



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

THE PROPOSED SMALL-SCALE MINING ON 10 MINING CLAIMS (71785 - 71794)  
LOCATED NEAR KAMANJAB, KUNENE REGION, NAMIBIA

Mr. FRANS ERNST WESTRAADT

MAY 2022

## DOCUMENT CONTROL

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### **CONSULTANT'S EXPERTISE**

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Mr. Frans Westraadt to undertake the environmental impact assessment process.

Immanuel N. Katali, the EIA Lead Practitioner holds a B.Arts (Honors) in Geography, Environmental Studies and Sociology and has over six years of relevant experience in conducting/managing Environmental Impact Assessments (EIAs), Socio-Economic Impact Assessments (SIA) and compiling Environmental Management Plans (EMPs) in Namibia. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).

### **DECLARATION OF INDEPENDENCE AND DISCLAIMER**

The consultant herewith declare that this report represents an independent, objective assessment of the environmental impacts associated with the activities of the proposed small-scale mining activities on the request of Mr. F. Westraadt.

I.N.K has prepared this report based on an agreed scope of work and acts in all professional matters as an independent environmental consultant to Mr. F. Westraadt and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession.

The information, statements and commentary contained in this Report have been prepared by I.N.K from information provided by Mr. F. Westraadt and from discussions held with stakeholders. I.N.K does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the party that provided the information or any conclusions reached. I.N.K has based this Report on information received or obtained, on the basis that such information is accurate and, where it is represented to I.N.K as such, complete.

I.N.K is not responsible and will not be liable to any other person or organisation for or in relation to any matter dealt within this report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in this report (including without limitation matters arising from any negligent act or omission of I.N.K or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this report). This report must not be altered or added to without the prior written consent of I.N.K.

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# **1 INTRODUCTION**

## **1.1 Background**

Mr. Frans Westraadt (Mr. F. Westraadt) has applied to the Ministry of Mines and Energy for 10 Mining Claims, located west of Kamanjab in the Kunene Region. The nearest community to the proposed activities is the Erwee community. The size of the Mining Claims range between 17.5 - 18 hectares (ha). The proponent proposes to undertake small-scale mining for copper.

Mr. F. Westraadt is planning mining activities on the 10 MLs. Preliminary activities such as geophysics, mapping, scouting exercises, soil sampling were all conducted for the area. During this mining phase, Mr. F. Westraadt discovered additional sufficient deposits that are believed to be mineable, hence this EIA for small-scale mining.

Prior to the implementation of the project, environmental clearance is required from the Ministry of Environment, Forestry and Tourism (MEFT): Department Environmental Affairs (DEA) on the basis of an approved EIA process, in terms of the Environmental Management Act, 2007 (No. 7 of 2007).

I.N.K Enviro Consultants cc, an independent firm of environmental consultants based in Namibia, has been appointed by Mr. Frans Westraadt to undertake and manage the EIA process.

## **1.2 Motivation (Need and Desirability)**

The Ministry of Mines and Energy (MME), Directorate of Mines undertakes to exploit the country's mineral resources in a manner which integrates mining into the various economic sectors for socio-economic development of the country. In order to achieving this mandate MME partners with various companies who place a leading role in the implementation of the mining activities. MME has therefore partnered with Mr. Frans Westraadt represented to conduct small-scale mining activities on MLs 71785 - 71794.

Mr. F. Westraadt has undertaken preliminary economic study to ascertain the viability of the MLs including further resource investigation and mining potential. The preliminary studies predict a good return on investment for the client.

## **1.3 Introduction to the Environmental Impact Assessment**

Environmental Impact Assessments are regulated by the Ministry of Environment, Forestry and Tourism (MEFT) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and enacted on 6 February 2012. The Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 6 February 2012.

Prior to the commencement of the proposed mining, an environmental clearance is required from the Ministry of Environment, Forestry and Tourism (MEFT): Department Environmental Affairs (DEA) on the basis of an approved EIA process.

This EIA process is conducted in terms of the Environmental Management Act, 7 of 2007 and the above mentioned EIA regulations. This process includes: a screening phase and a scoping phase, which will include an impact assessment and an Environmental Management Plan (EMP).

This report is the Scoping Report, with assessment included. The main purpose of this report is to provide information relating to the proposed activities and to indicate which environmental aspects and potential impacts have been identified during the Screening and Scoping phases. This report consists of information obtained from site observations, and the results of stakeholder consultation. The potential impacts of the proposed activities (and associated ancillary infrastructure) could therefore be assessed, and the assessment is also included in this report.

It is thought that this Scoping Report (including an assessment of impacts), together with the attached EMP, will provide sufficient information for the MEFT to make an informed decision regarding the proposed project, and whether an environmental clearance certificate can be issued or not.

