Excel Dynamic Solutions (Pty) Ltd

Environmental Scoping Assessment (ESA) For the Proposed Prospecting and Exploration activities on Exclusive Prospecting Licences (EPLs) No. 10029, 10048, and 10053 Located Northeast of Kamanjab, in Kunene Region.

ENVIRONMENTAL ASSESSMENT REPORT: **FINAL**

ECC Application Reference: APP- 005426

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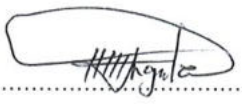

EAP Signature

Proponent Signature

June 2025

EXECUTIVE SUMMARY

Bamba Mining Namibia (Pty) Ltd (The Proponent) is applying to the Ministry of Environment, Tourism and Forestry (MEFT) to be granted an Environmental Clearance Certificate (ECC) for Exclusive Prospecting Licenses (EPLs) No. 10029, 10048, and 10053 from the Ministry of Industries, Mines & Energy (MIME). Excel Dynamic Solutions (Pty) Ltd (The Consultant) was appointed to act on behalf of the proponent in obtaining an ECC from MEFT. The EPLs covers a total surface area of 178 647.7600 hectares (ha), where EPL No. 10029 (centre coordinates: -19.3130;15.0630) covers an area of 28 889.9108 hectares (ha), EPL No. 10048 (centre coordinates: -19.5866;15.7344) covers an area 99 779.7718 hectares (ha) and EPL No. 10053 (centre coordinates: -19.3899;15.6599) covers an area 49 978.0774 hectares (ha). The EPLs are prospecting for the same commodities and located in close proximity to each other approximately 100km Northeast of Kamanjab in the Kunene region as shown in (**Figure 2**).

The target commodities for prospecting and exploration are **Base & Rare Metals, Industrial Minerals.**

The farms potentially impacted by the exploration and prospecting activities associated with the EPLs are presented in **(Figure 1)**.

EPL 10048			EPL 10029	EPL 10053	
Moreson No. 459	*De Rus No. 987*	*Nubes No. 32*	*Leeurante No. 660*	*Eldorado No. 449*	*Rustoord No. 1157*
Bellalaika No. 458	*Volmoed No. 446*	*Chaudamas No. 33*	*Gagarus No.289*	*Monte Bello No. 456*	*Toggekry No. 986*
Heimwee No. 460	*Truidia No. 300*	*Urib No. 301*	*Uitpruit No. 658*	*Leeuport No. 441*	*Verlos No. 748*
Stilverwag No.452	*Kroonkom No. 303*	*Spaarsaam No. 302*	*Koperwyn No. 689*	*Excelsior No. 442*	*Bakenskop No. 431*
Wildernis No. 453	*Lynkloof No. 444*	*Nimmerus No. 443*	*Vaalkop No. 657*	*Vierling No. 435*	*Heunningberg No. 727*
Volmoed No.446	*Buschberg No. 234*	*Louterwater No. 440*	*Babelsberg No. 637*	*Margo No. 438*	*Sandrivier No. 304*
Skuinspank No.879	*Byseewah No.688*	*Vergenoeg No. 448*	*Seringetti No. 659*	*Tiervlei No. 436*	*Windpoort No. 428*
Soris No. 213	*Boshoek No. 310*	*Springbok*	*Eensgesind No. 656*	*Mariana No. 437*	*Mon desir No. 298*
Arbeidsvreugde No 445	*Carolina No. 309*		*Grenswag No. 655*	*Florida Oos No. 439*	*Olifantshoek No. 297*
Afguns No.447	*Onduri No. 233*		*Brakpan No. 654*	*Sonop No. 434*	*Moesamoeroep No. 421*
Otjovasandu No. 183	*Doringlaagte No. 307*		*Kronendal No. 653*	*Burgerhof No. 432*	*Volouiga No. 424*
Boskop No. 235	*Wagstan No. 308*			*Avondvrede No. 430*	

Figure 1: Diagram indicating affected farms.

Prospecting and exploration-related activities are among the listed activities that may not be undertaken without an ECC under the Environmental Impact Assessment (EIA) Regulations, Subsequently, to ensure that the proposed activity is compliant with the national environmental legislation, the project Proponent, appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

The application for the ECC was compiled and submitted to the competent authority (Ministry of Environment, Forestry and Tourism (MEFT)) as the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project may be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

Brief Project Description

Planned Activities: Proposed Exploration Methods

The Proponent intends to adopt a systematic prospecting and exploration approach to the project as follows:

1. **Non-invasive Technique:**

    - **Desktop Study: Geological mapping**: Mainly entails a desktop review of geological maps and ground observations. This includes the review of geological maps of the area and on-site ground traverses and observations and an update where relevant, of the information obtained during previous geological studies of the area and aero-geophysics survey.
    - **Lithology geochemical surveys**: Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine if enough target commodities are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting a manual or excavator to further investigate the mineral potential. Soil sampling consists of small pits being dug where 1kg samples can be extracted and sieved to collect 50g of material. As necessary, and to ensure adequate risk mitigations, all major excavations will both be opened and closed immediately after obtaining the needed samples or the sites will be secured until the trenches or pits are closed. At all times, the land owners and other relevant stakeholders will be engaged to obtain authorization where necessary.

- **Geophysical surveys:** This will entail data collection of the substrata (in most cases service of an aero-geophysical contractor will be sourced), by air or ground, through sensors such as radar, magnetic, and electromagnetic to detect any mineralization in the area to ascertain the mineralization. Ground geophysical surveys shall be conducted, where necessary using vehicle-mounted sensors or handheld by staff members, while in the case of air surveys, the sensors will be mounted to an aircraft, which then flies over the target area.

2. **Invasive Technique:**

- **Detailed Exploration Drilling (Invasive Technique):** Should analyses by an analytical laboratory be positive, holes are drilled, and drill samples collected for further analysis. This will determine the depth of the potential mineralization. If necessary new access tracks to the drill sites will be created and drill pads will be cleared in which to set up the rig. Two widely used drilling options may be adopted; these are either Reverse Circulation (RC) drilling and/or diamond drilling. RC drilling uses a pneumatic hammer, which drives a rotating tungsten-steel bit. The technique produces an uncontaminated large-volume sample, which is comprised of rock chips. It is relatively quicker and cheaper when compared to other techniques like Diamond Drilling. However, diamond drilling may also be considered for this exploration program, for better geological control and to perform processing trials. A typical drilling site will consist of a drill-rig, and support vehicles as well as a drill core and geological samples store. A drill core equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility).

Public Consultation

Public Consultation Activities

Regulation 21 of the EIA Regulations details steps to be taken during a public consultation process and these have been used in guiding this process. The public consultation process assisted the Environmental Consultant in identifying all potential impacts and aided in the process of identifying possible mitigation measures and alternatives to certain project activities. The communication with I&APs about the proposed prospecting and exploration activities was done through the following means in this order to ensure that the public is notified and allowed to comment on the proposed project:

- A Background Information Document (BID) containing information about the proposed exploration activities was compiled and emailed upon request to all registered Interested and Affected Parties (I&APs).
- Project Environmental Assessment notices were published in New Era Newspaper **(10 January 2025 and 17 January 2025),** and The Namibian Newspaper **(10 January 2025 and 17 January 2025),** briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting was scheduled and held with the affected landowners on 02 April 2025 at a Hall on Farm Vierling at 10h00.
- The issues and concerns raised were noted and used to form a basis for the ESA Report and EMP.

Potential Impacts identified

The following potential impacts are anticipated:

- **Positive impacts**: Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer; Opens up other investment opportunities and infrastructure-related development benefits; Produces a trained workforce and small businesses that can serve communities and may initiate related businesses; Boosts the local economic growth and regional economic development and; Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.
- **Negative impacts**: Potential disturbance of existing tourism centred systems; Physical land/soil disturbance; Impact on local biodiversity (fauna and flora); Habitat disturbance and potential illegal wildlife and domestic hunting in the area (poaching); Potential impact on water resources and soils particularly due to pollution; Air quality issue: potential dust generated from the project; Potential occupational health and safety risks, Vehicular traffic safety and impact on services infrastructures such as local roads, Vibrations, and noise associated with drilling activities may be a nuisance to locals; Environmental pollution (solid waste and wastewater), Archaeological and heritage impact and Potential social nuisance and conflicts (theft, damage to properties, etc.).

The potential negative impacts were assessed, and mitigation measures were provided accordingly.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The potential impacts that are anticipated from the proposed project activities were identified, described, and assessed. For the significant adverse (negative) impacts with a medium rating, appropriate management, and mitigation measures were recommended for implementation by the Proponent, their contractors, and project-related employees.

The public was consulted as required by the EMA and its 2012 EIA Regulations (Sections 21 to 24). This was done via the two newspapers (New Era and The Namibian) used for this environmental assessment. A consultation through a face-to-face meeting with directly affected landowners whereby they raised concerns and comments on the proposed project activities.

The issues and concerns raised by the registered I&APs formed the basis for this Report and the Draft EMP. The issues were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the environmental and social components. Most of the potential impacts were found to be of medium-rating significance. With the effective implementation of the recommended management and mitigation measures, will particularly see a reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low). To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the reduced impacts' rating or maintain a low rating but to also ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away too.

It is crucial for the Proponent and their contractors as well as to effectively implement the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. All these would be done to promote environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the community and environment at large.

Recommendations

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the

recommended management and mitigation measures and with more effort and commitment put into monitoring the implementation of these measures.

It is, therefore, recommended that the proposed prospecting and exploration activities be granted an ECC, provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to explore and ensure compliance with these specific legal requirements.
- The Proponent and all their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.
- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per the provision made on the MEFT/DEAF's portal.

Disclaimer

Excel Dynamic Solutions (EDS) warrants that the findings and conclusion contained herein were accomplished following the methodologies outlined in the Scope of Work and Environmental Management Act (EMA) of 2007. These methodologies are described as representing good customary practice for conducting an EIA of a property to identify recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist subject property conditions that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information. The Consultant believes that the information obtained from the record review and during the public consultation processes concerning the proposed exploration work is reliable. However, the Consultant cannot and does not warrant or guarantee that the information provided by the other sources is accurate or complete. The conclusions and findings outlined in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

Some of the information provided in this report is based on personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES (To be submitted to MEFT and MME)

LIST OF ABBREVIATIONS

Abbreviation	Meaning
AMSL	Above Mean Sea Level
BID	Background Information Document
CV	Curriculum Vitae
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
ESA	Environmental Scoping Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
GG	Government Gazette

GN	Government Notice
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry, and Tourism
MIME	Ministry of Industries, Mines and Energy
PPE	Personal Protective Equipment
Reg	Regulation
S	Section
TOR	Terms of Reference

DEFINITION OF TERMS

Alternative	A possible course of action, in place of another would meet the same purpose and need of the proposal.
Baseline	Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	That part of the environment does not originate with human activities (e.g. biological, physical, and chemical processes).
Cumulative Impacts/Effects Assessment	About an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Decision-maker	The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.
Ecological Processes	Processes play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).

Environment	As defined in the Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored.
Exclusive Prospecting Licence	Is a license that confers exclusive mineral prospecting rights over the land of up to 1000 km2 in size for an initial period of three years, renewable twice for a maximum of two years at a time
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by the activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.
Fauna	All of the animals that are found in a given area.
Flora	All of the plants are found in a given area.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.

Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Nomadic Pastoralism	Nomadic pastoralists live in societies in which the husbandry of grazing animals is viewed as an ideal way of making a living and the regular movement of all or part of the society is considered a normal and natural part of life. Pastoral nomadism is commonly found where climatic conditions produce seasonal pastures but cannot support sustained agriculture.
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.
Terms of Reference (ToR)	Written requirements governing full EIA input and implementation, consultations to be held, data to be produced, and form/contents of the EIA report. Often produced as an output from scoping.

1 INTRODUCTION

1.1 Project Background

Bamba Mining Namibia (Pty) Ltd (The Proponent) is applying to the Ministry of Environment, Tourism and Forestry (MEFT) to be granted an Environmental Clearance Certificate (ECC) for Exclusive Prospecting Licenses (EPLs) No. 10029, 10048, and 10053 from the Ministry of Industries, Mines & Energy (MIME). Excel Dynamic Solutions (Pty) Ltd (The Consultant) was appointed to act on behalf of the proponent in obtaining an ECC from MEFT. The EPLs covers a total surface area of 178 647.7600 hectares (ha), where EPL No. 10029 (centre coordinates: -19.3130;15.0630) covers an area of 28 889.9108 hectares (ha), EPL No. 10048 (centre coordinates: -19.5866;15.7344) covers an area 99 779.7718 hectares (ha) and EPL No. 10053 (centre coordinates: -19.3899;15.6599) covers an area 49 978.0774 hectares (ha). The EPLs are prospecting for the same commodities and located in close proximity to each other approximately 100km Northeast of Kamanjab in the Kunene region as shown in (**Figure 2**).

The target commodities for prospecting and exploration are **Base & Rare Metals, Industrial Minerals.**

The farms potentially impacted by the exploration and prospecting activities associated with the EPLs are presented in **(Figure 1)** below:

EPL 10048			EPL 10029	EPL 10053	
Moreson No. 459	De Rus No. 987	Nubes No. 32	Leeurante No. 660	Eldorado No. 449	Rustoord No. 1157
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Figure 1: Diagram indicating affected farms.

Prospecting and exploration-related activities are among the listed activities that may not be undertaken without an ECC under the Environmental Impact Assessment (EIA) Regulations, Subsequently, to ensure that the proposed activity is compliant with the national environmental legislation, the project Proponent, appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

The application for the ECC was compiled and submitted to the competent authority (Ministry of Environment, Forestry and Tourism (MEFT)) as the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project may be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

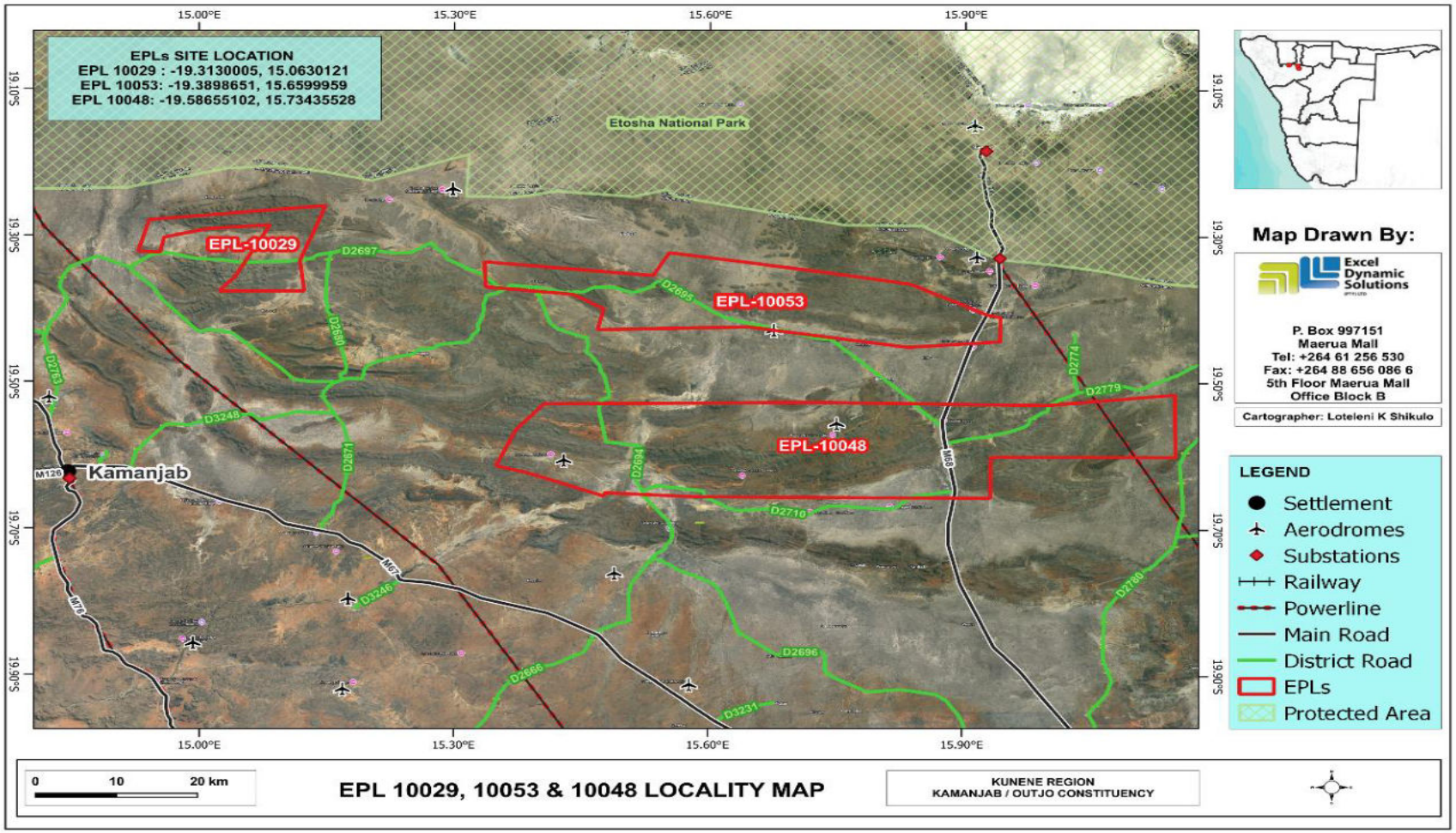


Figure 2: Locality map for EPL 10029, 10048, and 10053.

