painting, engraving or other representation on affixed rock surface or loose rock or stone which is 50 or more years old. It is essential to understand that the legal protection can extend beyond the archaeological object or site, to include the natural or existing condition or topography of land, as well as the trees, vegetation or topsoil. The Proponent shall therefore be responsible in persevering any archeological or heritage sites within their project area, in a case that they come across any. The Proponent shall bear in mind that, all archaeological objects are the property of the State and the ownership extends to all archaeological remains, known or unknown. It shall also be the responsibility of the Proponent to inform the personnel and contractors about the legal status of archaeological remains and the obligation to report the discovery of any new archaeological remains to the National Heritage Council.

Regardless that archaeological work was conducted around the area, the personnel should continue to be observant. The following should be observed as they might be clues to archaeological evidence; stone artefacts and stone features sites (settlements and graves). In addition, the personnel should be aware that archaeological sites commonly occur in these locations; rock outcrops and inselbergs, saddles, drainage lines, pans and dune fields and gravel plains.

a) Brief History of Archaeological work around Kaokoland

Archaeological work has been conducted around the Kaokoland area and significant archaeological evidence has been obtained. The most significant results in the Kaokoland were provided by excavations in a rock shelter, named Oruwanje 95/1 (Frank, in prep). Ovizorombuku 96/1 being another rock shelter was also excavated in 1998 (Vogelsang 1998). The stone artifact accumulation from the basal layers of this site were attributed to date back to an Early Holocene to Late Pleistocene **Age** (around 10,000 **B.P).** The second trench at Ovizorombuku 96/1 after excavation produced a sheep bone, coming from one of the final spits. A charcoal sample from this spit was dated about 2500 B.P.

Another site discovered was Omungunda 99/1 which is situated near Opuwo town. With an extension of approximately 23 x 4 m, Omungunda 99/1 is the largest rock-shelter in the region and it was the first site with rock paintings in the Kaokoland (Vogelsang 1998). In addition, around 1999 other sites Hartmann's (N99/3) and Marienfluss valleys (N99/5) located on top of hills, were discovered and they had stone circles, potsherds, glass-beads and an iron arrowhead. According to Vogelsang (1998), a first radiocarbon date from a fireplace inside one of the hut-circles had an age of 230 years hence corresponding with the suspected date of the immigration of the cattle keeping Himba people from Angola. Apart from that, several clusters of stone circles were also discovered at a granite hill close to the border of the Skeleton-Coast Park.

b) Declared Heritage Sites in the vicinity of the proposed development

According to the data sourced from the website of National Heritage Council, there are six declared heritage sites in Kunene Region. Of the known heritage sites, none overlays these mining claims.

c) Unknown Heritage Sites

It is essential to note that, within the mining claims, there might be unknown heritage sites. Given that the Proponent comes across unknown heritage sites within the mining claims, the Proponent will follow the following procedures:

Action by person identifying archaeological or heritage material

- If operating machinery or equipment, stop work
- Identify the site with flag tape
- Determine GPS position if possible
- Report findings to foreman

Action by Foreman

- Report findings, site locations and actions taken to superintendent
- Cease any work in immediate vicinity

Action by superintendent

- Visit site and determine whether work can procced without damage to findings
- Determine and mark exclusion boundary
- Record coordinates for the site for confirmation by archaeologist

Action by Archaeologist

- Inspect site and confirm recorded coordinates
- Advise National Heritage Council (NHC) and request written permission to remove findings from work area
- Recover, package and label findings for transfer to National Museum

In the event of discovering human remains:

Action as above

- Field inspection by Archaeologist to confirm that remains are human
- Advise and liaise with NHC and Police
- Recover remains and remove to National Museum or National forensic Laboratory, as directed

d) Management of "no-go areas"

Currently there are no declared or registered heritage sites that overlap or coincide with our proposed project area, hence this section at the moment does not apply to this project.

CHAPTER SIX: PUBLIC PARTICIPATION

Public participation process is a fundamental principal of the EIA process and it involves engaging members of the public to express their views about a certain project. Public involvement is a valuable source of information on key impacts, potential mitigation measures and the identification and selection of alternatives. Section 2 of the Environmental Management Act (2007), states that public participation in decision-making affecting the environment shall be promoted and fair and equitable access to natural resources shall be promoted. The Environmental Management Act (No 7 of 2007), empowers the local community to participate in project conducted within their jurisdiction.

During the public participation of the proposed project, the following principals were used: inclusivity, transparency and relevance.

6.1 OBJECTIVES OF THE STAKEHOLDER CONSULTATION PROCESS

The objectives of the public consultation are;

- To inform I&AP about the proposed activity and to give them the opportunity to express their views, concerns or opinions.
- To reduce conflict through early identification of contentious issues
- To gather potential negative and positive environmental impacts associated with the proposed project from the stakeholders' perspectives.
- To engage stakeholders for the effective mitigation and enhancement of negative and positive impacts arising from the proposed project respectively.

