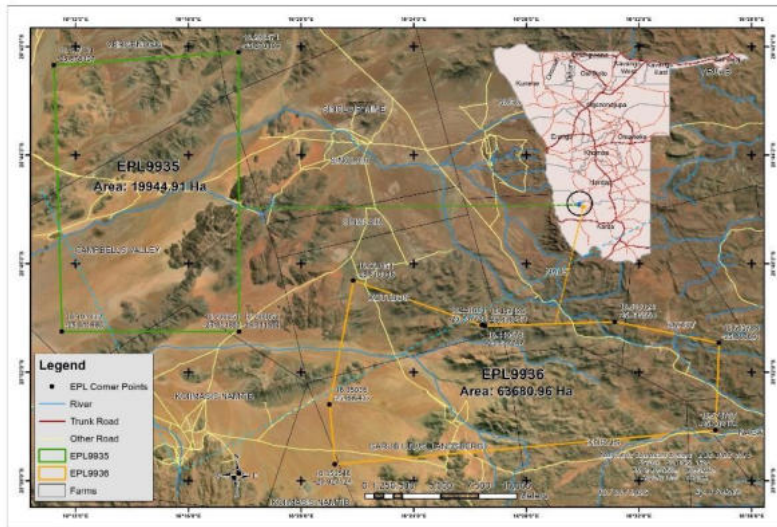




**ENVIRONMENTAL IMPACT ASSESSMENT FOR MINERAL  
EXPLORATION ON EXCLUSIVE PROSPECTING LICENSEs (EPL) NO. 9935 AND EPL 9936 AT THE  
BOARDSERS OF KARAS AND HARDAP REGION**



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## EXECUTIVE SUMMARY

Mr Nicky panduleni (the Proponent), a Namibian-citizen directing the operations of Epl no 9935 and 9936, specializes in mineral exploration and mining activities specifically copper. The Proponent aims to seize opportunities for self-employment and job creation within Namibia's mining sector.

The Proponent has commissioned Advanced Environmental Consultancy CC as the Environmental Consultant, with Ms. Albertina Simon serving as the lead Environmental Assessment Practitioner. Their role is to conduct an Environmental Impact Assessment (EIA) for the proposed exploration activities on Exclusive Prospecting License (EPLs) No. 9935 and 9936, situated at the borders of Karas and Hardap region..

The proposed exploration project entails drilling, aerial or remote sensing, and mineral sampling. Furthermore, non-invasive ground-penetrating radar is planned for the initial stages on the sites, potentially followed by a drilling program. If mineralization is identified, further exploration methods will be applied; however, if no mineralization is found, the EPL area will be rehabilitated and returned to the government.

The EPLs sites are located in at the border of Hardap and Karas region in Berseba constituency a zone of non environmental sensitivity permitted for prospecting and mining activities. Although the area receives less than 100mm of rainfall annually, it harbours unique vegetation and wildlife species, including reptiles, avifauna, and numerous endemic species to the Nama Karroo biome. The vegetation cover is sparse, primarily consisting of annual grasses and a low plant diversity (less than 50 species). The EPL site exhibits a diverse array of grasses and shrubs, albeit sparse, with no visible outcrops for lichen growth. The claims are covered with soil and limited geological features, mainly comprising plains.

Through the scoping process, Advanced Environmental Consultancy CC conducted a comprehensive review of the site and the surrounding environment, involving a desktop review and site visitations. This thorough assessment provided a detailed understanding of the area's ecological and environmental conditions. Based on the findings of the EIA report, Advanced Environmental Consultancy CC believes that an Environmental Clearance Certificate (ECC) be issued, subject to the Proponent's consideration of the following key requirements for implementing the proposed exploration program:

- a) Undertake thematic mapping to fully understand the land use plans of the local area and identify areas of possible coexistence and no-go zones.
- b) Notify and obtain permission from the Traditional Authority in the area before any field-based activities are undertaken, and keep the Traditional Authority updated on the progress and outcomes of the proposed exploration activities to inform local communities.
- c) Exercise the precautionary principle/approach before undertaking site-specific detailed exploration activities such as trenching or drilling.
- d) Adhere to all provisions of the Environmental Management Plan (EMP) in line with all applicable national regulations.
- e) Exclude community tourism, wildlife breeding, and transit areas from site-specific detailed exploration activities such as trenching or drilling, or any future mining activities, as requested by the local community.

- f) If resources allow, consider Corporate Social Responsibilities by supporting broader community initiatives such as improving water supply, education, or health-related projects. g) Rehabilitate all exploration sites/site
- g) If fresh water is found during the detailed exploration, support other land uses in the area in terms of access to fresh water supply for human consumption, wildlife, and agricultural support as requested by the local community/landowner(s). The abstraction of fresh groundwater resources shall include water level monitoring, sampling, and quality testing on a bi-annual basis, and affected landowners must have access to the results of water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources, as may be applicable.

#### LIST OF ACRONYMS

ECC	<b>Environmental Clearance Certificate</b>
EMP	<b>Environmental Management Plan</b>
AEA	<b>Advanced Environmental Agency</b>
EIA	<b>Environmental Impact Assessment</b>
EPL	<b>Exclusive Prospecting License</b>
EAs	<b>Environmental Assessments</b>
I&APs	<b>Interested and Affected Parties</b>
MEFT	<b>Ministry of Environment, Forestry and Tourism</b>
DEA	<b>Department of Environmental Affairs and Forestry</b>
MME	<b>Ministry of Mines and Energy</b>
EC	<b>Environmental Commissioner</b>

SCNP	<b>Skeleton Coast National Park</b>
NWR	<b>Namibia Wildlife Resort</b>
CBD	<b>Convention on Biological Diversity</b>
PPP	<b>Public Participation Process</b>

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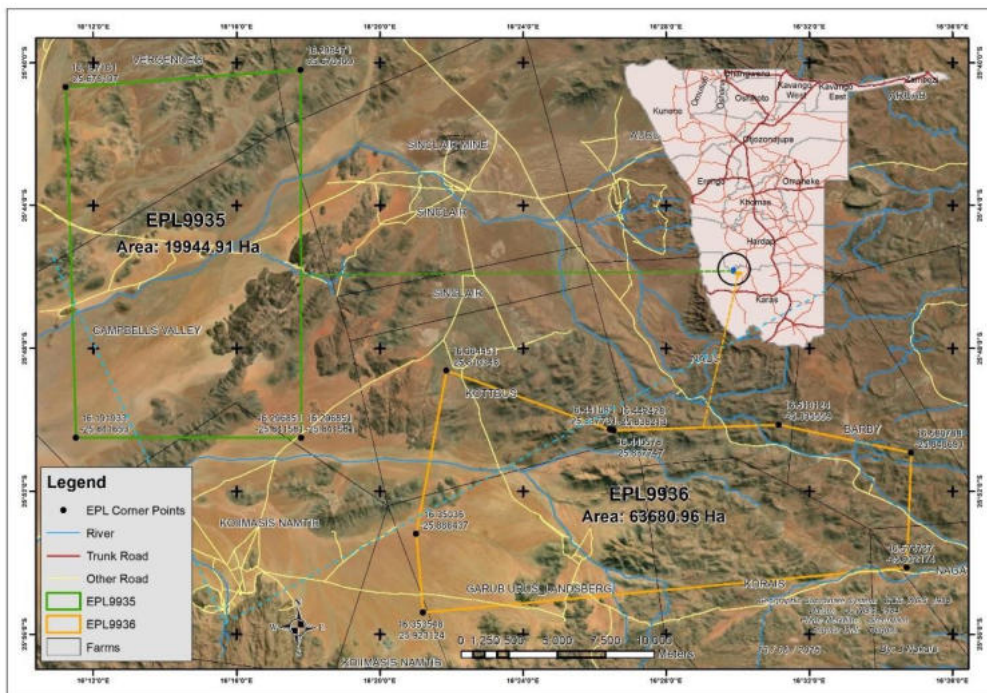
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**CHAPTER 1: INTRODUCTION 1.1. Project background**

The Proponent, Mr nick panduleni, intends to undertake a comprehensive exploration program on epl no 9935 and 9935 an area stuated in besreba under the jusdiction of beserba village council //Karas with the epl at the boarders of karas and hardap region (Figure 1) on the registered Exclusive Prospecting License (EPL) No. 9935-9935, concerning Base and Rare Metals(Copper and Iron, and zinc), Industrial Minerals (Lithium, Precious Metals and Precious Stones). The proposed activities will encompass desktop studies, followed by site-specific endeavours employing techniques such as geophysical surveys, geological mapping, trenching, drilling, and bulk sampling.

In compliance with the Environmental Management Act (2007) and the Environmental Impact Assessment (EIA) Regulations (2012), an Environmental Impact Assessment is mandated for any "Mining and Prospecting Activities." Advanced Environmental Agency Cc, led by the Environmental Assessment Practitioner, Ms. Albertina Simon, has been appointed to conduct the EIA and develop an Environmental Management Plan (EMP) for the proposed exploration project.