1.2 Terms of Reference, Scope of Works, and Appointed EA Practitioner

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed EDS to conduct the required Environmental Assessment (EA) process on their (Proponent's) behalf, and thereafter, apply for an ECC for exploration works on the EPLs. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its EIA Regulations (GN. No. 30 of 2012) to conduct the study.

The application for the ECC (**Appendix A**) is compiled and submitted to the Ministry of Environment, Forestry, and Tourism (MEFT), the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP) (**Appendix B**), an ECC for the proposed project may be considered by the Environmental Commissioner at the MEFT Department of Environmental Affairs and Forestry (DEAF).

The EIA project is headed by Ms. Iyaloo Nakale, a qualified and experienced EAP. The consultation process and reporting are done by Mr. Wilbard Angula. The EAP CVs is presented in (**Appendix C).**

1.3 Motivation for the proposed activities.

The mining sector is crucial to Namibia's economic progress and overall development. Since the initial discovery of minerals, it has been the second-largest contributor to the country's GDP, following government services (MEFT, 2018). This industry supports employment opportunities, boosts economic growth, and strengthens ties with global trade partners. As reported by the Chamber of Mines (2023), the sector contributed over 14% of the country's GDP and accounts for 50% of export earnings. Moreover, mining stimulates downstream industries such as manufacturing, logistics, and services, thereby fostering economic diversification. Mineral exploration, predominantly conducted by the private sector, generates temporary employment opportunities and tax revenues, which support social and infrastructural development. Notably, corporate tax contributions from mining operations amounted to N$ 3.967 billion in 2023 (Chamber of Mines, 2023). Namibia's mineral resources, particularly uranium and rare earth elements, are critical for global renewable energy and technology sectors, positioning the country as a key player in decarbonization efforts.

The mining sector also enhances human capital development by producing a skilled workforce and fostering small businesses that serve local communities. In 2023, the industry directly employed 8,950 permanent workers, 803 temporary employees, and 8,436 contractors (Chamber of Mines, 2023). Furthermore, exploration activities stimulate ancillary industries, including the manufacturing of mining equipment and the provision of engineering and environmental services. Additionally, Corporate Social Investment (CSI) initiatives support education, healthcare, and small enterprise development, further integrating mining into broader socio-economic progress.

Given its substantial contributions, the mining sector is integral to Namibia's national development goals, helping meet global mineral demand while driving national prosperity. However, these benefits must be balanced with stringent environmental and social safeguards in compliance with Namibia's Environmental Management Act (No. 7 of 2007) and international best practices. The successful exploration of Exclusive Prospecting Licenses (EPLs) 10029, 10048, and 10053 could unlock further mineral resources, aligning with the objectives of Namibia's national development plans.

1.4 Motivation for Exploration activities for EPL 10029, 10048, and 10053 in close proximity to the Protected Areas (Etosha National Park).

The EPLs 10029, 10048 and 10053 do not overlap with any state protected areas as stipulated by the National Policy on Prospecting and Mining in Protected Areas. However, they are located in close proximity to Etosha National Park a recognized protected area under the National Policy on Prospecting and Mining in Protected Areas (Ministry of Environment and Tourism, Forestry (MEFT), 2018). The common de facto buffers around protected areas such as Etosha National Park is approximately 10 kilometres. The MEFT holds the final authority in assessing and mitigating impacts on protected areas, while the Environmental Commissioner is responsible for reviewing EIAs and imposing necessary conditions.

The EPLs 10029, 10048, and 10053 are situated near active Mining Claims (MCs 75089–75094), owned by JG Mining (Pty) Ltd (90%) and Mining Licence (ML no. 57) owned by Hoanib, as well as other active prospecting licenses, including EPL 8707 (JG Investment Sixteen (Pty) Ltd), EPL 7719 (Sumer Minerals Resources Namibia (Pty) Ltd), and EPLs 7212 & 7213 (Votorantim Metals Namibia (Pty) Ltd). These existing mining and exploration activities also lie between Etosha National Park and Kamanjab upon that the consultant believes an ECC may be issued but only

on the condition that all the proposed mitigation measures are effectively implemented and continuously monitored.

1.5 Namibia's Approach towards exploration and Mining in a National Park

Any mining development in a Protected areas must be balanced against the risk that it could jeopardize the potential for long-term sustainable development. Prospecting and exploration of minerals, elements and rocks stated in the Minerals (Prospecting and Mining) Act of 1992 are permitted as such developments are in the national interest. The targeted commodity groups are listed in the Minerals Act. The National Policy on Prospecting and Mining in Protected Areas developed in 2018 states that granting of an Exclusive Prospecting and Mining Licenses is permitted in Protected Areas and National Monuments upon presenting a plan of activities that will be carried out using best practice, taking into account long-term national benefits and conservation efforts.

The Policy of the Conservation of Biotic Diversity and Habitat Protection was drafted by MEFT in 1994 to ensure adequate protection of all species and subspecies, of ecosystems, and of natural life-support processes.

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

Prospecting and exploration of minerals are the first components of any potential mining project. These are carried out to acquire the necessary data required for further decision-making and investment options. These activities are anticipated to last for about three years. The exploration process includes three phases - prospecting, exploration, and the decommissioning of works.

2.1 Prospecting Phase (Non- Invasive Techniques)

2.1.1 Desktop Study

This mainly entails a desktop review of geological maps of the area, on-site ground traverses and observations, and an update, where relevant, of the information obtained during previous geological studies of the area.

2.1.2 Geophysical surveys

Geophysical surveys entail data collection of the substrata by air or ground, through sensors such as radar, magnetic, and/or electromagnetic sensors, to detect and ascertain any mineralization in the area. Ground geophysical surveys shall be conducted, where necessary, using vehicle-

mounted sensors or handheld by the exploration crews, while in the case of air surveys, the sensors are mounted to an aircraft, which navigates over the target area.

2.1.3 Lithology geochemical surveys

Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine the sufficiency of the mineral and the feasibility of mining the mineral. Additionally, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting a manual or excavator to further investigate the mineral potential.

Soil sampling consists of small pits being dug, where 1kg samples can be extracted and sieved to collect about 50g of material. As necessary, and to ensure adequate risk mitigation, all major excavations will be closed immediately after obtaining the needed samples, or the sites will be secured until the trenches or pits are closed. The landowner and other relevant stakeholders will be engaged to obtain authorization where necessary.

2.2 Exploration Phase (Invasive Techniques)

2.2.1 Exploration Phase (Invasive Techniques)

The selection of the potential mineralization model and exploration targets will be based on the local geology, and the trenching, drilling, and assay results of the samples collected. The planned exploration activities are aimed at delineating the mineral deposits and determining whether the deposits are economically feasible mining resources.

2.2.2 Detailed Exploration (Drilling)

Should analyses by an analytical laboratory yield positive results, drilling commences, and drill samples are collected for further analysis. This determines the depth of the potential mineralization. If necessary, new access tracks to the drill sites are created and drill pads at which to set up the rig are cleared. Two widely used drilling options may be adopted - the Reverse Circulation (RC) drilling method and/or the Diamond (Core) drilling method. The RC drilling method uses a pneumatic hammer, which drives a rotating tungsten-steel bit. RC Drilling produces an uncontaminated large-volume sample, which comprises rock chips. It is relatively quicker and cheaper when compared to other techniques like Diamond Drilling. However,

diamond drilling may also be considered for this exploration program, for better geological control and to perform processing trials.

A typical drilling site consists of a drill-rig and support vehicles, as well as a core and geological samples store. A drill equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility).

Other aspects of the proposed exploration operations include:

2.2.3 Accessibility to Site

The EPL 10029 is accessible via D2697, D2695 and D2793; EPL 10048 via D2695; and EPL 10053 via D2695, D2710 and D2694, all in the Kunene Region. The Proponent may need to upgrade access roads to accommodate project-related vehicles, including heavy trucks.

2.2.4 Material and Equipment

The requirements of the exploration program in terms of vehicles and equipment include (4X4) vehicles, a truck, water tanks, drill rigs and drilling machines, and a power generator. Equipment and vehicles will be stored at a designated area near the accommodation site or a storage site established within the EPL area.

2.2.5 Services and Infrastructure

- **Water:** Water for the exploration operations on the EPL will be obtained from the nearest existing boreholes, or the proponent will drill boreholes within the EPL, upon obtaining necessary permits and signed agreements with the landowners in the area. The estimated monthly water consumptions are approximately 3000 Liters per EPL. This includes water for drinking, sanitation, cooking, dust control (if necessary), as well as washing of equipment.
- **Power supply:** Power required during the operation phase will be provided by diesel generators. About 200 litres of diesel will be used per month.
- **Fuel (diesel for generators and other equipment):** The fuel (diesel) required for exploration equipment will be stored in a tank mounted on a mobile trailer, and drip trays will be readily available on this trailer and monitored to ensure that accidental fuel spills are cleaned up as soon as they have been detected/observed. Fuel may also be stored in a bunded diesel bowser on site, and in jerry cans placed on plastic sheeting to avoid unnecessary contamination of soils.

2.2.6 Waste Management

The site will be equipped with secured waste bins for each type of waste (i.e., domestic, hazardous, and recyclable). Depending on the amount generated, waste will be sorted and collected as regularly as possible and taken to the nearest certified landfill site. An agreement will need to be reached with different waste management facility operators/owners and authorization or permits will be obtained before utilizing these facilities, in the case of production of any hazardous waste.

- **Sanitation and human waste**: Portable ablution facilities will be used, and the sewage will be disposed of according to the approved disposal or treatment methods of the facility manufacturer.
- **Hazardous waste**: Drip trays and spill control kits will be available on-site to ensure that oil/fuel spills and leaks from vehicles and equipment are captured on time and contained correctly before polluting the site.

The waste produced on-site can also be categorized as mineral or non-mineral waste:

- **Mineral Waste:** Consists of solid products of exploration and mineral concentration to acquire the targeted minerals. Mineral waste will potentially be produced throughout the project exploration phase. This waste will be stripped and dumped in allocated areas as stipulated in the EMP.
- **Non-mineral Waste:** Consists primarily of auxiliary materials that will support the exploration phase. This includes but is not limited to items such as empty containers, plastic, etc., and other domestic waste. This waste will be collected, sorted, and taken to the dumpsite as regularly as necessary.

2.2.7 Safety and Security

- **Storage Site**: Temporary storage areas for exploration material, equipment, and machinery will be required at the campsite and/or exploration sites. Security will be supplied on a 24-hour basis at the delegated sites for storage. A temporary support fence surrounding the storage site will be constructed to ensure people and animals are not put at risk.
- **Fire management:** A minimum of basic firefighting equipment, i.e., fire extinguishers will be readily available in vehicles, at the working sites and camps. The exploration crew is required to have the contact details of the nearest fire station at hand in case of a larger scale of fires at the site.
- **Health and Safety**: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at the site. A first aid kit will be readily available on-site to attend to potential minor injuries.

2.2.8 Accommodation

The exploration crew engaged in exploration activities will be housed either on the farm or in established campsites proximate to the work areas. In instances where on-farm accommodation is required, formal arrangements will be negotiated and documented with the landowner prior to camp establishment. All exploration operations will be conducted during daylight hours. Staff not residing at on-site facilities will be transported daily between their accommodations and the exploration sites.

2.3 Decommissioning and Rehabilitation Phase

Once the exploration activities on the EPL come to an end, the Proponent will need to put site rehabilitation measures in place. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. An unfavourable economic situation or unconvincing exploration results might force the Proponent to cease the exploration program before the predicted closure. Therefore, it is best practice for the Proponent to ensure the project activities cease in an environmentally friendly manner, and the site is rehabilitated.

3 PROJECT ALTENATIVES

Alternatives are defined as the “different means of meeting the general purpose and requirements of the activity” (EMA, 2007). This section highlights the different ways in which the project can be undertaken, and identifies alternatives that may be the most practical, but least damaging to the environment.

Once the alternatives have been established, these are examined by asking the following three questions:

- What alternatives are technically and economically feasible?
- What are the environmental effects associated with the feasible alternatives?
- What is the rationale for selecting the preferred alternative?

The alternatives considered for the proposed development are discussed in the following subsections.

3.1 Types of Alternatives Considered

3.1.1 The "No-go" Alternative

The “no action” alternative implies that the status quo remains, and nothing happens. Should the proposal of exploration activities on the EPLs, be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is to be discontinued, the current land use for the proposed site will remain unchanged.

This no-go option is considered and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative, is undertaken to establish what benefits might be lost if the project is not implemented. The key losses that may never be realized if the proposed project does not go ahead include:

- Loss of foreign direct investment.
- About ten (10) temporary job opportunities for community members will not be realized.
- No realization of local business supports through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.
- Loss of potential income to the local and national government through land lease fees, license lease fees, and various tax structures.
- Improved geological understanding of the site area regarding the targeted commodities.
- Socio-economic benefits such as skills acquisition for local community members would be not realized.

Considering the above losses, the “no-action/go” alternative may not necessarily be considered a viable option for this project, although, in the case where parts of the project site are considered environmentally sensitive and/or protected, one or several sections of the site may be identified as no-go zones.

3.1.2 Exploration Location

The prospecting/exploration location is dependent on the geological setting (regional and local), the economic geology, and the exploration and mining history of the EPLs area. Therefore, finding an alternative location for the planned exploration activities is not possible. This means that the mineralization of the target commodities is area-specific, and exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (an ore-forming

mechanism)). The tenement has a sufficient surface area for future related facilities, should an economic mineral deposit be defined.

The potential locations of mineral resources nationwide are mapped and categorized by the Ministry of Industries, Mines and Energy as exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses, and exclusive reconnaissance licenses on the Namibia Mining Cadastral Map https://maps.landfolio.com/Namibia/ Cadastral information on EPLs No. 10029, 10048, and 10053 is shown in **Figure 3**.

