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Environmental and Social Impact Assessment for the proposed construction and operation of a copper ore crusher and separating plant at Otjikavare-Kowares In Ehi-Rovipuka conservancy, Kunene Region- Namibia.

Environmental scoping report

NEW HORIZON INVESTMENT GROUP

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Client	**New Horizon Investment Group** **CONTACT PERSON**: Mr. Berend L vd Berg **EMAIL ADDRESS**: berend@globalsmelters.com **TEL:** +264 857679254		
Consultant	**EnviroPlan Consulting Cc** **Enquiries:** Mr. T E. Kasinganeti **Tel:** +264 813634904 / +264 814087482 **E-Mail:** info@enviroplanconsult.com		
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Author/s	Name	Signature	Date
	Adiel T Mudzanapabwe		18/02/2024
	Talent Nyungu		18/02/2024
	Tendai E. Kasinganeti		06/03/2024

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ACRONYMS

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EPL	Exclusive Prospecting license
GHGs	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected parties
MEFT: DEAF	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs and Forestry
EMA	Environmental Management Act
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

DEFINITION OF TERMS

The **'Consultant'** – this refers to the team that is conducting the ESIA and the preparation of the EMP for the development

The **'Proponent** – this refers to the company that are directly involved in the implementation of the project, i.e. New Horizon Investment Group.

The **'Stakeholders'** – this refers to the people, organisations, NGOs that are directly or indirectly affected and interested by the project.

The **'Environment'** – this refers to the ecology, economy, society and politics.

ENVIRONMENTAL IMPACT ASSESSMENT

EnviroPlan Consulting cc has been engaged by New Horizon Investment Group (Pty) Ltd to conduct an Environmental and Social Impact Assessment (ESIA) and develop an Environmental and Social Management Plan (ESMP) for the proposed copper crusher and separating plant at Otjikavare- Kowares area, Kunene region and to apply for an Environmental clearance certificate (ECC) for the proposed activity.

The proposed activities triggered the application for an environmental clearance certificate.

Anticipated Environmental Impacts

- Low potential environmental impacts because the crusher and separating plant will not involve any chemical usage
- The proposed activities do not require vast pieces of land (2 ha)
- Adding on a management plan has been developed to mitigate any anticipated possible impacts of the project to the environment.
- Relative or moderate social impact (positive)

Social Impact

The project is generally expected to improve the socio-economic environment of Otjikavare-Kowares area through a major boost in business by means of incorporations, employment and improving mining activities on the long term. Interested and Affected Parties were notified of the project through site notices and newspaper adverts and all relevant information on the consultation is covered in Chapter 5 of this document and Appendix B of the document.

Recommendation

It is concluded that most of the impacts identified during this Environmental Assessment can be addressed through the recommended mitigation and management actions for the proposed activities.

Should the recommendations included in this report and the ESMP be implemented the significance of the impacts can be reduced to reasonably acceptable standards and durations. All developments could proceed provided that general mitigation measures as set out are implemented as a minimum.

In this respect, it is recommended that the proposed copper ore crusher and separating plant receives approval and receive Environmental Clearance certificate (ECC), provided that the recommendations described above and the ESMP are implemented.

ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations underpin the approach to this EIA study:

- The information received from the stakeholders, desktop surveys and baseline assessments are current and valid at the time of the study;
- A precautionary approach was adopted in instances where baseline information was insufficient or unavailable;
- Mandatory timeframes will apply to the review and adjudication of the reports by the competent authority and other government departments; and
- No land claims have been registered for the proposed site at the onset and registration of the study.

NB: *The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposed of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social and cultural impacts associated with the proposed project.*

1. CHAPTER ONE: BACKGROUND

1.1. Overview

The proponent, **New Horizon Investment Group (NHIG)** Namibia has identified the economic potential of copper reserves in Kunene Region and across the country. It is hereby proposing to set up a copper ore crusher and separating plant. The proponent seeks to process copper ore. A copper crusher will reduce the amount of debris and the material received from the mine(s) then crushed in several stages and finely ground to a size which ensures that copper minerals are liberated from the waste materials, or gangue. The proponent is a holder clearance certificate(s) of a copper crusher and smelter plant to finish up the process as a **leaching** and **electrorefining** plant in Witvlei and their operations has been compliant to the Environmental Management Act of 2007. NHIG is a private Namibian company with interest in industrial projects relating to mining. The project site to be covered by the copper crusher and separating plant falls within communal land under Vita Royal House traditional authority as well the Ehi-Rovipuka Conservancy's jurisdiction.

As per the requirements of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007 and the Environmental Impact Assessment Regulations of 2012), an EIA is required to obtain an Environmental Clearance Certificate from the Ministry of Environment and Tourism (MET) before the proposed activity is established. This is because under the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (EMA) No. 7 of 2007, copper ore crusher and separating plant is a listed activity that may not be undertaken without an Environmental Clearance Certificate (ECC). This activity is listed under the following relevant sections:

Table 1: Listed Activities -Environmental Management Act No. of 2007

ACTIVITY	RELEVANT SECTIONS
MINING AND QUARRYING ACTIVITIES	- 3.1 The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992. -3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not. -3.3 Resource extraction, manipulation, conservation and related activities.

1.2. The Environmental Consultant

New Horizon Investment Group has appointed EnviroPlan Consulting cc as the appointed Environmental Consultant to conduct an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) for the undertaking of mineral exploration activities and to apply for an Environmental Clearance Certificate with the Directorate of Environmental Affairs.

1.3. Project Location

The proposed project is in at Otjikavare -Kovares , Kunene region. Kunene's capital Opuwo. (Opuwo) is approximately 122 km away from Kovares. The distance from Kovares to Namibia's capital Windhoek is approximately 482 km. Below is a project site locality map with coordinates. (Fig 1).

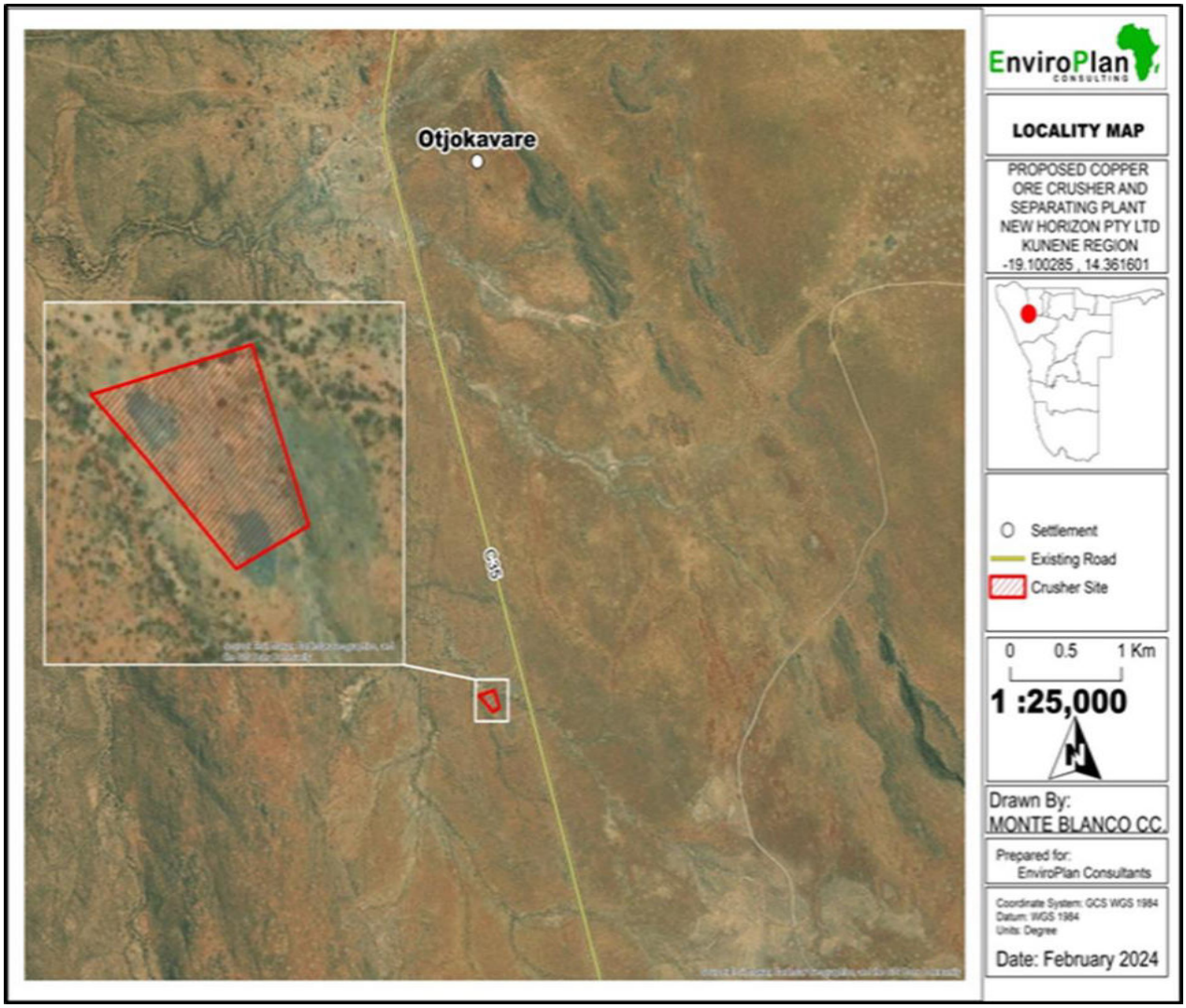

Figure 1: Locality Map

1.4. Need and Desirability of the Project

Namibia's economic model has largely been based on exploitation of mineral deposits with limited value addition initiatives. Low levels of industrialization in particular has to a certain extent limited the economy's capacity to create sufficient sustainable jobs. Services (tertiary industries) remain the key driver of growth and its contribution to Namibia's Gross Domestic Product (GDP) rose from 50.4% in the 1980s to an average of 58% over the 2010-2018 period (ADB, 2020). The shift was driven by expansion in government services and financial intermediation. In contrast, the share of mining in GDP declined by about half to an average of 11.2% of GDP. Despite its reduced share in GDP, mining remains the largest earner of Namibia's foreign exchange at about 45%. Projects that facilitate the

downstream processing of natural resources can improve trade performance and speed up the structural transformation of the national economy.

Mineral processing is enshrined in National Development Plan (NDP V), Vision 2030. The Harambee Prosperity Plan II plan (Pillar 2) place emphasis on economic advancement with view to enhance the productivity of priority sectors such as mining (mineral processing). Hence the project goal promotes economic advancement of the sub-metal ore sector. The operation of copper crushers/ processing plants promotes downstream processing, enhancing value addition and thereby contributing to growth of country's GDP. A contribution to national income can determined through copper processing and relative gainful employment through required services i.e. direct and indirect tax income (corporate, personal, VAT, secondary, others) levies and customs.

1.5. Scope of Work

This scoping study was carried out in accordance with the Environmental Management Act (EMA) (7 of 2007) and its 2012 EIA Regulations (GG No. 4878 GN No. 30).