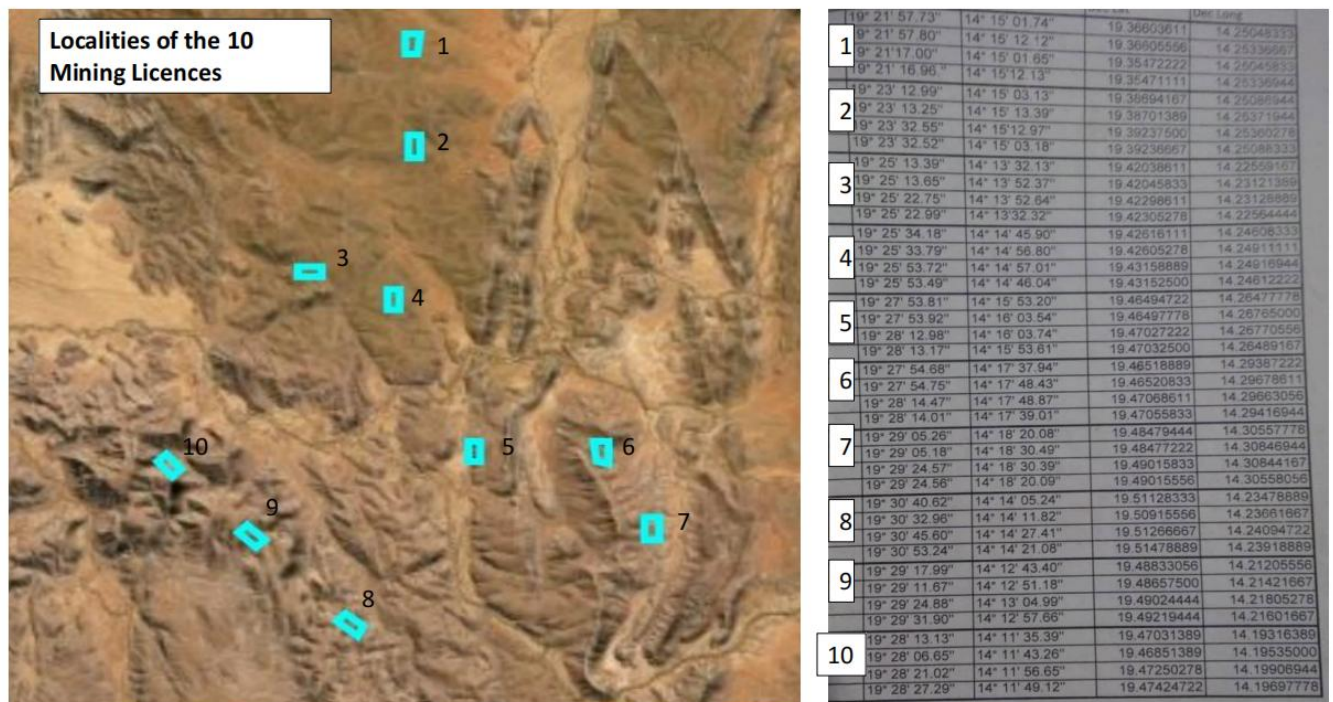


Figure 1: Locality Map

#### 1.4 EIA Process

The EIA Scoping process and corresponding activities are outlined in Table 1

Table 2: EIA Process

Objectives	Corresponding activities
	Project initiation and Screening phase

- Initiate the screening process
- Initiate the environmental impact assessment process.
- Site Visit
- Identify Key Stakeholders
- Early identification of environmental aspects and potential impacts associated with the proposed project.

#### **EIA Phase with combined Scoping and Assessment**

- Notify the decision-making authority of the proposed project
- Identify interested and/or affected parties (I&APs) and involve them in the scoping process through information sharing.
- Identify potential environmental issues associated with the proposed project.
- Consider alternatives.
- Identify any fatal flaws.
- Determine the terms of reference for additional assessment work.
- Provide a detailed description of the potentially affected environment.
- Assessment of potential environmental impacts.
- Design requirements and management and mitigation measures.
- Receive feedback on application.
- Notify government authorities and I&APs of the project and EIA process (telephone calls, e-mails, faxes, newspaper advertisements and site notices).
- Conduct Public Participation Process
- Investigations by technical project team.
- Compilation of draft scoping (combined assessment) and EMP reports.
- Distribute draft scoping (combined assessment) and EMP reports to authorities and I&APs for review.
- Forward the final scoping (combined assessment) and EMP reports and I&APs comments to MET for review.
- MEFT review and Record of Decision.

### **1.5 EIA Team**

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Mr. Frans Westraadt to undertake the environmental impact assessment and related processes.

Immanuel N. Katali, the EIA project manager and lead practitioner holds a B.Arts (Honours) Degree in Geography, Environmental Studies and Sociology and has over six years of relevant experience in conducting/managing EIAs, compiling EMPs and Socio-Economic Studies. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).



## 2 SCOPING METHODOLOGY

### 2.1 Information collection

I.NK used various information sources to identify and assess the issues associated with the proposed project. These include:

- Site visits by I.N.K;
- Consultation with Project Technical Team (Mr. F. Westraadt) and relevant information shared by Mr. F. Westraadt;
- Consultation with MEFT via online application system;
- Consultation with I&APs, the Erwee community members;
- Google Earth; and
- Internet sources.

### 2.2 Scoping Report

The main purpose of this Scoping Report is to indicate which environmental aspects relating to the proposed project might have an impact on the environment, to assess them and to provide management and mitigation measures to avoid or minimise these impacts.

Table 2 outlines the Scoping Report requirements as set out in Section 8 of the Environmental Impact Assessment Regulations that were promulgated in February 2012 in terms of the Environmental Management Act, 7 of 2007.

**Table 3: Scoping report Requirements stipulated in the EIA regulations**

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(a) the curriculum vitae of the EAPs who prepared the report;	Section 1.4.2 and
(b) a description of the proposed activity;	Section 4
(c) a description of the site on which the activity is to be undertaken and the location of the activity on the site;	Sections 4 & 6
(d) a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Sections 6, 7
(e) an identification of laws and guidelines that have been considered in the preparation of the Scoping Report;	Section 3
(f) details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including - (i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	Sections 2.3, 2.4, 2.5

<p>(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; and</p> <p>(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;</p>	
<p>(g) a description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;</p>	Sections 1.3 and 5
<p>(h) a description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;</p>	Sections 7
<p>(i) terms of reference for the detailed assessment; and</p>	Section 7
<p>(j) a management plan, which includes -</p> <p>(i) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure;</p> <p>(ii) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and</p> <p>(iii) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.</p>	Separate Document

### 2.3 Public participation process

The public participation process for the proposed project is conducted to ensure that all persons and/or organisations that may be affected by, or interested in the proposed project, were informed of the project and could register their views and concerns. By consulting with relevant authorities and I&APs, the range of environmental issues to be considered in this Scoping Report (including the assessment of impacts) has been given specific context and focus.

Included below is a summary of the I&APs consulted, the process that was followed and the issues that were identified.

## 2.4 I&APs

The following table (Table 3) provides a list of persons, group of persons or organisations that were informed about the project and were requested to register as I&APs should they be interested and/or affected.

**Table 4: Stakeholders**

IAP Grouping	Organisation
Government Ministries	<ul style="list-style-type: none"> <li>▪ Ministry of Environment and Tourism (MET);               <ul style="list-style-type: none"> <li>• Department of Environmental Affairs (DEA);</li> </ul> </li> </ul>
Local Governance	Erwee Community Members
Media	Newspaper adverts: Die Republikein and The Namibian Sun
Other interested and affected parties	Any other people with an interest in the proposed project or who may be affected by the proposed project.