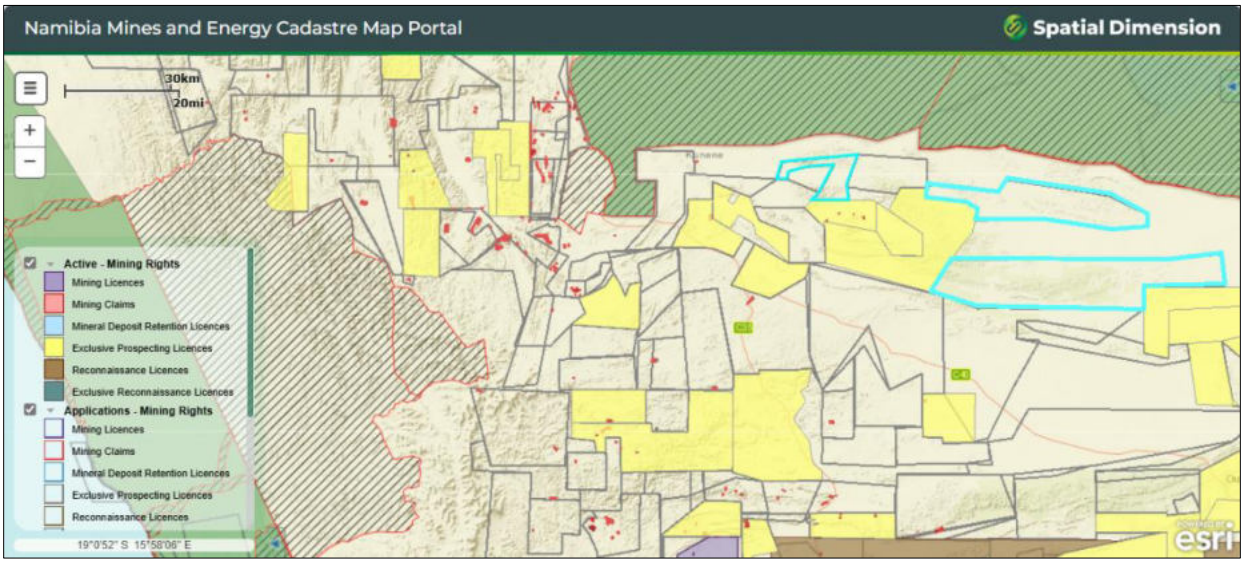


Figure 3: EPL No. 10029, 10048, and 10053 on the National Mining Cadastre.

3.1.3 Exploration Method

Both invasive and non-invasive exploration activities are expected to take place. If an economically viable discovery is made, the project will proceed to the mining phase upon approval of a mining license. If any other alternative viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

Table 1: Presentation of pitting, and trenching as well as comparison of reverse circulation and diamond drilling methods

Invasive exploration Method (Alternatives Considered)	Short Description	Justification for selected option
Pitting and trenching	-Pits and trenches, or to use the old Cornish mining term, costeans, can be a quick, cheap way of obtaining lithological and structural information in areas of shallow cover. -Pitting is usually employed to test shallow, extensive, flat-lying bodies of mineralization. An ideal example of this would be a buried heavy mineral placer. -The main advantage of pitting over a pattern-drill programme on the same deposit is that pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of variable grade distribution, which are a characteristic feature of such deposits.	-Quick, cheap way of obtaining lithological and structural information in areas of shallow cover. -Pits can provide a very large volume sample. Large sample sizes are necessary to overcome problems of variable grade distribution, which are a characteristic feature of such deposits. -Trenches are an excellent adjunct to RC drilling programmes, where the structural data from trench mapping are needed to complement the lithological information obtained from the drill cuttings (Marjoribanks, 1997)

	-Trenches are usually employed to expose steep dipping bedrock buried below shallow overburden and are normally dug across the strike of the rocks or mineral zone being tested (Marjoribanks, 1997).	
Reverse Circulation (RC)	-Crushed rock is collected in the form of cuttings samples called back within stems contrast to conventional drilling that puts the air inside the stems and cuttings outside. Here the air passes downwards through the annular space between the inner shaft and the outer tube. -Water is often used down the hole to cool the drill bit and reduce dust as well as assisting with the transportation of sample bits to the surface. -RC drilling is designed for drilling through and crushing hard rock. -RC is fundamentally different from diamond core drilling, both in terms of equipment and sampling. One major difference is that RVC drilling creates small rock chips instead of solid core. Furthermore,	-Compared to diamond drilling, RC requires less water. Therefore, RC drilling will put less pressure on water supply and use. The major differences between RC and diamond drilling are in the rate of penetration and cost per foot. RVC drilling is much faster than diamond core drilling, and much less expensive. -Unlike diamond drilling, this process creates rock chips that can be analysed, rather than a solid, cylindrical piece of rock. -Some types of information, such as structural details, are not possible to obtain in the absence of solid rock. Despite this disadvantage, much valuable information

	according to Technidrill (2020), the RC method: -Allows full recovery of samples continuously -Quick installation -There is no contact between the walls and cuttings taken at the bottom. -The penetration rate is fast (Techndrill, 2020)	can still be obtained from the rock chips. For example, the chips are much easier to examine under a microscope. Testing of fluorescence and effervescence are easily accomplished (Earth Science Australia, 2020). It is for these reasons that RC will be the most preferred method and mainly used. However, the RC drilling would be combined with Diamond drilling where necessary for more reliable data collection and analysis. Diamond drilling would more applicable where deeper holes are required than is possible using RC drilling. - In-fill drilling would also be applied to support an update to a higher classification of the Mineral Resource estimate.
Infill drilling	The progress of an exploration project mostly depends on the result of the primary boreholes. Therefore, primary exploration boreholes must intersect high-grade mineralization zones with considerable thickness. On the other hand, the infill boreholes are designed based on obtained results from the primary boreholes (Fatehi, et al., 2017). Therefore, infill drilling is intended	

	to support an update to a higher classification of the Mineral Resource estimate. The metallurgical test-work results will improve understanding of blending designs in the exploration schedules for the product offtake specifications (Canyon Resources, 2021).	
Diamond (Core) drilling	-Diamond core drilling uses a diamond bit, which rotates at the end of drill rod (or pipe). The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface -The diamond bit is rotated slowly with gentle pressure while being lubricated with water to prevent overheating. As a result, this drilling method is known to use a huge amount of water compared to RC, thus may put pressure on water supply sources. -While the drill cuttings obtained with RC drilling can be analysed to provide a limited amount of information, the scope of these tests is limited, and their locations are less precise. Core samples, on the other hand, will identify actual veins of materials and give you their precise	

	location (BG Drilling, 2016). Therefore, for accuracy's sake, diamond drilling would provide better result. In other words, RC results are reliable but may not be accurate. -As diamond is one of the strongest materials in the world, it has no trouble drilling through most surfaces. Therefore, it works well across a wider range of ground types and conditions. -Time-consuming and more effort is required to obtain the drill core. -Low initial investment, but generally more expensive to meters drilled because of the limitation of the speed.	

The final drilling technique would be determined by the mineralization type. However, based on the information presented in the Table above regarding the detailed exploration methods (drilling), it was found and pre-determined that Reverse Circulation (RC) drilling would be preferable as much as possible given its efficiency in terms of costs, operating speed and environmentally friendly (water demand) compared to Diamond drilling (which not likely to be used for this proposed exploration. Although RC drilling is known to have its shortcomings, particularly lack of solid drill recovery and inaccuracy, it is usually combined with Diamond drilling for the exploration of some minerals, if the borehole(s) needs to be deeper than what RC can.

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

Prospecting and exploration activities have legal implications associated with certain applicable legal standards. A summary of applicable and relevant international policies and Namibian legislation, policies, and guidelines for the proposed development is given in this section (**Table 2**). This summary serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF, of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed prospecting and exploration activities.

4.1 The Environmental Management Act (No. 7 of 2007)

This EIA was carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30).

The EMA has stipulated requirements to complete the required documentation to obtain an ECC for permission to undertake certain listed activities. These activities are listed under the following Regulations:

- *3.1 The construction of facilities for any process or activities which requires a license, the right of other forms of authorization, and the renewal of a license, right, or other forms of authorization, 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.*

The Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).

Other legal obligations that are relevant to the proposed activities of EPL No. 10029, 10048, and 10053 and related activities are presented below**.**

Table 2: Applicable local, national and international standards, policies and guidelines governing the proposed prospecting and exploration activities

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended: **Government of the Republic of Namibia**	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…the duty to investigate complaints concerning the over-utilization of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: "…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."	By implementing the environmental management plan, the establishment will be conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.
The National Policy on Prospecting and	Requires that, where necessary a Memorandum of Understanding is developed between prospecting and mining Companies, the MEFT and the	The Proponent should maintain the integrity of ecosystems and natural resources, and avoiding degradation of areas

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Mining in Protected Areas	MIME to set out additional implementation mechanisms.	highly sensitive for their ecological, social and/or cultural heritage value.
Minerals (Prospecting and Mining) Act (No. 33 of 1992): **Ministry of Industries, Mines and Energy (MIME)**	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 52(1) mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilized for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough, etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance. Section 54 requires a written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area. Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of	The Proponent should enter into a written agreement with landowners before exploring their land. On commercial land, the Proponent should engage the landowners for land use consent. An assessment of the impact on the receiving environment should be carried out. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities. The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
	the effect which the proposed prospecting operations may have on the environment and the measures to be taken to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	
Nature Conservation Amendment Act, No. 3 of 2017: **Ministry of Environment, Forestry and Tourism (MEFT)**	National Parks are established and gazetted following the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework concerning the permission of entering a state-protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PAs and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and another State land in the Project Site area. The Proponent will also be required to comply with the existing and planned local operational management plans, regulations, and guidelines.
The Parks and Wildlife Management Bill of 2008**:**	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Ministry of Environment, Forestry and Tourism (MEFT)	sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and contribute to national development.	
Mine Health & Safety Regulations, 10th Draft**: Ministry of Health and Social Services (MHSS)**	Makes provision for the health and safety of persons employed or otherwise present in the mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations concerning their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)**: Ministry of Industries, Mines and Energy (MIME)**	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under the authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorization from the MIME for the storage of fuel on-site.
The Regional Councils Act (No. 22 of 1992)**: Ministry of Urban and Rural**	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning perspective, their duties include, as described in section 28 "to undertake the planning of the	The relevant Regional Councils are IAPs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Kunene

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Development (MURD)	development of the region for which it has been established with a view to physical, social and economic characteristics, urbanization patterns, natural resources, economic development potential, infrastructure, land utilization pattern and sensitivity of the natural environment.	Regional Council; therefore, they should be consulted.
Water Act 54 of 1956**: Ministry of Agriculture, Water and Land Reform (MAWLR)**	The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority. The permits and license required thereto should be obtained from MAWLR's relevant Departments (these permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, Wastewater / Effluent Discharge Permits).
Water Resources Management Act (No 11 of 2013)**: Ministry of Agriculture, Water and Land**	The Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services, and provides for incidental matters. The objects of this Act are to:	

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Reform (MAWLR)	Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).	
National Heritage Act No. 27 of 2004**: Ministry of Education, Arts, and Culture (MEAC)**	To provide 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 Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with this act's requirements. The necessary management measures and related permitting requirements must be taken. This is done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be incorporated into the Draft EMP.
The National Monuments Act (No. 28 of 1969)**: Ministry of Education, Arts, and Culture (MEAC)**	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969)**: Ministry of Agriculture, Water and Land**	The Act makes provision for the prevention and control of soil erosion and the protection, improvement, and conservation of soil, vegetation, and water supply sources and resources,	Duty of care must be applied to soil conservation and management measures must be included in the EMP.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Reform (MAWLR)	through directives declared by the Minister.	
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of traditional government, of traditional authority councils; the establishment of such authority councils; and to define the powers, duties and functions of traditional authority councils; and to provide for incidental matters.	Kamanjab and Outjo are the responsible local Authorities of the area therefore they should be notified.
Public Health Act (No. 36 of 1919)**: Ministry of Health and Social Services (MHSS)**	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."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)**: Ministry of Health and Social Services (MHSS)**	Details various requirements regarding the health and safety of labourers.	
Public and Environmental Health Act No. 1 of 2015**: Ministry of**	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which	The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe,

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Health and Social Services (MHSS)	he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	or not injurious or dangerous to public health, and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels. Public and environmental health should be preserved and remain uncompromised.
Atmospheric Pollution Prevention Ordinance (1976)**: Ministry of Health and Social Services (MHSS)**	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on-site.
Hazardous Substance Ordinance, No. 14 of 1974**: Ministry of Health and Social Services (MHSS)**	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal, and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment
Road Traffic and Transport Act, No. 22 of 1999**: Ministry of Works and**	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	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.

Legislation / Policy / Guideline: Custodian	Relevant Provisions	Implications for this project
Transport (Roads Authority of Namibia)	vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access to existing roads, the relevant permits will be required.	
Labour Act (No. 6 of 1992)**: Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)**	Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety, and enhanced labour market services for the benefit of all Namibians. This ministry insures the effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.
Traditional Authority Act (Act No. 25 of 2000): **Ministry of Urban and Rural Development (MURD)**	The Act also stipulates that Traditional Authorities (TAs) should ensure that natural resources are used on a sustainable basis that conserves the ecosystem. This Act implies that they must be fully involved in the planning of land use and development for their area. It is the responsibility of the TA's customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area.	The EPL 10048 has resettlement farms located in the Hai||om traditional authority Constituency. Therefore, the community members should be consulted throughout the Project.

4.2 International Policies, Principles, Standards, Treaties, and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are listed in **Table 3** below.

Table 3: International Policies, Principles, Standards, Treaties and Convention applicable to the project

Statute	Provisions	Project Implications
Equator Principles	A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The principles apply to all new project financings globally across all sectors. Principle 1: Review and Categorization Principle 2: Environmental and Social Assessment Principle 3: Applicable Environmental and Social Standards Principle 4: Environmental and Social Management System and Equator Principles Action Plan Principle 5: Stakeholder Engagement Principle 6: Grievance Mechanism Principle 7: Independent Review Principle 8: Covenants	These principles are an attempt to: '…encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.'

Statute	Provisions	Project Implications
	Principle 9: Independent Monitoring and Reporting Principle 10: Reporting and Transparency	
The International Finance Corporation (IFC) Performance Standards	The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of the IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below. Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts Performance Standard 2: Labour and Working Conditions	The Performance Standards are directed toward clients, guiding how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business sustainably, including stakeholder engagement and disclosure obligations of the Client (Borrower) concerning project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other

Statute	Provisions	Project Implications
	Performance Standard 3: Resource Efficient and Pollution Prevention and Management Performance Standard 4: Community Health and Safety Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities Performance Standard 8: Cultural Heritage Performance Standard 9: Financial Intermediaries (FIs) Performance Standard 10: Stakeholder Engagement and Information A full description of the IFC Standards can be obtained from http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1	strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives.
The United Nations Convention to Combat	Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of	The project activities should not be such that

Statute	Provisions	Project Implications
Desertification (UNCCD) 1992	biodiversity and the mitigation of climate change. The convention's objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nations Convention.	they contribute to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, to ensure their conservation and sustainable use. Promote the protection of ecosystems, and natural habitats, and the maintenance of viable populations of species in natural surroundings.	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimized.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: “a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

Relevant international Treaties and Protocols ratified by the Namibian Government

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.
- Convention on Biological Diversity, 1992.
- World Heritage Convention, 1972.

5 ENVIRONMENTAL AND SOCIAL BASELINE

The project activities will be undertaken in specific environmental and social conditions. The understanding of these conditions helps in identifying the sensitive environmental features that may need to be protected through the implementation of certain management and mitigation measures. The summary of selected physical, biological and social baseline information of the project area is provided below as per the site visit conducted by the Environmental Consultant on the 02-03 April 2025, 31 May 2025 and relevant published reports and books.