After submitting an application for ECC to the DEA, the first stage in the EA process is to submit a scoping report. This report provides the following:

Table 2: Sections Within Scoping Report

Description	Section of the Report
The need and desirability of the proposed project	Sub-Chapter 1.4
Project description	Sub-chapter 1.6
Alternatives considered for the proposed project in terms of no- go option, design, and natural resources	Chapter 4
The relevant laws and guidelines pertaining to the proposed project	Chapter 2
Baseline environment in which the proposed activity will be undertaken	Chapter 3
The public consultation process followed (as described in Regulation 7 of the EMA Act) whereby interested and affected parties (I&APs) and relevant authorities are identified, informed of the proposed activity and provided with a reasonable opportunity to give their concerns and opinions on the project	Chapter 5
The identification of potential impacts, impacts description, assessment, mitigation measures and recommendations	Chapter 6
Recommendations and conclusions to the report	Chapter 7

1.6. Project Components

Overview

The copper crusher will be composed of different components that will make up the complete copper crusher and separating plant. For the purpose of this ESIA, the components have been categorized to enable impact assessment and analysis. The different project sections are as follows:

a) Ore(concentrate) storage area

b) Crushing and separator plant (Portable/ trailer mounted crusher and conveyer belts)

c) Wastewater, storage and disposal (using the soak away system)

d) Solar power supply system and a Standby- Generator

e) Administration and ablution area

1.7. Process flow

1.7.1. Ore Supply

Raw Material Batching and Feed

The ore concentrate transferred from mining site by haulage trucks is offloaded at the plant's ore storage area. The concentrate (Copper oxide ore) is stored in a surge bin or bunker, with a holding capacity for more than one shift.

The predominate oxide copper minerals include: Malachite, Cuprite, Chrysocolla and Azurite. The ore containing 12-14% Cu is accomplished at the mine sites via crushing, grinding, and flotation. The ore processing plant is designed for 10 000 t/month run of mine (ROM) ore recovery. The ore recovered contains 1.35% Cu with a size distribution less than 300 mm. The ROM low grade ore is loaded by means of a Front-end Loader (FEL) and the low-grade ore is stockpiled.

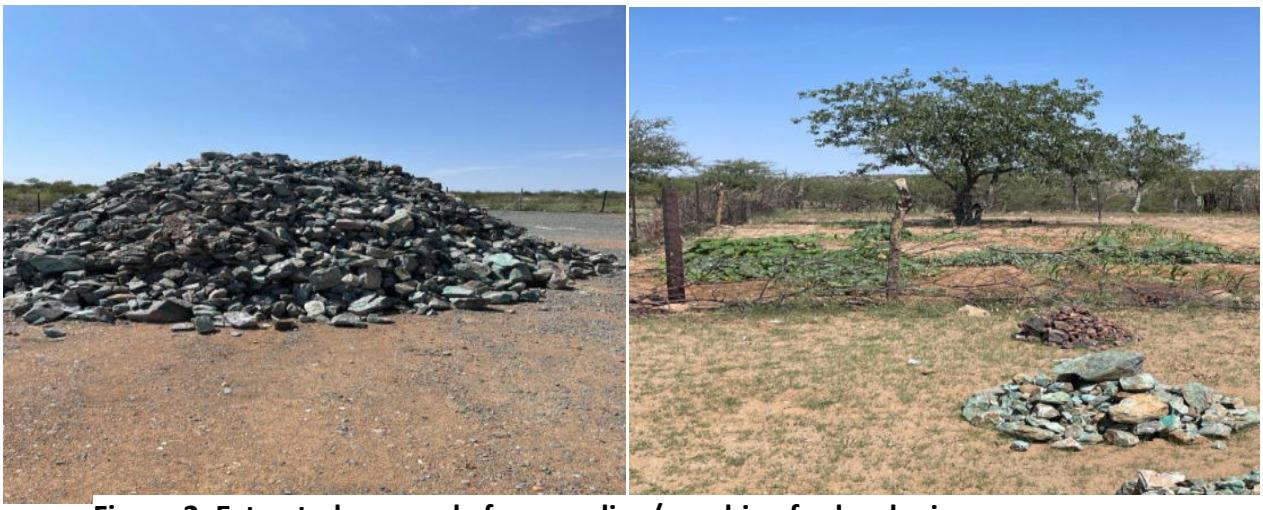

Figure 2: Extracted ore ready for sampling/ crushing for local miners

The ore splitting ratio is 10%, resulting in 9000 t/month low grade ore to the low-grade stockpile. The 1000 t/month ore for smelting purposes by the cupola smelter will be transported to the nearest copper smelter. Figure 3 gives an illustrative layout of the processing flow layout.

Mineral processing

In the ore-dressing plant, the material received from the mine is crushed in several stages and finely ground to a size which ensures that copper minerals are liberated from the waste materials, or gangue.

Crushing: A tertiary crusher unit and an ore screen will be installed on site. Trailer mounted crusher and conveyer belts will be used. They are portable, movable and easy to assemble as well as to disassemble. Pre-crushed mineral ore will with be further crushed to obtain a product of -150 mm and + 50mm to liberate the high-grade ore from the ROM.

Figure 3: Illustration of a trailer mounted copper ore crusher

Screening: After crushing, the ore is screened to obtain the desired size range. Rocks between 50 and 120 mm is transferred to the Belt Picking Lines for further processing whilst rocks less than 50 mm will be sent for low grade stockpile leaching / future electro winning plant (which is at the nearest approved plant).

In cases where the next step is leaching (most frequently in the case of oxide ores), complete liberation of the copper minerals is not always necessary; the ore needs to be crushed and ground only to the extent required to expose the surface of the minerals to the leaching agent. For sulfide ores, on the other hand, selective flotation normally follows the crushing and grinding stage and requires an optimal degree of liberation.

In the flotation process, the finely ground ore, mixed with water and special reagents, is agitated by mechanical and pneumatic devices. These produce air bubbles in the ore-water mixture, or slurry. The reagents provide an attraction between the surface of the copper minerals and the air bubbles. As the bubbles rise to the surface, they carry the copper minerals with them, leaving gangue minerals in the cell to be discarded as tailings. Collection of the froth from the surface of the flotation cell yields a copper concentrate. To increase the recovery of copper and reduce losses, the tailings are frequently reground and passed through a second flotation, the concentrate from which is combined with the initial production. The flotation concentrate is then dewatered (discharge going back to the mother earth) and filtered to produce a filter cake that is sent to a copper smelter.

NB: The proposed project activities will only involve copper ore crushing and separation using a floatation/soak away separating system. No leaching will take place on site.

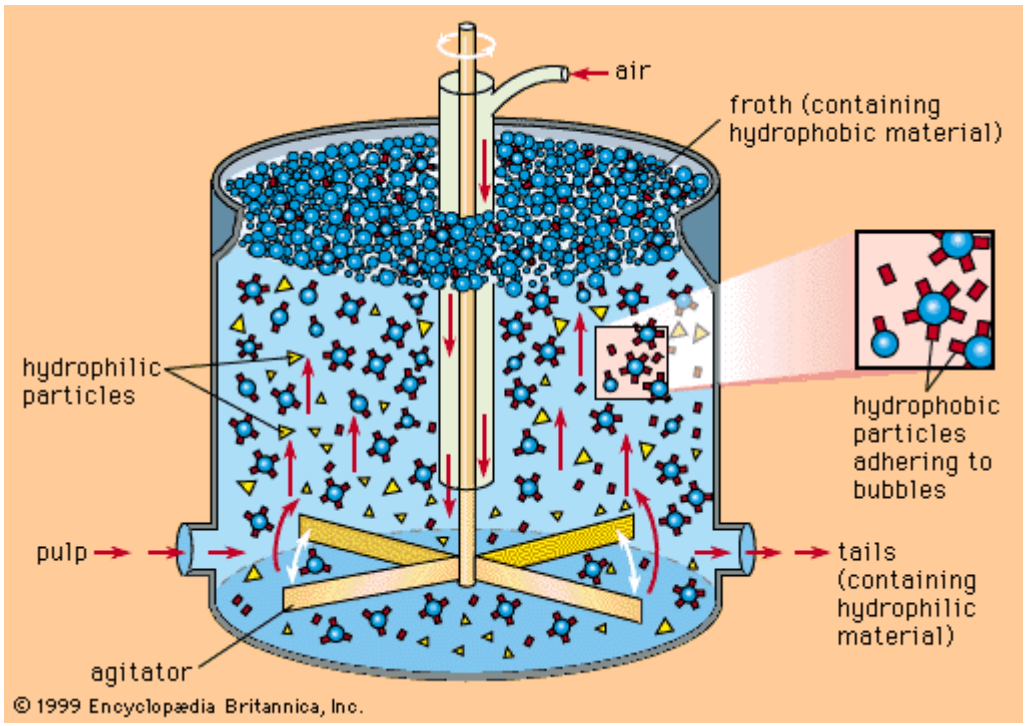

Figure 4: Processing flow layout

1.8. Waste Production & Treatment

The system will allow for dust collection, agglomeration and recycling, however there will be comprehensive dust fallout monitoring within Otjikavare up to 5km radius from the processing plant.

Initially the slag will be stockpiled until a sufficient quantity has been processed to allow for the economic resizing and recovering any entrapped copper metal. Again, the sized slag can be utilized by the building industry for aggregate or as additive feed to cement kilns, refer to Figure 5 below with an illustration of the waste block system.

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Figure 5: Illustration of copper slag piles

1.8.1. Waste water / Effluent dischage

Waste water produced during the separation of copper and sludge will be drained back to the mother earth using a soak away system. Soak away system is regarded as one of the environmentally safe ways of discharging non polluted effluents. A soakaway is the name for a pit filled with rubble or hard core that helps water drain slowly into the soil around it. However, modern day technologies have allowed for the design of a specific type of soakaway system, a soakaway crate. A soakaway is usually built at least 5 to 10 metres away from a building (it has to be at least 5m from a building or retaining wall) and is designed to have rainwater directed to it from the existing drainage system. From there, it can percolate (drain away) into the ground at a slower rate. Usually crates are used and with the help of a permeable non-woven membrane, they'll provide a large void or tank underground that the water will drain from slowly, meaning the yard or garden doesn't get waterlogged and start to leave pools of surface water. If the property is on a tilt or slope, you'll want to dig out the pit at a lower point to make sure water can flow in.

Figure 4 overleaf illustrates how waste water will be discharged.

1.9. Accessibility

An open road network is existing, and access will be obtained from the existing C35 road that is East of proposed project site. Otjikavare is a village in Kowares within the Ehi-Rovipuka conservancy neighboring the Etosha National park along Kamanjab- Omakange road. The site

turnoff road is approximately ninety-seven kilometres (97 km) from Kamanjab on the left road side and access road will be maintained using gravel with width adequate for services, pedestrians and two-way vehicular traffic.

1.10. Topography, Storm water and Existing usage

The area is relatively flat and undeveloped. Because of the landscape and surface terrain the storm water and floodwater flow channels flow from the east to west. With limited vegetation cover due to construction, the area can be prone to significant run-offs due to the amount of rain water expected to percolate at the proposed project site during the rainy season. Hence an adequate storm water control system will be designed and implemented.

1.11. Infrastructure and Services

1.11.1. Water Supply

It can be assured that operational water for both construction and operational phases will be sourced from an underground water borehole located about 0.5 km from the proposed site.

1.11.2. Electricity Supply

Electricity is supplied by a modern solar power system which will be installed on site. The copper crushers and conveyer system will be powered by diesel and solar. Diesel to be supplied in metal drums and approved containers in acceptable quantities.