## 2.5 Steps in the consultation process

Table 4 sets out the steps that were followed as part of the consultation process:

**Table 5: Consultation process with I&APs and Authorities**

TASK	DESCRIPTION
<b>Notification - regulatory authorities and IAPs</b>	
Notification to MEFT	I.N.K submitted the Application Form (online system) to MEFT.
IAP identification	A stakeholder database was developed for the proposed project and EIA process. Additional I&APs will be updated during the EIA process as required.
Distribution of background information document (BID)	<p>BIDs were made available to all I&amp;APs on the project's stakeholder database and were available at the scoping meetings. Copies of the BID were available on request to I.N.K.</p> <p>The purpose of the BID was to inform I&amp;APs and authorities about the proposed project, the EIA process, possible environmental impacts and means of providing input into the EIA process. Attached to the BID was a registration and response form, which provided I&amp;APs with an opportunity to submit their names, contact details and comments on the project.</p>
Newspaper Advertisements	<p>Block advertisements were placed as follows:</p> <ul style="list-style-type: none"> <li>▪ Die Republikein (2 and 7 March 2022)</li> </ul>

TASK	DESCRIPTION
	<ul style="list-style-type: none"> <li>The Namibian Sun (2 and 7 March 2022)</li> </ul>
<b>Public meeting and Focus Group meetings and submission of comments</b>	
Scoping Meetings	<p>Several consultations were made with I&amp;APs. I&amp;APs were invited to attend a public meeting.</p> <p>Consultations were held with key stakeholders and affected parties as follows:</p> <ul style="list-style-type: none"> <li>The Erwee community members</li> </ul>
<b>Review of draft Scoping Report</b>	
IAPs and authorities (excluding MEFT:DEA) review of Scoping Report and EMP	<p>The Scoping Report (Main Report excluding Appendices) were sent via email to all parties who registered or showed an interest in this EIA process. Electronic copies of the full report (including appendices) were made available on request to I.N.K.</p> <p>Authorities and IAPs were given 14-working days to review the Scoping Report and submit comments in writing to I.N.K.</p>
MEFT review of Scoping Report and EMP	<p>A copy of the final Scoping Report, including authority and I&amp;AP review comments, was submitted to MEFT on completion of the public review process via the online application system.</p>

## 2.6 Summary of issues raised

All issues that have been raised to date by authorities and I&APs have been recorded as part of the Scoping Report. Below is a summary of the key issues raised:

- Social Responsibility to the Erwee Community such as community development programs.

This potential socio-economic impact is assessed further in section 8 of this report.

### **3 ENVIRONMENTAL LAWS AND POLICIES**

The Republic of Namibia has five tiers of law and a number of policies relevant to environmental assessment and protection, which includes:

- The Constitution.
- Statutory law.
- Common law.
- Customary law.
- International law.

Relevant policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).
- The National Climate Change Policy of Namibia (September 2010).
- Minerals Policy of Namibia (2004).
- Policy for the Conservation of Biotic Diversity and Habitat Protection (1994).
- Policy for Prospecting and Mining in Protected Areas and National Monuments (1999).

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

The management and regulation of mining activities falls within the jurisdiction of the Ministry of Mines and Energy (MME), with environmental regulations guided and implemented by the Department of Environmental Affairs (DEA) within the Ministry of Environment, Forestry and Tourism (MEFT).

The section below summarised the various applicable laws and policies, international treaties and protocols.

#### **3.1 Applicable Laws and Policies**

In the context of the mining activities, there are several laws and policies currently applicable. They are reflected in Table 5.

**Table 6: relevant legislation and policies**

YEAR	NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water (industrial & domestic)	Noise (remote only)	Visual	Vibrations	Impact on Land use	Impact on biodiversity	Impact on Archeology	Emergency situations	Socio-economic	Safety & Health	Other
1990	The Constitution of the Republic of Namibia of 1990	X	X	X	X	X	X	X	X	X	X	X	X	X	
1997	Namibian Water Corporation Act, 12 of 1997	X											X		
1992	The Minerals (Prospecting and Mining) Act 33 of 1992	X	X	X	X					X					
2001	The Forestry Act 12 of 2001	X							X	X					
2013	Water Resources Management Act 11 of 2013	X			X								X		
2004	National Heritage Act 27 of 2004										X			X	
2007	Environmental Management, Act 7 of 2007	X	X	X	X	X	X	X	X	X	X		X	X	
2012	Regulations promulgated in terms of the Environmental Management, Act 7 of 2007	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1975	Nature Conservation Ordinance 14 of 1975	X			X					X	X				
1976	Atmospheric Pollution Prevention Ordinance 11 of 1976		X												
1995	Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation	X	X	X	X	X	X	X	X	X	X	X		X	
2004	Pollution Control and Waste Management Bill (3rd Draft September 2003)		X	X	X	X									
1990	Petroleum Products and Energy Act, No. 13 of 1990		X	X	X					X				X	X

## 4 DESCRIPTION OF THE CURRENT ENVIRONMENT

### 4.1 Climate

The climatic condition of Kamanjab and the project area is characterized by an annual rainfall in this ecoregion range is from 250 mm to 300 mm. Over the years, it has been observed that most of the rain falls as thundershowers in the summer months, for example between October to March. However, there is great variation between years, with unpredictable rainfall.

The average maximum temperature is between 32-36°C and minimum between 6-8 °C. The hottest months of the year are December and January with an average temperature of 25.2 °C while the lowest average temperatures in the year occur in June and July, when it is around 17.0 °C. As such Kamanjab is characterized by two dominant seasons, a mild winter and very hot summer.

### 4.2 Geology

The Project Area lies centrally along the NNW-SSE trending Northern Platform, a package of Neoproterozoic carbonate dominated succession overlying Paleoproterozoic metamorphic basement of the Huab and Khoabendus Groups. To the south of the project area, the Northern Platform sediments lap against the Kamanjab Inlier, a regional basement high and the western margin of the Owambo Basin. The Kopermyn Inlier is a relatively small, isolated basement high, lying approximately 15 kilometres northeast of the Kamanjab Inlier margin.