The Proponent's comprehensive exploration program aims to thoroughly assess the mineral potential within the designated EPL area through a systematic approach, commencing with desktop studies and progressing to on-site investigative techniques. This methodical process ensures a thorough evaluation of the resource while adhering to the regulatory requirements outlined in the Environmental Management Act and the EIA Regulations, thereby promoting responsible and sustainable exploration practices.



*Figure 1. Locality map for the Exclusive Prospecting Licenses Area (EPL 9935-9936)*

**1.2. Project Location**

The Exclusive Prospecting Licenses 9935 is located about 40 km west of B1 road to keetmanshoop, while 9936 is located up west on the border of hardap region just near beserba constituency using the gravel road.the license 9935 is within a private land and 9936 is within a farm. The coordinates for the center of the license are.

16,191933,-25,837747 EPL 9935 and EPL 9936 16,4405,-25,837747 The EPLs covers an area of approximately EPL-9935-19944,19 hectares and Epl no 9936-63680.96 hectors (referred to in Figure 1).

**1.3. Supporting Infrastructure and Services**

Water availability within the EPL area is minimal. However, if water is needed for the proposed exploration activities, or the area primarily relay on ground water and boreholes as its water sources. The village is currently seeking approval and working on a project to drill boreholes and provide water infrastructure, potentially making it a selfsufficient water supplier. The Neckartal dam, located near Besersba, is another water source, but it is not directly serving berseba itself. The community is also making use of locally available existing groundwater basins. The EPL is accessible through the B1 gravel road, which connects the project area from the C14 gravel road which is a drive of 40km to the epl 9935 site and continually,

At this stage, the electricity requirement is minimal, and the bulk of the power supply shall be sourced from the Proponent's generator because power will only be used for emergency lighting, powering small machinery during the mineral exploration process, and providing power supply for temporary office blocks or containers if necessary.



The water will be used for general consumption, cleaning, and drilling purposes. The water used for drilling will be recycled. The Proponent will negotiate directly with suppliers of consumables such as grease and oil to remove these materials for disposal once they have been used and need to be discarded.

The Proponent will provide adequate temporary sanitary facilities, and such facilities must be maintained in a hygienic condition. Sewerage will be disposed of in a manner that does not pollute the environment. The Proponent will remove all refuse about the Proponent's



Activities, domestic or

**Figure 2.** Containers to be used for

Portable water - general use

(Cleaning and drinking) and drilling

otherwise, from the property and stored in dustbins.

The Proponent will Undertake rehabilitation both during and after the mineral exploration period. If drilling commences, provisions will be made for two-way radios to enable the drill rig operators and the on-site staff to communicate effectively. No provisions have been made for fencing, although strict access to and from the exploration site will be facilitated by personnel. At this stage, no exploration camps will be set up, and provisions will be made for prefabricated containers.



The Proponent's vehicle fleet will be optimized during the next project phase, and provision will be made for 4x4 vehicles and a drill rig. During the drilling phase, diesel will be delivered by road transport and offloaded into the vehicles using offloading pumps. During the drilling phase, consumables and lubricants will be stored in a designated area within a container. These substances will only be used for mechanical purposes and are

assumed non-hazardous. Portable fire extinguishers will be fitted as required in vehicles and mobile containers where possible.

#### **1.4. Environmental Impact Assessment Requirements**

The Environmental Regulations (GN30 of 2012) clearly stipulate that no mineral exploration activities may proceed without first obtaining an environmental clearance certificate. This is a mandatory requirement. To obtain this environmental clearance certificate, the proponent must follow Regulation 6 of the 2012 Environmental Regulations and apply. As part of this application process, the environmental consultant (in this case, Advanced Environmental Agency) must conduct a public consultation process in line with Regulation 21 of the 2012 Environmental Regulations. This public consultation is a critical step to gather input from stakeholders and assess potential impacts.

Furthermore, the environmental consultant must produce an environmental scoping report and subsequently develop an environmental management plan (EMP) specifically for the proposed mineral exploration activities. The scoping report and EMP are crucial documents that outline the potential environmental impacts, proposed mitigation measures, and the management plan to ensure that exploration activities are conducted in an environmentally responsible manner. Only after completing these regulatory requirements, including the public consultation, scoping report, and EMP, can the proponent submit a comprehensive application for the environmental clearance certificate, which is a prerequisite to commence any mineral exploration work on the site.

#### **1.5. Purpose of the Environmental Assessment Process**

The primary objective of this environmental assessment is to comprehensively determine and evaluate the potential environmental impacts likely to result from the proposed exploration activities under EPL 9935-9936. Fundamentally, an environmental assessment process is undertaken to achieve better developmental interventions by safeguarding human, physical, and biotic environments. This is a crucial component in the environmental planning and management of projects, focusing specifically on the consent stage (Department of Environmental Affairs (DEA), 1995).

The study entails a thorough assessment of the likely short and long-term positive and negative environmental impacts associated with the activities related to the proposed exploration project. This assessment report, including an in-depth impact assessment, together with the Environmental Management Plan (EMP), will provide comprehensive information to the Ministry of Mines and Energy (MME) as the Competent Authority and the Ministry of Environment, Forestry and Tourism (MEFT). This will enable these authorities to make an informed decision regarding the proposed project and determine whether an environmental clearance certificate can be issued or not.

The assessment comprehensively covers the proposed development stages, including:

- Pre-construction and Construction
- Operation and ongoing monitoring
- Decommissioning and closure

By thoroughly evaluating the potential impacts across all phases of the project, this environmental assessment aims to ensure that the proposed exploration activities are undertaken in an environmentally responsible manner, minimizing adverse effects on the surrounding human, physical, and biotic environments. The assessment's findings and recommendations will guide the proponent in implementing appropriate mitigation measures and best practices throughout the project's lifecycle, promoting sustainable development and environmental stewardship.

### 1.6. Terms of Reference

This assessment study was undertaken in strict compliance with the Environmental Management Act (No. 7 of 2007), the Environmental Regulations of 2012, and the Terms of Reference (Tore) provided by the proponent. It serves as a guiding document that outlines the description of the environment that may be impacted by the proposed activity and how the activity may affect the environment.

The information relating to the receiving environment and its social surroundings has been sourced through the following comprehensive methods:

- Legal and policy review: Identifying all relevant legislation and guidelines applicable to the proposed project.
- Environmental baseline assessment: Establishing the existing environmental conditions, both biophysical and socio-economic, of the area.
- Stakeholder engagement: Informing Interested and Affected Parties (I&APs) and relevant authorities about the details of the proposed development, providing them with a reasonable opportunity to participate in the process.
- Impact assessment: Considering the potential biophysical and socio-economic impacts of the development and assessing the significance of the identified impacts.
- Public participation: Documenting opinions and concerns raised by I&APs and stakeholders.
- Need and desirability evaluation: Describing the need and desirability of the activity and proposing alternative measures where it is anticipated that adverse effects may occur.
- Alternatives assessment: Providing a high level of environmental and social impact assessment on feasible alternatives that were considered.
- Mitigation measures: Outlining management and mitigation measures in an Environmental Management Plan (EMP) to minimize and/or mitigate potentially negative impacts.
- Submission: Submitting the final assessment report to the competent authority and the Environmental Commissioner.
- This comprehensive approach ensures that the assessment study thoroughly evaluates the proposed activity, considers all relevant environmental and social factors, incorporates stakeholder input, and proposes appropriate mitigation measures to minimize potential negative impacts. The study's adherence to the relevant legal framework and guidelines further reinforces its credibility and robustness



**Figure 3.** Flowchart of the Environmental Impact Assessment Process Followed in Namibia.

**1.6.1. Environmental Assessment Approach and Methodology**

The assessment process developed by Advanced Environmental Agency Cc for Base and Rare Metals (Copper and Iron, and zinc), Industrial Minerals (Precious Metals and Precious Stones) was formulated based on a comprehensive collection and interpretation of available literature. The process involved a thorough review of previous Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs) conducted in the surrounding areas, as well as those specifically related to dimension stone quarrying in Namibia.

In addition to these previous studies, the assessment process encompassed the identification and collection of relevant documents, including:

1. Environmental regulations: Covering various aspects such as the environment, water, energy, health, and safety, along with related policies and guidelines.
2. Mining regulations: All relevant regulations and introductory information obtained from the Office of the Mining Commissioner within the Ministry of Mines and Energy.
3. Topographic maps and data sets: Providing information and data on the location and characteristics of EPL 995-9936.
4. Environmental data: Information and data sets related to environmental regulations, biodiversity, and the natural environment surrounding EPL 9935-9936, obtained from the Directorate of Environmental Affairs in the Ministry of Environment, Forestry and Tourism.
5. Geological information: Regional and local geological data, including geological maps, published materials, and open-file documents, sourced from the Directorate of the Geological Survey within the Ministry of Mines and Energy.

The assessment process undertaken by Advanced Environmental Agency involved a review and analysis of these various sources, ensuring a thorough understanding of the regulatory framework, environmental considerations, and geological characteristics relevant to the proposed exploration activity.