1.11.3. Telecommunication Services

The project area is well connected to the rest of the country and world via local network service providers. The main providers of this service in the area are Telecom Namibia, Mobile Telecommunications Company (MTC Namibia) as well as satellite phones. Therefore, the site operations will be communicated smoothly between onsite and offsite project personnel using either of the communication services.

1.12. Waste Management Facilities

1.12.1. General and hazardous waste

A dedicated processing waste storage facility will be designed and constructed as part of the development. Non mineral waste will be separated from mineral related waste as their storage and disposal requirements and specifications will be different. Processing plant waste that cannot be dumped at a local waste site will be transported to the relevant and approved hazardous waste facilities in the country.

1.12.2. Sewage Management

During construction phase sufficient portable toilets will be provided on site for workers and appropriately emptied according to their manufacturer's operational standards and recommendations. Once in the operational phase, the site will be equipped with appropriate sewer reticulation and proper toilets that will be used during this phase.

1.13. Construction Work and Activities

Construction works will be outsourced to an appointed and experienced construction contractor(s). The following activities are anticipated for the construction of the copper crusher and separating plant:

1.13.1. Earthworks and Site clearing

Prior to construction works, bulk earthworks will be required on certain areas of the project site in order to erect the buildings foundations for offices and amenities, staff rooms and ablution facilities, bunding and drainage structures, drains, materials loading and offloading zones, roads, and holding ponds. All of these will require soil excavation within the construction site. Earthworks and overall construction works will also mean the presence of heavy construction vehicles and equipment moving around the site.

Based on site observation during site visits, the site is low to moderate vegetated, therefore vegetation that will be encountered in the footprints of the earthworks will be removed. With that said, minimal disturbance to vegetation is expected and advocated during this phase.

1.13.2. Construction Equipment, Materials and Services

Construction equipment will be sourced from the building material suppliers proximate to the project site and if necessary, and as required, equipment will need to be sourced from elsewhere in the country and/or abroad as per the required and approved operating standards.

In terms of construction materials such as sand and aggregate for concrete and site surfacing will be obtained from commercial sources, as approved by the Construction Engineer.

1.13.3. Employment Opportunities

Temporary employment opportunities will be created during the construction of the facility. The number of people to be employed cannot be provided now as construction works will be outsourced to contractors (to be appointed on tender), and therefore they (contractors) will determine the exact figure of the workers required. However, employment of locals is encouraged.

1.13.4. Decommissioning/Closure Phase

This phase will involve the removal of equipment and dismantling of facilities and safe closure. All trenches will be backfilled. The surface affected by the plant will be rehabilitated and re-vegetated in accordance with applicable standards

1.13.5. Environmentally sensitive areas identified

The proposed activities are in Ehi Rovipuka conservancy. Ehi Rovipuka conservancy has a high rate of unemployment, human-wildlife conflict and a large number of EPL miners as well as small scale miners. The proposed project aims to address a social issue (taking the youth from drug abuse), improve the environment (EMA compliance), enhance public services and foster community engagement, a well-thought-out plan which can significantly increase its chances of success and positive impact

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Introduction

In order to ensure that the proposed development comply with the legal requirements for good practice and preservation of the environment, a review of applicable Namibian and international legislation, policies and guidelines have been consulted. This review serves to inform the project Proponent, Interested and Affected Parties and the decision makers at the DEA of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled with regards to the development. The crusher and separating plant trigger the following Namibian legislations, policies and legal framework:

- **The Constitution of the Republic of Namibia (1990);**
- **Environmental Assessment Policy of Namibia 1994;**
- **Environmental Management Act No. 07 of 2007;**
- **EIA Regulations GN 57/2007 (GG 3812);**
- **The Water Act 54 of 1956;**
- **The Water Resources Management Act No. 11 of 2013;**
- **Pollution Control and Waste Management Bill;**
- **Atmospheric Pollution Prevention Ordinance 11 of 1976;**
- **National Solid Waste Management Strategy;**
- **Soil Conservation Act 76 of 1969;**
- **Road Traffic and Transport Act, No. 22 of 1999;**
- **Forest Act 12 of 2001;**
- **National Policy on Climate Change for Namibia (2011);**
- **National Climate Change Strategy & Action Plan 2013 – 2020;**
- **Nature Conservation Ordinance (1996);**
- **National Biodiversity Strategy and Action Plan (NBSAP2) 2013 – 2022;**
- **Labour Act 11 of 2007;**
- **Health and Safety Regulations GN 156/1997 (GG 1617);**
- **Public Health Act 36 of 1919;**

- **Public and Environmental Health Act 1 of 2015; and**
- **National Heritage Act 27 of 2004.**

These above-listed legislations and policies and their inclusion in the proposed project assessment are further presented in Table 3 overleaf.

Table 3: Policies, legal and administrative regulations

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
The Constitution of the Republic of Namibia (1990)	The articles 91(c) and 95 (i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalising policies to accomplish the Sustainable objectives which include: • Guarding against overutilization of biological natural resources, • Limiting over-exploitation of non-renewable resources, • Ensuring ecosystem functionality, • Maintain biological diversity.	The construction and operation of the copper ore crusher and plant can interfere with the ecosystem and overutilization of natural resources like water. Attention should be given to the state of water and other natural resources to avoid over exploitation. By developing and implementing the Environment Management Plan, NHIG is ensuring sustainable development. Ecological sustainability should guide operations of the proposed Ojtikavare copper ore crusher and separating plant.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Environmental Assessment Policy of Namibia 1994	The Environmental Assessment Policy of Namibia states Schedule 1: Screening list of policies/ plans/ programmes/ projects subject to environment must be accompanied by environmental assessments. “The development activities" are on that list.	The establishment of the crusher triggers the need for environmental assessments prior commencement of civil works particularly the construction phase.
	The policy provides a definition to the term “Environment” broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes and plans.	The development of the copper crusher and separating plant requires the assessment of all possible environmental and social impacts in order to avoid, minimise or compensate environmental damage associated with the activities.
Environmental Management Act No. 07 of 2007	Requires that activities with significant environmental impact are subject to an environmental assessment process (Section 27).	The nature of the proposed copper crusher and separating plant and interrelated activities potentially causes environmental impacts to the surrounding environment. Activities such construction of drainage system, water network and copper smelting facility

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
	Requires for adequate public participation during the environmental assessment process stakeholders to give their opinions about a project (Section 2(b-c)). According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Section 3 (2) (b) states that "community involvement in natural resources management and the sharing of benefits arising from the use of the resources, must be promoted and facilitated" is key.	and processes can cause significant environmental impacts with some impacts reversable and avoided. Therefore, proper assessments should lead and advise the project before implementation. The EIA study considered full stakeholder participation. Stakeholder consultation was fully conducted.
	Section 3 (2) (e) states that "assessments must be undertaken for activities which may have a significant effect on the environment or the use of natural resources".	The proposed development is involving the utilisation of natural resources (water and land). Therefore, benefits from the implementation of the project must be shared equally.
EIA Regulations GN 57/2007 (GG 3812)	Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). Details the requirements for what should be included in an Environmental Scoping Report (GN No 30 S8) and an EIA report (GN No 30 S15).	The implementation of the project triggers the need for consultation of all affected and interested stakeholders regarding the development at all project development phases from planning to operation of the facility. A public consultation meeting was held in

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
		respect to this and all the concerns and issues were noted and addressed in this report.
The Water Act 54 of 1956	The Act was formulated to consolidate and amend the laws relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects, of the use of sea water for certain purposes; for the control of certain activities on or in water in certain areas.	The development of copper crusher and separating plant will use water resources in the process. The activities directly affecting water conservation, management and use therefore, requires the implementation of water conservation techniques.
Pollution Control and Waste Management Bill	The bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse."	The construction and operation of the crusher and separating plant activates section 21 and 22 of the bill. Project related activities like construction, ore pilling, crushing and separating plant requires robust air quality management systems in place. Water: Water should be treated in accordance to the requirements of the water act. Groundwater level monitoring, groundwater quality and surface water quality monitoring should be conducted. Air: Flue gas and dust fall out monitoring should be implemented.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
	Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	Contractors of the civil works of the project should make it mandatory that they manage their waste in a manner that do not cause environmental threat and risk both to the surroundings and the local communities.
Atmospheric Pollution Prevention Ordinance 11 of 1976	The law act to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. The law regulates and prohibit pollution from industries particularly smoke and dust from various activities. The ordinance considers air pollution from point sources but does not address air quality,	Construction, operational and fugitive dust from processes will most likely affect ambient air quality. Efforts to suppress and monitor dust from point source should be adopted as recommended in the EMP.
National Solid Waste Management Strategy	The Strategy ensures that the future directions, regulations, funding and action plans to improve solid waste management are properly co-ordinated and consistent with national policy, and to facilitate co-operation between stakeholders The Strategy listed priorities for the strategy to address for effective solid waste management, the priorities given below are the most relevant to the WSSP:	The construction and operation of the crusher can potentially generate significant amount of solid waste that might need proper management by contractors to avoid pollution. Waste management plans should be generated and implemented prior the commencement of civil works and during operations.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
	• Waste disposal is the main problem with the current solid waste management in Namibia. The top priority is to reduce risks to the environment and public health from current waste disposal sites and illegal dumping in many areas of Namibia.	Slag, crusher plant rock waste and other non-mineral waste should be stored and disposed in an environmentally friendly manner and certified waste storage areas or approved waste disposal facilities.
Soil Conservation Act 76 of 1969	The Act established to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources in the Republic of Namibia.	Construction of auxiliary infrastructure related to the project should include systems and mechanism for preventing erosion.
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	Mitigation measures should be provided for, if the roads and traffic impacts cannot be avoided. Should the proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required from the Ministry of Works and Transport and an Environmental Management plan for mineral transportation should be commissioned.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Forest Act 12 of 2001	Section 10 (1) set out the aim of the forest management as to: The purpose for which forest resources are managed and developed, including the planting of trees where necessary in Namibia is to conserve soil and water resources, maintain biological diversity and to use forest produce in a way which is compatible with the forest's primary role as the protector and enhancer of the natural environment.	The proposed project development site for the crusher and separating plant falls within a communal locale as well as conservancy that makes it fragile hence all activities to be done should be regulated and compliant to the Act. The chosen site does not have any trees to be disturbed.
	(a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 metres of a river, stream or watercourse.	The project will not result in the removal of living trees, bushes and shrubs growing within 100m of a river, stream or watercourse
	(2) A person who wishes to obtain a licence to cut and remove the vegetation referred to in subsection (1) shall, in the prescribed form and manner, apply for the licence to a licensing officer who has been designated or appointed for the area where the protected area is situated.	The removal of trees in the above instances would require the contractors or sub-contractors to acquire necessary permits first. No trees were recorded in the project area.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
National Policy on Climate Change for Namibia (2011)	The National Policy on Climate Change pursues constitutional obligations of the Government of the Republic of Namibia, namely for "the state to promote the welfare of its people and protection of Namibia's environment for both present and future generation."	The copper processing technology that has been adopted by NHIG will ensure that there are minimal emissions into the atmosphere. Dust suppression and monitoring will be employed, to ensure that GHG aerosols are not generated.
National Climate Change Strategy & Action Plan 2013 - 2020	The Strategy outlines Namibia's response to climate change. The strategy aims to address and plan for action against climate change, both through mitigation and adaptation actions. In its adaptation strategy, the Strategy recognises the role of a **sustainable water resource base**.	The development of the copper crusher and separating plant should adopt measures that strengthen sustainable water resource base development of the country. The implementation should be very careful on not to cause harm to the available water resources but improve the management through various conservation technics.
	The Strategy proposed strategies that aim to: - Strategic Aim 1: Further improve the overall climate change understanding and related policy responses in water resources sector. - Strategic Aim 2: Monitoring and data collecting technologies of surface and underground water are developed and implemented at basin/watershed level.	The proponent should invest capital on strengthening climate change and adaptation through cleaner production systems implementation. Certification by international standards such as ISO14001 can help with climate sustainability and it is recommended.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
Nature Conservation Ordinance (1996)	This ordinance relates to the conservation of nature; the establishment of game, parks and nature reserves; the control of problem animals; and highlights matters incidental thereto.	The activities of the project are highly localized therefore, the site was allocated on the road site distancing it from wildlife or human settlements. However, there is need for proper designing and planning of the drainage and water network of the project to make sure that the infrastructure is not in conflict with the provisions listed in the Nature Conservation Ordinance.
National Biodiversity Strategy and Action Plan (NBSAP2) 2013 – 2022	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	The proposed project during construction and operation phases, potentially triggers ecosystem threats from noise pollution. As such mechanisms for environmental compliance and monitoring will be put in place, ultimately aimed at protecting biodiversity.
Labour Act 11 of 2007.	Empowers the minister responsible for labour to publish regulations pertaining to health and safety of labourers (S135). Details requirements regarding minimum wage and working conditions (S39-47).	The construction and operation of the crusher and separating plant will invite significant amount of laborious work. Therefore, there is need to ensure that proponent without charge to employees provide a working environment that is safe, has adequate facilities and arrangement for the welfare of employees.