The Kopermyn Inlier itself is comprised of a Mokolian aged Khoabendus Group metamorphosed volcano-sedimentary package overlying quartz feldspar porphyry tentatively correlated with the Huab Metamorphic Complex. These units are unconformably overlain by very low grade metamorphosed (white mica) Damaran sediments, firstly by Nosib Group clastic rocks and then Otavi Group carbonates and minor clastic rocks, along the margins of the inlier. The thickness and stratigraphic position of the Damaran package increases with distance from the inlier, with the sediments dipping away from the inlier margin. With increasing distance from the inlier the Mulden Group clastic sediments are observed to overlie the Otavi Group package. With the exception of localised open folding and dissolution brecciation in the dolomite package, the Damaran sediments are relatively fresh, undeformed and shallow dipping

Copper mineralisation in the Kamanjab area is largely confined to the basal clastic carbonate assemblage of the Nabis Formation (equivalent to the Nosib Group in the Kopermyn area) and the overlying Ombombo Subgroup. As these sediments, especially the Nabis Formation, were deposited in terrestrial, near shore and shallow marine environments, they are likely to have been, for the most part, oxidised at the time of deposition. From field and petrographic evidence it is apparent that this originally oxidised assemblage has subsequently become reduced, and in places strongly sericitised, prior to the “high grade” copper mineralisation event. This event was most likely to be as a result of a reducing fluid derived from within the basin and possibly hydrocarbon-bearing, which caused ubiquitous reduction of the “red-bed” hematite to pyrite. It is still unclear whether low grade chalcopyrite precipitation as well as the silicic and carbonic alteration occurred during this stage or later.



### 4.3 Hydrogeology

The MLs are located within the moderately productive aquifer and is situated in the Okavango Omatako Basin and the Ugab-Huab Basin, which is one of the largest basins that contains about 4500 m<sup>3</sup> average water volume per year. The MLs are situated in the ecoregion with moderately productive to the fractured aquifer, with boreholes that can supply water for domestic purposes, subsistence and small-to-large scale commercial farming.

### 4.4 Fauna

The project area is considered to be a path for various wildlife. MLs 71785 - 71794 is located in the ecological region with low-to-medium diversity of reptiles, birds and mammals which are associated with the rocky escarpment. The most important species that are expected to occur in the proposed project include, but are not limited to *Pedioplanis undata* (Sand lizard), *Trachylepis sulcata* (Western Rock Skink), *Chondrodactylus turneri* (Turner's thick toed Gecko), *Bitis arietans* (Puff Adder), *Stigmochelys pardalis* (Leopard Tortoise), *Trachylepis binotata* (Ovambo Tree Skink), *Geosceurus inauris* (South African Ground Squirrel), *Madoqua kirkii* (Kirks Dik-Dik), *Caracal caracal* (Caracal), *Achaea catela* (Banded Achaea), *Amadina erythrocephala* (Red Headed finch), *Anthene amarah* (black-striped hairtail), *Scolopendra morsitans* (Red-headed centipede), *Phacochoerus africanus* (Common Warthog), *Danaus chrysippus* (Plain tiger or African monarch), *Crocuta Crocuta* (Spotted Hyena), *Struthio camelus* (Common Ostrich). The most important habitat is the rocky outcrops and drainage lines.

### 4.5 Flora

The MLs are located in the ecoregion with low vegetation cover and scattered bare areas of sparsely distributed trees as well as shrubs. Across the proposed project area, the vegetation varies from dwarf shrub savannah to grassland ecosystem. Tree species such as *Acacia mellifera*, *Acacia reficiens*, *Grewia flavescens*, *Croton grattissimus*, *Boscia albitrunca*, *Cyphostemma currorri* and *Colophospermum mopane* are common. Low-to-medium biodiversity within the proposed project vicinity is probably associated with changing climate or shift in climatic condition, poor nutrient levels and unpredictable rainfall.

### 4.6 Heritage/Archaeology

The National Heritage Council Act 27 of 2004 provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Register; and to provide for incidental matters. In consultation with local people and random movement on site as well the use of National Heritage Register, there were no heritage or archaeological sites found, neither known on the MLs.

### 4.7 Socio-Economic

The mining activities do not involve significant employment. The effect on socioeconomic is deemed minimal. However, in cases where the mining yields into the establishment of a mine, there will be



great benefit to the socio-economic of the farm owners and surrounding people and towns. The project is not expected to negatively impact the operation of farmers. All operation must be within the confines of an agreement between Mr. F. Westraadt Investment and Erwee Community Leaders.



## 5 DESCRIPTION OF THE PROPOSED MINING ACTIVITIES

Mr. F. Westraadt proposes to undertake small-scale mining for copper.

### 5.1 Small-scale mining on MLs 71785 - 71794

The proposed small-scale mining will include the following primary activities/infrastructure;

- Employment and accommodation of new personnel
- Clearing of Vegetation
- Removal and stockpiling of topsoil.
- Use of heavy equipment/machinery for excavations
- Fencing of the mining area
- Drilling and blasting
- Mining
- Haulage of materials
- Waste rock dumping
- Processing of the ore (crushing, screening, addition of chemicals e.t.c)
- Transportation of product
- Explosive magazine
- Ablution and change room facilities
- Workshop

#### 5.1.1 Mining

The combined MLs have a life of approximately 4 years, delivering at an average of approximately 30 kilo tonnes per month (ktpm). The mining will involve conventional load and haul open pit small-scale mining operations.

#### 5.1.2 Mining method

Mining will commence through the construction of an open cut (box cut) developed at the start of the pit. During this phase, pre-stripping will take place over the areas to be mined. The topsoil will be removed mechanically and this will be stockpiled to be used for rehabilitation once mining is complete. The earthmoving fleet will consist of a backhoe excavator (TLB), a front end loader and a 10 t dump truck.

Following topsoil removal, overburden rock material (waste rock) will be removed by drilling and blasting. A truck and excavator combination will be employed for loading and hauling of material. Waste rock will be hauled to the designated waste rock dump near the pit. Mining of ore grade material will be limited to daylight hours where possible.

#### 5.1.3 Mining equipment

The primary mining fleet consist of all the equipment required to perform production; all other equipment required is classified as secondary equipment. The primary equipment includes:-

- excavators;

- haul trucks; and
- drill rigs.