6.2 PRINCIPLES GOVERNING PUBLIC CONSULTATION

The following principals were used during the public participation:

6.2.1 INCLUSIVITY

The public participation was open for everyone; invitation to make comments and attend the meetings was announced in the local newspapers, New Era and Windhoek Observer. To ensure that all stakeholders were involved, the consultant compiled a list. Both locals, traditional authorities, the conservancy and Kunene Regional Council were conducted; **see Appendix A, letters sent to stakeholders.**

6.2.2 OPEN AND TRANSPARENCY

The consultant took time to explain the background of the project and both positive and negative impacts associated with the project. All people who registered as Interested and Affected Parties were also given a BID and full document of the EIA was available upon request.

6.2.3 RELEVANCE

The consultant remained focused on subjects related to the project. Interested and Affected Parties were supposed to make comments relating to socio-economic and environmental impacts associated with the project. Political and other non-related comments were considered not relevant.

6.3 NOTIFICATION OF INTERESTED AND AFFECTED PARTIES

The consultation was facilitated through the following means:

6.3.1 BACKGROUND INFORMATION DOCUMENT (BID)

The consultant prepared a BID, which was circulated to Interested and Affected Parties. A BID is a short document which briefly gives the background of the project.

The main aim of distributing the BID to Interested and Affected Parties is to bring awareness and clarity about the proposed project. **A copy of the BID is provided in Appendix A.**

6.3.2 ADVERTISEMENT

Adverts were placed in two local newspapers namely, New Era and Windhoek Observer as shown in table 9 below.

Table 9: Details of public notification for the EIA study

Newspaper	Area of Distribution	Language	Date Placed
Windhoek Observer	Country Wide	English	20 November 2025
Windhoek Observer	Country Wide	English	27 November 2025
New Era	Country Wide	English	27 November 2025
New Era	Country Wide	English	20 November 2025
Site notices	Otjiu-west Conservancy, Otjapijapi Primary School	English	5 December 2025

(See Appendix A)

6.3.3 PUBLIC MEETING

The public meetings were announced in the Windhoek Observer and New Era. The meetings were held on 5 December 2025 at Otjiu-West Conservancy and Otjapitjapi Primary School as shown on site images below. For more information on issues raised during the meetings, **see Appendix A, Meeting Minutes.**

a)

b)

c)

Image 3: a, b, c shows public meeting at Otjiu-West Conservancy

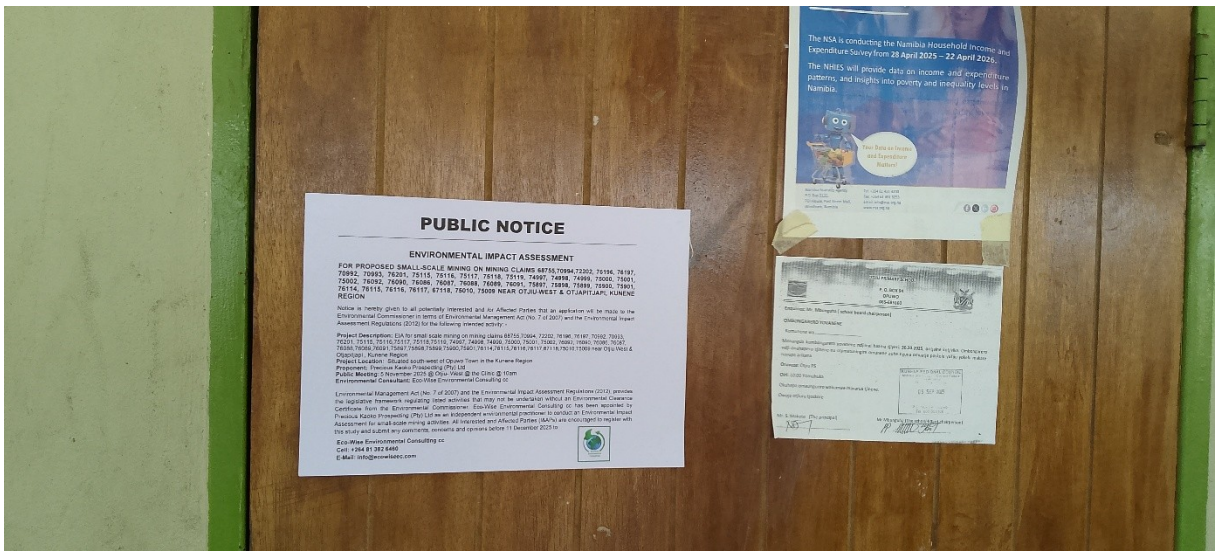
Image 4: shows public meeting at Otjapijapi Primary School.