**Table 1.** Descriptions and Criteria for assessing the significant impacts

CRITERIA	Nature	Extent	Duration	Intensity	Probability	Degree of Confidence in Prediction

<b>DESCRIPTION</b>	Reviews the type of effect that the proposed activity will have on the relevant component of The environment and includes "what will be affected and how?"	Indicates whether the impact will be site-specific; local (limited to within 15 Km of the area); regional (limited to ~100 Km of the area); national (limited to the coastline of Namibia); or International (extending beyond Namibia's borders).	Reviews the lifetime Of he impact, as being short (days, 10 years).	Establishes whether the magnitude of the impact is destructive or innocuous and whether or not it exceeds set standards, and is described as none (no impact); low (where natural/ social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease	Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will	Is based on the availability Of specialist knowledge and other information.
				And/or exceed legal standards/requirements).	Occur regardless of prevention measures).	

**Table 2.** Definitions of various significant rating

SIGNIFICANCE RATING	CRITERIA
Low	If a development is deemed to have a minimal impact on the environment and no modifications or mitigations are necessary based on its description, it will not require any actions to be taken. This applies to impacts of any severity and magnitude, as long as they are confined to a local area and are temporary in nature.
Medium	Modification of development design or alternative mitigation is necessary for moderate severity/magnitude environmental impacts, locally to regionally and in the short term.
High	If an activity has a significant negative impact on the environment, it should not be allowed to continue, even if there are ways to mitigate the damage. This decision would apply to impacts that are severe, last for more than a month in the local area, or have a significant impact on the wider region.

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 be reduced to lower significance (Booth, 2011).

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

## **1.6.2. List of Specialist Studies Undertaken**

### **1.6.2.1. Preliminary Geological Assessment**

Section 9(a) of the Environmental Regulations of 2012 requires a disclosure of all the tasks to be undertaken as part of the assessment process, including any specialist to be included if necessary. A geological assessment was conducted on EPL 8375 which covers an area of 6,700 hectares. It was the second-choice property applied for by Gravity Mining Investment Cc on the 22<sup>nd</sup> of September 2020 in that region. A brief initial geological study was done for this area, with plans for a more detailed assessment later on (Rob Hutton, 2022).

The main goals of this first study were:

- 1) To gather and review all available data and information about the geology and minerals in the EPLs area.
- 2) To use this data to develop some initial ideas and models about where potential mineral deposits might be located within the EPLs.
- 3) To plan how to further explore and evaluate those potential mineral deposit areas through fieldwork.

Instead of doing invasive exploration methods like drilling or trenching at this stage, the geological team used non-invasive techniques like analysing satellite imagery, aerial survey data, and geophysical datasets. This allowed them to map the surface geology, structures, landforms, and subsurface characteristics that could indicate favourable mineral environments - without disturbing the environmentally sensitive Kunene landscape.

This data-driven approach enabled a systematic evaluation of the mineral potential across the whole license area while minimizing the environmental footprint of the initial assessment phase. The findings will guide more focused field exploration activities in areas identified as most prospective for mineralization.

Based on the geological assessment, Mr Nicky Panduleni and company which wants to conduct explorations of rare, and base metals in the area covered by EPLs 9935 and 9936 should continue with the exploration process. The key points that support continuing exploration are the fact that:

- The area shows good potential for hosting copper, and deltaic deposits containing valuable heavy minerals like gold, platinum group elements (PGEs), tin, and tungsten, tantalum, niobium, and rare earth elements.
- Previous studies have found these precious and rare earth metals in Lüderitz a just 200k from Besserba.
- The assessment identifies an increasing potential targets on copper and manganese in the areas of //Karas region.
- There is also a slight possibility of finding pegmatite-hosted lithium, tin, tantalum, and neodymium deposits under sediment cover.
- The proposed initial exploration program involving field surveys, sampling, and data interpretation is outlined.

Therefore, given the promising indications and potential for discovering economically viable deposits of rare and base metals, it seems advisable for the proponent to proceed with the recommended exploration activities in the EPL 9935 -9936 area. Additional data gathering and analysis are still required to evaluate the extent and viability of any mineral deposits present.

## **1.7. Need and Desirability**

### **1.7.1 Need of the Exploration Project**

Mineral exploration plays a pivotal role in sustaining and driving Namibia's mining industry, which is a significant contributor to the nation's economic landscape. The proponent's intention to explore and prospect for all licensed mineral groups within the Exclusive Prospecting License (EPLs) area is a commendable endeavor that holds the potential to yield substantial benefits.

The granting of exclusive mineral prospecting and mining rights is crucial for incentivizing the private capital investment required for the risky, costly, and long lead-time activities involved in identifying mineral deposits and developing mines. Some key reasons highlighting the need and desirability for such a project include:

1. **High Risks and Costs:** Mineral exploration and development involve significant geological, technical, environmental, and economic risks. The costs can range from tens of millions for grassroots exploration to over \$1 billion for deposit development before any revenues from mining.
2. **Long Lead Times:** There is typically a 5-15-year lead time between initial exploration and an operating mine. Exclusive tenure is needed to justify these multi-year investments before generating any returns.
3. **Information Gathering:** Exploration generates proprietary information through costly data collection. Exclusive rights prevent free-riding by other parties on this information.
4. **Investment Attractiveness:** The footloose nature of exploration means it can easily migrate to regions offering more supportive policies. Exclusive rights enhance a region's competitiveness for investment.
5. **Negotiating Power:** Once a mine is operating, a company's bargaining leverage decreases versus the government that granted the rights. Exclusivity acts as an important bargaining chip before that stage.

Numerous mineral occurrences are known in the EPL’s regional geology (//karas Region). If economic resources are discovered leading to a new mine, it will greatly benefit Namibia's mining industry sustainability and economic growth through enhanced state revenues, exports, foreign exchange earnings, and employment and GDP contributions.

Exploration is vital for driving the mining sector's long-term viability. Without discoveries, the industry will ultimately cease to exist in Namibia, resulting in major economic losses. However, the probability of any single exploration project resulting in a viable mine is extremely low at 0.001%, coupled with multi-million-dollar costs characterized as high-risk capital with no guarantees of cost recovery. This makes exploration fundamentally unattractive for governments, necessitating that it be primarily driven by risk-tolerant private investors and companies. Granting exclusive prospecting and mining rights is therefore an imperative for stimulating such continual private exploration investment critical for replenishing Namibia's future mineral resources and sustaining the mining sector's economic catalyst role.

The proponent's commitment to exploring and prospecting for all licensed mineral groups within the EPLs area is a courageous and laudable undertaking. If successful, it holds the potential to contribute significantly to the sustainability and growth of Namibia's mining industry, bolstering the country's economic prospects and ensuring the continued development of this vital sector (Prof. Roderick G. Eggert, 2010).

**1.7.2. Project Alternatives**

Following the Environmental Management Act, No. 7 of 2007, and the EIA Regulations, it is essential to analyses various alternatives to identify different means of meeting the general purpose and requirements of the proposed activity. This analysis should consider alternatives related to location, type of activity, design and layout, technology, and operational aspects. The objective is to ensure that during the design evolution and decision-making process, potential environmental impacts, costs, and technical feasibility are thoroughly evaluated, leading to the identification of the best option(s). The alternatives considered for this project are tabulated below:

*Table 3. Project Alternatives Considered and Reasons for Consideration*

Alternatives	Justification
Site/Location	Mineral occurrences are often highly localized and primarily determined by the site geology. Several economic deposits are known to exist in various locations across Namibia, some of which have been explored and mined by various companies over the years. Within the scope of the license, the proponent proposes to explore and mine for potential base & rare metals, dimension stones, industrial minerals, precious metals, and semi-precious stones economic mineral occurrences in this specific EPL area. No alternative locations were considered for exploration
Infrastructure	<p><b>Access Roads:</b> The access routes to target areas and around the EPL have not been determined yet. However, the proponent will utilize the existing external and internal road networks during the various project phases. If new access routes are required, they will be created with the permission of landowners/land custodians and the Ministry of Environment, Forestry, and Tourism (MEFT).</p> <p><b>Equipment and infrastructure:</b> The equipment and infrastructure options considered by the proponent are deemed sufficient at this stage of the project. However, as technology evolves, the proponent may opt to employ improved and more environmentally friendly equipment/infrastructure in the future when deemed necessary to maximize project output.</p>

Water Supply	Water requirements will be minimal; hence, water will be brought to the site from the nearest town/settlement and stored in a tank on-site. The alternative is to use existing boreholes or conduct a hydro search to drill a new borehole.
Power Supply	Power will be sourced from the proponent's diesel generator. The alternative is to install photovoltaic solar panels at a later stage.

### No Go Alternatives

The "no action" alternative refers to the option of not undertaking the proposed project or activity and maintaining the status quo. In the context of Mr. Nick panduleni and company, it specifically means:

1. Not proceeding with the proposed exploration activities on the Exclusive Prospecting License (EPLs) area.
2. No changes would occur to the current land use and conditions at the proposed exploration site.
3. None of the potential positive or negative impacts identified in the environmental and social impact assessment for the proposed exploration would take place.