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
		The separating plant will be registered as a processing and manufacturing entity with Ministry of Labour and a safety and health management policy will be drafted and instituted.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety requirements of the smelter plant.	-Occupational health and safety provisions during construction and operational phases should be clearly outlined. -Compliance monitoring and responsibilities for compliance monitoring should be clearly designated.
Public Health Act 36 of 1919	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	Compliance to the Public health act will be ensured in relation to the following: -Ablution facilities -Showers and Changing rooms -Communicable diseases -Emergency healthcare provision
Public and Environmental Health Act 1 of 2015.	To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	

LEGISLATION/POLICY	PROVISION/SUMMARY	PROJECT APPLICABILITY
National Heritage Act 27 of 2004	Section 48(1) states that "A person may apply to the (Heritage) Council for a permit to carry out works or activities in relation to a protected place or protected object" Protects and conserves cultural heritage and cultural resources with special emphasis on places and sources of National heritage including graves, artefacts and any objects older than 50 years.	The project constructions impacts are localized and there are no heritage or cultural artefacts identified in this area. However, if heritage resources (e.g. human remains etc.) discovered during constructions, guidelines dictate that a permit be acquired from the National Heritage Council of Namibia for relocation.
SANS 1929: 2005	Dust particulates from ore crushing and smelting that are smaller than 1mm are deemed dangerous to both plants and humans. As such a dust monitoring following the ASTM D1739 method should be used for monitoring dust emissions from crusher plans. Dust chemical analysis and fallout quantities are specified for industrial and residential environs.	A dust fallout monitoring cycle will be instituted around project site and strictly adhered to.

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. Introduction

In this chapter, the findings of the Environmental and Social Assessment Baseline study, public consultation and desktop reviews undertaken are in respect to the ecology, society, economy and geo-political set up of the proposed project area. The geological make up and meteorology of the project site will also be discussed in this chapter to give an in-depth understanding of the project area in question.

Otjokavare is a waterhole(s) (class H - Hydrographic) in Kunene, Namibia. It is located at an elevation of 1,253 meters above sea level. Otjokavare is also known as Kowares or Otjikaware or Otjokavare.

3.2. Socio-Economic status

The economy is heavily dependent on the extraction and processing of minerals for export. Mining accounts for 8% of GDP, but provides more than 50% of foreign exchange earnings. The conservancy was proclaimed in 2001 and covers 1,980 square kilometres of Kunene Region- Namibia. The conservancy has an approximate number of 1,346 inhabitants who practise horticulture and mining. Mining is becoming one of the major economic drivers in the region with most of them being small scale miners.

3.3. Economic Impacts

3.3.1. Global

The global copper market continues to be influenced by high demand for the copper mineral. Notably copper production may contribute significantly towards job and wealth creation, poverty reduction and sustainable local economies. Enabling the availability of copper sources in combination of favourable prices worldwide has a positive effect on the world's economy. Several long-term trends are presently driving growth in copper demand and are expected to continue to do so in the coming decades. The multipurpose usage of industrial copper remains one of the factors driving demand globally. Trends indicate an increase in consumer use of electronics, wider uptake of electric vehicles, increased use of renewable energy sources and energy efficiency. All these require significant amounts of copper to function. According to the World Bank (2017), a ten-fold rise in demand for metals, including copper, by 2050 is anticipated as the world moves towards a low carbon energy future. Copper demand is expected to jump by as much as 50 percent over the next 20 years alone. The positive impact of copper based on new downstream sources is assessed to be positive of medium significance.

3.3.2. National

Namibia is well endowed with mineral deposits including those copper deposits found in close proximity to Otjokavare and Kunene region. As stated earlier, Namibia's economic model has largely been based on exploitation of mineral deposits with limited value addition initiatives. Low levels of

industrialization in particular has to a certain extent limited the economy's capacity to create sufficient sustainable jobs. Services (tertiary industries) remain the key driver of growth and its contribution to Namibia's Gross Domestic Product (GDP) rising from 50.4% in the1980s to an average of 58% over the 2010-2018 period (ADB, 2020). The shift was driven by expansion in government services and financial intermediation. In contrast, the share of mining in GDP decreased by about half to an average of 11.2% of GDP. Despite its reduced share in GDP, mining remains the largest earner of Namibia's foreign exchange at about 45%. Project that facilitates the downstream processing of natural resources can improve trade performance and speed up the structural transformation of the national economy. Mineral processing is enshrined in National Development Plan (NDP V) and Vision 2030.

The Harambee Prosperity Plan II plan (Pillar 2) place emphasis on economic advancement with view to enhance the productivity of priority sector such as mining (mineral processing). Hence the project inherently promotes economic advancement of the sub-metal ore sector. The operation of copper smelters promotes downstream processing, enhancing value addition and thereby contributing to growth of country's GDP. The governmental income can be increased through the Smelter operation and relative gainful employment through required services i.e. direct and indirect tax income (corporate, personal, VAT, secondary, others) levies and customs. Based on the above, the positive impact of development of the growth of national economy is assessed to be of low significance.

The C35 tar road leading along the western border of Etosha from Kamanjab to Opuwo and Ruacana provides excellent access for visitors to the area, while small tracks through the conservancy lead west to the Hoanib River and Sesfontein, but require four-wheel drive and are recommended only with the services of a knowledgeable guide. There is currently no fixed tourism accommodation within Ehi-Rovipuka, but this is likely to change soon. The conservancy was awarded the rights to the Hobatere Roadside Concession by the Ministry of Environment & Tourism (MET), and now has the opportunity to develop a joint-venture lodge and campsite with direct access to Etosha via Galton Gate. This has the potential to generate a variety of benefits, including significant income to the conservancy and employment for residents. The recently established Dolomite Camp provides accommodation within Etosha, opening new routes for mainstream tourism that can also benefit the conservancy.

3.3.3. Industrial Development

Industrialization is often essential for economic growth, and for long-run poverty reduction in the region. The location of an industrial facility can have an impact on poverty reduction and redress of income inequality. The location of project in close proximity to the beneficiating community can have far reaching impacts on poverty reduction at Otjokavare. It is projected that the project can improve household income. Another positive impact of the crusher is the enhancement of the industrial landscape through the establishment of other support industries. Revenue enhanced at local level can improve both private and public sectors revenue. It is anticipated that the positive effects of the project will increase the revenues collection ability of the local authority and household's capacity to pay for local authority services is expected to improve. The positive impact

of crusher and its contribution towards strengthening economic advancement preposition of the region and Otjokavare in particular is regarded as of high significance.

The economy of Otjokavare primarily centred on production of horticultural crops. The narrative may change as soon as industrial development is accelerated. The contribution of crusher as an industrial development portrays a positive impact assessed as of high significance.

3.3.4. Employment creation

Operating the copper ore crusher and separating plant presents an interesting prospect for expanding and diversifying the local economy. Living conditions are expected to increase tremendously through economic spinoffs/investments. The presence of a core of workers with somewhat higher incomes than previously provides may drive consumer demand for goods. The latter should translate in additional jobs, as workers spend and give incomes to others. Equally the development can have an impact on direct and induced employment realized through the supply chain, and provision of support services. During the peak of the construction and operation phases, approximately 35 jobs will be made available. During the construction phase, job preference will be given to the unskilled or semi-skilled and youth. The duration will be short term with a maximum employment of approximately three (3) years.

The crusher operation phase requires 45 permanent employees. Indirect jobs will manifest due to the out-sourcing of short-term services (maintenance, transportation) to sub-contractors. Highly skilled workforce may be sourced from the broader region. An increase in number of those employed is anticipated together with corresponding increase in income levels for those employed in informal activities, as well as those number of indirect (e.g. in supplier companies) and induced jobs (e.g. in the various business that sell products and services to) created as a result of smelting activity. Under the assumption that the lifetime of the crusher will be around 20 years, this can create sustainable additional income for the local community. However, the impact of plant is expected to be felt at household level with people in fulltime employment by proponent. The positive impact of job creation is assessed to be of high significance due to the high unemployment prevalence rate amongst unskilled or semi-skilled population group.

3.3.5. Informal economy

Residents at Otokavare and the entire conservancy practice horticulture. Livelihood activities in Ehi-Rovipuka are centred around livestock, but include a variety of other activities and income sources. Large gardens supply maize, watermelons, beans and other vegetables and create an important income for people. These activities are supplemented by income from employment, government pensions and remittances. The conservancy has created new livelihood options, providing direct employment and creating opportunities for Fund to fence the primary school at Otjokavare, as well as equipping it with solar panels. The conservancy has also distributed cash payments to its members.

Figure 6: Small scale mined copper ore pilled next to a horticultural garden in Otjikavare

3.4. Climate

Ojtokavare as a settlement did not have recorded climatic records hence the consultant used average climatic conditions recorded for the entire region, Kamanjab, 97km away from Otjokavare. The region falls in the summer rainfall region, and rain may fall at any time from October to April, but usually comprises two minor peaks in October-November and March-April. Most precipitation falls during short thunderstorms, with up to 50-80 mm of rain in a single downpour, yielding a yearly average of ap proximately 300 mm in the highlands around Kamanjab. As a consequence of the cold Renguella Current, a rain shadow forms west of the escarpment, with a precipitous decline in rainfall from east to west within the study area.

Kamanjab experiences a moderate climate, and the summers are not easy to define. The best time to visit is January, February, November, December.