6.3.4 QUESTIONNAIRES

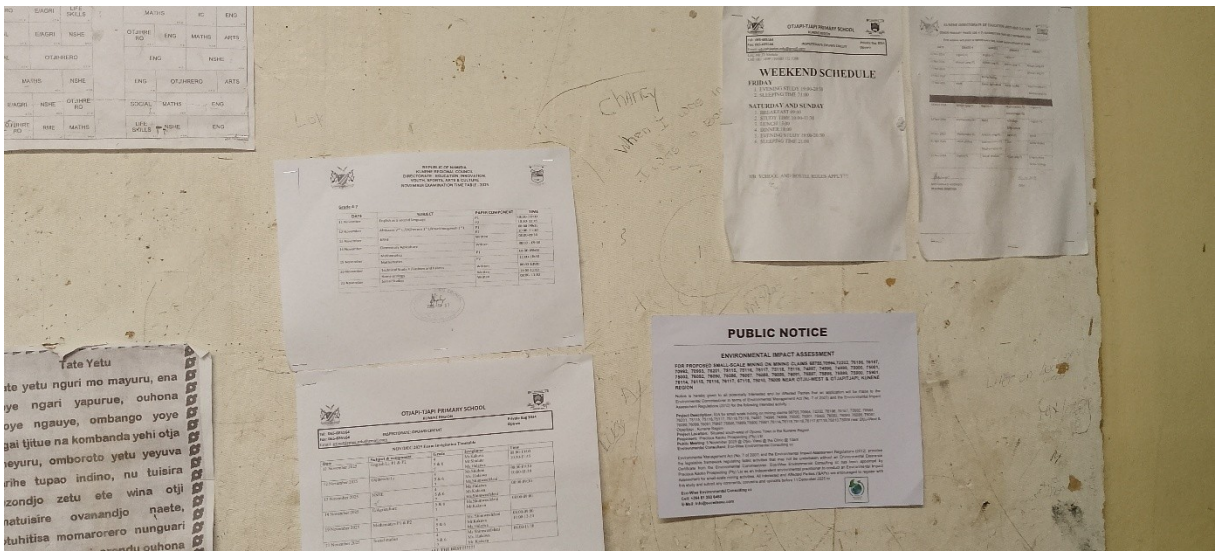
Questionnaires were also distributed amongst the participants so as to gather more information on their views towards the project. Distribution of questionnaires was also done to allow stakeholders to air their views privately. The questionnaires were open –ended whereby the respondent was free to express their views and ideas. **The questionnaires are attached in Appendix A.**

6.3.5 PUBLIC NOTICES

Notices with project information were placed at Otjiu-West Conservancy and Otjapijapi Primary School. Images below show the notices.



a)



b)

Image 5: a & b shows public notices at Otjiu-West Conservancy and Otjapijapi Primary School respectively

6.4 SUMMARY OF STAKEHOLDERS CONSULTATION.

During the public participation process, all people viewed the project as beneficial to the community. For more issues raised during the public participation process, **see Appendix A, Meeting Minutes** for both the two meetings. In summary, the following major issues were brought forward:

a) Employment

Many participants recommended that locals be employed by the proponent. The participants were concerned on the number of people who will be employed during the operation phase. In response, the proponent highlighted that around 15 people will be employed per mining claim.

b) Impact on vegetation

The participants highlighted a concern of the proposed project impacting on the vegetation. In response, the consultant highlighted that an EMP will be drafted which shall be used by the proponent as an onsite guideline, and this EMP will include the likely impacts and the mitigation measures. In addition, unnecessary cutting down of trees was discouraged.

c) Impact of the proposed project on the community livestock

The participants also noted that the proposed project will create pits which can end up being traps for their livestock. In response, the proponent highlighted that the areas will be fenced. The distances of the nearest villages are also far from the sites.

d) Relations with the community and communication

The traditional authorities also pointed the need of open communication and relations between the proponent and the community. Concerning this issue,

the Proponent promised to keep good relations with the community. The Proponent also pointed that, if the operations are to commence, they will always notify the headman before working in their area.

e) Joining the proposed small scale mining project

Participants in Otjapitjapi village were mainly concerned about joining the proposed project. The participants highlighted that they have their own areas and they wish to join. In response, the proponent explained to them that the areas they are claiming should be legally registered with the Ministry of Industries Mines and Energy.

f) Community development

Traditional authorities were mainly concerned about community development. They highlighted that, the proponent should also assist the community.

6.4.1 Stakeholders' Recommendations

Conducted traditional authorities recommended the project to go ahead but the Proponent was tasked to employ locals and bring development to the community.