Not pursuing exploration would deprive Mr. Nick panduleni business of the opportunity to advance its business objectives and potentially discover valuable mineral resources. Local authorities and central government agencies would forgo potential revenue streams from rates and taxes associated with the exploration activities. The losses that may never be realized if the proposed project does not proceed are substantial.

1. These include approximately fifteen (15) temporary job opportunities for community members that would not be created, depriving locals of employment prospects.
2. Local businesses would also miss out on the economic benefits arising from the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, and other supplies.
3. Furthermore, the project's potential to improve the geological understanding of the site area regarding the targeted commodities would be lost. Perhaps most significantly, the local communities would be denied socio-economic benefits, including valuable skills acquisition opportunities.

Considering the multitude of potential losses, the "no-action/go" alternative was deemed unviable, as it would not serve the best interests of the directly affected communities, the proponent, or the broader national economy. Proceeding with the exploration activities presents a valuable opportunity to drive economic growth, create employment, and foster sustainable development in the region.

## CHAPTER 2: SUMMARY OF APPLICABLE LEGISLATION

The national regulations governing exploration/prospecting activities for dimension stones and other minerals in Namibia fall under the jurisdiction of the Ministry of Mines and Energy (MME). The Minerals (Prospecting and Mining) Act (No. 33 of 1992) is the most crucial legal instrument governing the mining and prospecting industry in Namibia.

The Minerals (Prospecting and Mining) Act (No. 33 of 1992) regulates various aspects, including reconnaissance licenses, prospecting licenses, and mining of minerals, dimension stones, or rocks. The Act outlines detailed reporting requirements for monitoring activities and compliance with environmental performance standards, such as disposal methods and rehabilitation.

The Mining Commissioner, appointed by the Minister, is responsible for implementing the provisions of this Act as well as the associated regulations, such as the Health and Safety Regulations. Several

explicit references to the environment and its protection are contained within the Minerals Act, which provides for environmental impact assessments, rehabilitation of prospecting and mining areas, and minimizing or preventing pollution.

**Table 4.** Types of licenses regulated by the Mineral Act of 1992, associated activities, and environmental requirements

Type of License	Activities	Environmental Requirements
Exclusive Reconnaissance License (ERL)	<ul style="list-style-type: none"> <li>• Project Identification</li> <li>• Reconnaissance</li> </ul>	<p><b>None</b></p> <p>Complete Environmental Questionnaire</p>
Exclusive Prospecting License (EPL)	<p>Exploration based on:</p> <ul style="list-style-type: none"> <li>• Desktop Study</li> <li>• Detailed Mapping</li> <li>• Geophysical Techniques</li> <li>• Drilling and Bulk Sampling</li> <li>• Test Quarrying</li> </ul>	<p>Scoping Report, Environmental Impact Assessment (EIA)</p>
Mining License (ML)	<ul style="list-style-type: none"> <li>• Preconstruction</li> <li>• Construction</li> <li>• Operation and Ongoing Monitoring,</li> <li>• Decommissioning</li> <li>• Closure,</li> <li>• Restoration and</li> <li>• Aftercare</li> </ul>	<p>Full Environmental Assessment, covering Scoping, Environmental Impact Assessment(EIA), and the development of an Environmental Management Plan (EMP)covering the complete project lifecycle including preconstruction, construction operation, and ongoing, Decommissioning and aftercare.</p> <p>Aspects of the Environmental Management Plan are usually incorporated into an Environmental Management Systems</p>

**Table 5. Legal Instruments Relevant to this Project**

Topic/Aspect	Legislation	Provisions
<b>Used Oil</b>	Petroleum Products and Energy Act 13 of 1990	The Act requires that any certificate holder or individual in charge of activities related to petroleum products must report any major spill (defined as a spill of more than 200 liters per spill) to the Minister. Moreover, they must take all necessary steps to clean up the spill in accordance with good petroleum industry practices. Failing to meet this obligation empowers the Minister to take steps to clean up the spill and recover the associated costs from the person responsible. In this project, used oil will be disposed of at the Walvis Bay Municipality Hazardous Waste Site. Prior permission from the facility owner will be necessary before dumping the used oil.
<b>Desertification</b>	United Nations Convention to Combat Desertification 1992	The objective of the convention is to form a global partnership aimed at reversing and preventing desertification and land degradation, mitigating the effects of drought in affected areas, and supporting poverty reduction, as well as environmental sustainability.
<b>Employees</b>	The Labor Act, 2007 (Act No. 11 of 2007)	The Labor Act aims to promote and maintain the welfare of the people, as committed in Article 95(11) of the constitution. It establishes a comprehensive labor law for all employees, entrenches fundamental labor rights and protections, and regulates basic terms and conditions of employment. The Act also ensures the health, safety, and welfare of employees.
<b>Archaeological Sites</b>	National Heritage Act 27 of 2004 Ministry of Youth	This act contains provisions to safeguard places and objects that hold significant heritage value. It also outlines the procedure for registering such places and objects. The proposed exploration project will ensure that any archaeological or paleontological objects, as described in the act, are reported immediately to the Ministry if found during construction, mining operations, or closure. If necessary, the
		Relevant permits must be obtained before disturbing or destroying any heritage.
<b>Biodiversity</b>	Convention on Biological Diversity (CBD) 1992	This convention advocates for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

<b>Fauna and Flora</b>	The Nature Conservation Ordinance, Ordinance of 1975,	In the course of the Mine's activities, care must be taken to ensure that protected plant species and the eggs of protected game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment and Tourism. For this project, due to its areal extent and location outside a protected area, a permit will not be required.
<b>Hazardous Substances such as used oil (Diesel)</b>	Hazardous Substance Ordinance 14 of 1974	The Act provides for the control of substances which may cause injury or ill-health to or death of human beings because of their toxic, corrosive, irritant, strongly sensitizing, or flammable nature of the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith
<b>Water Supply and Effluent Discharge</b>	Water Resources Management Act of 2004	<p>The Water Resources Management Act provides provisions for the control, conservation, and use of water resources for domestic, agricultural, urban, and industrial purposes. The Act stipulates that a license or permit is mandated to abstract and utilize water, as well as discharge effluent.</p> <p>Given the nature and scope of the proposed project, abstraction, and use permits will not be required, as an on-site water tank with a capacity of 500 liters will be employed. This capacity falls well below the 20,000 cubic meter benchmark that triggers the requirement for a water work permit under the Act.</p> <p>Regarding effluent management, human waste generated from the mobile toilet facilities will be responsibly discharged at the keetmanshoop Municipality's sewerage system. No effluent will be discharged into any watercourse, ensuring compliance with environmental regulations.</p> <p>Furthermore, wastewater resulting from dust suppression activities is anticipated to be minimal, and the arid climate conditions will facilitate rapid evaporation, preventing significant infiltration. Consequently, no effluent discharge permits will be necessary for this project.</p>
<b>Environmental Impact Assessments (EIA)</b>	Environmental Management Act of 2007 and EIA regulation of 2012	Provides a list of activities that require an environmental assessment, including Mining and Quarrying. Activities such as exploration or prospecting for minerals or dimension stone, mining for minerals or dimension stone. The Act also provides procedures for adequate public participation during the environmental assessment process for the interested and affected parties to voice and register their opinions and concerns about a project.

<b>Dimension Stones Exploration</b>	Mineral (Prospecting and Mining) Act of 1992	The Minerals Act of 1990 governs minerals prospecting and mining. The Act provides for the reconnaissance license, prospecting license, and mining for, and disposal of, and the exercise of control over minerals in Namibia.
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**Table 6. Regulating Authority and Permitting**

<b>Activities List</b>	<b>Applicable Legislations</b>	<b>Permitting Authority</b>	<b>Current Status</b>
Exploration and Small-Scale Mining Programmed	Minerals (Prospecting and Mining) Act, 1992	Ministry of Mines and Energy	Field Work to follow on the issue of Environmental Clearance
EIA Clearance for Exploration	Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)	Ministry of Environment, Forestry and Tourism (MEFT)	To be applied upon completion of this EIA and EMP Report for Exploration
EIA Clearance for Mining	Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)	Ministry of Mines and Energy	To apply if Economic Resources are Discovered and Project Advances to Feasibility and if the Feasibility Proves Positive
Construction and alteration of waterworks with capacity over 20,000L, abstraction of water, discharge of effluents or construction of effluent facility or disposal site are strictly prohibited.	Water Resources Management Act, 2004 (No. 284 of 2004).	Ministry of Agriculture, Water and Land Reform	To Apply when Required
Removal, disturbances, or destruction of bird eggs	Nature Conservation Ordinance 4, 1975.	Nature Conservation Ordinance 4, 1975	To Apply when Required
Within 100 yards of a stream or watercourse, removal or destruction of indigenous trees, bushes or plants is prohibited.	Forestry Act, 12 of 2001	Ministry of Agriculture, Water and Land Reform (MAWLR)	
Discarding or disposing of used oil	Petroleum Products and Energy Act 13 of 1990	Ministry of Mines and Energy (MME).	
Construction of waste disposal sites.	Environmental Policy and Environmental Management Act, (Act No. 7 of 2007)	Ministry of Environment, Forestry and Tourism (MEFT)	
License to Purchase, store, and use Explosive	Explosives Act 26 of 1956 (as amended in SA to	Ministry of Home Affairs, Safety, and Security	

### **CHAPTER 3: DESCRIPTION OF PROPOSED MINERAL RESOURCES PROJECT 3.1. Introduction**

The initial phase of planned exploration primarily revolves around the analysis of pending rock and soil samples alongside historical data. Building upon this groundwork, Mr. Nick Panduleni now aims to advance its exploration efforts by implementing bulk sampling techniques, as depicted in Figure 2, across the expansive EPL-9935-9936 area. This involves excavating previously hand-dug pits to extract samples for subsequent laboratory analysis. Additionally, if deemed essential, the proponent may opt to supplement this approach with drill sampling methods.