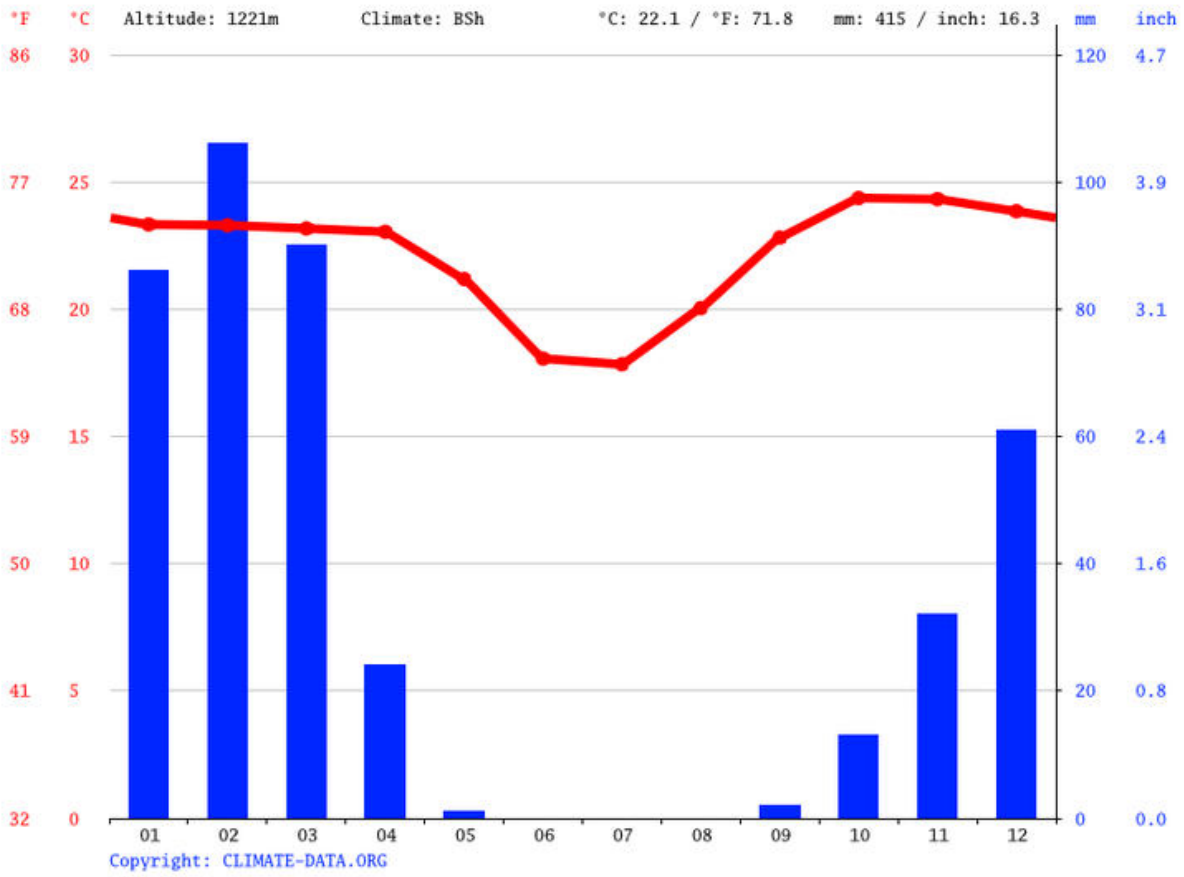

Figure 7:Average annual precipitation at Kamanjab

The month with the least amount of precipitation is June exhibiting a mere 0 mm (0.0 inch) rainfall. Most precipitation falls in February, with an average of 106 mm (4.2 inch).

3.5. Ecological Environment

3.5.1. Flora

Much of the area is covered by thorn and mopane scrub vegetation, with livestock and game farming being the predominant economic activity. The climate is arid to semi-arid, receiving on average 300-350 mm precipitation per year. The entire conservancy falls within the Savannah biome, characterised by western highlands, western Kalahari and Karstveld vegetation types. Large parts of the conservancy are dominated by mopane savannah, but the rugged hills support a great mix of vegetation, including Commiphora and Euphorbia species, shepherd's trees and the enigmatic bottle tree. Huge ana trees, camel thorn and leadwood grow along the courses of the larger ephemeral rivers

Vegetation - Kamanjab and DamaraIand form part of the Karoo-Namib phytochorological region, at the junction of the Namaqualand and Namih Domains, respectively (Werger 1978). While (1983) placed Kamanjab in the transition between mopane scrub woodland to Namib scrubland, whilst the western part of the study region would fall in the Bushy Karoo-Namib scrubland. To the northeast of Kamanjab lies the Guineo-Congolian Transition (White & Werger 1978). Most of the highland

region is covered in open xeric which, depending upon the underlying soils and topography, may be dominated by mopane (Colophospermumm pa or thorn trees (Acacia sp.). Mopane (Fam. Caesalpinioideae) is a medium to large tree may form dense stands (mopane woodland') on alluvial soils, but that also tolerates alkaline and poorly drained soils. The leaves of the tree hang down and during the heat of the day the leaflets move close together thus casting little shade (Coates Palgrave 1977). It thus forms a hot, dry habitat. Around Kamanjab mopane predominates on the red sandy soils and may form relatively dense stands, often in association with the red bush r kudu bush. A number of different species of Acacia are found. Within the dry water courses, with access to good ground water, grow large stands of ana trees (Acacia alhicda), water Acacia (A, nebrownii), and camelthorn (A. eriolnba).

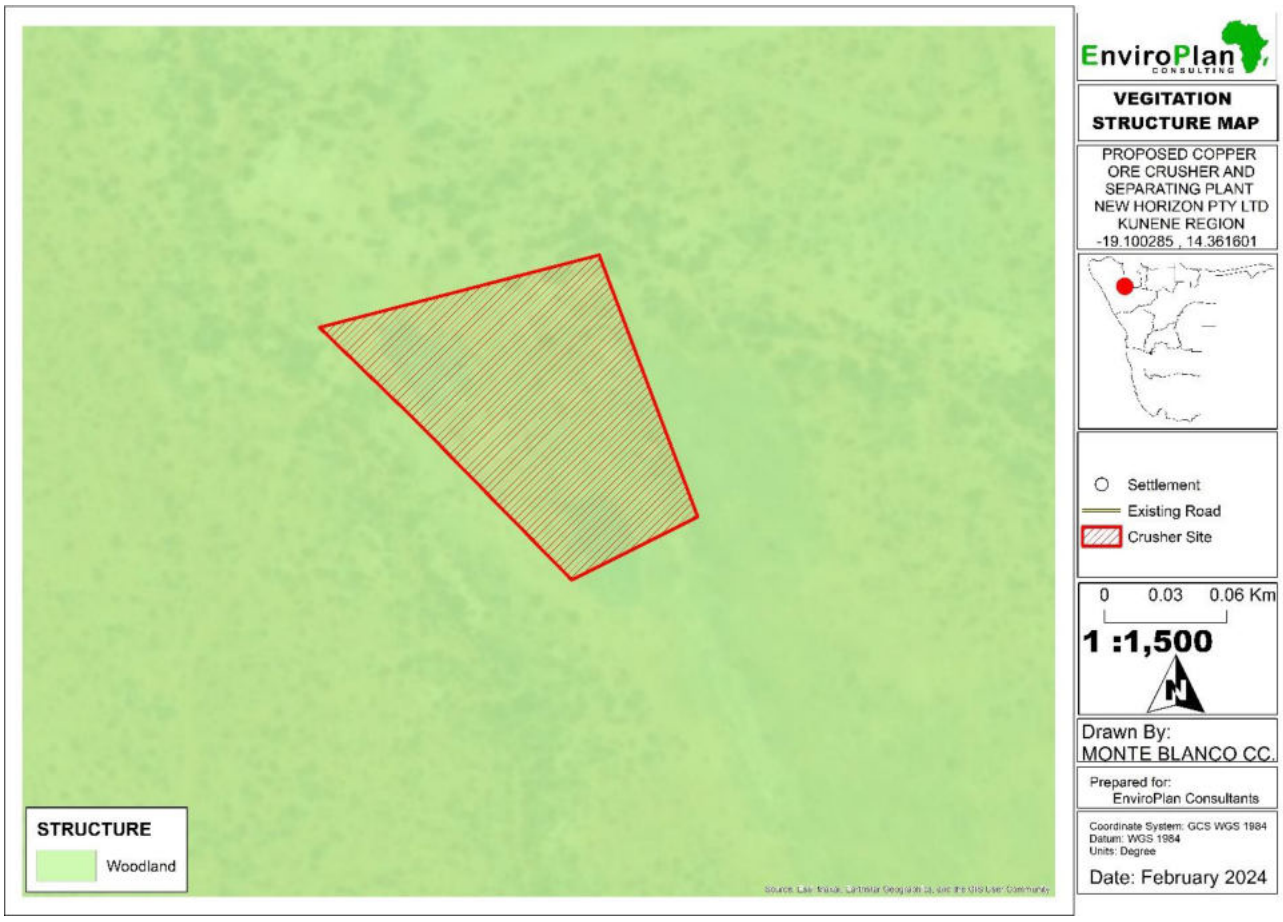

Figure 8: Vegetation Structure Map

(The project site is characterized by small bushes covering the project area as illustrated above. This is mainly as a result of land clearances that were conducted before. There is evidence of previous land clearing in the project area).

Figure 9: Existing disturbances to site vegetation

The site has experienced considerable human encroachment effects, as illustrated on the above images indicating past land clearances that occurred before the proponent identified it as suitable for copper ore crushing and stockpiling place.

3.6. Fauna

The wildlife around the conservancy and nearby environs is comprised of birds, reptiles and amphibians with a number of mammals due to the existence of the Etosha National park underlying in the southern part of the conservancy. Human wildlife conflict still remains one of the major setbacks in the community. Reduced vegetation around the project site and surrounding environs has resulted in habitat loss for most mammals that used to habit the area. Much of the wildlife that exist in Ehi Rovipuka. Ehi-Rovipuka is home to a great variety of charismatic game, including four of the Big Five – elephant, black rhino, lion and leopard. Giraffe, and both Hartmann's mountain zebra and Burchell's zebra occur here, as well as many of Namibia's antelope species such as eland, kudu, gemsbok, hartebeest, black-faced impala, springbok duiker, steenbok, klipspringer and Damara dik-dik. Baboon, ostrich and warthog also occur. Cheetah, serval, caracal, spotted and brown hyaena, and jackal make up the contingent of predators. Situated on the eastern fringes of the escarpment, the conservancy also provides habitat for many of Namibia's near-endemic birds, including bare-cheeked babbler, Carp's tit, rosy-faced lovebird, Rüppell's parrot, Hartlaub's francolin, violet wood-hoopoe, Rüppell's korhaan, Damara hornbill, Monteiro's hornbill, white-tailed shrike, Herero chat and rockrunner.

As a result of human settlement, most remaining wildlife is now concentrated in the surrounding Etosha and the quitter side of the conservancy. Anti-poaching scouts were put in place all over the conservancy. The project site does not have any unique fauna habitats of critical ecosystem importance, and there were no animals observed on the project site.