CHAPTER SEVEN: ASSESSMENTOF ENVIRONMENTAL IMPACTS

This section serves to identify all the potential impacts both negative and positive. In identifying these potential impacts, mitigation measures have been proposed so that the Proponent may carry out the process in an environmentally sound manner. The methodology, which was used to assess impacts and alternatives, include the following:

- Public consultation
- Site visit
- Professional experience

7.1 IDENTIFICATION OF POTENTIAL IMPACTS OF THE PROJECT

Positive Impacts	**Negative impacts**
– Local empowerment – Employment creation – Community development – Generation of revenue	– **Air Environment** – Dust – Noise – Impact on vibration from blasting – **Land Environment** – Impact on landscape – Vegetation loss – Generation of waste – Impact on fauna – Impact on soil – Traffic & transportation impact **Water Environment** – Impact on surface and groundwater sources – **Socio -Economics** – HIV/AIDS – Occupational Health and Safety risks. – Increase in number of people in the area – Heritage impact – **Indirect Impacts** – Cumulative impacts

7.2 IMPACT ANALYSIS

In this section, the impacts of the proposed project on human and biophysical environment are evaluated and analyzed. Following the identification of the various potential environmental impacts, the impact analysis framework looked at the impacts under the following categories;

Table 10: Ranking Matrix

	Temporal scale			**Score**
	Short term	Less than 5 years		1
	Medium term	Between 5 and 20 years		2
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent.		3
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there.		4
	Spatial Scale			
	Study area	The proposed site /within immediate area of the activity		1
	Beyond project boundary	Surrounding area outside the project boundary		2
	Regional	District and Provincial level		3
	National	Country		4
	International	Internationally		5
		Severity	**Benefit**	
EFFECT	Slight/Slightly Beneficial	Slight impacts on the affected system(s) or party(ies)	Slightly beneficial to the affected systems(s) or party(ies)	1
	Moderate/Moderately Beneficial	Moderate impacts on the affected system(s) or party(ies)	An impact of real benefit to the affected system(s) or party (ies)	2
	Severe/Beneficial	Severe impacts on the affected system(s) or party(ies)	A substantial benefit to the affected system(s) or party(ies)	4
	Very Severe/Very Beneficial	Very severe change to the affected system(s) or party(ies)	A very substantial benefit to the affected system(s) or party(ies)	8
	Likelihood			
LIKELIHOOD	Unlikely	The likelihood of these impacts occurring is slight		1
	May occur	The likelihood of these impacts occurring is possible		2
	Probable	The likelihood of these impacts occurring is probable		3
	Definite	The likelihood is that this impact will definitely occur		4

Table 11: Ranking matrix for Environmental Significance

Environmental Significance		Positive	Negative
LOW	An acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent development.	4-7	4-7
MODERATE	An important impact, which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which, in conjunction with other impacts may prevent its implementation.	8-11	8-11
HIGH	A serious impact, which, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually long-term change to the natural and/or social environment and result in severe negative or beneficial effects.	12-15	12-15
VERY HIGH	A very serious impact, which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often, these impacts are unmitigable and usually result in very severe effects or very beneficial effects.	16-20	16-20

Table 12: Matrix to show environmental significance

	3	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	16
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	6	7	8	9	10	11	12	13	14	15	16	17	18	19
4	7	8	9	10	11	12	13	14	15	16	17	18	19	20

7.3 IMPACT EVALUATION

7.3.1 NEGATIVE IMPACTS ASSOCIATED WITH CONSTRUCTION PHASE (SITE PREPARATION AND INFRASTRUCTURE INSTALLATION)

This phase will mainly involve site preparation and infrastructure installation. Temporary office and storage structures in the form of containers will be erected.

1. Impact on vegetation

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Impact on vegetation Unmitigated	Medium term	2	Study area	1	Moderate impact	2	Definite	4	9
Mitigated	Medium term	2	Study area	1	Slight impact	1	Definite	4	8

During site preparation, vegetation will be cleared to pave way for the proposed project. Areas which need to be worked on will be cleared and also areas where infrastructure will be installed. In addition, cutlines will also be created when necessary. It is essential to note that the area of study is within the Ozondundu Conservancy and the trees which are mostly found around the area are shrubs and *Colophospermum* mopane. It will be definite that vegetation will be cleared to pave way for the development and the severity is expected to be moderate without mitigation and of slight impact with mitigation.

Mitigations and recommendation

- Protected plant species should not be removed but preserved and the activities should fit into the environment without affecting the protected trees.
- Proponent shall be compelled to protect the natural resources around the area.
- Vegetation should be cleared on areas which need to be worked, massive and unnecessary clearing is discouraged.

2. Impact on fauna

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Impact on fauna Unmitigated	Medium term	2	Study area	1	Moderate impact	2	Definite	4	9
Mitigated	Medium term	2	Study area	1	Slight impact	1	Probable	3	7

The clearing of vegetation will consequently result in destruction of habitats for wildlife, birds, and insects within the area. In addition, the clearing might also result in reduction of biodiversity in the mining area. Animals within the area might also be disturbed by noise generated by human activity. This might make some species to relocate while others may disappear from the affected area.

Mitigations and recommendation

- Limit vegetation removal only to areas required for mining.
- Establish buffer zones around sensitive habitats.