The climatic conditions of the project area are described using the available nearest data for the area obtained from the Meteoblue websites.

5.1 Biophysical Environment

5.1.1 Climate

Climate has a major influence on the exploration activities proposed on the EPLs. Understanding of climatic conditions helps to determine the appropriate and/or inappropriate times to conduct exploration activities. Located at an elevation of 1230 meters above sea level, Kamanjab region has a tropical and subtropical steppe climate (Classification: BSH). The region experiences its highest temperatures, reaching up to 34°C, during the months of October and November, while the lowest temperatures, dropping to approximately 11°C, occur in July. The highest recorded rainfall is 93 millimetres (mm), typically observed in February. The primary rainfall season spans from November to April, whereas the winter season, characterized by minimal to no precipitation, extends from May to September. **Figure 4** shows the climate condition of Kamanjab in Kunene region.

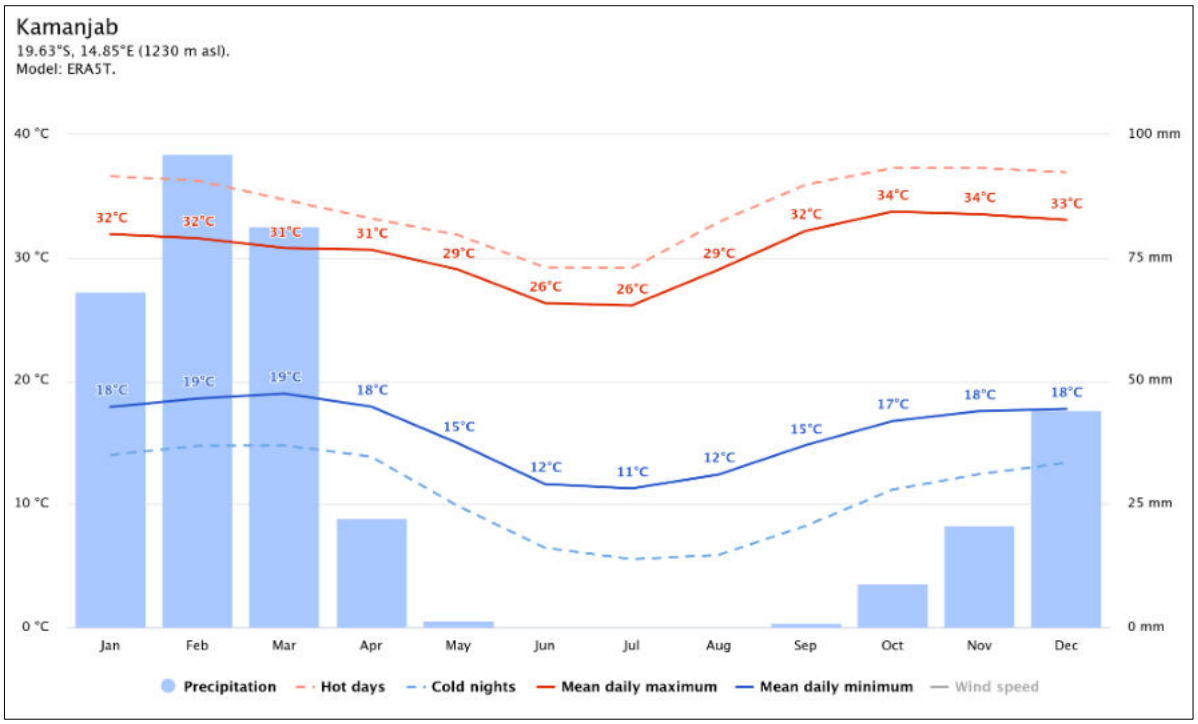


Figure 4: Climate Conditions in Kamanjab (source: (Meteoblue, N.D))

5.1.2 Topography

The EPLs show two different topographic features. Among the three licences surveyed, EPLs 10029 and 10048 are predominantly located within the Karstveld, whereas EPL 10053 is situated on the Kalahari Sandveld. According to the Atlas of Namibia Team (2022), the Karstveld is defined by a geomorphological landscape developed on ancient sedimentary rocks, deposited approximately 750–600 million years ago in a shallow marine environment rich in microbial mats. In contrast, the Kalahari Sandveld consists of extensive flat terrains dominated by unconsolidated sands originating from the Kalahari Basin, frequently forming elongated parallel dune systems (Atlas of Namibia Team, 2022).

The southern area covers the Kamanjab Plateau, which the Atlas of Namibia Team (2022) describes as a relatively flat area with scattered low, rolling hills composed of accumulated boulders. To the north, the Etosha Pan and its associated smaller pans are situated within a shallow basin. These features typically remain dry but may intermittently fill due to localized rainfall. However, none of the EPLs under consideration are located within the Etosha Pans or the Kamanjab Plateau landscape. **Figure 5** below show the Topography map of the project area.

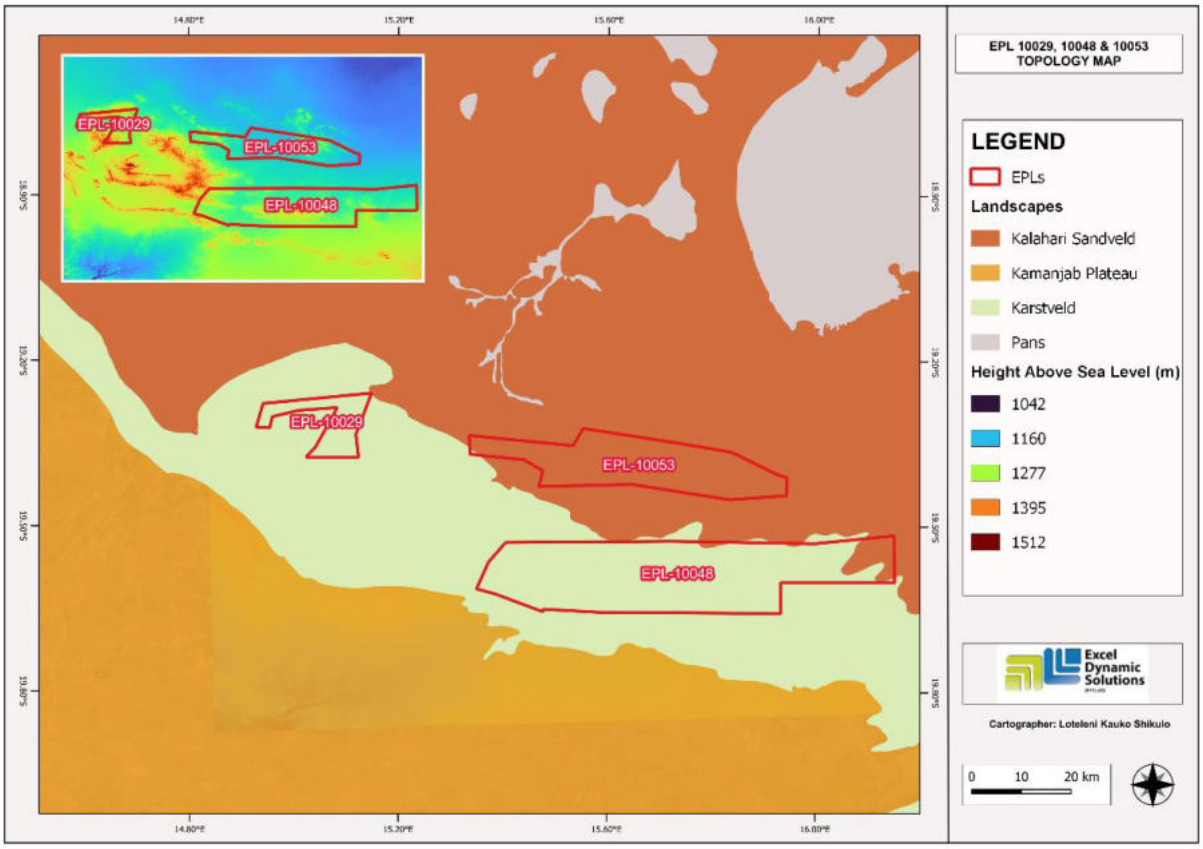


Figure 5: Topography Map for EPL 10029, 10048, and 10053

Figure 6: General topography overview.

5.1.3 Geology

The EPLs 10029, 10048, and 10053 shows significant geological diversity, including Proterozoic to Phanerozoic rock units. The basement consists of the Huab Metamorphic

Complex, which is overlain by Neoproterozoic metasedimentary and subordinate metavolcanic rocks of the Damara supergroup (Porada, 1974). The dominant lithologies on the three EPLs comprised primarily of dolomite, limestone, shale, chert, quartzite, schist, and phyllite, reflecting a complex depositional and metamorphic history. The upper part of the map indicates stratigraphic sequences characterized by granite and granodiorite intrusions, as well as in the southwestern part. The southern region is predominantly composed of metamorphic units, including para-orthogneiss, metasedimentary rocks, iron formations, ortho-amphibolite, granitic rocks, and schist. The central part specifically around EPL 10048 shows notable structural complexity, such as numerous faults, inferred faults, and anticlines. An anticline is a convex fold in which the oldest strata are positioned at the core, forming an arch-like structure. **Figure 7** below show the geology map of the EPLs.

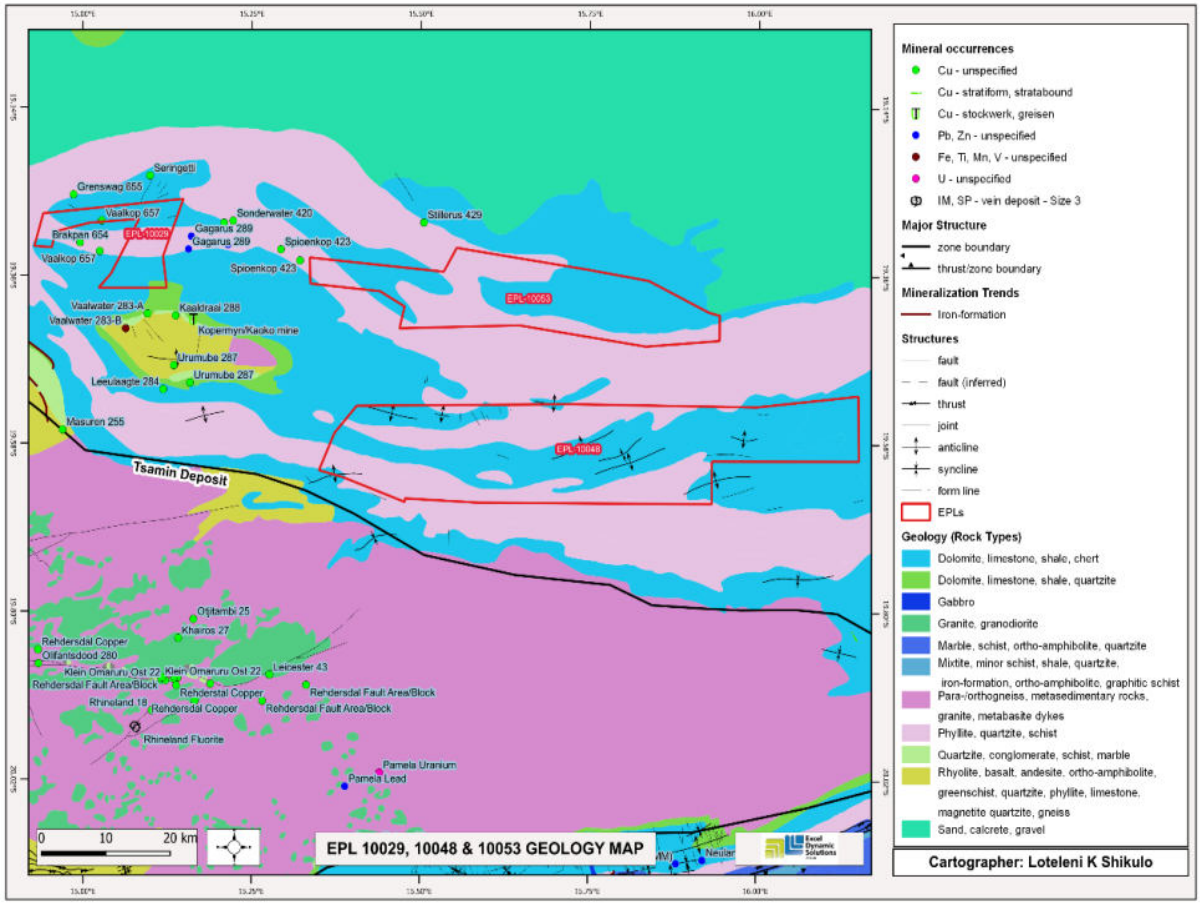


Figure 7: Geology map – EPL 10029, 10048, and 10053.

5.1.4 Soil

The EPLs areas are primarily characterized by rock outcrops, which consist of exposed bedrock formations that project above the earth's surface. These outcrops can be composed of sedimentary, igneous, or metamorphic rocks and display considerable distinction in size and morphology. Their prevalence restricts soil formation, as limited weathering and

insufficient organic matter accumulation hinder pedogenic processes. Surrounding areas may feature shallow, poorly developed soils, in this case its Moltic leptosols.

Leptosols are characterized by being either very shallow soils lying directly over solid rock or highly rocky soils containing less than 20% fine earth, which refers to soil particles smaller than 2 mm in diameter (Coetzee, 2021). These soils are azonal, meaning they can be found in various climatic regions without restriction. They are commonly observed in mountainous areas, regions with rugged and fragmented landscapes, and places where soil erosion occurs faster than the processes of soil formation or sediment deposition. Moltic leptosols a substrata from the leptosols are characterized by shallow, rocky soils formed by the erosion of highlands and escarpments, where weathering of underlying dolomite, limestone, or calcrete bedrock dominates. Characterized by a petro-calcic horizon and abundant rounded calcrete pebbles, they have low water retention due to their stony, gravelly nature. Though highly fertile, their poor agricultural potential stems from their thin structure (Strohbach & Kutuahuripa, 2014). **Figure 8** below is a map of the soil types found within the EPL area.

It is notable that during the operational phase of the project, soil sampling may be conducted**.** *Therefore, the Soil Conservation Act (No 76 of 1969) should be taken into account to ensure that soils are conserved in a way that does not promote soil erosion.* (Refer to the EMP).