Localized impacts to fauna and flora can be expected from the proposed project, however there are no fauna expected within the project site. However copper crusher and separating plant operational activities may have impacts related to emissions, noise, vibrations and pollution. To ensure the

safety of the ecological nexus in the area, a strict environmental compliance and monitoring program will be put in place, also to prevent and or minimize different forms of pollution as well as potential disturbances that may be detrimental to the biozone.

3.7. Topography and Elevation

Otjokavare is a residential area in Kunene, Namibia and has an elevation of 1,202 metres. Otjokavare (Otjokavare) is a waterhole(s) (class H - Hydrographic) in Kunene, Namibia (Africa) with the region font code of Africa/Middle East. It is located at an elevation of 1,253 meters above sea level. Otjokavare is also known as Kowares, Otjikaware, Otjokavare.

Its coordinates are 19°4'0" S and 14°22'0" E in DMS (Degrees Minutes Seconds) or -19.0667 and 14.3667 (in decimal degrees). Its UTM position is VU39 and its Joint Operation Graphics reference is SE33-14.

3.8. Geology and Soil

Topography and Geology -h gened terms the study area covers a well-defined wansect across the Great Western Escarpment of southern Africa, rising from the Pro-Nami b plains (approximate1 y 500 m elevation) in the west to the relatively flat highland plains (1000-1200 m) (Figure 3) in the east. These are covered with red sands derived from decomposed granite, or whiter. clayey soils with scattered calcretc exposures. High terrnitarja are common in the latter areaas. Von Harmse (1 978) characterized the soils of the region as calcareous, weaklydeveloped and shallow in the west, mixed in the east with lithosols derived from acid igneous and metamorphic rocks. The eastern part of the region, particularly around Kamanjab. has numerous scattered granite koppies that reach eleva~ions of up to 1500 m. In the west the basalt ridges of the Grootberg rise up to 1645 m, and arc surround by amcky plain of eroded basalt rock

The geology of the region is complex, with ancient granites and gneisses, volcanic lava flows and the dominant Damara Sequence of sedimentary rocks, laid down some 850 to 500 million years ago. Karoo sediments, deposited some 300 to 130 million years ago, have at their base a Carboniferous period of glaciation that is reflected in the present landscape in the glacially scoured valleys of westward flowing rivers such as the Hoarusib and Hoanib (Jacobson et al. 1995). The soils of the region vary in association with the diverse parent material.

Throughout most of the region soils are very thin and poorly developed, a function of aridity and relatively slow rates of weathering. Alluvial and colluvial deposits are generally the most fertile and are confined to the river valleys that trend from east to west. Close to the coast, soils consist of either littoral sands in the dune fields of the Namib Desert or halomorphic soils, associated with gypsum or salt deposits. Dominant soil groups are Lithic Leptosols, Eutric Leptosols, rock outcrops and dune sands. Lithic Leptosols are very thin, shallow soils typical of actively eroding landscapes. These are coarse-textured and highly calcareous. Their water retention capacity is low and rates of runoff and water erosion are high during episodes of heavy rain. These soils support only low densities of wildlife and livestock. Eutric Leptosols are somewhat more fertile but still reflect the soil

formation characteristics described for Lithic Leptosols. Rock outcrops are not strictly soils and are formed by exposed bedrock underlying the region. Dune sands originate from a complexity of fluvial, littoral and aeolian erosional and depositional processes (Jacobson et al. 1995; Mendelsohn et al. 2003). The relevancy of landform, geology and soils to the research is several-fold. The stunning scenery and rugged, remote wilderness character of the study region derives from the aridity, distinctive vegetation responses and dramatically variable topography. Human settlement is sparse and until very recently, has been semi-nomadic, in search of seasonal shifts in available graze and water for livestock. Wildlife is particularly adapted to the variable terrain and the meagre vegetation it supports. All of these factors combine to influence the scale of ecological units to be managed under community based conservation institutions.

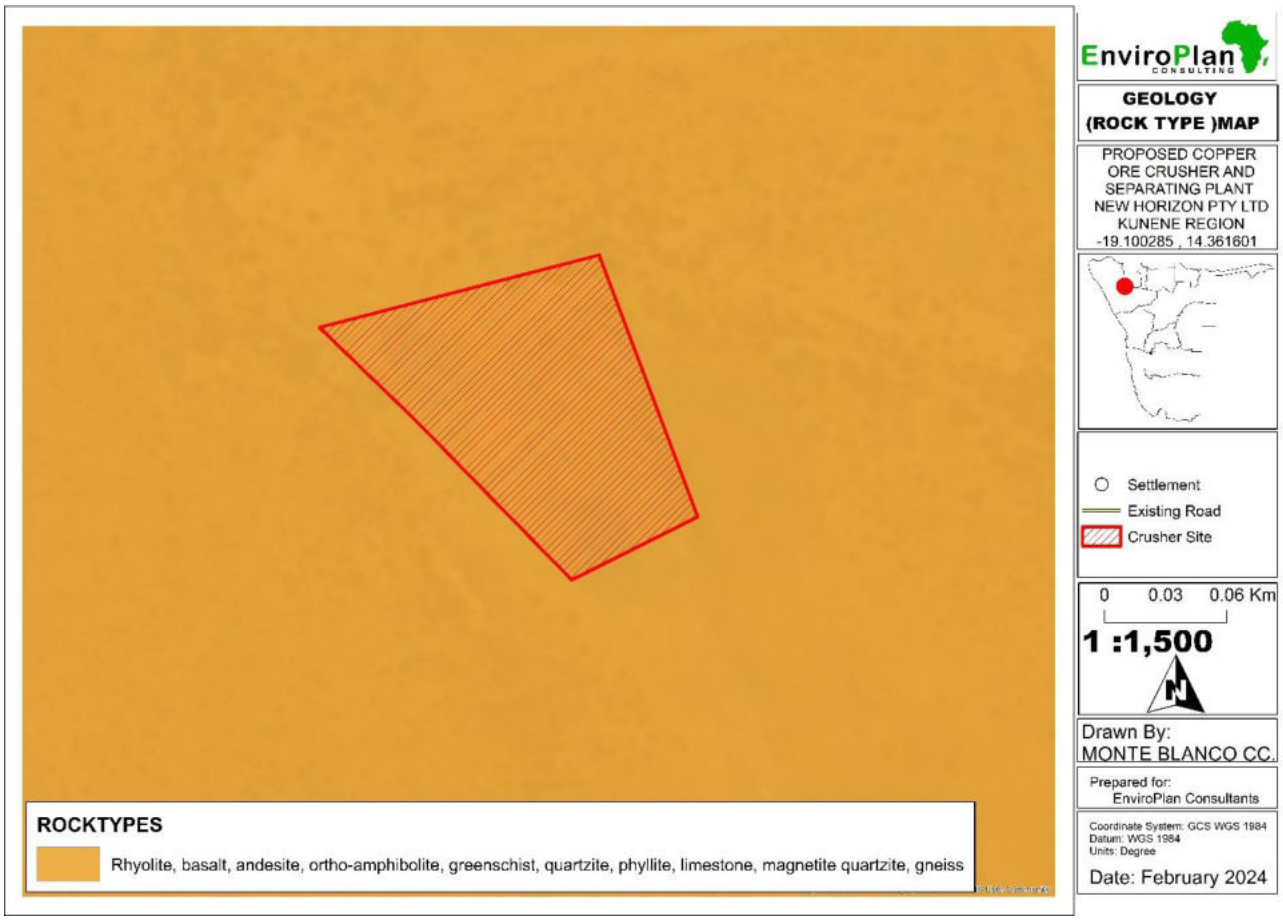

Figure 10: Project site and the Otjokavare geology map

3.9. Geohydrology

3.9.1. Catchment Analysis

A Waterhole(s) is a natural hole, hollow, or small depression that contains water, used by man and animals, especially in arid areas. The Hoanib Catchment is 17,200 km² in area, with elevations ranging from over 1,800 m above sea level in the upper reaches of the catchment to sea level, at the coastal mouth of the river. The main river channel is 270 km long and the annual 52 precipitation

range is from 0 mm at the coast to about 300 mm in the vicinity of the Ehi-rovipuka Conservancy (Jacobson et al. 1995). Ephemeral rivers like the Hoanib are critical to biological life in this region. All fodder for livestock and wildlife is provided by the extensive grasslands of the catchment areas and the riparian vegetation along the water courses. Although dry for most of the year, runoff and flooding during the summer rains recharge groundwater under the river beds. Travelling along these water courses in the dry season, one can observe elephant, for example, feeding on the acacia pods of the riverine trees and digging for water under the surface of the sandy stream beds

These ephemeral river courses are described and recognized as linear oases in NW Namibia, serving as critical habitats for wildlife and as migration corridors. It has been observed that the drying up of the western-flowing ephemeral rivers would have disastrous consequences for tourism development and the nation's economy (Jacobson et al. 1995). It is essential that seasonal flooding and runoff not be impeded in these drainage courses by human development or land use practices. There has been historical competition for livestock grazing areas and wood sources along the watercourses, highlighting a need for integrated water and land use planning.

An especially distinctive and influential part of the study region is the surface drainage. Namibia as a whole has only two rivers that flow all year around – the Kunene River along the Angolan border and the Orange River, forming the southern border of the country. The remainder of the country's rivers are described as ephemeral. The ephemeral rivers are watercourses that only carry surface flows of water briefly following heavy rainfall. Such rivers flow from the upland plateau area to the east in a westerly direction, through to the coastal dunes of the Namib Desert. The Hoanib is the major ephemeral river of the study region. Its catchment or watershed has been used to help define the limits of the study region, in combination with conservancy boundaries that straddle the space from Etosha National Park to the Skeleton Coast Park boundary in the Namib Desert. The Hoanib River possesses an intricate network of ephemeral tributary streams, some of which transect the Ehi-rovipuka Conservancy which is the focus of my community-based investigations. Other major westerly flowing ephemeral rivers in this vicinity include the Uniab, Kiogab and Huab.

The general landscape is devoid of surface water for much of the year. The ephemeral river courses appear as dry gulches of sand, with steep banks supporting riparian trees. As one travels across the region on the few gravel roads that have been developed, most river crossings cut right across the dry stream beds. This can be very problematic during the rains, when road crossings can be blocked or entirely washed out by flood waters. Pans are another distinctive surface water and landscape feature of the study region. Pans are flat, clay-lined areas into which water drains and accumulates after heavy local rainfalls. The Etosha Pan is the largest and most famous of Namibia's pans, situated in the eastern half of Etosha National Park. The Etosha Pan and smaller pans nearby attract wildlife concentrations in the dry winter season with their residual accumulations of water at or near the surface. This exerts an influence on the movements of some species like elephant and lions in the wider region to the west of Etosha.