The upcoming activities will involve a thorough exploration of mineral deposits on EPL 9935-9936 that include industrial minerals, precious metals, base, and Rare Earth Metals. It is important to note that the exploration programs will be results-driven, iterative, and phased in nature. Therefore, we cannot provide an exact duration of the exploration activities during the early stages of exploration (Resilient Environmental Solutions, 2019).

The minerals exploration activities can take up to seven years, and there will be different projects at various stages of the exploration phase (Resilient Environmental Solutions, 2019). During the exploration activities, both non-invasive and invasive exploration methods will be employed. Noninvasive exploration methods will involve geological desktop studies, aeromagnetic and remote sensing image processing and interpretation, geological field mapping, ground geophysical survey, and surface rock and soil sampling. On the other hand, invasive exploration methods will involve destructive methods such as reverse circulation or diamond drilling and pitting/trenching. Noninvasive exploration activities will be conducted first to determine whether more invasive activities are necessary or not. If non-invasive exploration techniques yield positive results, detailed site-specific drilling, trenching, and sampling will then be carried out.

The application of the proposed exploration activities will be divided into three phases. The first phase will focus on initial desktop-based exploration activities, followed by phase two, which will concentrate on initial reconnaissance field-based exploration activities. The final stage of exploration will involve detailed field-based activities.

### **3.2. Techniques for Mineral Exploration 3.2.1. Target Generation**

For the initial target generation and area selection stage, the company contracted to do exploration will employ a systematic, data-driven approach that prioritizes the use of non-invasive techniques to minimize potential environmental impacts in the //karas Region. **Specifically, our target generation process will involve:**

#### **1. Remote Sensing**

Mr. Nick Panduleni and company will analyse high-resolution satellite imagery and aerial survey data over the prospecting area to map out surface geology, structures, and geomorphological features that may be associated with mineral deposits. This remote sensing will allow Mr. Nick Panduleni and company to evaluate large areas without any physical footprint.

#### **2. Geophysical Surveys**

Non-invasive geophysical surveying techniques like ground magnetic surveys, electromagnetic surveys, and gravity surveys will be employed to collect subsurface data (by air or ground, through sensors such as radar) that can indicate the presence of favorable geological environments at depth. These surveys require only temporary ground instrument placement and data collection traverses.

### 3. Data Integration

The satellite, aerial, and geophysical datasets will be integrated with existing regional geological, geochemical, and mineral occurrence data into a comprehensive geographic information system (QGIS) database. Leveraging advanced computer modelling and analysis, Mr. Nick pendulant and company will systematically evaluate and prioritize target areas exhibiting the geological hallmarks associated with mineral deposit styles of interest. The ground physical survey 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

By utilizing this low-impact, data-driven approach for initial target delineation, we can thoroughly assess the mineral prospectivity of the license area while minimizing the environmental footprint in the environmentally sensitive karats region landscape. Only once prospective targets have been identified and prioritized through this process would we consider follow-up exploration involving more invasive techniques like drilling and trenching, which would be restricted to the highest priority targets and subject to additional environmental studies and permitting.

This phased, non-invasive to non-invasive approach to exploration aligns with best practices for environmentally responsible mineral prospecting. It allows us to be systematic in our evaluations while also being respectful of the need to limit our impacts in the prospecting area.

#### 3.2.2. Target Drilling

Once the company of Mr. Nick penduleni has identified the most promising target areas through the noninvasive target generation process, the next step is to conduct careful, targeted drilling to collect rock samples from underground. This process involves several key steps:

**Step 1: Drill Program Planning:** Mr. Nick pendulant and company will design a drilling program to test the mineralization potential of target areas. Considerations include drill hole locations, depths, angles, and sampling intervals to obtain representative subsurface samples.

**Step 2: Low-Impact Drilling:** To minimize environmental impact, Mr. Nick panduleni and company will employ low-impact drilling techniques such as diamond core drilling. Diamond core drilling produces minimal waste and disturbance to the surrounding environment. The diamond drill rigs are relatively small and portable, allowing for easy access to areas with little disturbance to the surrounding environment.

**Step 3: Sample Collection and Analysis:** Core samples retrieved from drilling are carefully logged, photographed, and analyzed for mineral content and grade. Additionally, metallurgical testing may be conducted to assess ore recoverability and processing requirements.

**Step 4: Trenching and Pitting:** Depending on the commodity, trenches or pits may be dug in a controlled environment (e.g., fencing off and labeling activity sites) using manual or excavator methods to further investigate the mineral potential. These consist of small pits ( $\pm 20\text{cm} \times 20\text{cm} \times 30\text{cm}$ ) where 1 kg samples can be extracted and sieved to collect 50 g of material.

**Step 5: Environmental Management:** To ensure adequate risk mitigation, all excavations will either be opened or closed immediately after obtaining the needed samples, or the sites will be fenced off until the trenches or pits are closed. At all times, the landowner and other relevant stakeholders will be engaged to obtain authorization where necessary. During the drilling and trenching/pitting activities, Mr. Nick panduleni will strictly follow environmental protocols and procedures to properly manage any waste generated and avoid contaminating the area.

**Step 6: Site Rehabilitation:** Once the rock core samples needed from underground are collected, and trenching/pitting activities are completed, the temporary drill sites and excavation areas will be fully remediated and rehabilitated to repair any localized impacts.

### 3.2.3. Resource Evaluation

Resource evaluation aims to assess the quantity and quality of mineral deposits discovered during exploration. This typically involves detailed geological mapping, geochemical analysis of samples, and estimation of mineral resources through techniques such as geostatistics. In environmentally sensitive regions like the Kunene Region, it's essential to employ eco-friendly practices throughout the evaluation process. This includes utilizing non-toxic reagents for sample analysis, minimizing water usage through recycling and conservation measures, and adopting sustainable land management practices to mitigate erosion and habitat disruption.

#### Step 9: Data Interpretation

Mr. Nick panduleni and company interprets the drilling results and integrates them with existing geological data to estimate the size, grade, and continuity of mineral deposits within the target areas.

#### Step 10: Resource Estimation

Using geostatistical methods, Gravity Mining Investment Cc estimates mineral resources, categorizing them into inferred, indicated, and measured resource categories based on the level of geological confidence.

### 3.2.4. Resource Definition

Resource definition entails further delineation and characterization of mineral deposits to establish their economic viability and plan for extraction. This phase often involves additional drilling to delineate the extent and continuity of mineralization, as well as metallurgical testing to assess ore recoverability and processing requirements. For environmental protection areas like the Karas Region, employing innovative technologies such as in-situ leaching and heap leaching can minimize the environmental impact of mineral extraction. These methods involve extracting minerals without extensive excavation, reducing habitat disruption and waste generation.

#### Step 11: Further Delineation

Mr. Nick penduleni and company may conduct additional drilling to further delineate the boundaries and characteristics of mineral deposits, refining the geological model and resource estimates.

#### Step 12: Economic Assessment

A detailed economic assessment is conducted to evaluate the economic viability of developing the mineral deposits. Factors such as commodity prices, extraction costs, and environmental regulations are considered.

#### Step 13: Feasibility Study

If the mineral deposits are deemed economically viable, mar nick panduleni and company proceeds with a feasibility study to assess the technical, financial, and environmental feasibility of mining operations in the identified area of beserba constituency.

### 3.3. Labor Requirements

The proponent plans to hire around 5-15 individuals, including 3 management personnel, for the initial phase of the project. All employees will be sourced locally, including those from Becerra or keetmanshoop. They will undergo a safety induction, initial training, and wildlife awareness program. The Labor Act will be strictly adhered to at all times.

## CHAPTER 4: DESCRIPTION OF THE RECEIVING ENVIRONMENT 4.1. Introduction

Becerra is developing small village in Karas region Namibia, exemplifies both the challenges and resilience characteristic of rural communities in the southern Namibia and one of the earliest Nama mission station. Rich in cultural heritage but faces significant challenges, including high poverty levels, limited infrastructure and underdevelopment services. The area is becoming of the Namibian target for mining due its deposit of minerals like copper, manganese and other minerals. currently there other epl within the area and mining explorations with the region.

The area has historically struggled with access to clean water and sanitation, contributing to health and safety concerns. In response, the social security commission development fund launched a sanitation project in Jibes, a settlement within the Becerra constituency, aiming to construct flushing toilets and provide solar water pumps to improve living conditions. Efforts to enhance food security and economic development are evident through projects like the Beserba integrated community food.