3. Impact on soil

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Soil Unmitigated	Short term	1	Study area	1	Moderate impacts	2	Definite	4	8
Mitigated	Short term	1	Study area	1	Slight impacts	1	Definite	4	7

During the site preparation, topsoil stripping and stockpiling will be done hence affecting the natural state of the environment within the study area. In addition, clearing of vegetation to pave the way for the development will also reduce the soil stability. The impact is expected to affect only the study area and it will be definite that soil will be disturbed.

Mitigations and recommendation

- Cover stockpiles to prevent erosion
- Avoid unnecessary vegetation clearing

7.3.2 NEGATIVE IMPACTS ASSOCIATED WITH OPERATION PHASE

The main activities involved during this phase are; mineral ore extraction using open cast mining, loading and transportation. It is essential to note that at the site only mining of the ore will be done. Crushing of the ore will be done off site hence the ore will be transported to the central processing area.

1. Impact on landscape

Identified Impact	**Effect**						**Risk or Likelihood**	**Score**	**Overall Significance**
	Temporal Scale	**Score**	**Spatial Scale**	**Score**	**Severity of impact**	**Score**			
Impact on landscape Unmitigated	Permanent	4	Study area	1	Moderate impact	2	Definite	4	11
Mitigated	Medium term	2	Study area	1	Moderate impact	2	Definite	4	9

Open-cast mining requires the removal of vegetation and topsoil to expose the ore body hence this will disturb the natural state of the sites. In addition, the drilling and blasting effect will cause alternation of existing landscape. During the small-scale mining there will be creation of mine pits, waste rock dumps, and haul roads that alter the landscape. It will be definite that the mining activities will disturb the landscape of the study area therefore, the proponent should ensure that at decommissioning the sites are rehabilitated.

Mitigations and recommendation

- Minimize land disturbance: Restrict clearing and excavation only to the required mining footprint.
- Topsoil stripping and storage: Remove and stockpile topsoil separately for later rehabilitation.
- Progressive rehabilitation: Rehabilitate mined-out areas while mining continues in other sections.
- Backfilling of pits: Use waste rock and overburden to fill excavated pits where feasible.
- Slope stabilization: Shape slopes to safe angles to prevent collapse and erosion.
- Maintain selective drilling

2. Air quality and Dust Generation

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Air quality & Dust Unmitigated	Short term	1	Study area	1	Moderate impact	2	Probable	3	7
Mitigated	Short term	1	Study area	1	Slight impact	1	May occur	2	5

Dust is expected to be generated from the following activities, drilling, blasting, loading and movement of trucks and machinery. Emissions from trucks and operating machinery might also produce exhaust emissions which might affect the quality of air within the area of work. Dust and exhaust emissions generated might increase particulate matter in the air, reduce air quality which will affect employees and affect vegetation in cases of dust and exhaust emissions deposition. The severity of the impact is expected to be slight with mitigation measures. 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.

Mitigations and recommendation

- Soil watering when soil works are being executed and where dust is emitted
- People at site should be provided with dust masks
- Cover trucks transporting ore
- Regular monitoring and review to ensure safe operation
- Limit vehicle speed on haul roads
- Maintain mining equipment regularly to reduce emissions

3. Noise impact

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Noise Unmitigated	Short term	1	Study area	1	Moderate impact	2	Probable	3	7
Mitigated	Short term	1	Study area	1	Slight impact	1	May occur	2	5

Noise above the ambient levels of the area might be generated locally from the small-scale mining activities such as drilling, blasting, frequenting trucks and operating machinery such as excavators and loaders. Noise generated might affect animals within the area and employees working at the site hence posing a risk of ear damage to the employees. The normal levels of 55 decibels recommended by World Health Organization (WHO) might be surpassed during the operational phase. Drilling machines can produce noise of 95- 100 decibels.

Mitigations and recommendation

- A drilling interval should be established, used and adhered to and working hours should be limited to minimum of 8 hours per day
- Restrict blasting and noisy operations to daytime hours and blasting should be notified to employees before it takes place
- Noise should be addressed and mitigated at an early stage and employees should be equipped with ear protection equipment.
- Proper and timely maintenance of machineries, trucks and vehicles

4. Impact on soil

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Soil Unmitigated	Short term	1	Study area	1	Slight impacts	1	May occur	2	5
Mitigated	Short term	1	Study area	1	Slight impacts	1	Unlikely	1	4

Soil might also be partly affected by oil or fuel leakages from trucks and operating machines.

Mitigations and recommendation

- 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
- Proper storage area with proper containment should be there at the site
- Proper and timely maintenance of machineries, trucks and vehicles

5. Impact on vibrations from blasting

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Vibrations from blasting Unmitigated	Medium term	2	Study area	1	Moderate impacts	2	Probable	3	8
Mitigated	Medium term	2	Study area	1	Slight impacts	1	Probable	3	7

Explosives used during blasting generate ground vibrations and shock waves. Blasting activities might disturb wildlife within the area and also nearby homesteads of Otjapijapi which is approximately 1.8km from the sites.