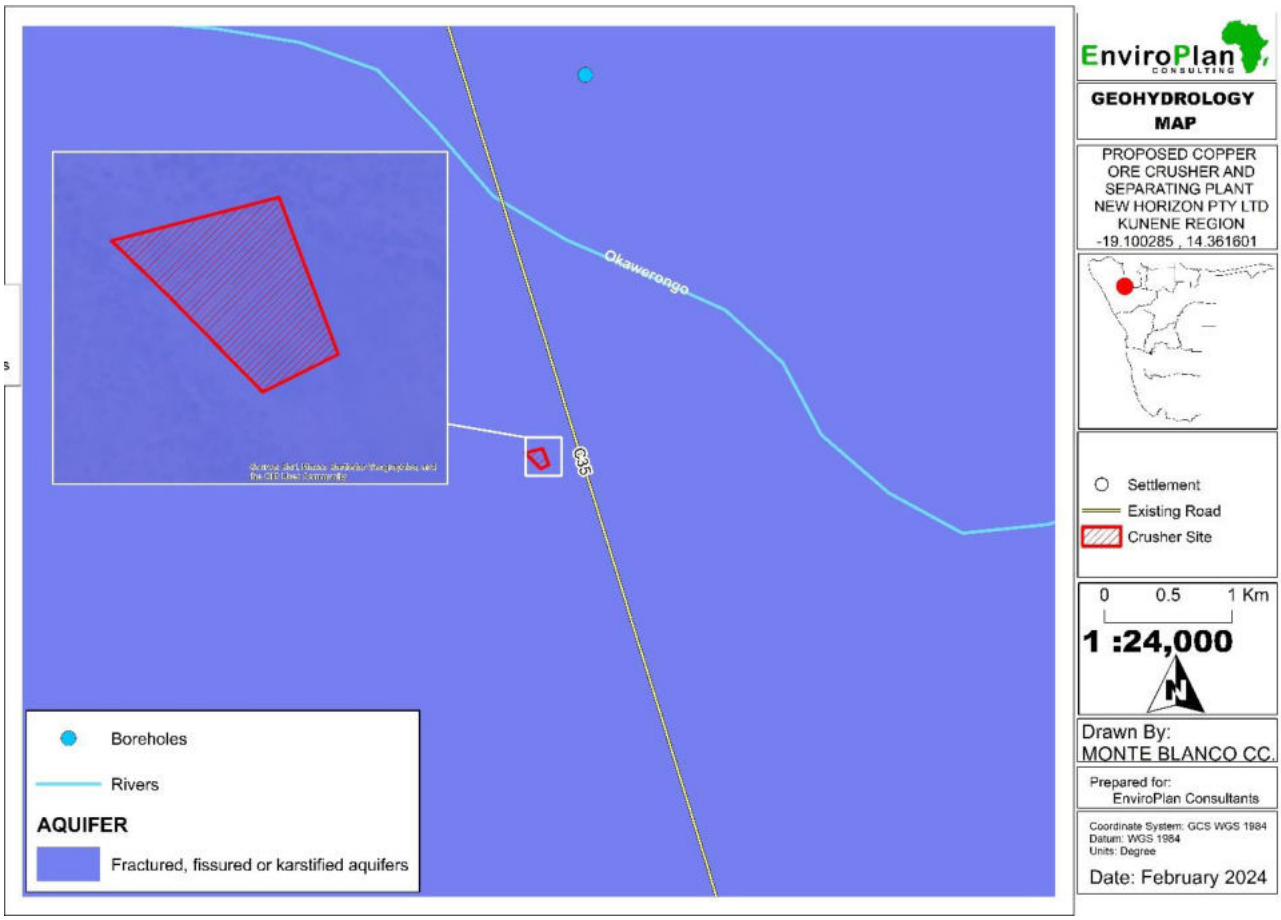

Figure 11:Project site Geo-hydrology map

3.9.2. Hydrocensus

The Ministry of Agriculture, Water and Land Reform Namibia, has a database of drilled boreholes and chose monitoring boreholes around the country. The last reading was taken in 2020. The project area indicated one (1) borehole with the current ones not counted yet.

4. CHAPTER FOUR: PROJECT ALTERNATIVES

The following alternatives are considered for the project. The analysis of alternatives of the project it is described here in short.

4.1. Industrial Zones

A number of factors were considered for the purpose of siting the proposed crusher and separating plant. The most significant factor considered is the proximity of ore deposit in relation to the proposed crusher site. The latter is imperative given that transportation cost is an important and vital consideration for ensuring the financial viability of project (research and development phase). The ore envisaged is located approximately 25 km north and south of the proposed crusher site. The positive effects of reducing unemployment, bearing on the regional's industrial development goals, infrastructure potential and the broader developmental impact the project can have on the local communities. The latter preposition remains attractive to the local community, political leadership and favourable for advancing development agenda. The plant would not warrant the expansion of auxiliary infrastructure but to make sure they give back to the community where copper is mined.

'No Go' Alternative

The no go alternative may negatively affect the local economic development. With limited investments, a less productive economy and lower levels of living standards is anticipated around Otjokavare and the entire conservancy. Reducing the high un-employment rate, ensuring greater social cohesion and reduction in poverty levels shall remain a persistent challenge at Kovares.

5. CHAPTER FIVE: PUBLIC CONSULTATION

5.1. Overview

Public and Stakeholder involvement is a key component of the EA process. The public consultation process, as set out in Section 21 of Regulation No 30 of EMA, has been followed during this assessment and the details thereof documented below.

5.2. Printed Media

5.2.1. Background Information Document

A Background Information Document (BID) was drafted at the onset of the EA process to act as a useful information handout about the proposed project. In addition, the BID provided details on the public consultation process with contact details for further information. This document was advertised for availability through various means of newspaper articles, Public meeting and electronic mail; see **Appendix B** of this document.

5.2.2. Newspaper Advertisements & Articles

Newspaper notices about the proposed project and related EA processes was circulated in two newspapers for two weeks. These notices appeared in the "Windhoek Observer" and "New Era" newspapers, shown in Appendix C.

Table 4: Consultations, Newspaper and site Notices

Newspaper	Area of Distribution	Language	Date placed
The New Era	Country Wide	English	21-02-2024 14-02-2024
Windhoek Observer	Country Wide	English	21-02-2024 14-02-2024
Site notice	On Site At the conservancy office	English	23-02-2024
Random interviews with community members	Door to door interviews	English/Afrikaans	23-02-2024

5.2.3. Site Notices

A site notice was placed at the project site and at the Conservancy office. These provided information about the project and related EA while providing contact details of the project team. Site Notices appendices are in Appendix B of this document.

5.2.4. Building a Stakeholder Database

A stakeholder database for the project was developed. During the advertisement of the project (though public notices in local newspapers and site-notices) the list was augmented as Interested & Affected Parties (I&AP) registered and contact information of stakeholders updated (Appendix A).

5.2.5. Stakeholder Meetings & Key Conversations

A public meeting was scheduled to be conducted on the 23rd of February 2024 at Ehi- Rovipuka Conservancy meeting tree. Unfortunately, the Conservancy committee had to attend another meeting on the same day which later clashed with the stakeholder meeting. Therefore, the consultants decided to do interviews based on a random sampling. About 25 community members were interviewed. BIDs and Questionnaires were distributed and pertinent issues relating to the projects were discussed and recorded. Below are pictures that relate to interviews made.

It was noted that most of the community members were aware of the proposed crusher and showed excitement about the proposed project. The major reason being getting employment and the opportunity to sell their copper ore. Another youth made it clear that, “it will take the youth out of the bars”.

Figure 12: Interviews made to some of the Otjokavare community members

5.2.6. Comments and review period

From the onset of the public consultation process and the initial information sharing through the BID, newspaper and site notices, various stakeholders have registered and provided comments.

The public commenting period from the first Newspaper advert spanned for thirty (30) days and the Scoping Report and Environmental Management Plan was made available to the public and stakeholders for comment and review.

Attendance registers, comments and proof of stakeholder's engagement are attached in appendix B of this ESR. Key Issues raised during the consultative interviews are presented below:

Table 5: Issues raised during consultations

THEME	COMMENT
ECONOMIC	▪ Employment of general labour: NHIG must consider employing local people particularly the youth. ▪ Improve the life being of the residents. ▪ The project should benefit all the community members citing lack of inclusivity when projects kick-off.
AMBIENT ENVIRONMENTAL QUALITY	▪ Dust emissions, suppression and monitoring measures were inquired
ENVIRONMENTAL	▪ Resources such as air and water should not be polluted during operations because communities, wild animals and livestock rely on these resources. ▪ Solid waste management was emphasized as crucial to the project as the community does not have a functional and approved solid waste disposal site.

5.3. Conclusion

Enviroplan consulting hereby justifies that the public participation was extensive and transparent enough to ensure any comments or issues regarding the proposed development to be addressed and to suggest possible mitigation measures. All issues cited in the consultations are clearly articulated and addressed in the ESMP for the project.

6. CHAPTER SIX: ASSESSMENT OF IMPACTS

6.1. Overview

Copper Crushers and separating plants are associated with a wide array of potential environmental impacts, both positive and negative. The primary aim of an environmental assessment is to assess the potential negative impacts of a proposed development. This is done to ensure that the negative impacts that the project activities may have on the biophysical and social environments are adequately addressed so that an impact's significance is brought under control, while maximizing the positive impacts. The potential positive and negative impacts that have been identified from the proposed Plant activities are as follows:

NHIG has committed to sustainability and environmental compliance by coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices. As proponent, NHIG will implement an Environmental and Social Management Plan (ESMP) in order to prevent, minimise and mitigate negative impacts. The impact management plan is being developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

The main conclusion of the overall assessment was that the proposed project would result in environmental and social impacts, however management and monitoring measures will be put in place to minimise these impacts to inconsequential levels. Summaries of the key findings of the specialist studies are provided below.

6.2. Impact Identification (Positive and Negative) and Description

The potential beneficial and adverse impacts stemming from the proposed development to the bio-physical and socio-economic environment during the two vital phases (construction and operations) are listed below and assessed.

Positive impacts

- Improvement the country's GDP through upscaling in mineral processing
- Socio-economic: The proposed development will create several employment opportunities for individuals and their families in the surrounding areas.
- Market development for contractors on the copper crusher construction and operation.
- Development of commodity value chains;

Negative impacts

- Potential of water resources and soil contamination (mainly during operational phase).
- Ambient air adversely affected by emissions.
- Waste generation and management in both phases
- Noise (both phases)
- Nuisance (during operations)
- Dust and decrease in surrounding air quality (both phases)
- Public and environmental Health impacts (both phases)
- Vehicular traffic impacts (both phases)
- Visual (during operations) and archaeological impact
- Social nuisance: Influx of people into the area (both phases).

Some of the potential negative impacts are anticipated to only occur in one phase, while others occur in both phases. In order to avoid repetition, impacts that occur in more than one phase will be described and assessed once. In other words, if for instance health and safety impact occurs in both the construction and operational phase, it will only be described and assessed once under the construction phase (since construction phase precedes the operational phase) and mitigation measures clearly provided.

The negative impacts are described below and assessed and detailed in Table 10.

6.2.1. Waste Management

An assessment of potential waste generated and waste generating activities at the crusher was undertaken and various recommendations made for effective waste. The main findings were the need for a formal general waste landfill site and the need for waste segregation, given that some waste may be hazardous.

NHIG can primarily utilize the nearby landfill (about 20km West of Ehi Rovipuka conservancy offices) for any hazardous waste, however it is recommended that the proponent do a thorough prediction, handling and identify the nearest economic way of removing all hazardous waste in the conservancy to a regulated dumping site. With the limited potential for arsenic waste volumes to be produced and disposed, it is recommended that the landfill site should last for at least 20 years before an upgrade is required. A thorough investigation and verification of fall out dust should be conducted to ensure the safe disposal of hazardous dust.