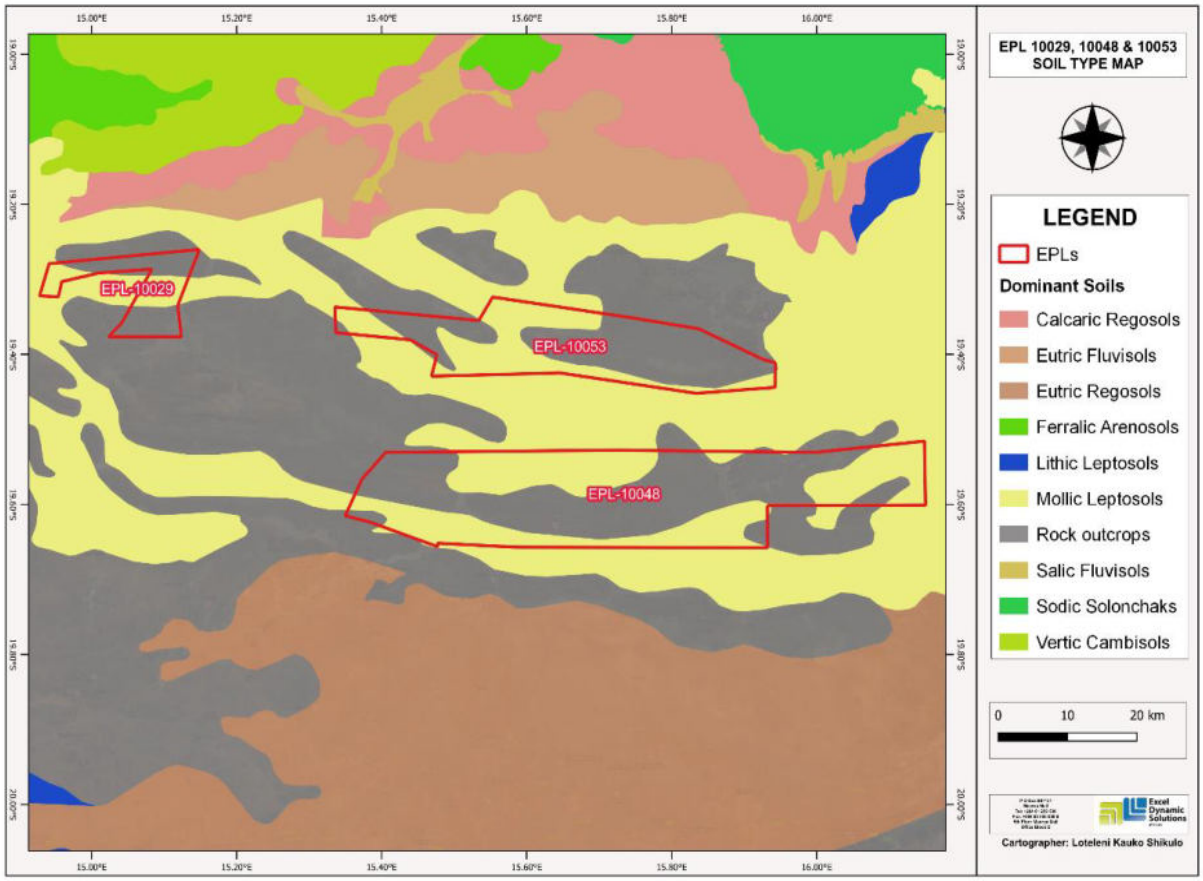


Figure 8: Soil Map for EPLs 10029, 10048, and 10053.

Figure 9: Type of soil observed on the EPL.

5.1.5 Water Resources: Groundwater and Surface Water

The EPLs predominantly overlie fractured, fissured, or karstified aquifers with moderate to high groundwater potential, which explains the high density of boreholes in these areas. Due to the moderate to high groundwater potential, the EPLs are predominantly prone to moderate groundwater vulnerability, however EPLs 10029 and 10048 overlay portions of an area which is of high groundwater vulnerability. Groundwater vulnerability in the region ranges from high to very high in the northern areas, particularly near EPL 10029 and parts of EPL 10053, suggesting increased susceptibility to contamination and a higher rate of recharge. In contrast, EPL 10048 show moderate to rather low vulnerability. The groundwater potential of the underlying rock bodies varies across the licenses. EPL 10029 and parts of EPL 10053 are largely underlain by fractured, fissured, or karstified aquifers with high to moderate groundwater potential, making them suitable for water exploration and development. EPL 10048, on the other hand, exhibits more heterogeneity, with sections of high-potential fractured aquifers interspersed with zones of lower potential rock bodies. The southern and southwestern margins of the map display rock bodies with very low to limited groundwater potential, particularly around EPL 10048, where groundwater availability may be constrained. Overall, the area shows a favourable hydrological setting for localized groundwater

development, especially in the fractured aquifer zones. **Figure 10** shows the hydrological map of the project area.

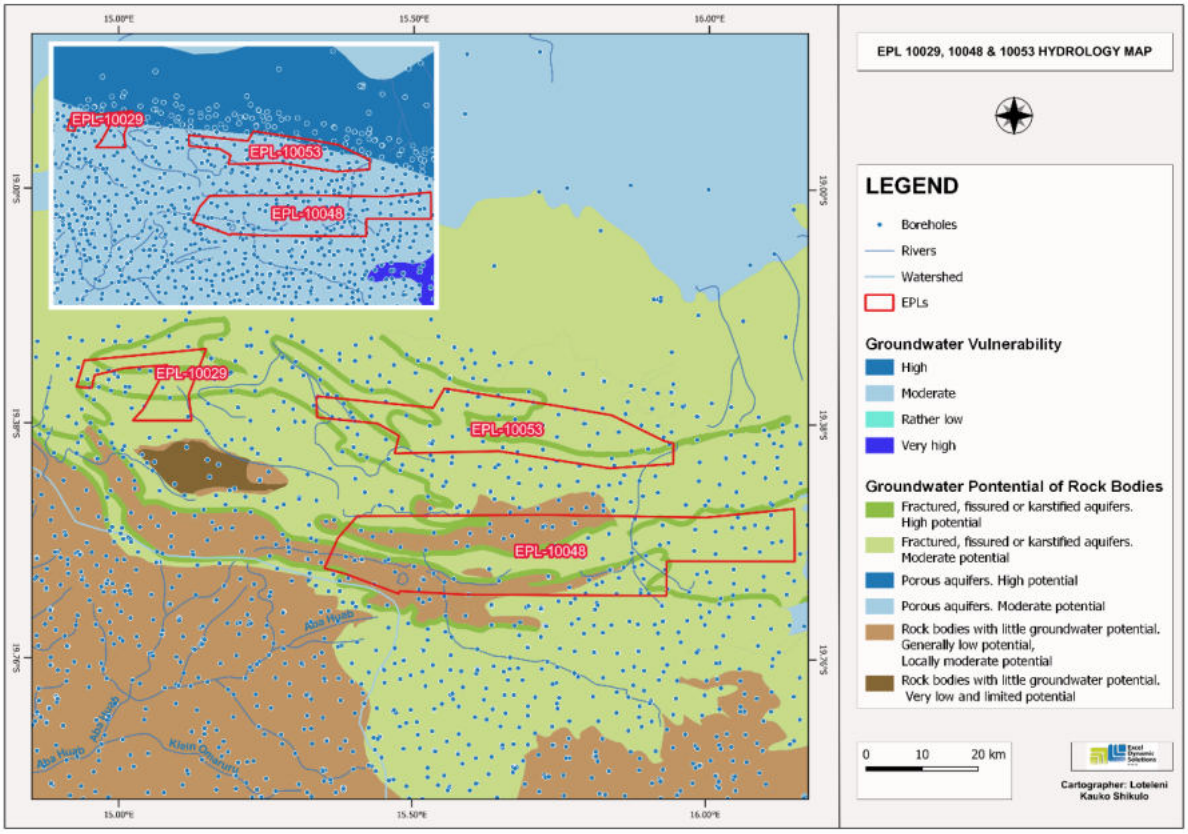


Figure 10: Hydrological map – EPL 10029, 10048, and 10053.

Figure 11: Boreholes observed on the EPLs.

5.1.6 Flora and Fauna

5.1.6.1 Flora

The three EPLs fall under the Karstveld vegetation cover according to (Strohbach & Strohbach, 2023) The Karstveld in Namibia has been recognized as an area of high plant diversity. Karstveld fall under the Acacia shrub biome where the dominate structure is mixed woodland and the florist group is Zambezian domain (Atlas of Namibia Team, 2022).

The area shows a semi-arid savanna ecosystem characterized by a diverse mix of low-growing grasses, scattered shrubs, and thornbush vegetation. The dominant plant species within the EPLs consist of *mopane* (Colophospermum mopane), *catophractes alexandri* (Trumpet thorn), *terminalia prunioides* (Purple-pod Cluster-leaf), *commiphora africana* (African myrrh) and along with various thornbush species, including *vachellia tortilis* (Umbrella thorn), camelthorn (Vachellia erioloba) and shrubs such as *datura ferox* (fierce thorn-apple). It is important to note that the operational phase of the project might necessitate the clearance of vegetation to accommodate access roads and drilling sites. In compliance with legal and environmental safeguards, the Forest Act (No. 12 of 2001) and the Nature Conservation Ordinance of 1975 must be strictly adhered to. These regulations ensure the protection of flora, particularly protected species such as Mopane and Commiphora species mandate that necessary permits be secured prior to any vegetation clearance. **(Figure 12)** below shows the vegetation map for the project area, and **(Figure 13)** shows the observed vegetation on the EPL.

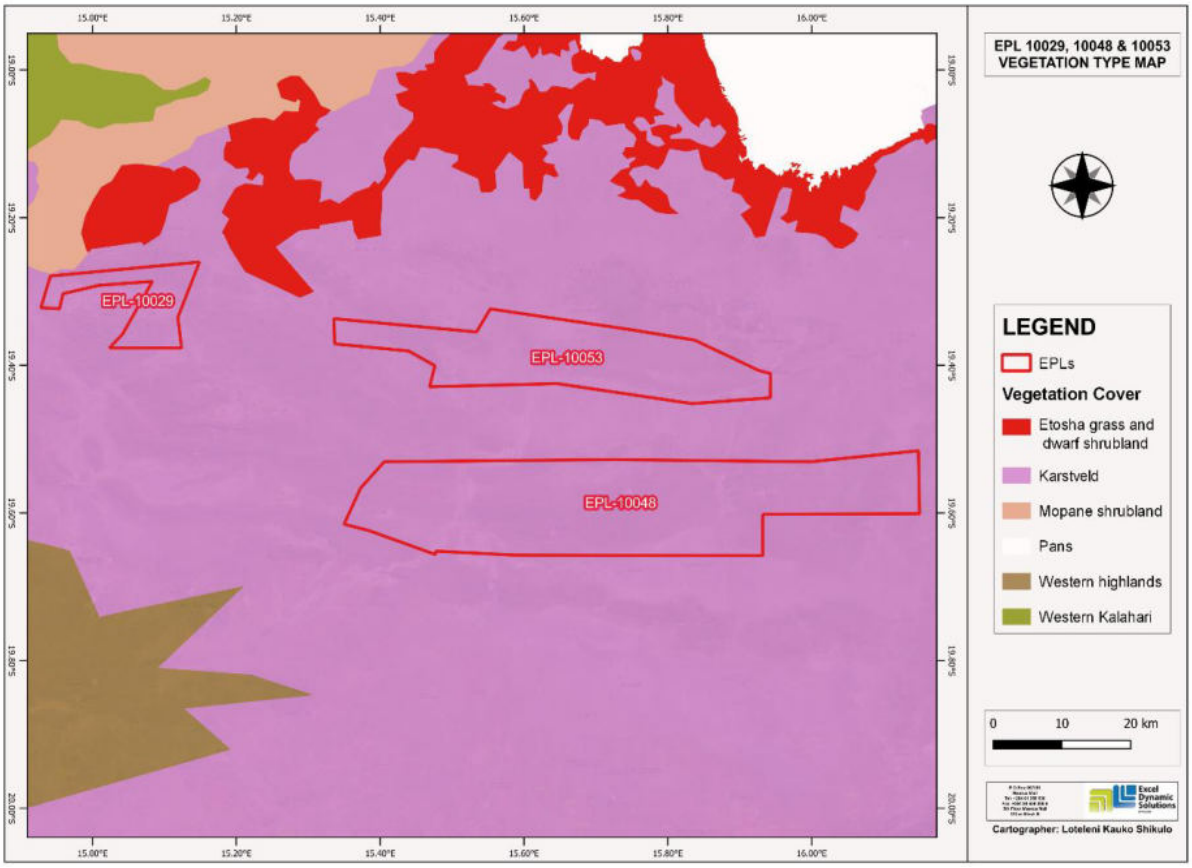


Figure 12: Vegetation Map.

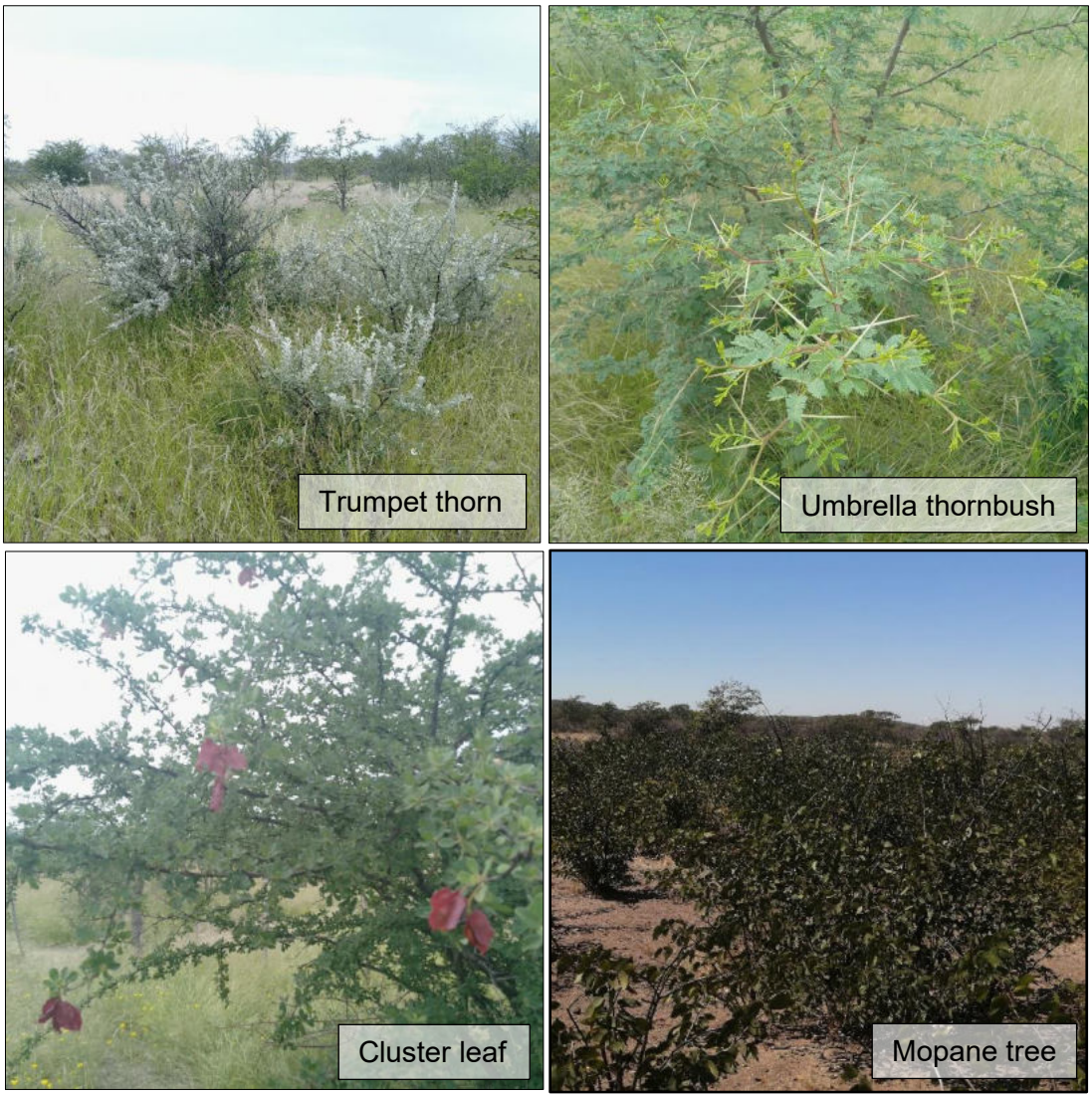


Figure 13: Observed vegetation on EPL 10029, 10048, and 10053.