**Weather in January**

January, like December, is another hot summer month in Berseba, Namibia, with temperature in the range of an average low of 23.2°C (73.8°F) and an average high of 34.8°C (94.6°F). In Berseba, Namibia, the peak temperatures are generally noted in January, averaging a high of 34.8°C (94.6°F) and a low of 23.2°C (73.8°F).  
Weather in January  
Weather in February

February, the last month of the summer in Berseba, is another tropical month, with an average temperature varying between 23.4°C (74.1°F) and 33.6°C (92.5°F). At the start of February, Berseba's average high-temperature reaches a still hot 33.6°C (92.5°F), subtly different from the preceding month.  
Weather in February »  
Weather in March

March, the first month of the autumn in Berseba, is still a hot month, with temperature in the range of an average high of 32.3°C (90.1°F) and an average low of 22.1°C (71.8°F). Berseba's transition from February to March introduces an average high-temperature of a still tropical 32.3°C (90.1°F), marking an insignificant variation from the 33.6°C (92.5°F).  
Weather in March .

**4.2. Climatic Conditions**

Berseba like other parts of Namibia, faces the challenges of climate change including decreased rainfall, which affects agriculture and food security. Overall bersebas climate is characterized by hot, dry summers and mild, dry winters with significant temperature fluctuations between day and night.

<b>Average Annual Rainfall</b>	Average rainfall in the area is between 100mm per year
<b>Variation in Rainfall</b>	Variation in annual rainfall is averaged to be 40-50 % per year
<b>Average evaporation</b>	Average evaporation in the area is between 2240-2380mm
<b>Precipitation</b>	January-March receives high rainfall, with January being the wettest. June and July are the driest month
<b>Water Deficit</b>	The average water deficit in the area is between 1700-1900mm per year.
<b>Temperature</b>	Annual temperatures are 20-22 °C per year Average maximum temperature 74°C-36°C



Mesoproterozoic tectonostratigraphic units exposed in these areas form the northern Grunau terrane units. The Nama Group is a 125,000 square kilometres (48,000 sq mi) megaregional Vendian to Cambrian group of stratigraphic sequences deposited in the Nama foreland basin in central and southern Namibia.

- Within EPL 9935 and 9936, the Namaqua Group is entirely represented by supracrustal sedimentary succession in the environment.
- The Namaqua rocks have been metamorphosed to lower supracrustal sedimentary succession the increasing metamorphic grade towards the south.
- The Nama Basin is a peripheral foreland basin, and the Nama Group was deposited in two early basins, the Zaris and Witputs, to the north, while the South African Vanrhynsdorp Group was deposited in the southern third. The Nama Group is made of fluvial and shallowwater marine sediments, both siliciclastic and carbonate. La Tinta Group in Argentina is considered equivalent to Nama Group.
- The Namaqua are interpreted to be underlain by attenuated crystalline basement of the Congo Craton margin, and have likely undergone significant tectonic transport along a basal detachment or sole thrust during the Kaoko Orogeny.

So, in summary, the EPL 9935 and 9936 area is underlain by deformed and metamorphosed turbiditic sedimentary rocks of the Namaqua Group that were obducted onto the Congo Craton margin during the Pan-African Kaoko Orogeny.

### 4.3. Hydrogeology and Water Resources

They primarily rely on ground water and boreholes as its water sources. The village is currently seeking approval and working on a project to drill boreholes and provide water infrastructure, potentially making it a self-sufficient water supplier. The Neckartal dam, located near Berseba, is another water source, but it is not directly serving Berseba itself. Winter rains and the generally arid conditions help contribute to the formation of the Succulent Shrubland, also known as the Succulent Karoo. This vegetation type is unique to southern Africa and has special value because of its high species endemism. The biome is also recognised as one of the biological 'hotspots' of the world and therefore has a global biodiversity significance. Grass production is highly dependent on rainfall resulting in both livestock and wildlife suffering when rains fail.

### 4.4. Flora

As a result of low rainfall, vegetation is generally sparse, with few trees and a thin covering of grass. Plant cover varies in relation to rainfall, and so the northern areas of Hardap have more trees and grass than the western, coastal areas. Vegetation is dominated by short shrublands (including mega succulents such as including *Aloe dichotoma*, *A. ramosissima*, *A. pillansii* and *Pachypodium namaquanum*) with the Succulent Shrubland getting more prevalent as one moves south west.

*Figure 6. Vegetation type of the dominant species at the proposed site*

### 4.5. Fauna

**Wildlife:** Larger species include oryx, springbok, greater kudu and Hartmann's mountain zebra while smaller antelopes such as klipspringer, steenbok and duiker are also found. After good rains, when there is sufficient grass, gemsbok and springbok are found in large herds of several hundred animals. Carnivores include side-striped jackals, brown hyena, mongoose, bat-eared fox and cats. The Orange River (which flows in //Karas Region but does not form part of the landscape) is rich in birdlife.

### 4.8. Avifauna (Birds)

In total, 314 bird species have been recorded in the park, accounting for 46.7 percent of Namibia's total number of indigenous bird species. The condition of the Damara Tern, which is essentially endemic to Namibia and breeds in summer on broad sandy or gravel plains, interdune valleys, and salt pans, is of special concern among the park's bird species. There are 21 red Data Species among them. As shown in Table 2, three of those species are highly endangered, while the remaining ten are vulnerable.

#### **4.9. Archaeology and Heritage Sites**

Archaeological discoveries along the Namibian coast provide evidence of long-term coastal occupation, but many of these sites are considered "lucky finds" due to the extremely poor chances of artifact survival (Raison, 2016). Consequently, there are only a few known archaeological sites with exceptionally old artifacts. While it is uncertain whether the exploration will yield significant archaeological finds, an incidental find strategy may be necessary. In the event of discovering any heritage or culturally significant artifacts during construction, work must be suspended immediately, and the Namibian National Heritage Council must be notified.

#### **4.10. Socio-Economic Environment**

##### **4.10.1. Demographics of //Karas region**

According to the Namibia 2001 Population and Housing Census, //Karas had a population of 69,329 (32,346 females and 36,976 males or 114 males for every 100 females) growing at an annual rate of 1.3%. The fertility rate was 3.1 children per woman. About 54% lived in urban areas, while 46% lived in rural areas, and with an area of 161,215 km<sup>2</sup>, the population density was 0.4 persons per km<sup>2</sup>. Classified by age, 11% of the population was under 5 years old, 20% between 5 and 14 years, 63% between 15 and 59 years, and 6% 60 years and older. The population was divided into 15,481 households, with an average size of 4.1 persons; 35% of households had a female head of house, while 65% had a male as head. For those 15 years and older, 69% had never married, 20% married with certificate, 2% married traditionally, 5% married consensually, 1% were divorced or separated, and 2% were widowed.

The most commonly spoken languages at home were Afrikaans (40% of households), Nama/Damara (26%) and Oshiwambo (23%). For those 15 years and older, the literacy rate was 87%. Nearly 45% of the population are from coloured and white Namibian groups. In terms of education, 52% of girls and 48% of boys between the ages of 6 and 15 were attending school, and of those 15 years and older, 77% had left school, 7% were currently at school, and 7% had never attended.

In 2001, the employment rate for the labor force (67% of those 15+) was 71% employed and 29% unemployed. For those 15 years old or older and not in the labor force (24%), 28% were students, 40% homemakers, and 32% retired or unable to work. According to the 2012 Namibia Labour Force Survey, unemployment in the //Karas Region stood at 23.9%. The two studies are methodologically not comparable.

Among households, 94% had safe water, 26% no toilet facility, 50% electricity for lighting, 81% access to radio, and 35% had wood or charcoal for cooking. In terms of households' main sources of income, 7% derived it from farming, 69% from wages and salaries, 6% cash remittances, 5% from business or nonfarming, and 10% from pension.

For every 1,000 live births, 37 female and 56 male infant deaths occurred. The life expectancy at birth was 61 years for females and 54 for males. Among children younger than 15, 4% had lost a mother, 6% a father, and 1% were orphaned by both parents. About 3% of the entire population had a disability, of which 22% were deaf, 29% blind, 10% had a speech disability, 13% a hand disability, 27% a leg disability, and 7% a mental disability.