Mitigations and recommendation

- Develop and follow a controlled blasting plan.
- Use small and controlled explosive charges.
- Conduct blasting only at designated times and notify employees beforehand and also notify villagers of the day/s and time blasting takes place.
- Maintain safe blast distances.

6. Impact on surface and groundwater sources

Identified Impact	**Effect**						**Risk or Likelihood**	**Score**	**Overall Significance**
	Temporal Scale	**Score**	**Spatial Scale**	**Score**	**Severity of impact**	**Score**			
Surface & groundwater Unmitigated	Short term	1	Study area	1	slight impact	1	May occur	2	5
Mitigated	Short term	1	Study area	1	Slight impact	1	Unlikely	1	4

Fuel is likely to be kept on site in cases that the operating machinery and trucks run out of fuel. The nearest area to obtain fuel is Opuwo but the distance is far for the machinery to be refuelled every day. There is risk of spillage of hydrocarbons from trucks, vehicles and operating machines which may result in environmental contamination. Chemical residues from explosives and waste rock piles exposed to rainwater may also cause contamination if they find their way to the water bodies. The nearest ephemeral river to the mining claims is Noideb River which is approximately 16km hence posing minimum harm to surface water bodies. In addition, the probability of groundwater sources being affected is low given that the operations will be small scale. Furthermore, it will also be unlikely that the water table will be affected, the excavations will not reach the water table levels.

Mitigations and recommendation

- Implement a maintenance programme to ensure all vehicles, machinery and equipment remain in proper working condition and maintenance should be conducted in designated areas only, preferably off-site.
- Waste oils and fuels from drip trays on stationery vehicles and machinery should be disposed of as hazardous waste at a licensed facility by a hazardous waste handler.
- Store fuels and oils in bunded areas to prevent leak
- In case of any spills, immediately cleanup spills using absorbent materials
- There should be a monitoring programme for water use, water volumes used on site should be recorded
- Registered boreholes have recorded yields, as such if projected water requirements for the mining operations exceeds this yield or approaches the threshold of these boreholes then alternative water supply arrangements should be made.
- Operations should not reach the water table. In an event that this occurs, an updated EMP to cater for mining below the water table should be prepared

7. Generation of waste

Identified Impact	**Effect**						**Risk or Likelihood**	**Score**	**Overall Significance**
	Temporal Scale	**Score**	**Spatial Scale**	**Score**	**Severity of impact**	**Score**			
Generation of waste Unmitigated	Short term	1	Study area	1	Moderate impact	2	Definite	4	8
Mitigated	Short term	1	Study area	1	Slight impact	1	Definite	4	7

Waste will be generated from unearthed waste rocks. During open-cast mining, amounts of waste material are produced and this waste will be disposed at the waste dump, an area which will be designated for that purpose at the site. In addition, waste will also be produced from oils, fuel, food leftovers, papers and plastics. It is definite that waste will be generated at the sites.

Mitigations and recommendation

- 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
- Frequent collection of waste at the site by service providers
- Placement of refuse bins at the sites
- Placement of portable toilet on the sites for employees
- Identify designated waste rock disposal areas.

- Use waste rock for backfilling mined pits where possible

8. Impact on fauna

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Impact on fauna Unmitigated	Short term	1	Study area	1	slight impact	1	unlikely	1	4
Mitigated	short term	1	Study area	1	Slight impact	1	unlikely	1	4

Open-cast mining will create pits which can be traps for animals. Given that there are homesteads which are approximately 1.8km (Otjapijapi) and Otjomauro which is 4.1km, the proponent will fence the mining claims. It will be definite that the mining activities will disturb the landscape of the study area therefore, the proponent should ensure that at decommissioning the sites are rehabilitated.

Mitigations and recommendation

- Ensure the sites are fenced
- Minimize land disturbance: Restrict excavation only to the required mining footprint.

- Progressive rehabilitation: Rehabilitate mined-out areas while mining continues in other sections.

- Backfilling of pits: Use waste rock and overburden to fill excavated pits where feasible.
- Maintain selective drilling

9. Traffic and Transportation Impacts

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Traffic and Transportation Impacts Unmitigated	Short term	1	Beyond project boundary	2	Moderate impact	2	Probable	3	8
Mitigated	Short term	1	Beyond project boundary	2	Slight impact	1	May occur	2	6

Transportation of ore and materials will increase traffic in the area. Mined ore will be transported to a central processing area where the crushing process will take place. The crushers are located around the area of Otjapijapi and Otwani and in this instance, the Otjapijapi crusher will be nearer. Further transportation of the ore will happen until it reaches its' market. This movement of trucks will have a possibility of damaging the roads, increasing dust along transport routes, risk of road accidents and increase of noise and disturbance to settlements along the routes which will be used. The number of loads per month will depend on the rate they will be working at the sites and also on the availability of the ore on the areas they will be working on.