5.1.6.2 Fauna

The EPLs areas are situated in close proximity to the Etosha National Park, furthermore two EPLs namely 10029 and 10053 overlie portions of the Ongava Game Reserve, Epacha Game reserve, and the Etosha Heights private reserve which is the largest private reserve in Namibia. These areas support an impressive diversity of megafauna and other wildlife species, including giraffe (Giraffa camelopardalis), both black and white rhinoceros (Diceros bicornis and Ceratotherium simum), African elephant (Loxodonta africana), along with numerous antelope species such as kudu (Tragelaphus strepsiceros), springbok (Antidorcas marsupialis), and the black-faced impala (Aepyceros melampus petersi). Large predators including leopard (Panthera pardus), cheetah (Acinonyx jubatus), and spotted hyena (Crocuta crocuta), African lion (Panthera leo) are also present in the ecosystem, along with other species such as plains zebra (Equus quagga), bat-eared fox (Otocyon megalotis), and blue wildebeest (Connochaetes taurinus). In addition, the area, which also supports agricultural

activities, is home to livestock such as cows, goats, and sheep. **(Figure 15)** shows some of the observed fauna. **Table 4** indicate some of the mobile wildlife and their categories under the IUCN red list.

Table 4: Conservation status of wildlife species mobile in selected area according to the IUCN Red List of Threatened Species.

Species	Categorized by their IUCN Red List status (Critically Endangered, Endangered, or Vulnerable).
White Rhinoceros (*Ceratotherium simum*)	**Near Threatened**
Black Rhinoceros (*Diceros bicornis*)	**Critically Endangered**
Brown Hyena (Parahyaena brunnea)	**Near threatened**
Cheetah (*Acinonyx jubatus*)	**Vulnerable**
Leopard (Panthera pardus)	**Vulnerable**
Angolan Giraffe (Giraffa giraffa angolensis)	**Vulnerable**
Hartmanns Mountain Zebra (Equus quagga)	**Vulnerable**
Black faced impala (Aepyceros melampus caama)	**Vulnerable**
Tsesseb (Damaliscus lunatus)	**Vulnerable**
African Elephant (*Loxodonta africana*)	**Endangered** (in some regions)
Lappet-faced Vulture (*Torgos tracheliotos*)	**Endangered**
White-backed Vulture (*Gyps africanus*)	**Critically Endangered**

Figure 14: Animals observed on the EPLs 10029, 10048 and 10053.

Sensitivity Areas within EPL 10029, 10048 & 10053: No-go exploration areas.

The areas presented below are regarded as sensitive within the EPL during exploration phase:

Areas that Fall within the Black rhino custodian: These areas are highly sensitive due to the presence of critically endangered rhinos, which face severe threats of extinction. Both black rhinoceroses (Diceros bicornis) and white rhinos (Ceratotherium simum) inhabit the EPL region they remain vulnerable to illegal hunting (poaching), making it risky to publicly disclose their specific hotspots, as this could further endanger the species. However, acknowledging their presence in the area justifies enforcing strict patrols and monitoring all activities. Before commencing any operations particularly drilling on the EPL the proponent must notify the Ministry (MEFT), the Partners of the custodians that host these endangered species. Depending on the potential impact, the Anti-Poaching Unit may need to oversee the exploration program to ensure no harm comes to white rhinos, black rhinoceroses, or other sensitive wildlife in the area.

Areas of archaeological importance: A 1-kilometer buffer zone must be established around sites with gravestones, sacred burial grounds, or rock carvings/paintings to ensure their preservation.

Breeding area for vulnerable species: Area such as the Ondundonzu ondananadan Mountains that host Leopard densities and serves as a breeding spot for Leopards.

5.2 Heritage and Archaeology

5.2.1 Local Level and Archaeological Findings

No nationally recognized archaeological sites have been recorded within the EPLs. However, according to an analysis of national archives and survey data by Dr. John Kinahan, the Kunene region holds significant archaeological heritage, particularly Holocene-era rock art (Environmental Compliance Consultancy (ECC), 2021). The closest documented rock engraving is located at Peet Alberts Rock Engravings approximately between 30-60km to the EPLs. Given this proximity, there is a possibility that undiscovered archaeological features or artifacts may be encountered during exploration. In the case where an archaeological discovery is made on site during exploration works, the procedures outlined in the National Heritage Act, No. 27 of 2004 are to be followed. Section 55 (4) of the National Heritage Act, No. 27 of 2004, requires that any archaeological or paleontological object or meteorite discovered is reported to the National Heritage Council as soon as practicable.

Disturbance to Archaeological and Heritage Resources

The proposed prospecting and exploration area contains some cultural and heritage significance within the social context. These should be protected either by fencing them off or demarcation for preservation purposes and excluded from any development i.e., no exploration activities should be conducted near these recorded areas through the establishment of one km buffer zones. **(Figure 15)** below shows some of the archaeology significance areas found within the EPL.

Figure 15: Historical graves within the EPLs.

5.3 Surrounding Land Uses

The EPLs are located within mostly on commercial land areas with a few resettlement farms. **(Figure 1)** illustrates all the farms covered by each EPL. The Proponent is required to secure a signed agreement from the affected landowners to gain access to the areas of interest for prospecting and exploration investigations as per Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. Section 52 (1) The holder of the mineral license shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral license

    (a) In, on, or under any and until such holder has agreed in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waived any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

Section 2.2.3 of the Draft Minerals Policy of Namibia states that the License Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for mining purposes.

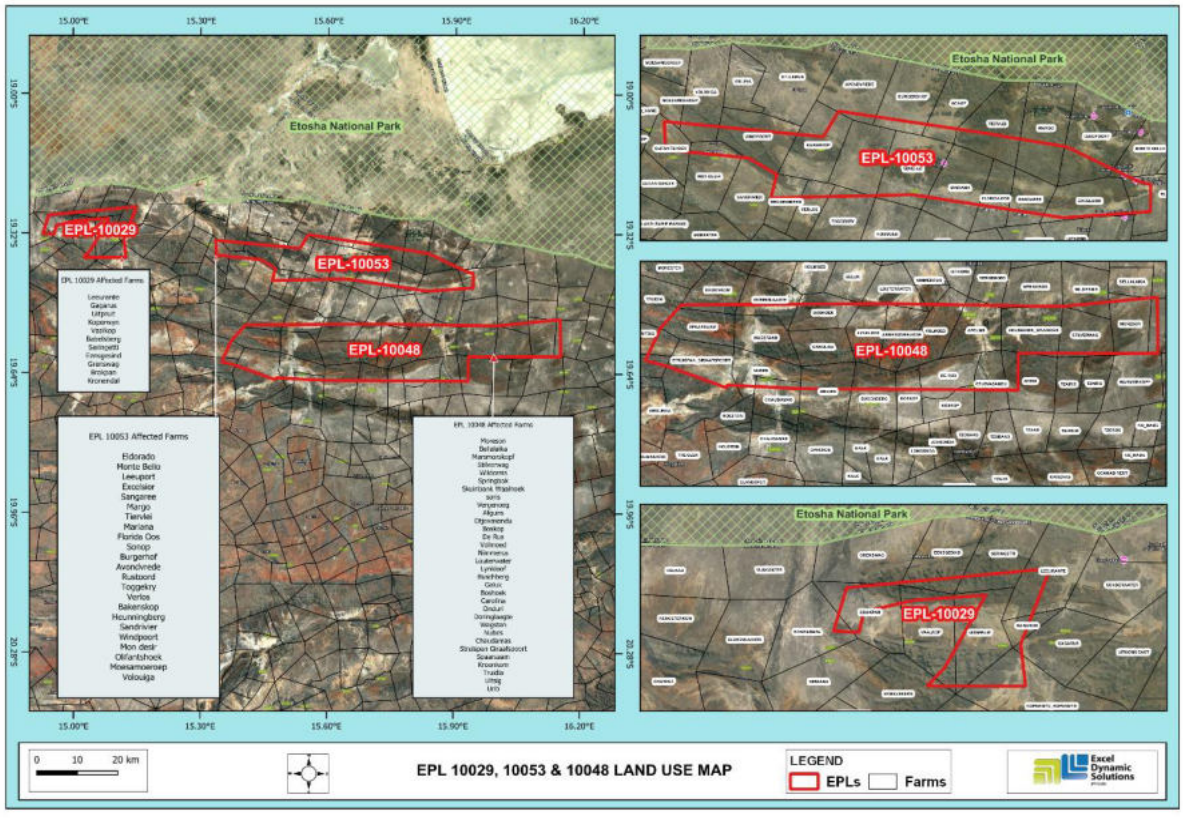


Figure 16: Land use (Farms) map – EPL 10029, 10048, and 10053.

The area covered by the EPLs displays land use pattern dominated by tourism-related activities, particularly within EPL 10053, which capitalizes on its strategic location near Etosha National Park. Situated between the Kamanjab-Etosha corridor, the area consists of numerous accommodation facilities ranging from mid-range (2-3 star) establishments such as Buschberg guestfarm, Onduri Safaris Lodge, Mondjila Safari Camp, Toshari Lodge, Tarentaal Guestfarm, Etosha Omusati Lodge and Etosha Village, to premium (4-5 star) lodges including Eagle Tented Lodge, Ongava Lodge, Etosha Heights Safarihoek Lodge and Epacha Game Lodge. These tourism facilities serve visitors to the adjacent national park and surrounding wildlife areas. The land use in the region comprises a mix of conservation, agriculture, and tourism-oriented activities. Private game reserves including Etosha Heights private reserve (on EPL No. 10029), Ongava Game private reserve, and Epacha Game private reserve (on EPL No. 10053) play a critical role in wildlife conservation for free-roaming species from Etosha National Park. Additionally, some commercial farms engage in game hunting. Agricultural activities, such as livestock farming and crop production, are also prevalent, with both private commercial farms and resettlement farms in the area. However, due to the proximity of Etosha National Park, human-wildlife conflict arises, particularly through livestock depredation by predators such as lions. Despite these challenges, the region maintains a mixed-use landscape where wildlife tourism coexists with agricultural production. Tourism is a dominant economic driver, evidenced by the high concentration of lodges and safari camps, which underscore the area's significance as a premier wildlife tourism destination. Exploration activities within the EPLs must be carefully managed to minimize ecological and socio-economic disruptions. Strict environmental management measures outlined within the EMP should be enforced to ensure minimal impact on existing tourism operations. This approach will facilitate responsible resource assessment while preserving the region's status as a key wildlife tourism hub. **(Figure 17)** shows some of the Tourism lodges in the area.

Figure 17: Tourism Lodges found on the EPL 10048 and 10053.

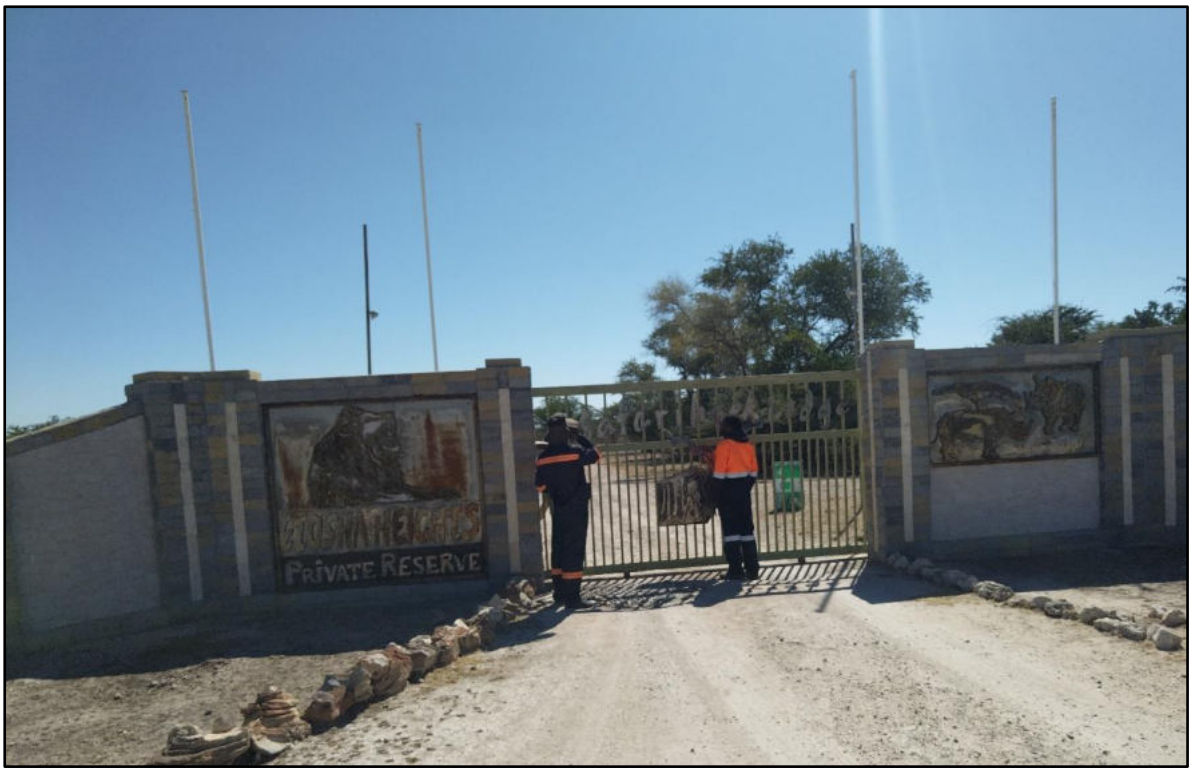


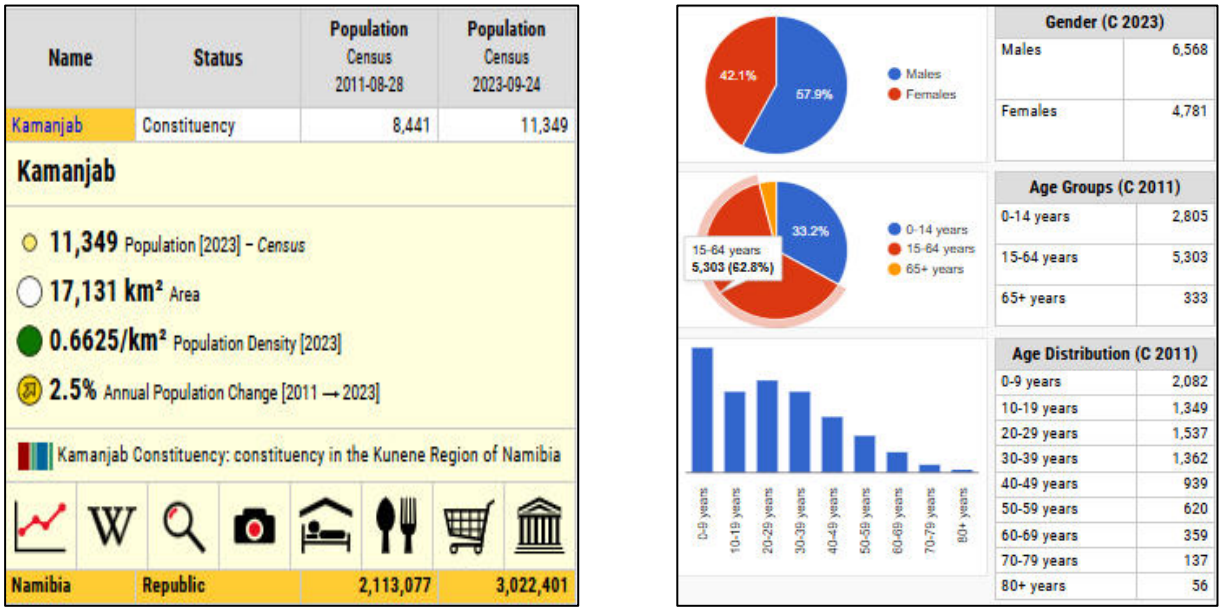
Figure 18: Etosha height private reserve on EPL 10029.