The ancillary equipment utilised by the mining contractor are as follows:

- grader;
- diesel bowser;
- rock breaker;
- front end loader; and
- water truck.

## **5.2 Employment**

It is anticipated that the following personnel will be employed to carry out the above-mentioned activities:

- Geologist
- GeoTechnician
- Drill/Excavation Crew
- Semi-skilled/un-skilled workers

## **5.3 Staff/Employment and Accommodation**

Staff will be accommodated in Kamanjab Town.

## **6 PROJECT ALTERNATIVES**

Due to the nature and the scale of the proposed project, limited alternative options exist as described below.

## **7 THE “NO-GO” OPTION**

Even though the proposed mining may result in potential (additional) negative environmental and social impacts which are discussed in detail in Sections 7 & 8 of this report, it can be concluded that proceeding with this proposed mining will have benefits at the local, regional and national scale, which will result in significant positive social and economic impacts such as employment, investment and procurement of goods and services.



## **8 IDENTIFICATION AND DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS**

### **8.1 Aspect and Impact identification**

Table 6 provides a summary of all the operational activities/facilities and the potential impacts associated with the small-scale mining on MLs 71785 - 71794.

The relevance of the potential impacts (“screening”) are also presented in the tables below to determine if certain aspects need to be assessed in further detail (Section 8 of this report). Because of the existing baseline information obtained from the various studies conducted in the past; the detailed history of Environmental Applications; potential impacts of a similar nature has been assessed as part of this EIA process. Also, the relevant management and mitigation measures, to minimise or prevent the potential impacts, will be provided in Section 8 of this report.



**Table 7: environmental aspects and Potential impacts**

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
Small-scale mining activities	Clearing of vegetation and soil stripping (earthmoving equipment)	Potential impact on biodiversity (physical impacts and general disturbance) <ul style="list-style-type: none"> <li>• Loss of fertile soil</li> <li>• Loss of habitat</li> <li>• Loss of biodiversity</li> </ul>	The potential impacts relating to the physical destruction and disturbance of biodiversity is assessed as having a high significance (without mitigation) reducing to high-medium (with mitigation).  Taking the above into consideration, the potential physical impacts on biodiversity have been assessed (refer to Section 8). The related management and mitigation measures are stipulated in the EMP.	R01
		Potential impact on archaeological sites <ul style="list-style-type: none"> <li>• Destruction and loss of archaeological material</li> </ul>	Furthermore, no visible archaeological artefacts or heritage sites were noted in the vicinity of the proposed areas by I.N.K during the site visits and neither did any of the neighbouring IAPs raised any such concerns during the public participating process.	
	mining and drilling/excavation	Impact on groundwater water quality	The proposed pit poses the risk of contamination of water resources, mainly through accidental spills of hydrocarbons etc. However, due to the scale of the project, there is a low risk of big hydrocarbon spillages. The potential impacts relating to groundwater contamination were assessed as having a low significance both with and without mitigation.  The potential impacts on groundwater have been assessed as part of this EIA. Refer to Section 8 for the assessment of the potential impacts relating to surface water and groundwater.	R03

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
			The related management and mitigation measures as presented in the EMP.	
	Drilling, blasting, loading and vehicle movement causing dust	Increase in dust levels/health impacts <ul style="list-style-type: none"> <li>• Nuisance / Air pollution</li> <li>• Increased risk of respiratory diseases</li> </ul>	Even though the anticipated air quality impacts are expected to be less significant during the mining project, the potential impacts of dust generation have been assessed as part of this EIA. Refer to Section 8 for the assessment of the potential impacts relating to air quality. The related management and mitigation measures are stipulated in the updated EMP.	<b>R04</b>
	Drilling, blasting, and other mining activities causing noise	Increase in disturbing noise levels (nuisance) <ul style="list-style-type: none"> <li>• Noise pollution</li> <li>• Increased risk of damage to property</li> </ul>	Even though the anticipated noise related impacts are expected to be less significant during the mining project, the potential impacts of noise generation have been assessed as part of this EIA. Refer to Section 8 for the assessment of the potential impacts relating to noise. The related management and mitigation measures are stipulated in the updated EMP.	<b>R05</b>

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
	Blasting hazards	<p>Increase in ground vibrations and fly rock have the potential to damage structures and property.</p> <ul style="list-style-type: none"> <li>• Risk of damage to surrounding structures</li> <li>• fly rock can be released over a distance and can be harmful to people and animals/risk of accidents</li> </ul>	<p>Given the significantly small scope and scale of the mining project, this issue will not be further assessed in this report.</p>	<b>R06</b>
	Dust and other air emissions	<p>Increase in dust levels (nuisance &amp; health impacts)</p>	<p>Refer to reference R05 (similar comments apply).</p>	<b>R07</b>
	Movement of haul trucks on roads	<p>3<sup>rd</sup> party safety</p> <ul style="list-style-type: none"> <li>• Increased risk of accidents</li> </ul>	<p>Given the significantly small scope and scale of the mining, this issue will not be further assessed in this report.</p>	<b>R08</b>
	Oil and diesel spillages from earth moving	<ul style="list-style-type: none"> <li>• Contamination of surface water and groundwater</li> </ul>	<p>The potential for hydrocarbon spillages from earthmoving equipment (also during the refuelling of machinery and equipment) is always a possibility. Hydrocarbon spillages have the potential to cause an impact on soil and even</p>	<b>R09</b>



ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
	equipment	resources <ul style="list-style-type: none"> <li>Soil pollution</li> </ul>	groundwater. Even though the proposed “mini mining” project is small in scale and in scope (with assumed lower impacts), the potential pollution related impacts on soil, surface water and groundwater have been assessed as part of this EIA. Refer to Section 8 for the assessment of these potential impacts. The related management and mitigation measures are stipulated in the updated EMP	
Processing (heap leaching)	Clearing of bush and soil stripping (earthmoving equipment)	Potential impact on biodiversity (physical impacts and general disturbance)	Refer to reference R01 (similar comments apply).	<b>R10</b>
		Potential impact on archaeological sites	Refer to reference R02 (similar comments apply).	<b>R11</b>
	Noise	Increase in disturbing noise levels (nuisance)	Refer to reference R05 (similar comments apply).	<b>R12</b>
	Surface Water	Contamination of surface water resources	Refer to reference R03 (similar comments apply).	<b>R13</b>
	Groundwater	Contamination of groundwater resources (via contaminated soils/surface water).	Refer to reference R03 (similar comments apply).	<b>R14</b>
		Reduction of groundwater levels	Given the nature of the mining project, the potential impacts of groundwater have been assessed as part of this EIA. Refer to Section 8 for the assessment of	<b>R15</b>