Mitigations and recommendation

- Control vehicle speed limits.
- Schedule transportation of the ore
- Install road signage and warning systems.

7.3.3 NEGATIVE SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH OPERATION PHASE:

1. **Occupational Health and Safety Risks**

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
O.H.S Unmitigated	Short term	1	Study area	1	Moderate impacts	2	May occur	2	6
Mitigated	Short term	1	Study area	1	Slight impact	1	Unlikely	1	4

The use of explosives for blasting might presents risks to employees such as accidental explosions due to improper handling of explosives, injuries from flying rock fragments during blasting, exposure to dust and gases, risk of pit wall collapse or rock falls and equipment accidents involving trucks and excavators. In addition, occupational stress and noise can also affect employees. Work pressure on employees can cause stress hence resulting into accidents.

Mitigations and recommendation

- Provide training on safe drilling and blasting practices.
- Use licensed explosives handlers.
- Maintain machinery regularly.
- Provide first aid facilities and emergency response plans.
- Conduct Hazard identification and risk assessments
- Comply with all Health and Safety standards specified in the Labor Act.
- Provide all staff on site with protective equipment (helmets, gloves, dust masks, work suits, earplugs, goggles and safety shoes where applicable).
- Place proper safety signage at the site

2. Increase of the number of people in the area

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Increase of the number of people in the area Unmitigated	Short term	1	Beyond project boundary	2	Slight impact	1	Probable	3	7
Mitigated	Short term	1	Beyond project boundary	2	Slight impact	1	May occur	2	6

There shall be people who will come to work at the sites. The proponent highlighted that an average of 15 people will be working on each mining claiming. The proponent will hire local people where necessary and where expertise is required the people will be sourced outside the community. The impact of population influx is expected to remain of low environmental significance given that the numbers which will be employed are not too high and some of these people will be employed as locals.

Mitigations and recommendation

- Local employment should be a priority so as to reduce the number of outsiders entering the study area

3. Heritage impact

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Heritage impact Unmitigated	Short term	1	Study area	1	Moderate impact	2	May occur	2	6
Mitigated	Short term	1	Study area	1	Slight impact	1	Unlikely	1	4

At the sites, there are no known heritage areas or artefacts deemed to be impacted by the activities. An archaeological study for the area was done during the exploration phase and nothing of significance was found. However, there might be unknown archaeological remains within the mining claims which might later be found during the excavations. If the Proponent come across archaeological features or objects that possess cultural values (e.g. Pottery, bones, shells, ancient clothing or weapons, ancient cutlery, graves etc.), the area should be barricaded off and the relevant authorities should be contacted immediately.

Mitigations and recommendation

- The Proponent should consult the headman of the area before conducting any work.
- 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.

4. Risk and spread of HIV/AIDS

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
HIV/AIDS Unmitigated	Short term	1	Regional	3	Severe impact	4	May occur	2	10
Mitigated	Short term	1	Beyond project boundary	2	Slight impact	1	Unlikely	1	5

The fact that people will be coming from different locations and meeting at one place can result in anti-social behaviours hence the spread of HIV/AIDS. If mitigation measures are implemented, it will be unlikely that the virus will spread and the impact will be of low significance.

Mitigations and recommendation

- Employer should allocate time for employees to visit their families.
- Free distribution of condoms

5. Cumulative Impacts

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Cumulative impacts Unmitigated	Short term	1	Study area	1	Slight impact	1	Probably	3	6
Mitigated	Short term	1	Study area	1	Slight impact	1	May occur	2	5

The landscape will be altered by activities associated with site preparation and mineral ore extraction by open cast. This alteration will have possibilities of affecting the habitancy for some animals which can further affect the food web.

Mitigations and recommendation

- 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.
- Implement community grievance mechanisms.

7.3.4 POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT

1. **Employment creation**

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Employment creation Unmitigated	Short term	1	National	4	Very beneficial	8	Definite	4	17
Mitigated	Short term	1	National	4	Very beneficial	8	Definite	4	17

It is definite that jobs will be created. The type of jobs will range from skilled, semi-skilled and unskilled and locals will definitely be recruited.

2. **Local Empowerment**

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Local Empowerment Unmitigated	Permanent	4	Regional	3	Very beneficial	8	Definite	4	19
Mitigated	Permanent	4	Regional	3	Very beneficial	8	Definite	4	19

The owner of the mining claims is a Namibian hence if this project is implemented a local will be empowered.

3. Community development

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Land utilization for the benefit of people Unmitigated	Permanent	4	Beyond project boundary	2	Very beneficial	8	Definite	4	18
Mitigated	Permanent	4	Beyond project boundary	2	Very beneficial	8	Definite	4	18

The proponent will assist the community when they can. During the public consultation, the locals highlighted the need of the proponent to assist in the development of the community.