5.4 Socio-Economic conditions

According to Kunene Regional Council (2015), the Kamanjab Constituency is geographically located in the south-central part of Kunene Region bordering three constituencies, Outjo to the East, Khorixas to the South and Sesfontein to the West (Kunene Regional Council, 2015).

Population

According to the Namibia Statistical Agency (NSA), (2024), Kamanjab Constituency has a total population of 11,349 of which 6,568 are males while 4,781 are females. The total area size of Kamanjab Constituency is 17,130.63 square kilometres and it has a population of 11,349 with a population density of 0.7 inhabitants, among the least populated constituency in the region (Namibia Statistical Agency, 2024). Kamanjab constituency has a high male population of 54%. The constituency has a high literacy rate of 75% of people aged 15 years and above, an increase of 8% since 2001, of which the highest proportion is attributed to female as compared to male population.



Name	Status	Population Census 2011-08-28	Population Census 2023-09-24
Kamanjab	Constituency	8,441	11,349
Namibia	Republic	2,113,077	3,022,401

Kamanjab

11,349 Population [2023] – Census
17,131 km² Area
0.6625/km² Population Density [2023]
2.5% Annual Population Change [2011 → 2023]

Kamanjab Constituency: constituency in the Kunene Region of Namibia

Gender (C 2023)	
Males	6,568
Females	4,781

Age Groups (C 2011)	
0-14 years	2,805
15-64 years	5,303
65+ years	333

Age Distribution (C 2011)	
0-9 years	2,082
10-19 years	1,349
20-29 years	1,537
30-39 years	1,362
40-49 years	939
50-59 years	620
60-69 years	359
70-79 years	137
80+ years	56

Figure 19: Population demographics for Kamanjab

Transportation

According to the Kunene Regional Council, (2015), the Kamanjab constituency is strategically positioned to become the Kunene region's logistical hub for goods and services. The constituency has a four-dimensional road interconnection infrastructure connecting the Northern regions, and beyond, to the coastal transportation network and the Eastern regions to the Western part of the region and vice versa. However, a significant challenge in the Kunene Region is the poor state of road infrastructure, particularly the predominance of gravel roads that provide access to key tourist sites and game farms. These unpaved roads often become impassable during the rainy season due to flooding and erosion, severely restricting mobility for both tourists and local operators. While some tarred roads connect major towns, their limited coverage does not adequately support the region's tourism-dependent areas.

Economic Activities, Economic Potential and Areas of Investment in Kamanjab Constituency

According to the Kunene Regional Council, (2015) (based on the national NSA census of 2011), a total of 77,6% of the population is economically active in the constituency. 75% of the population derives its main source of income from wages and salaries, followed by farming 9% and pension 7%. Agriculture and tourism are the major economic activities in the constituency.

Agriculture and farming

Livestock farming is the primary agricultural activity, particularly for rural households, with three animal auction sites located in Kalkrand, Loskop, and Witklip. The auctions mainly trade live cattle, goats, sheep, and donkeys. Crop cultivation is limited due to scarce rainfall, with the dry, rugged terrain could be reason for reducing yields. The area has just one Agriculture Development Centre (ADC) that supports all local farmers.

Mining

Kunene Region holds significant potential for mineral exploration, driven by its rocky and mountainous terrain, which could boost regional economic growth. Exploration efforts are advanced, and viable discoveries could greatly enhance the region's economy. For instance, the Kaoko Base Metals Project has identified copper deposits at Okanihova and confirmed iron-ore reserves at Otuziru, along with lead, zinc, and silver (Namibia Chamber of Mines, 2013; Kunene Regional Development Profile, 2015).

However, the mining sector's growth has been hindered by infrastructure gaps, limited investment, and environmental concerns. Issues around fair benefit-sharing for local communities have also slowed progress. Despite these challenges, mining offers substantial economic opportunities, including job creation and supporting industries. The regional government encourages foreign investment through Public-Private Partnerships (PPPs) to foster local collaboration and sustainable development (Kunene Regional Council, 2015).

Tourism

Tourism plays a pivotal role in fostering socio-economic growth in the Kunene Region of Namibia by generating employment opportunities, stimulating local businesses, and preserving cultural heritage. Renowned for its dramatic landscapes, rich biodiversity, and the indigenous Himba people, Kunene attracts tourists seeking authentic cultural and eco-tourism experiences (Kunene Regional Council, 2015). One of the region’s most notable sites is Epupa Falls, where the Kunene River descends over 1.5 km, creating a striking foamy effect “Epupa” translates to "foam" in the Herero language. This location offers visitors opportunities for birdwatching and hiking. Further south, the Burnt Mountain presents a stark volcanic landscape, while the nearby Petrified Forest features fossilized tree trunks formed through millennia of geological processes.

Kunene is a critical hub for wildlife conservation, hosting 46% of Namibia’s conservancies, which protect desert-adapted species such as elephants, rhinos, lions, and giraffes (Kunene Regional Council, 2015). These conservancies facilitate expert-guided tours, promoting environmental education and sustainable tourism practices. Additionally, the region

encompasses the Skeleton Coast National Park and is in close proximity to Etosha National Park, further enhancing its appeal to nature enthusiasts. The region boasts over 30 lodges and hunting farms, particularly around Kamanjab-Outjo, such as Huab Lodge, Grootberg Lodge, and Epacha Game Lodge, among others. These establishments provide accommodation while supporting local employment and cultural tourism initiatives. Furthermore, communal and resettlement farms, such as those managed by the Hai||om community, who were relocated from Etosha National Park.

6 PUBLIC CONSULTATION PROCESS

Public consultation is an important component of the Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration in part of the assessment process. Public input assists the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and the extent to which further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this scoping study has been done following the EMA and its EIA Regulations.

6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed exploration activities were placed in two widely read national newspapers in the region (New Era Newspaper and The Namibian Newspaper). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 5** below and the complete list of I&APs is provided in **Appendix D**.

Table 5: Summary of Interested and Affected Parties (I&APs)

National (Ministries and State-Owned Enterprises)
Ministry of Environment, Forestry and Tourism
Ministry of Mines and Energy

Regional, Local, and Traditional Authorities
Kunene Regional Council
Kamanjab Village Council
General Public
Landowners /Interested members of the public

6.2 Communication with I&APs

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs concerning the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed exploration works was compiled and emailed to registered and Identified Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices were published in the New Era Newspaper **(10 January 2025 and 17 January 2025),** and The Namibian Newspaper **(10 January 2025 and 17 January 2025),** briefly explaining the activity and its locality and inviting members of the public to register as I&APs and submit their comments/concerns.
- Public notice (**Figure 17**) to inform members of the public about the EIA process.
- Public meeting was scheduled and held on 02 April 2025, at Farm Vierling, Kamanjab constituency at 10h00 (**Figure 18**).

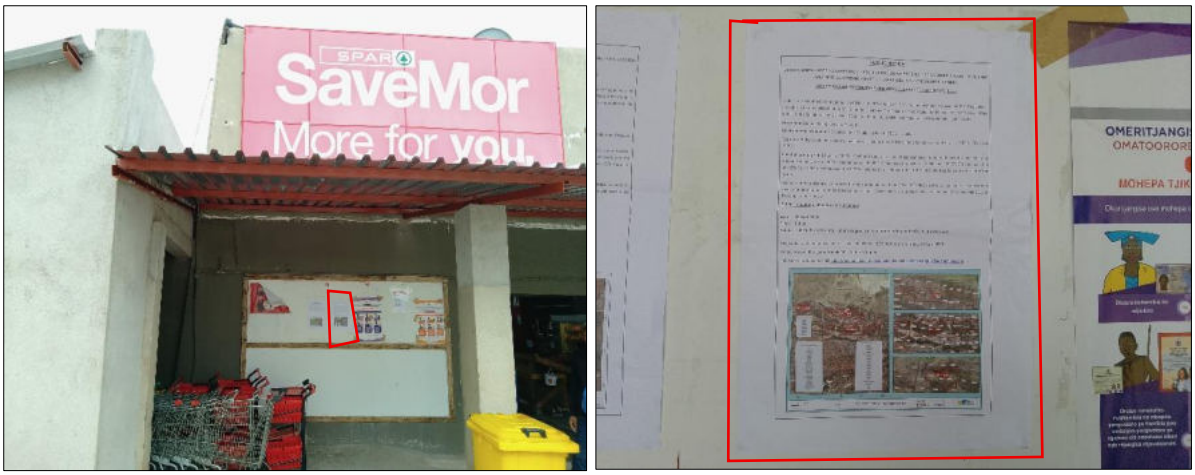


Figure 20: Public notice placed at Outjo Eyambeko and Kamanjab Spar notice board, Kunene region.

Figure 21: Consultation meeting at Farm Vierling.

Issues raised by I&APs have been recorded and incorporated in the environmental report and EMP. The summarized issues raised during the public meeting are presented in **Table 6** below. The issues raised and responses by EDS are attached under **Appendix G.**

Table 6: Summary of main issues raised, and comments received during public meeting engagements

Issue	Concern

Exclusive Prospecting Licence (EPL) overlapping sensitive Habitats.	Prospecting could harm protected species, violate conservation laws, and cause irreversible ecological damage without proper safeguards.
Security (Poaching)	Increased human presence and traffic during exploration activities could lead to higher poaching incidents in the area.
Disruption of existing economic activities.	Exploration activities will cause land use conflicts by disrupting existing Tourism centred economic activities.
Loss of potential income.	Due to potential mining activities (Exploration), investors hesitant on investing into tourism areas.
Water.	Exploration activities risk contaminating or depleting underground water sources that communities depend on.

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

Proposed developments/activities are usually associated with different potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control while maximizing the positive impacts of the development. The potential positive and negative impacts that have been identified from the prospecting activities are listed as follows:

Positive impacts:

- Creation of jobs for the locals (primary, secondary, and tertiary employment).
- Producing a trained workforce and small businesses that can service communities and may initiate related businesses.
- Boosting local economic growth.

- Open up other investment opportunities and infrastructure-related development benefits.

Negative impacts:

- Disturbance to grazing areas
- Land degradation and Biodiversity Loss
- Generation of dust
- Water Resources Use
- Soil & Water Resources Pollution
- Waste Generation
- Occupational Health & Safety risks
- Vehicular Traffic Use & Safety
- Noise & Vibrations
- Disturbance to Archaeological & Heritage Resources
- Impacts on local Roads
- Social Nuisance: local property intrusion & disturbance
- Social Nuisance: Job seeking & differing Norms, Culture & values
- Impacts associated with closure and decommissioning of exploration works
- Exploration negative affect on ecotourism facilities, cutting bookings and jobs.

7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is following Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity), and probability (likelihood of occurring), as presented in **Table 7**, **Table 8, Table 9, and Table 10** respectively.

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a

good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact.
- Assessment of the pre-mitigation significance of the impact; and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were applied in this impact assessment:

7.2.1 Extent (spatial scale)

The extent is an indication of the physical and spatial scale of the impact. **Table 7** shows the rating of impact in terms of the extent of spatial scale.

Table 7: Extent or spatial impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
The impact is localized within the site boundary: Site only	The impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond site boundary: Regional	The impact extends National or international boundaries

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured concerning the lifetime of the project. **Table 8** shows the rating of impact in terms of duration.

Table 8: Duration impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	The impact is quickly reversible, and short-term impacts (0-5 years)	Reversible over time; medium-term (5-15 years)	Impact is long-term	Long-term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

7.2.3 Intensity, Magnitude/severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative.

These ratings were also taken into consideration during the assessment of severity. **Table 9** shows the rating of impact in terms of intensity, magnitude, or severity.

Table 9: Intensity, magnitude, or severity impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration, high quantity of deaths, injury or illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat/diversity or resource, severe alteration or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat/biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration.

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 10** shows impact rating in terms of probability of occurrence.

Table 10: Probability of occurrence impact rating

Low (1)	Medium/Low (2)	Medium (3)	Medium/High (4)	High (5)
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	A possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, and continuous. High risk or vulnerability to natural or induced hazards.

7.2.5 Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact “without mitigation” is the main determinant of the nature and degree

of mitigation required. As stated in the introduction to this section, for this assessment, the significance of the impact without prescribed mitigation actions is measured.

Once the above factors (**Table 7, Table 8**, **Table 9, and Table 10**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

SIGNIFICANCE POINTS (SP) = (MAGNITUDE + DURATION + SCALE) X PROBABILITY

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate, or low significance, based on the following significance rating scale (**Table 11**).

Table 11: Significance rating scale

Significance	***Environmental Significance Points***	***Colour Code***
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	1 to 30	L
Neutral	0	N
Low (negative)	-1 to -30	L
Medium (negative)	-30 to -60	M
High (negative)	-60<	H

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse+ Impact

Neutral – Impacts are neither beneficial nor adverse

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is

recommended for a period to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the exploration phases is done for pre-mitigation and post-mitigation.

The risk/impact assessment is driven by three factors:

Source: The cause or source of the contamination.

Pathway: The route taken by the source to reach a given receptor

Receptor: A person, animal, plant, ecosystem, property, or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.

A pollutant linkage occurs when a source, pathway, and receptor exist together. Mitigation measures aim firstly, to avoid risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

This assessment focuses on the three project phases namely, prospecting, exploration (and possible analysis), and decommissioning. The potential negative impacts stemming from the proposed activities of the EPLs are described and assessed and mitigation measures are provided thereof. Further mitigation measures in a form of management action plans are provided in the Draft Environmental Management Plan.

7.3 Assessment of Potential Negative Impacts

The main potential negative impacts associated with the operation and maintenance phase are identified and assessed below:

7.3.1 Disturbance to the grazing areas

The EPLs overlying commercial land that have livestock and wildlife. Exploration activities such as site clearing, trenching, and drilling can potentially lead to the disturbance of grazing land. This will potentially affect the grazing land available to wildlife, and since the wildlife greatly depends on the available flora, their livelihood will be impacted.

The effect of exploration work on the land (when done over a wider spatial extent), if not mitigated, may hinder grazing areas. Under the status quo, the impact can consider being of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance. The impact is assessed in **Table 12** below.

Table 12: Assessment of the impacts of exploration on grazing areas

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M/H: -4	M: -3	M: -6	M: -5	M: -52
Post mitigation	L/M: -2	L/M: -2	L/M: -4	M: 3	L: -24

7.3.2 Land Degradation and Loss of Biodiversity

Fauna: The trenching, pitting, and drilling activities carried out during exploration would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and trees. Endemic species are most at risk since even the slightest disruption in their habitat can result in extinction.

The presence and movement of the exploration workforce and operation of project equipment and heavy vehicles would disturb livestock and wildlife present. The proposed activities may also carry the risk of the potential illegal hunting of local wildlife. This could lead to the reduction of specific faunal species, which may limit tourism (sightseeing and safari) activity in the area.

Additionally, if the exploration sites are not rehabilitated, they could pose a high risk of injuries to animals by falling into holes and pits.

Flora: Direct impact of exploration works on flora will mainly occur through clearing for exploration access routes and associated infrastructure. The dust emissions from drilling may also affect surrounding vegetation through the fall of dust, if excessive. Some loss of vegetation is an inevitable consequence of the development. However, given a moderate abundance of vegetations and site-specific areas of exploration on the EPL, the impact will be localized, therefore manageable.

Under the status, the impact can be of a high significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 13** below.

Table 13: Assessment of the impacts of exploration on biodiversity

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: -4	M/H: -4	M/H: -8	M/H: 4	H: -64
Post mitigation	M: -3	M: -3	L/M: -4	L/M: 3	L: -30

7.3.3 Generation of Dust (Air Quality)

Dust emanating from site access routes when transporting exploration equipment and supply to and from the site may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust, even if it is not anticipated to be low. Additionally, activities carried out as part of the exploration works such as drilling would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 14** below.