6.2.2. Surface Water

There are no natural surface water sources within the property and the assessment thus relates to stormwater runoff. The proposed crusher would result in slag material being produced, which could require a designated storage. Pollution sources of a crusher are mostly in the form of dust, noise and liquid effluents from the floatation processes. In this scenario no chemical is going to be used for separation. Leaching and electro will be done at an approved plant offsite. The project proponent holds an ECC for smelting, and leaching in Witvlei. Their activities were admitted to be compliant. (not within scope of project). The effluents from these processes have moderate pH levels, and will be discharged using a soak away system back to the mother earth.

Mitigation measures would thus be required in order to ensure that the stormwater system capacities would be sufficient to handle any additional contact runoff generated. Waste must be in a roofed and bunded areas with no external releases.

Stormwater channels should be lined with concrete and there should be need for a pollution control dam. Key mitigation measures include the construction of infrastructure to manage contact water around the crusher.

6.2.3. Groundwater

The geohydrology of the area shows that groundwater flow is in a westerly direction, however continuous monitoring for heavy metal and sulphate concentrations will determine groundwater contamination control requirements. Groundwater contamination can be minimized through improvement in drainage and erosion control, drilling of monitoring boreholes and undertaking regular monitoring of groundwater quality

6.2.4. Noise

There are no identified sensitive noise receptors in the immediate environs, however once the project is operation, ambient noise monitoring will be conducted. Noise levels in Otjokavare are greatly influenced by community activities and highly dependent on wind speed. Noise simulations are deemed not critical at the moment. In addition, no noise standards specific to Namibia exist.

6.2.5. Biodiversity: Fauna and Flora

The only animals that may be found around the site, are animals from the neighbouring farms grazing close to the site. These animals may only be impacted as a result of potential pollution or groundwater and surface water. However, this is unlikely as appropriate measures for pollution prevention will be implemented.

6.2.6. Health and Safety

Copper ore crusher and separating plant employees may be susceptible to health and safety risks during construction and operation. Employees involved in the construction and operations phases may be exposed to health and safety risks, when they are not properly inducted or trained on how to use certain machinery or equipment. To comply with legislation, an occupational health and

safety plan (OHSP) for the plant should be developed, and approved by Ministry of Labour, Industrial Relation and Employment Creation.

Community health concerns are potentially associated with the operational phases as there may be toxic releases into groundwater, soils and the air. A strict environmental quality monitoring procedure will be put in place and adhered to as required.

6.2.7. Vehicular Traffic Safety

The project works may potentially put pressure on the existing roads when construction materials and operational phase goods are delivered to and from the site. The construction of the facility and its eventual presence will potentially increase traffic in the area. Ore transportation to the site will also impact traffic safety and flow, as such as soon as the project resumes, a traffic management plan should be developed.

6.2.8. Social Influx

- **Influx of people into the Area for a Better Life and Opportunities**

The news of projects as this may cause the immigration of people into the project area in search for economic opportunities. Given the current unemployment rate in Namibia, the project presence may attract many out of area people to come look for jobs in order to provide for themselves and their families. This influx of out-of-area people into the project area during the construction and operational phase may lead to social annoyance to the local community. Different people may come with different ways of living to the area, which could interfere with the local norms, culture and values. This would lead into social crashes between the locals and “outsiders”.

The influx of people into the project area may also lead to sexual relations between contractors and the locals. This would lead to the spreading of sexual transmitted diseases (i.e. HIV/AIDS) and pregnancies when engaging in unprotected sexual intercourse. Not only would the general locals be engaged in sexual relations with the construction workers, but the school learners too. Some construction might take advantage of the young female and male school learners to be involved in romantic relationships and eventually engage in sexual activities with them.

- **Damage or Disturbance to neighbouring Private Properties**

The presence of out-of-area construction workers may lead to social annoyance to the local community. This could particularly be a concern when the project workers enter or damage properties of the locals. The locals' private properties could be homes, yards/fences, vegetation or domestic animals (livestock) or any properties of value to them.

6.3. Assessment of Impacts

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set in Table 6 overleaf.

Table 6: Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%
Medium	25-75%
High	>75%

Table 7: Impact Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

Table 8: Environmental Impacts and Aspects Assessment

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
TOPOGRAPHY	Landscape Scenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor
	Topography and Landscape	Alternation of existing topography	Construction & operation	Short term	Small	Local	Direct	High>75%	Moderate
	Topography and Landscape	Topographic changes and Visual Impact	Construction &Operation	Medium term	Moderate	Local	Direct	High>75%	Moderate
SOIL	Soil	Contamination to soil from solid and effluent waste disposal	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor
	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor
	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Soil	Loss of usable topsoil material	Construction	Long term	Small	Local	Direct	High>75%	Moderate
	Soil	Soil contamination from fallout dust and crushing pollutants.	Operation	Long term	Small	Local	Direct	High>75%	Moderate
LAND CAPABILITY	Terrestrial ecology and aquatic ecosystems	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate
	Terrestrial ecology and biodiversity	Decreased in vegetated land (biodiversity zones) around the project area.	Construction and Operations	Long term	Low	Local	Direct	High>75%	Low
WATER	Surface and ground water quality	Water pollution from oils and lubricants from vehicles and machinery.	Construction	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Moderate
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	Moderate

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Groundwater quality	Pollution of underground aquifers from smelter plant effluent	Operations	Long term	Great	Local	Direct	Medium 25 - 75%	Low
	Groundwater quality	Groundwater source and soil may be polluted by construction activities	Construction	Short term	Great	Local	Direct	Medium 25 - 75%	Moderate
	Groundwater quality	Groundwater source potentially contaminated by sewerage waste	Operations	Long term	Moderate	Local	Direct	Medium 25 - 75%	Low
	Groundwater quality	Potentially vulnerable groundwater source may be polluted by construction activities	Construction	Short term	Moderate	Local	Direct	Low <25%	Low

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Surface water quality	Eutrophication of nearby rivers	Long term	Moderate	Local	Direct	Medium 25 - 75%	Low	Long term
	Surface water quality	Increase in surface water run- off from a large open surface area on site because a stormwater drainage system.	Construction and operations	Short term	Moderate	Local	Direct	Low <25%	Low
AIR QUALITY	Noise Pollution	Noise -During Construction - Operation noise (ore crushing, vehicular noise)	Construction and Operations	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Moderate
	GHGs	Copper crusher and separating plant will result in CO2 and cu emissions	Operation	Long term	Moderate	Local	Direct	Medium 25 - 75%	Low

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Ambient Air Quality	The copper crusher and seperating plant will potentially release the following emissions; -PM2.5 -pm10 -SO2 -NOx -Fallout dust	Operations	Long Term	Moderate	Local	Direct	Medium 25 - 75%	Moderate
WASTE	Groundwater quality	Hazardous waste from the waste storage site	Operations	Long term (operation)	Small	local	Direct	Medium 25 - 75%	Low
	Topography and Landscape	Visual impacts due to infrastructure and unsustainable handling and disposal of waste.	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Groundwater quality	Leaching of hazardous contaminants from tailings and slag storage and chemicals laden water into the sub-surface	Construction and Operations	Long term	Small	Local	Direct	Medium 25 - 75%	Low
	Topography and Landscape	-Visual impacts due to use of unsustainable disposal methods -The proposed wastewater ponds will pose a visual impact and complete change of scenery because of perennial green vegetation that will form around the ponds.	Construction and Operations	Long term	Small	Local	Direct	Medium 25 - 75%	Moderate

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
FAUNA	Aquatic life	-Construction antifouling paints and sedimentation of rivers -Operational dust fallout, soil contamination and wastewater deposition into the river may cause eutrophication and subsequent affecting of freshwater life.	Construction, Operations	Moderate	Small	local	Direct	Low <25%	Minor
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g. road kills; fence and construction /land clearing mortalities)	Construction and Operations	Long	Moderate	Local	Direct	Low <25%	Minor

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
FLORA	Terrestrial ecology and biodiversity	Proliferation of invasive species inland	Construction and Operations	Long	Moderate	Local	Direct	High >75%	Moderate
	Terrestrial ecology and biodiversity	Loss of unique flora and special habitats in the local environment because of general nuisance and animal migrate.	Construction and operations	None	Moderate	Regional	Direct	Low <25%	Moderate
	Terrestrial ecology and biodiversity	Dust fallout and emissions may contaminate some sensitive animal and plant species and they may experience stunted growths.	Construction and Operations	Long Term	Small	Local	Direct	Medium 25 - 75%	Low
	Terrestrial ecology and biodiversity	Clearing of land may lead to destruction of protected	Construction	Long Term	Moderate	Local	Direct	High >75%	low

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
		vegetation and loss of biodiversity.							
	Terrestrial ecology and biodiversity	Uncontrolled/accidental fires	Construction and Operations	Long Term	Great	Local	Direct	Medium 25 – 75%	Moderate
SOCIO-ECONOMIC	Noise Pollution	Increased noise levels	Construction, Operation	Moderate	Small	Local	Direct	Low <25%	Minor
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive
	Community health and morals	Increased potential of social evils such as prostitution proliferation and abuse of the vulnerable groups (Children and women). Also potential for	Construction, Operation	Moderate	Small	Local	Direct	Low <25%	Minor

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
		increased HIV infections;							
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Construction and Operations	Short	None	Regional / National	Direct	Low <25%	Positive
HERITAGE/ARCHAEOLOGY	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate
	Employee Health and Safety	General smelting plant employee's hazards will be posed and standards	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
		will need to be put in place.							
CLIMATE	Greenhouse Gases	Copper processing will result in release of GHGs such as CO2	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major
DISEASES AND PATHOGENS	Carcinogens	-Emissions and effluent from the copper crusher and separating plant will have carcinogenic elements and exposure of the community through inadequate management can result in a cancerous illness.	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate
	Respiratory illnesses	-Emissions such as PM10, PM 2.5 and PM 0.1 can be highly dangerous to the respiratory system	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
		and as such areas around will be strictly monitored dust fallout.							
TRAFFIC IMPACTS	Vehicular Movement	Increase in traffic movements can chase away local wild animals and cause nuisance to nearby homesteads	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	low

7. CONCLUSION

The proposed copper crusher and separating plant is desirable and highly recommended because of the need for local economic advancement. Distant and proximate environs are less vulnerable and not likely to be immensely affected by the project as alluded in the Impact Assessment Matrix. The results of the public consultation process indicated that the Interested and Affected Parties welcome the proposed development. Attention was drawn to ensure that pollution prevention and local employment are taken seriously during the relevant phases of the project. Based on the results of the air quality study, the Otjokavare village remains unaffected most of the time by emissions emanating from smelter. Also, potential project impacts during construction and operation phases can be minimized to an acceptable level when supported by effective the adoption of effective mitigation measures.

An Environmental and Social Management Plan has been developed to ensure that it addresses all potential negative impacts anticipated from the project and enhance all positive impacts for a more beneficial impact. Based on the findings of the ESR, Enviroplan cc recommends that MEFT (Department of Environmental Affairs) approve the Environmental Clearance Certificate Application on Basis of full compliance to the developed Environmental and Social Management Plan.

8. REFERENCES

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9. APPENDICES

10. Appendix A: Environmental and Social Management Plan

11. Appendix B: Public consultation documents

12. Appendix C:Picture inventory, Maps and Layout plans

13. Appendix D:Lead EAP Resume