##### **4.10.2. Socio-Economic Impacts**

Farming with mutton sheep predominates, while, goats and limited number of cattle are also fairly abundant in the communal farmlands. Farmers also earn some income from pelt of the karakul sheep exported to Belgium. However the demands and prices for this product fluctuate due to pressure from animal rights lobbies. The low carrying capacities of the vegetation also mean that farms have to be extremely large to carry enough livestock to make farming economically viable. Farming is generally a difficult enterprise in this landscape and livestock densities are low throughout both regions as a result of the low vegetation cover and low productivity of farm land. Communal area farmers belong to highly organised and active farmers' associations all of which are affiliated to national farmers' union

**CHAPTER 5: ENVIRONMENTAL IMPACT IDENTIFICATION, ASSESSMENT AND MANAGEMENT**

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 project activities. The potential positive and negative impacts that have been identified from the prospecting activities are listed as follows:

**Positive impacts:**

- Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer,
- Open other investment opportunities and infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,
- Boosting the local economic growth and regional economic development.
- 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 grazing land areas,
- Physical land/soil disturbance
- Impact on local biodiversity (fauna and flora) and habitat disturbance and potential illegal wildlife hunting (poaching) in the area.
- Potential impact on water resources and soils particularly due to pollution and air quality issues: potential dust generated from the project.
- Potential occupational health and safety risks
- Vehicular traffic safety and impact on services infrastructure 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 resources impact
- Potential social nuisance and conflicts (theft, damage to properties, etc)

The significant negative impacts potentially associated with the proposed prospecting and exploration of copper are assessed below:

**5.1 Disturbance to the grazing resources**

The EPLs- are overlying a grazing land for which the primary objective is the conservation of biodiversity including desert-adapted wildlife, this wildlife is highly dependent on corridors linking resources i.e. water and or grazing. Often the water resources are situated away from the grazing resources, hence the exploration activities might disrupt wildlife movement from the area of resources to the other. Equally, invasive exploration activities such as site clearing, trenching, and drilling can potentially lead to the disturbance of grazing land. This will potentially affect the grazing areas available to the wildlife. The effect of exploration work on the land (when done over a wider spatial extent), if not mitigated, may hinder wildlife distribution in the area and its surroundings. The project area might

experience the loss of its pastoral system over time. Losing grazing pastures for wildlife minimizes the number of animals in the area and overall other wildlife-based tourism activity, and lead to loss of livelihoods. Under the status, the impact can be of a low significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance. The impact is assessed in **Table 8** below.

**Table 8.** *Assessment of the impacts of exploration on grazing areas*

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation			MIL: -4	MIH: 4	M: -40
Post-Mitigation	LIM: -2	UM: -2	LIM: -4		L: -16

**Mitigations and recommendations to lower the possibility of disturbance and loss of the Pastoral system:**

- Any unnecessary removal or destruction of grazing land, due to exploration activities should be avoided
- Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity and grazing land.
- Workers should refrain from driving off-road and creating unnecessary tracks that may contribute to the loss of grazing land.

- Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.

**5.2. Land Degradation and Loss of Biodiversity Fauna:**

The trenching, pitting, and drilling activities done for detailed exploration would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and vegetation. Endemic species are most severely affected since even the slightest disruption in their habitat can result in extinction or put them at high risk of being wiped out. The presence and movement of the exploration workforce and the operation of project equipment and heavy vehicles would disturb the wildlife present at the explored sites of the EPLs. Not only the disturbance due to human and vehicle movements but also the potential illegal hunting (poaching) of local wildlife by project-related workers.

This could lead to loss or number reduction of specific faunal species which also impacts tourism in the community (for tourists who are interested in wildlife seeing when driving through the area). Another potential activity that will impact the faunal community is the unrehabilitated and or unfenced boreholes, trenches, and pits used for exploration (once they are no longer in use). If these holes and pits/trenches are not fenced off or closed off by rehabilitating them, they could pose a high risk of site domestic and wild animals falling into these holes and pits, causing injuries and potential mortalities.

**5.3. Land Degradation and Loss of Biodiversity Flora**

The direct impacts on flora and vegetation communities will mainly occur through clearing for the exploration access roads and associated infrastructure. The dust emissions from drilling may affect surrounding vegetation through the fall of dust. Some loss of vegetation is an inevitable consequence of the development. However, given the abundance of shrubs and site-specific areas of exploration on the EPL, the impact will be localized and, therefore manageable. Under the status, the impact can be of a medium 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 9** below. *Table 9. Assessment of the impacts of exploration on biodiversity*

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation					M: -48
Post-Mitigation	UM: -2	LIM: -2	LIM: -4	LIM:2	L: -16

**Mitigations and recommendations to minimize the loss of biodiversity:**

- The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations.
- The presence of any vulnerable (endangered or protected) Shrubs or trees found along trenching, drilling, or sampling spots on sites should be marked and appropriate relevant mitigations followed.
- Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore wholesale vegetation clearing should only be applied where necessary and within the EPLs footprint.

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- Movement of vehicles and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation.
- No onsite vegetation should be cut or used for firewood related to the project's operations.

Design access roads appropriately in a manner that disturbs minimal land areas as much as possible.

- Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are the progressive rehabilitation measures. These should consider:
  - Workers should refrain from disturbing, killing, or stealing farm animals and killing small soil and rock outcrop species found on sites.
  - Poaching (illegal hunting) of wildlife from the area is strictly prohibited

#### 5.4. Water Resources Use

Water resources can be negatively impacted by project developments or activities in two ways: through pollution which affects water quality, or over-abstraction which affects water quantity. In some cases, both can occur. If more water is taken from low groundwater potential areas than can be replenished, it can have negative impacts on the local environment and the species that rely on these scarce resources. The impact of project activities on water resources will depend on the water volumes required by each activity. Exploration activities, such as drilling, commonly use a lot of water. However, the amount of water required depends on the drilling methods and the type of mineral being explored. For drilling purposes, such as cooling and washing drilling equipment, drinking, and other domestic uses, exploration activities require about 10,000 litres of water per month. Given the low to medium groundwater potential of some project sites, it may be necessary to transport water from outside the area and store it in industry-standard water reservoirs or tanks on site.

The amount of water required for exploration activities will also depend on the duration of the exploration works and the number of exploration boreholes needed to make reliable interpretations of the commodities being explored for. The exploration period is limited in terms of timing, so the impact on water resources will only last for the duration of the exploration activities and will cease upon completion. Without implementing any mitigation measures, the impact can be rated as medium. However, if the recommended measures are effectively implemented, the impact significance can be reduced to low, as presented in **Table 10** below.

**Table 10:** Assessment of the project impact on water resource use and availability

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation		M/4	LIM-4	MIH-4	M -44
Post-Mitigation	UM: -2	UM: 2		UM:2	L -12

#### Mitigations and recommendations to manage water use:

It is important to provide water conservation awareness and training to all workers involved in the project, during both phases. This will help them understand the significance of conserving water and also become accountable. The following measures should be implemented to achieve water conservation:

- Efficient use of drinking water obtained through boreholes or carting, and recycling and reusing water for certain site activities, wherever possible.

The Proponent should explore the possibility of obtaining water for drilling from within the area of beserba, to alleviate the pressure on available resources. Agreements should be made between willing water suppliers and the Proponent.

- Water reuse and recycling methods should be used to the maximum extent possible, for instance, water used to cool off exploration equipment should be collected and used for cleaning project equipment, if feasible.
- Water storage tanks should be checked regularly every day to ensure there is no leakage, which can result in the wastage of water on the site.

### 5.5. Waste Generation

During the prospecting and exploration phase, domestic and general waste is produced on site. If the generated waste is not disposed of in a responsible way, land pollution may occur on the EPIs- or around the site. The EPL is in an area 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 programme needs to have appropriate waste management for the site. To prevent these issues, biodegradable and nonbiodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site. Any hazardous waste that may have an impact on the 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 be reduced to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 11**.

*Table 11. Assessment of waste generation impact*

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation	UM-2	UM-2			M -30
Post-Mitigation				LIM:2	

#### Mitigations and recommendations for waste management:

- Workers should be sensitized to dispose of waste in a responsible manner and not to litter.
- All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites. No waste may be buried or burned on site or anywhere else.

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- The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste.
- Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility
- Careful storage and handling of hydrocarbons on site is essential i.e. oil spills should be taken care of by removing and treating soils affected by the spill.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.

An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.

### 5.5. Traffic Use and Safety

The district roads such as C14 is the main transportation routes for all vehicular movement in the area and provide access to both EPIs- and connect the project area to other towns such as beserba village council and keetmashoop. Therefore, traffic volume might increase on these district roads during exploration as the project would need delivery of supplies and services on site. This service and supplies will include but are not limited to water, waste removal, procurement of exploration machinery, equipment, and others.

Depending on the project needs, trucks, and medium and small vehicles will be frequenting the area to and from exploration sites on the EPLs. This would potentially increase slowly moving heavy vehicular traffic along these roads. The impact would not only be felt by the district road users but also the local road users such as farms (via local access gravel and single-track roads). This would add additional pressure on the roads.

However, only so many times a week or even monthly that the exploration related heavy trucks will be transporting materials and equipment from and to the site during exploration. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Pre-mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 12** below.

*Table 12. Assessment of the impacts of exploration on road use (traffic)*

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation					M -44
Post-Mitigation	UM-2	UM-2		LIM:2	L:2

### Mitigations and recommendation to minimize impact on road safety and related traffic:

- The transportation of exploration materials, equipment and machinery should be limited to once or twice a week only, but not every day to reduce the pressure on local roads.

- Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules.
- Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as residents / travellers.
- Road signs conditions to cater for vehicles travelling to and from site throughout the project's life cycle.
- Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults.
- Vehicle drivers should only make use of designated site access roads provided and as agreed.
- Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.

No heavy trucks or project related vehicles should be parked outside the project site boundary or demarcated areas for such purpose.