Table 14: Assessment of the impacts of exploration on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: -4	M: -3	M/L: -4	M/H: -4	M: -44
Post mitigation	L/M: -2	L/M: -2	L: -2	L/M: -2	L: -12

7.3.4 Water Resources Use

Water resources are impacted by project developments/activities in two ways - through pollution (water quality) or over-abstraction (water quantity) or at times both.

The abstraction of more water than can be replenished from low groundwater potential areas would negatively affect the local communities (communal and livestock) that depend on the same low potential groundwater resource (aquifer).

The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Exploration activities use a lot of water, mainly for drilling. However, this depends on the type of drilling methods employed (diamond drilling is more water-consuming compared to drilling methods such as reverse circulation for instance) and the type of mineral being explored.

The drilling method to be employed for this project's exploration activities is Reverse Circulation. Given the low to high groundwater potential of some project site areas, the Proponent may consider carting some of the water volumes from outside the area and stored in industry-standard water reservoirs/tanks on site. The exact amounts of water required for proposed operations would be dependent on the duration of the exploration works and the number of exploration boreholes required to make a reliable interpretation of the commodities explored. The exploration period is temporally limited, therefore, the impact will only last for the duration of the exploration activities, and ceases upon their completion.

Without the implementation of any mitigation measures, the impact can be rated as medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low as presented in **Table 15** below.

Table 15: Assessment of the project impact on water resource use and availability

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: - 4	M/H: - 4	M: - 6	M/H: - 4	M: - 56
Post mitigation	L/M - 2	L/M: - 2	L: - 2	M: - 3	L: - 18

7.3.5 Soil and Water Resources Pollution

The proposed exploration activities are associated with a variety of potential pollution sources (i.e., lubricants, fuel, and wastewater) that may contaminate/pollute soils, and eventually, surface and groundwater. The anticipated potential source of pollution to water resources from the project activities would be hydrocarbons (oil) from project vehicles, machinery, and equipment as well as potential wastewater/effluent from exploration-related activities.

The spills (depending on volumes spilled on the soils) from machinery, vehicles, and equipment could infiltrate into the ground and pollute the fractured or faulted aquifers on site, and with time reach further groundwater systems in the area. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small. Therefore, the impact will be moderately low.

Pre-implementation of the mitigation measures, the impact significance is medium and upon implementation, the significance will be reduced to low. The impact is assessed in **Table 16** below.

Table 16: Assessment of the project impact on soils and water resources (pollution).

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	H: -5	M: -3	M: -6	M/H: -4	M: - 56
Post mitigation	M: - 3	M: -2	M/L: -4	L/M: - 2	L: - 27

7.3.6 Waste Generation

During the prospecting and exploration program, domestic and general waste is produced on-site. If the generated waste is not disposed of responsibly, land pollution may occur on the EPLs or around the sites. The EPL is in an area of moderate and some portion of high

sensitivity to pollution. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the exploration program needs to have appropriate waste management for the site. To prevent these issues, any hazardous waste that may have an impact on animals, vegetation, water resources, and the general environment should be handled cautiously. Without any mitigation measures, the general impact of waste generation has a medium significance. The impact will reduce to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 17** below.

Table 17: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: - 3	M: - 3	M: - 6	M: - 4	M: – 48
Post mitigation	L/M: - 2	L: - 1	L: - 2	L/M: - 2	L: - 10

7.3.7 Occupational Health and Safety Risks

Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These may result from accidental injury, owing to either minor (i.e., superficial physical injury) or major (i.e., involving heavy machinery or vehicles) accidents. The site safety of all personnel is the Proponent's responsibility and should be adhered to as per the requirements of the Labour Act (No. 11 of 2007) and the Public Health Act (No. 36 of 1919). The heavy vehicle, equipment, and fuel storage area should be properly secured to prevent any harm or injury to the project workers or local animals.

The use of heavy equipment, especially during drilling, and the presence of hydrocarbons on sites may result in accidental fire outbreaks, which could pose a safety risk to the project personnel, equipment, and vehicles. It may also lead to widespread veld fires if an outbreak is not contained and if machinery and equipment are not properly stored, the safety risk may be a concern for project workers and residents.

The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating will be reduced to low. This impact is assessed in **Table 18** below and mitigation measures are provided.

Table 18: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M/H: - 4	M: - 3	M/H: - 8	M/H: - 4	M: – 60
Post mitigation	L/M: - 2	L/M: - 2	L: - 2	L/M: - 2	L: - 12

7.3.8 Vehicular Traffic Use and Safety

The EPL 10029 is accessible via D2697, D2695 and D2793; EPL 10048 via D2695; and EPL 10053 via D2695, D2710 and D2694, all in the Kunene Region. These are some of the main transportation routes for all vehicular movement in the area and provide access to the EPL and connect the project area to other towns. Traffic volume will therefore increase on these district roads during exploration as the project would need delivery of supplies and services on site.

Depending on the project needs, trucks, medium-sized vehicles, and small vehicles will frequent the area to and from exploration sites on the EPLs. This would potentially increase slow-moving heavy vehicular traffic along these roads and add additional pressure on the roads. However, transportation of materials and equipment is expected to occur on a limited schedule and only for the duration of the project. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Before mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 19** below.

Table 19: Assessment of the impacts of exploration on-road use (vehicular traffic)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: - 4	M/H: - 3	L/M: - 4	M/H: - 5	M: - 55
Post mitigation	L/M: - 2	L/M: - 2	L: - 2	L/M - 2	L: - 12

7.3.9 Noise and vibrations

Prospecting and exploration work (especially drilling) may be a nuisance to surrounding communities due to the noise produced by the activity. Excess noise and vibrations can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to a low rating, mitigation measures should be implemented. This impact is assessed in **Table 20** below.

Table 20: Assessment of the impacts of noise and vibrations from exploration

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M: - 2	M: - 3	M: - 6	M: - 3	M: – 33
Post mitigation	L: - 1	L/M: - 2	L: - 2	M: - 3	L: - 15

7.3.10 Disturbance to Archaeological and Heritage Resources

The specialist archaeological assessment conducted, indicates that Kunene Region is sensitive and contains archaeological/cultural significant sites, and there is a possibility of unveiling/discovering new archaeological and/or cultural materials in the proposed project area. If such Materials are found the areas must be mapped out and coordinates taken to establish “No-Go-Areas”, due to their sensitivity and then documented. They may be protected either by fencing them off or demarcation for preservation purposes, or excluding them from any development i.e., no exploration activities should be conducted near these recorded areas through the establishment of buffer zones.

This impact can be rated as medium significance if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be reduced to a lower rating. The impact is assessed in **Table 21**.

Table 21: Assessment of the impacts of exploration on archaeological & heritage resources

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: - 3	M/H: - 4	M: - 6	M/H: - 4	M: – 52
Post mitigation	L/M: - 2	L/M: - 2	L: - 2	L/M: - 2	L: - 12

7.3.11 Impact on Local Roads/Routes

Exploration projects are usually associated with the movements of heavy trucks and equipment or machinery that use local roads. Heavy vehicles traveling on local roads exert pressure on the roads and may make the roads difficult to use. This will be a concern if maintenance and care is not taken during the exploration phase. The impact would be short-term (during exploration only) and therefore, manageable.

Without any management and or mitigation measures, the impact can be rated as medium and to reduce this rating to low, the measures will need to be effectively implemented. The assessment of this impact is presented in **Table 22**.

Table 22: Assessment of exploration of local services (roads and water)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: - 4	M: - 3	M: - 6	M: - 3	M: - 39
Post mitigation	M/L: - 2	L/M: - 2	M/L: - 4	M/L: - 2	L: - 16

7.3.12 Social Nuisance: Local Property intrusion and Disturbance/Damage

The influx of non-resident workers could cause social disturbances within the local community. Of particular concern is the possibility of workers trespassing on or damaging private property. Private property in the area may include homes, fences, crops, livestock, wildlife, or other assets with economic or cultural significance to residents. Disruptions could extend beyond private property to public assets as well. Unauthorized entry into private land may also provoke conflicts between landowners and the project proponents. Additionally, since the EPLs contain tourism facilities, there is a risk that exploration activities might interfere with tourists staying in these areas, potentially leading to financial losses. To mitigate these risks, it is recommended to implement 1-kilometer buffer zones around all tourism infrastructure, including lodges and wildlife viewing areas, to minimize disturbances from exploration activities. Additionally, designated no-go zones should be established in ecotourism-sensitive areas to further prevent potential conflicts and environmental impacts. Where feasible, exploration work should be scheduled outside peak tourism seasons to avoid disruptions to visitors and tourism operations. These measures will help balance mineral exploration activities with the protection of tourism assets, local livelihoods, and community relations while reducing the risk of financial losses to tourism operators.

The impact is rated as of medium significance. However, upon mitigation (post-mitigation), the significance will change from a medium to a low rating. The impact is assessed below **(Table 23)**.

Table 23: Assessment of the social impact of community property damage or disturbance

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H: - 4	M/H: - 4	M/H: - 8	M: - 3	M: - 48
Post mitigation	L: - 2	L/M: - 2	M/L: - 4	M/L: -2	L: - 14

7.4 Cumulative Impacts Associated with Proposed Exploration

According to the International Finance Corporation (2013), cumulative impacts are defined as "impacts that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future impacts".

Like many other exploration projects, some cumulative impacts to which the proposed project and associated activities potentially contribute, are the:

- **Impact on road infrastructure:** The proposed exploration activity will add to the cumulative effects of other actions, including farming, tourism-related travel, and local daily movements. However, the project's impact on this cumulative effect is expected to be minor, due to the limited duration and small area covered by the mineral exploration work.
- **Use of water**: While the contribution of this project will not be significant, mitigation measures to reduce water consumption during exploration are essential.

8 RECOMMENDATIONS AND CONCLUSION

8.1 Recommendations

The potential positive and negative impacts of the proposed exploration activities on EPLs No. 10029, 10048, and 10053 were identified and assessed and appropriate management and mitigation measures (to negative impacts) were made thereof for implementation by the Proponent, their contractors, and project-related employees.

Mitigation measures for identified issues have been provided in the Environmental Management Plan, for the Proponent to avoid and/or minimize their significant impacts on the environmental and social components. Most of the potential impacts were found to be of medium-rating significance. With effective implementation of the recommended management and mitigation measures, a reduced rating in the significance of adverse impacts is expected from Medium to Low. To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO). The monitoring of implementation will not only be done to maintain a low rating but also to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away.

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation

of the recommended management and mitigation measures and with more effort and commitment put into monitoring the implementation of these measures.

It is, therefore, recommended that in the case of granting an ECC for this project, the proposed prospecting and exploration activities may be granted an ECC, provided that:

- All the management and mitigation measures provided in the EMP are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to explore and ensure compliance with these specific legal requirements.
- The Proponent and all project workers and contractors must comply with the legal requirements governing the project and ensure that all required permits and or approvals are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.

8.2 Conclusion

It is crucial for the proponents and their contractors to effectively implement the recommended management and mitigation measures, to protect the biophysical and social environment throughout the project duration. This would be done to promote environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the community and environment at large. It is also to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed accordingly. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing mineral exploration and related activities.

9 References

Atlas of Namibia Team. (2022). *Atlas of Namibia: its land, water and life.* Windhoek: Namibia Nature Foundation.

Booth, P. (2011). *Environmental Conceptual Site Model Exercise: Source – pathway – receptor.* WSP Global: Semantic Scholar.

Coetzee, M. E. (2021). *Soils of the skeleton coast national park and sciona project area in Namibia.* Windhoek: SCIONA project.

Correia, R. I. (1976). The Main Vegetation Types of Kaokoland, Northern Damaraland and A Description of some transect of Owambo, Etosha and Norh western south west. 6.

Craven, P., & Kolberg, H. (2017). *Plant Biodiversity in Namibia.* Windhoek: National Botanical Research Institute.

Environmental Compliance Consultancy (ECC). (2021). *EXPLORATION ACTIVITIES ON EPL 7212 FOR BASE AND RARE METALS, INDUSTRIAL MINERALS* . WIndhoek.

GRN. (2007). *Environmental Management Act, 2007 (Act No. 7 of 2007). .* Retrieved from Government Gazette of the Republic of Namibia.: https://www.meft.gov.na/files/files/Environmental%20Management%20Act%207%20of%202007.pdf

Heath, R. G. M. (2006). *Small-Scale Mines, Their Cumulative Environmental Impacts and Developing Countries Best Practice Guidelines for Water Management.* Auckland Park: Pulles Howard & de Lange.

Kunene Regional Council. (2015). *Development Profile 2015: The Ultimate Frontier.* Retrieved from Kunene Regional Council: https://kunenerc.gov.na/documents/53359/0/Dev_profile.pdf/e20fcb44-46e3-effa-6344-2189605e1c7f

Marjoribanks, R. (1997). *Geological methods in mineral exploration and mining (2nd ed.).* Springer.

Meteoblue. (N.D). *Meteoblue.* Retrieved from Simulated historical climate & weather data for Kamanjab: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/kamanjab_namibia_3356469

Ministry of Environment and Tourism, Forestry (MEFT). (2018). *National Policy on Prospecting and Mining in Protected Areas.* Windhoek: Ministry of Environment and Tourism, Forestry.

Mweemba, M. S. (2014). Small-Scale Mining in Namibia: An Overview. *Theme: "Earth Sciences and Climate Change: Challenges to Development in Africa" : 7th conference of the African Association of Women in Geosciences, Sub theme: Earth sciences and the community* (p. 4). Windhoek: Ministry of Mines and Energy.

Namibia Statistical Agency. (2024). *Kunene regional profile*. Retrieved from Namibia Statistical Agency: https://nsa.org.na/document/kunene-regional-profile/

Namibia Statistical Agency. (2024). *Kunene Regional profile.* Retrieved from Namibia Statistical Agency: https://nsa.org.na/document/kunene-regional-profile/

Namibia Statistics Agency. (2011). *Namibia 2011: Population and Housing Census Main Report.* Windhoek: Namibia Statistics Agency.

NASCO. (2025). *≠Khoadi-//Hôas Conservancy*. Retrieved from NASCO: https://nacso.org.na/conservancies/khoadi-hoas

Porada, H. R. (1974). *The Khabendus formation in the area Northwest of Kamanjab and in the Southeastern Kaokoveld, South West Africa.* Pretoria: Geological survey of South Africa.

SADC Business Council. (2024). *Investment opportunities in Outjo, Namibia*. Retrieved from https://www.sadcbiz.com/investment-outjo

Strohbach, B. J., & Strohbach, M. M. (2023). *A first syntaxonomic description of the vegetation of the Karstveld in Namibia.* Windhoek: African Vegetation Studies.

Strohbach, B., & Kutuahuripa, J. T. (2014). *Online Appendix 1: Description of the major soil types within the central eastern communal conservancies, Namibia.* Windhoek: Koedoe.

Technidrill. (2020). *Technidrill drilling equipment catalog*. Retrieved from https://www.technidrill.com/

The Globe Program. (2023). Retrieved from The Globe Program: https://www.globe.gov/documents/358135/359681/Koppen-Geiger+Guide

Appendix A: Copy of the Environmental Clearance Certificate (ECC) Application Form 1

Appendix B: Draft Environmental Management Plan (EMP)

Appendix C: Curricula Vitae (CV) for the Environmental Assessment Practitioner (EAP)

Appendix D: Proof of Public Consultation (Newspaper Adverts, Meeting Minutes, Attendance register, and Objection letters)

Appendix E: Notice to Applicant of preparedness to grant application for Exclusive Prospecting Licenses 10029, 10048, & 10053