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
		due to borehole abstraction	the potential impacts relating to groundwater levels. The related management and mitigation measures are stipulated in the updated EMP.	
	Visual	Increased visual impact <ul style="list-style-type: none"> <li>Loss of aesthetics</li> </ul>	Given that the proposed mining project is smaller in scale and in scope (with assumed lower visual impacts), the potential visual impacts have been assessed as part of this EIA. Refer to Section 8 for the assessment of these potential impacts. The related management and mitigation measures are stipulated in the updated EMP.	<b>R16</b>
	Soils	General disturbance and pollution of soils	Refer to reference R10 (similar comments apply).	<b>R17</b>
	Biodiversity	General disturbance of biodiversity	Refer to reference R01 (similar comments apply).	<b>R18</b>
		Destruction of biodiversity		
Transport, storage and handling of hydrocarbons, mining material, mineralised waste etc.	Increase in vehicular movement	Increased traffic impacts on the roads	Refer to reference R08 (similar comments apply).	<b>R19</b>
	Potential spillage/leakage of hydrocarbons etc.	Pollution of surface water resources, groundwater resources and soil contamination	Refer to reference R04 (similar comments apply).	<b>R20</b>
General activities, offices and buildings, ablution facilities, domestic	Waste disposal	Emissions to land, impact on biodiversity, environmental	Due to the scope and scale of the proposed mining project, the type and volumes of non-mineralised waste will be minimal. The operational workforce at the mine will be approximately 20 people and therefore overall waste generation is expected to be limited. The recyclable portion of general waste	<b>R21</b>

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
waste generation		degradation and nuisance impacts	<p>(including scrap metal, wood, paper, plastic, glass and cans) will likely be separated at source and will be removed from site to appropriate recycling facilities. Endeavours will be made to return e-waste and chemical containers to the suppliers. Waste bins will be removed from the offices and accommodation camp by tractor and the contents dumped in the small landfill. The waste will be periodically covered to prevent windblown litter and scavengers. Putrescible waste from the canteen may be land-farmed together with sewage sludge, to produce compost for mulching and rehabilitation purposes.</p> <p>This issue will therefore not be further assessed .</p>	
General operations, employment and resource management	<p>Economic impacts</p> <p>In-migration and community health /safety and security</p>	<p>Impacts on local economy, informal settlements,</p> <ul style="list-style-type: none"> <li>• Increased employment opportunities</li> <li>• Opportunity for skills transfers</li> <li>• Improvement in the business environment</li> <li>• increasing pressure on government services,</li> <li>• increased</li> </ul>	<p>The significance of the socio-economic impacts is assessed. Even though the proposed mining project is small in scale and in scope (with assumed low impacts), the potential socio-economic impacts (positive and negative) have been assessed as part of this EIA. Refer to Section 8 for the assessment of these potential impacts. The related management and mitigation measures are stipulated in the updated EMP</p>	R22

ACTIVITY/FACILITY RELATING TO OPERATIONAL PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
		demand for basic infrastructure, <ul style="list-style-type: none"> <li>• increased social ills, e.g family breakdowns, teenage pregnancies etc.</li> </ul>		
	Impacts on neighbouring communities	Noise, air emissions, community health/safety and security etc.		

With reference to Table 6 above, the following issues were identified as requiring assessment.

- Physical impacts on biodiversity due to bush clearing activities;
- Third party (and animals) safety:
- Air quality impacts (dust).
- Noise and vibrations

Refer to Section 8 of this Scoping Report for an assessment of the above mentioned issues.



## 9 ENVIRONMENTAL IMPACT ASSESSMENT

Table 7 shows the methodology used to conduct the qualitative assessment. Both the criteria used to assess the impacts and the method of determining the significance of the impacts is outlined. This method complies with the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) EIA regulations. Part A provides the approach for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D. Both mitigated and unmitigated scenarios are considered for each impact.

**Table 8: Assessment Methodology and Criteria**

PART A: DEFINITION AND CRITERIA					
Definition of SIGNIFICANCE		Significance = consequence x probability			
Definition of CONSEQUENCE		Consequence is a function of severity, spatial extent and duration			
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. Irreplaceable loss of resources.			
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.			
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.			
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.			
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.			
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.			
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short term			
	M	Reversible over time. Life of the project. Medium term			
	H	Permanent. Beyond closure. Long term.			
Criteria for ranking the SPATIAL SCALE of impacts	L	Localised - Within the site boundary.			
	M	Fairly widespread – Beyond the site boundary. Within 20 km of the site boundary.			
	H	Widespread – Far beyond site boundary. Regional/ national			
PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short term	L	Low	Low	Medium
SEVERITY = M					
DURATION	Long term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Low	Medium	Medium
SEVERITY = H					
DURATION	Long term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Medium	Medium	High
			L	M	H
			Localised Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/ national
SPATIAL SCALE					
PART C: DETERMINING SIGNIFICANCE					
PROBABILITY	Definite/ Continuous	H	Medium	Medium	High

<b>(of exposure to impacts)</b>	Possible/ frequent	<b>M</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>
	Unlikely/ seldom	<b>L</b>	<b>Low</b>	<b>Low</b>	<b>Medium</b>
			<b>L</b>	<b>M</b>	<b>H</b>
<b>CONSEQUENCE</b>					

**PART D: INTERPRETATION OF SIGNIFICANCE**

<b>Significance</b>	<b>Decision guideline</b>
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.



## **9.1 Biodiversity**

The section assesses the physical impacts on biodiversity associated with the proposed mining.

### ***Issue: physical impacts on biodiversity***

#### ***Introduction***

The bush clearing activities associated with the proposed mining has the potential to impact on biodiversity in the broadest sense. In this regard, the discussion relates to the physical destruction of specific biodiversity areas, of linkages between biodiversity areas and of related species which are considered to be significant because of their status, and/or the role that they play in the ecosystem.