4. Generation of Revenue

Identified Impact	Effect						Risk or Likelihood	Score	Overall Significance
	Temporal Scale	Score	Spatial Scale	Score	Severity of impact	Score			
Revenue Unmitigated	Permanent	4	National	4	Very beneficial	8	Definite	4	20
Mitigated	Permanent	4	National	4	Very beneficial	8	Definite	4	20

The proponent will pay tax hence generating revenue. More taxes will also be generated through contracted and subcontracted companies.

7.3.5 DECOMMISSIONING PHASE

Given that this will be small scale mining, the damage to the environment is expected to be minimum. However, pits created during the operation phase need to be rehabilitated. The following shall be done as a way to restore the environment:

- Develop and implement a rehabilitation plan.
- Backfill open pits where feasible.
- Use the stockpiled soil to cover the ground so as to try to return the area to its natural state.
- Fence off dangerous areas if pits cannot be filled.
- Restore vegetation using indigenous plants.
- Monitor rehabilitation success after closure.

7.4 SUMMARY & ANALYSIS OF IMPACTS

During the small-scale mining phase, the following impacts will fall under moderate environmental impacts if no mitigation measures are put in place; impact on vegetation, impact on landscape, impact on fauna, impact on soil, impact on vibration from blasting, impact on traffic and transportation and HIV/AIDS. However, if the project is well managed and the proposed mitigation measures are implemented accordingly, all the identified impacts will present minimum or no harm to the environment.

CHAPTER EIGHT: ENVIRONMENT MANAGEMENT AND MONITORING PLAN

Environmental planning and management as a concept seek to improve and protect environmental quality for both the project site and the neighborhood through segregation of activities that are environmentally incompatible. Environmental planning and management integrate land use structure, social systems, regulatory law, environmental awareness and ethics. Environmental Management Plan (EMP) is a vital output for an Environmental Impact Assessment as it provides a checklist for project monitoring and evaluation.

EMP for the proposed project is aimed at providing a logical framework within which identified negative environmental impacts can be mitigated and monitored. **See Appendix C**, for the EMP.

CHAPTER NINE: CONCLUSIONS AND RECOMMENDATIONS

9.1 CONCLUSION

In conclusion, the social and economic rating for this project is positive. Mitigation measures have been proposed to address negative impacts arising from the project. Should the Proponent implement all the suggested mitigation measures, the consultant recommends the issuance of the Environmental Clearance Certificate.

9.2 RECOMMENDATIONS

The following recommendations have been brought forward:

- It is recommended that; if the scale/activities of operations changes in future the EMP be updated/amended to cater for the change in scale of these operations.
- Unnecessary clearing of vegetation shall not be allowed; vegetation should be cleared on areas which need to be worked.
- After the small-scale mining activities, the Proponent should rehabilitate the area by backfilling the pits or contour to a stable angle of repose
- Environmental audits by an independent environmental consultancy must be carried out during the small-scale mining phase to monitor environmental compliance. The biannual reports should accompany the application for renewal of the environmental clearance certificate after 3 years.

BIBLIOGRAPHY

1. Constitution of the Republic of Namibia Act No 1 of 1990, Namibia: [Online] Available from: https://nan.gov.na/acts [Accessed 4 July 2022]

2. Environmental Impact Assessment Regulations Act of 2012, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

3. Environmental Management Act of 2007, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

4. Education Statistics. (2012). Education Management Information System. Namibia: Ministry of Education.

5. Otjapitjapi, Namibia Elevation Map. (2020) https://www.floodmap.net/Elevation/ElevationMap/?gi=3353921

6. Hazardous Substance Ordinance No. 14 of 1974, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

7. Heritage Act No 27 of 2004, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

8. Labour Act No 11 of 2007, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

9. Mendelsohn. J,Jarvis. A, Roberts.C, Robertson. T (2003). Atlas of Namibia. Cape Town South Africa: David Philip publishers

10. Mendelsohn J., Jarvis A., Roberts C. and Roberts T. (2002). Atlas of Namibia: A portrait of the land and its people. Singapore: Tien Wah Press.

11. Ministry of Health and Social Services. (2015). The Namibia Aids Response Progress Report 2015, Namibia: MHSS.

12. Minerals (Prospecting and Mining) Act 33 of 1992

13. Moilanen, L. C. (2015). A Sub-Basin Water Resource Quantification and Aquifer Productivity Assessment for the Northwest Borehole Scheme Near Opuwo, Namibia.

14. Nature Conservation Ordinance No. 4 of 1975, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

15. Public Health and Environmental Act 2015, Namibia: [Online] Available from:

http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

16. Soil Conservation Act 6 of 1969, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

17. Vogelsang. R, (1998) Archaeological survey in the Kaokoveld Namibia. h j ww Aklrnlu 50: 22-24

18. Water Act 54 of 1956, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]

19. Water Resources Management Act 24 of 2004, Namibia: [Online] Available from: http://www.lac.org.na/index.php/laws/statutes/ [Accessed 4 July 2022]