### 5.6. Noise and vibrations

Prospecting and exploration work (especially drilling) may be a nuisance to surrounding communities due to the noise produced by the activity. Excessive 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 low rating, the mitigation measures should be implemented. This impact is assessed in **Table 13** below.

**Table 13.** Assessment of the impacts of noise and vibrations from exploration

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation	LIM-2	UM-2		M/H-3	M -30
Post-Mitigation		UM-2			L-10

### Mitigations and recommendations to minimize noise

- Noise from operations' vehicles and equipment on the sites should be at acceptable levels.
- The exploration operational times should be set such that no exploration activity is carried out during the night or very early in the mornings.
- Exploration hours should be restricted to between 08h00 and 17h00 to avoid noise and vibrations generated by exploration equipment and the movement of vehicles before or after hours.
- When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.

### 5.7. Disturbance to Archaeological and Heritage Resources

Although no Heritage Impact Assessment was conducted, it should be assumed that the project area is highly sensitive and archaeologically significant in terms of heritage resources that characterize the need for a detailed investigation of any other existing archaeological cultural materials in the areas. Therefore, 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 14**.

**Table 14.** *Assessment of the impacts of exploration on heritage resources*

Mitigation status	Extend	Duration	Intensity	Probability	Significance
Pre-Mitigation				M/H-4	
Post-Mitigation	UM-2	UM-2		UM:2	L:12

#### **Mitigations and recommendations to minimize the impact on archaeological and heritage resources:**

A "No-Go-Area" should be put in place where there is evidence of archaeological sites, historical, rock paintings, cave/rock shelters, or past human dwellings. It can be a demarcation by fencing off or avoiding the site completely by not working closely or near the known site.

- On-site personnel (s) and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work.
- The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in the event significant heritage and cultural features are discovered while conducting exploration works.

### 5.1. Overall Socio-Economic Benefits and Issues

With the potential employment of 15b people, this means that 15 families will benefit from the project during the exploration period. The project has great potential to improve the livelihoods of people and contribute to sustainable development within the surrounding community.

Community/stakeholder meetings will be held from time to time wherever possible, to effectively communicate with the local community and interested and affected parties to avoid any unexpected social impacts.

#### **Direct Benefits**

Direct capital investment – The mineral exploration project will require a significant capital investment of at least N\$ 10 million. This will be used for mapping, Sampling, and drilling

Stimulation of skills transfer – Due to the nature of mineral exploration projects, the proponent will implement an ad-hoc training program for some of its staff members. Training programs will be well structured and staff members will permanently benefit from these training programs

Job creation – Potential to employ 15 people which will improve the living standards of 15 families and contribute to sustainable development.

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**Indirect Benefits**

- The data generated from the exploration project will be made available to the Ministry of Mines and Energy for future research purposes.
- General enhancement of the health conditions and quality of life for a few people in the surrounding area
- Of significance is the prospect of diversification of the surrounding economy, which is presently mainly focused on small-scale mining of precious stones.

**CHAPTER 6: PUBLIC ENGAGEMENT PROCESS**

The Public Participation Process (PPP) for this Scoping Process was driven by a stakeholder engagement process that includes inputs from authorities, Interested and Affected Parties (I&APs), and the project proponent. As per the provisions of the EIA Regulations, "Public Consultation" means a process referred to in regulation 21, in which potential I&APs are given an opportunity to comment on or raise issues relevant to specific matters. This stems from the requirement that people have a right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions.

Effective public participation improves the ability of the Competent Authority (CA) to make informed decisions and results in improved decision-making as the views of all parties are considered. However, it is important to recognize and highlight two key aspects of public participation which must be considered at the outset:

1. There are practical and financial limitations to the involvement of all individuals within a PPP. Hence, public participation aims to generate issues that are representative of societal sectors, not each individual. Consequently, the PPP is designed to be inclusive of a broad range of sectors relevant to the proposed activity.
2. The PPP aims to raise a diversity of perspectives and will not be designed to force consensus among I&APs. Diversity of opinion rather than consensus building is likely to enrich ultimate decision-making.

Therefore, where possible, the PPP will aim to obtain an indication of trade-offs that all stakeholders (i.e., I&APs, technical specialists, the authorities, and the development proponent) are willing to accept concerning the ecological sustainability, social equity, and economic growth associated with the project.

### **1. Notification of Interested and Affected Parties (I&APs):**

- Conspicuous on-site notice boards
- Written notices to adjacent landowners, local/regional authorities, relevant state organs
- Newspaper advertisements for two consecutive weeks in widely circulated publications

### **2. Notification Requirements:**

- Application details subjected to consultation
- Statement of submission to Environmental Commissioner
- Nature and location of the proposed activity
- Access to further information
- Means for submitting representations
- Provide all relevant facts to I&APs and facilitate reasonable comment opportunities.
- Prescribed methods for official notification (personal delivery, registered mail, business transmission).

### **Public Consultation Activities Undertaken:**

1. Background Information Document (BID) distributed online and as an invitation for I&AP registration.
2. Newspaper advertisements in Windhoek Observer and New Era for two weeks, inviting I&AP registration and public meeting attendance.

### **The outcome of the public consultation**

In particular, all persons or companies falling within the category of Mineral prospectors and grant holders must comply with the National Environmental Policy for Namibia, as practiced by the MEFT. The purpose of presenting the issues raised by participants in this section is simply to:

- Ensure transparency regarding the concerns that have been expressed;
- Ensure that all issues raised are properly addressed in the EIA, EMP and mitigation measures proposed.

No public meeting was held apart from the background information document that was shared with interested and affected parties. A summary of the issues and concerns that were raised by the interested and affected parties from the BID response. One issue expressed by I&APs was from the Management of the Skeleton Coast Safari, dated 20<sup>th</sup> march 2025 and it quotes:

**“The beserba village council was consulted**

The village council does have objections against the mining activities proposed to take place on the epl no:995and 9936 The concern is as follows:  
There was no concerns raised

## CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

The potential positive and negative impacts stemming from the proposed exploration activities on EPLs No. 9935-9936 have been identified, and assessed, and appropriate management and mitigation measures for negative impacts have been recommended for implementation by the Proponent, their contractors, and project-related employees. Most of the potential impacts were found to be of medium significance rating. With the effective implementation of the recommended management and mitigation measures, the significance of adverse impacts that cannot be avoided completely will be reduced from medium to low rating.

To maintain a desirable low or medium significance rating, it is highly recommended that the Proponent directly, or through their Environmental Control Officer (ECO), monitor the implementation of the management and mitigation measures. The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be effectively managed and mitigated by the implementation of the recommended measures, with more effort and commitment put into monitoring their implementation. It is therefore recommended that the proposed prospecting and exploration activities be granted an Environmental Clearance Certificate, 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 are obtained as required, including permits and licenses for land use access agreements to explore and ensure compliance with these specific legal requirements.

In conclusion, it is crucial for the Proponent, their contractors, and all parties involved to effectively implement the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. Lastly, should the Environmental Clearance Certificate 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.

## CHAPTER 8: REFERENCES

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**APPENDIX A: CV\_ALBERTINA SIMON**

**ALBERTINA .J.SIMON**

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*An enthusiastic, highly knowledgeable professional with a Bachelor's degree in Environmental Science  
And expert skills in environmental planning conservation laws, Health& Safety & consulting*

**PROFESSIONAL SUMMARY**

- + Experienced in planning projects and managing resources that have positive impact on environment.
- + Skilled in providing environmental consulting to contractors and businesses of all sizes.
- + Demonstrated leadership skills with ability to coordinate large-scale projects and groups of people.
- + Able to control invasive species, manage forests, assemble field data equipment, and collect samples.
- + Proven ability to write environmental documents and reports collected from field data and lab tests. +outstanding organizational, interpersonal, public speaking, presentation, and teaching skills.

**SKILLS & ACCOMPLISHMENTS****Environmental Planning & Project Management**

- Worked on developing health and safety modules for different companies
- Contacted research study on waste & sewage management systems, nature conservation.
- Evaluated and measured air samples using lab techniques to determine legal limits of air quality.
- Consulted clients on industrial hygiene from collections of airborne pollutants..

**Land Conservation & Resource Development**

- Contacted a research study on environmental air pollution and water born diseases
- Enhanced landscape by removing nuisance vegetation and introducing beneficial trees, grass, and soil.
- Carried out an environmental pollution and nature conservation awareness campaign. **Environmental Law & Regulations**
- Informed clients on legal standards, mitigation techniques.
- Applied in environmental planning projects and land conservation efforts, federal and state conservation laws, **Specialized Training & Abilities**
- **Attended different seminars on environmental sustainable development ,environmental management and nature conservation(JSS U)**
- Environmental Impact Assessment, Soils, and Advanced Environmental Science Writing (JSS U)
- Conducted training classes and educational programs for department staff and students (JSS U).

**PROFESSIONAL EXPERIENCE****EIA PRACTITIONER****HEALTH & SAFETY TRAINER**

2017 – Present

**EDUCATION**

JSS UNIVERSITY INDIA

**B .SC. Environmental Science****COMPUTER SKILLS**

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