#### ***Assessment of impact***

##### ***Severity***

In the unmitigated scenario, the clearing of the bush as well as other project related activities will result in the following impacts:

- Loss of habitats;
- Loss of shelter for smaller vertebrates, especially reptiles;
- Direct impacts to birds through removal of nest sites in plants and on the ground;
- Destruction of plants, including some of conservation concern;
- Animal mortality resulting from vehicles and machinery strikes as well as through clearing of land (i.e. slow moving animals and dormant invertebrates);
- Vehicle tracks damage the soil and inhibit root growth.
- Impacts on topsoil (i.e. damage / loss of topsoil).

In the unmitigated scenario, the severity is expected to be medium. With the implementation of mitigation measures, the severity can be reduced to low.

##### ***Duration***

In the unmitigated scenario the loss of biodiversity and related functionality and subsequent colonisation of alien/invasive species is long term and will continue after the life of the operation. This is a high duration. In the mitigated scenario, the duration reduces to medium.

##### ***Spatial scale***

Biodiversity processes are not confined to the project area. Due to ecosystem linkages and movement of animals, the loss of biodiversity has a medium rating.

##### ***Consequence***

In the unmitigated scenario, the consequence is high. With mitigation, the consequence is low.



### **Probability**

In the unmitigated scenario, the probability of the impact occurring is high. With the implementation of mitigation measures, the probability reduces to low.

### **Significance**

The significance of this potential impact is medium in the unmitigated scenario and low in the mitigated scenario.

Tabulated summary of the assessed impact – physical destruction of biodiversity

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	<b>M</b>	<b>H</b>	<b>M</b>	<b>H</b>	<b>M</b>	<b>M</b>
Mitigated	<b>L</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>

### **Mitigation measures**

The following actions are relevant:

- Keep footprint of project as small as possible and enforce the operational boundaries through highly visible signs and regulatory mechanisms such as fines or similar;
- Raise awareness through awareness campaigns and training of key staff;
- Once mining is completed, replace topsoil on affected areas according to a comprehensive restoration plan;
- Compile and implement an alien invasive management plan to prevent colonisation of disturbed areas by invader species;

## **9.2 Third Parties' (and animals) safety**

### **ISSUE: Dangerous excavations**

#### **Introduction**

Dangerous excavations and infrastructure include all structures into or off which third parties and animals can fall and be harmed.

#### **Assessment of impact**

##### **Severity**

In the unmitigated scenario, dangerous excavations include the mining activities. This infrastructure presents a potential risk of injury and/or death to both animals and third parties. This is a potential high severity. In the mitigated scenario the severity reduces to low as access control will be implemented at the mining sites to prevent and/or mitigate impacts.

##### **Duration**

In the context of this assessment, death or permanent injury is considered a long term, permanent impact. This is a high duration.

**Spatial scale**

Direct impacts associated with dangerous excavations will be located within the site boundary, with or without mitigation. The potential indirect impacts could extend beyond the site boundary to the families/communities to which the injured people and/or animals belong. This is a medium spatial scale.

**Consequence**

The consequence is high in both the unmitigated and mitigated scenarios.

**Probability**

In the unmitigated scenario, without management interventions, the probability of the impact occurring is expected to be medium due to the remoteness of the site. The mitigation measures focus on limiting access to third parties and animals which reduces the probability of the impact occurring to low.

**Significance**

In the unmitigated scenario, the significance of this potential impact is high. With the implementation of mitigation measures, the significance of this potential impact is medium because the probability of the potential impact occurring is reduced.

Tabulated summary of the assessed impact – dangerous excavations

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H	H	M	H	M	H
Mitigated	L	H	M	H	L	M

**Mitigation measures**

The following actions are relevant:

- The operational area will be fenced along the perimeter in order to control access by third parties and wildlife. The entrance gate will be staffed while mining activities are underway. During times when mining is not taking place, the entrance gate will be locked.

**9.3 Air Pollution**

**ISSUE: Air pollution**

**Introduction**

The activities associated with the mining have the potential to cause additional dust related impacts, particularly the access / haul road associated with the proposed mining where receptors reside within the zone of impact.

**Assessment of impact**

### **Severity**

The main source of nuisance dust associated with the proposed project is the access / haul road for the materials.

In the unmitigated scenario, where the community members reside; and the proposed route is followed for hauling of the product, the severity of this impact is high.

In the mitigated scenario the severity reduces to low as an alternative route further away from the households (more than 1 km) will be followed (or third parties are relocated) and additional dust mitigation measures will be applied.

### **Duration**

In both the unmitigated and mitigated scenarios, if human health impacts occur, these are potentially medium to long term in nature. This is a medium to high duration. Dust fallout impacts are of medium (nuisance) duration.

### **Spatial scale**

Cumulative air quality impacts are expected to be limited to the site boundary (i.e. the proposed ML area). This is a low spatial scale.

### **Consequence**

In the unmitigated scenario, the consequence is medium to high. With the implementation of mitigation measures, the consequence reduces to low as the severity is reduced.

### **Probability**

The health and nuisance impact probability is linked to the probability of ambient concentrations exceeding acceptable limits at third party receptors. Given that acceptable limits relating to specifically nuisance impacts will most likely be exceeded in the unmitigated scenario, the probability is high. Given the small scale and limited duration of the activities, the likelihood of health related impacts are possible in the unmitigated scenario. With mitigation the probability reduces to low.

### **Significance**

In the unmitigated scenario, the significance of the potential impact is medium high. In the mitigated scenario, the significance reduces to low.

Tabulated summary of the assessed air quality impacts – dust fallout

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	<b>H</b>	<b>M-H</b>	<b>L</b>	<b>M-H</b>	<b>H</b>	<b>M-H</b>
Mitigated	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>

### **Mitigation measures**

The following mitigation measures are recommended:

- Dust suppression on haul roads through the spraying of water.
- Monitoring the fallout dust at the closest sensitive receptor (i.e. above mentioned farm house) during the (and after) the mining activities to determine if there is an increase in ambient fallout dust levels.

## **9.4 Socio-economic environment**

### ***Socio-Economic Benefits***

#### ***Introduction***

The project has the potential to create socio-economic benefits through employment creation and economic contributions. The benefits include employment opportunities, skills and development training and indirect capital injection into businesses in Karibib and overall Erongo Region.

The project has potential to create employment, particularly for unskilled and semi-skilled labour.

Due to the fact that social impacts cannot be assessed in isolation, the assessments presented below are cumulative.

#### ***Severity***

The proposed project will contribute to the economy in the following positive ways:

Direct benefits include the sales of services provided by the operations; direct number of persons employed and their wages and salaries, taxes paid, and profits earned.

The provision of products and services to the project in order to produce, as well as the inputs purchased by the upstream supply chain will provide indirect economic benefits.

The spending of salaries and wages of construction workers and farm employees/contractors and of input providers on consumer goods will provide induced benefits. If these products and services are produced locally there will be greater economic impact, hence "Buy Namibian". The economic spin-offs from the project's construction and operations will provide income to the employees, their immediate household members and to others living elsewhere in Namibia who depends on cash remittances.

#### ***Impact on Government revenue***

The project will be responsible for corporate tax, sales tax and import duties. Some additional revenue will be gathered from the personal income tax of direct employees, their municipal rates, and VAT on goods and services they purchase, similarly for other employees in the supply chain of goods and services.

#### ***Duration***

In the normal course, the direct positive economic impacts associated with the project will occur for the life of operations. After decommissioning and closure there will be limited opportunities through

aftercare and monitoring activities. The project would have contributed to the establishment of a critical economic mass and hence the benefits of wealth creation and a better skilled workforce are expected to continue beyond the life of operations.

Quantitatively assessing the post closure impacts is not possible at this stage as there are a number of important unknown factors such as the general state of the future economy (local, national and world-wide) and the future state of the energy and other industrial sectors.

Skills development of local people would be for the long-term, and therefore, the duration of the positive impacts is **high**.

**Scale**

In both the unmitigated and mitigated scenarios, the impact will be experienced both in the region and throughout Namibia. The spatial scale is widespread beyond the project site and is therefore classified as high.

The severity and scale would therefore be **high**.

**Consequence**

The consequence of these potential positive impacts is **high**.

**Probability**

The probability of the positive impacts is considered **high**.

**Significance**

The significance of the positive impacts is **high**, particularly if local people are employed.

Summary of cumulative Positive Impacts on Socio-Economic Environment

MITIGATION	SEVERITY	DURATION	SPATIAL SCALE	CONSEQUENCE	PROBABILITY OF OCCURRENCE	SIGNIFICANCE
Unmitigated	H	H	H	H	H	H+
Mitigated	H	H	H	H	H	H+

**Mitigation Measures**

The following key measures for increasing the potential positive impacts should be implemented:

- Local people be preferentially selected to encourage social growth and development in the region, town and Namibia as a country; and
- Management is urged to begin local selection and provide technical training as soon as possible to enable local people to compete for the lower skilled jobs and upskill themselves in anticipation of the proposed project.

## ***Issue: Negative Impacts on the Socio-economic Environment***

### ***Introduction***

Although the project may benefit the socio-economic environment, the project may also draw people to the town (in-migration), which may place pressure on existing services and opportunities and may create health and safety issues, such as housing, health, sanitation and educational facilities. The influx of people may also result in an increase in negative social behaviours including an increase in the crime rate. It may also lead to increase in the spread of diseases.

### ***Severity***

The project is likely to stimulate a considerable influx of job-seekers. In-migration usually leads to an increased incidence of social ills including alcoholism, drug abuse, prostitution, gambling and criminality. Alcohol abuse is part of the accepted social norm in Namibia and is often stimulated by cash earnings which increase the likelihood of domestic violence (usually against women and children), unprotected sex and the spread of HIV. The influx of job seekers may increase over-crowding which increases the spread of TB.

Most of the seasonal workforce is unlikely to bring their families for a short-term contract. Management must therefore encourage local employment. There will be an increased demand on existing government infrastructure, in particular housing and medical facilities as a result of the project.

In the unmitigated scenario, the inward migration issue is predicted to have a cumulative **medium** severity. In the mitigated scenario, the inward migration severity may reduce to **low**.

### ***Duration***

In the normal course, these social impacts associated with the project will occur for the life of the operations. However, issues associated with inward migration can become self-feeding and are likely to extend for a much longer period.

The negative impacts, if not kept in check and mitigated, will be **medium**. If mitigated in conjunction with the Karibib Town Council, the impacts could be reduced to **low**.

### ***Scale***

In both the unmitigated and mitigated scenarios, the impacts of inward migration and pressure on Government services will be felt mainly in the region. The spatial scale is therefore **medium** but can be reduced to **low** through mitigation.

### ***Consequence***

The consequence of the negative impacts will be **medium** but if mitigated, then **low**.

### ***Probability***

The probability of the negative impacts is considered **medium** if unmitigated, and **medium** to **low** if mitigated.

### *Significance*

The probability of the negative impacts is considered **medium** but if mitigated, the impacts are considered to be **medium to low**.

Summary of cumulative negative Impacts on Socio-Economic Environment

MITIGATION	SEVERITY	DURATION	SPATIAL SCALE	CONSEQUENCE	PROBABILITY OF OCCURRENCE	SIGNIFICANCE
<b>Unmitigated</b>	M	M	M	M	M	M
<b>Mitigated</b>	L	L	L	L	M-L	M-L

### *Mitigation Measures*

The following key mitigation measures are recommended:

- Local people be preferentially selected to encourage social growth and development in the region and Namibia as a country;
- Management should work closely with the Erwee Community to manage in-migration, and the effects thereof;
- Management is urged to begin local selection and provide technical training as soon as possible to enable local people to compete for the lower skilled jobs and allow potential candidates to upskill themselves.

## **10 CONCLUSION AND WAY FORWARD**

It is I.N.K's opinion that the environmental aspects and potential impacts relating to the proposed small-scale mining have been successfully identified.

The assessment found that the proposed project present the potential for minimal additional risks and related impacts in the mitigated scenario. With regards to air quality; and third parties safety, without mitigation in place, the impacts related to people is likely to result in unacceptable impacts. With mitigation measures in place, the impacts reduce significantly.





## 11 REFERENCES

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