

ENVIRONMENTAL MANAGEMENT PLAN REPORT

ENVIRONMENTAL SCOPING ASSESSMENT (ESA) FOR THE EXPLORATION OF BASE AND RARE METALS, DIMENSION STONE, INDUSTRIAL MINERALS, NUCLEAR FUEL MINERALS AND PRECIOUS METALS MINERAL GROUPS ON EPL NO.8801, LOCATED IN KARIBIB DISTRICT, ERONGO REGION – NAMIBIA

COMPILED BY




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LIST OF ABBREVIATIONS

DEAF - Department of Environmental Affairs and Forestry

ECC - Environmental clearance certificate

ECO - (Environmental Control Officer

EIA - Environmental Impact Assessment

EMA - Environmental Management Act

EMP - Environmental Management Plan

EPL - Exclusive prospecting license

MEFT - Ministry of Environment, Forestry & Tourism

MFO - Manager Field Operations

1 INTRODUCTION

1.1 Project Overview

The Environmental Management Plan (EMP) presented in this section demonstrates how the Proponent intends to manage all the exploration, possible mining and processing operations within the EPL area that will significantly impact on the receiving environment, or that may potentially be of high risk in the long-term. By implementing this management plan, the Proponent will minimize the likely negative effects and maximize the positive effects of its operations in the EPL area. In line with the company's Environmental Policy and the implementation of the EMP, the proponent commitments to responsible and sound environmental management of all its exploration, test mining and processing activities within the EPL area. The proponent proposes to undertake exploration activities on the EPL 8801 for the awarded mineral groups, base and rare metals, dimension stone, industrial minerals, nuclear fuel minerals and precious metals mineral exploration. EPL 8801 is located about 17 km north of Arandis town in the Erongo Region (Figure 1-2). The project area covers an area of 5947.9947 hectares (ha) and is bounded by four (4) corner coordinates as shown on Figure 1-1 below. The main land use of the area within and outside the EPL is predominated by state land with the northeastern part of the EPL falling within farm Trekkopje.

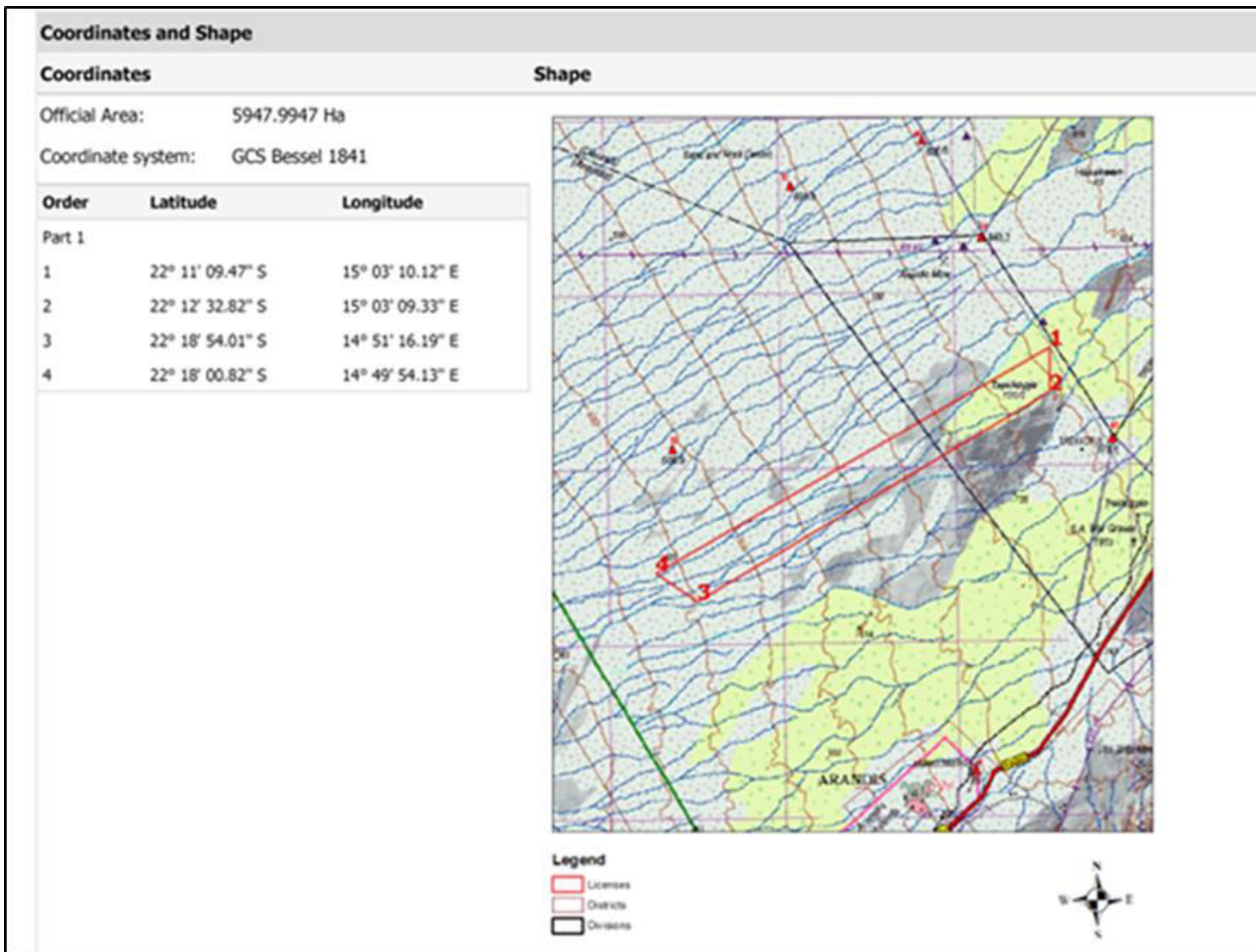


Figure 1-1: Map showing bounding coordinates for EPL 8801.

The proponent plans to conduct an exploration program on EPL 8801, which will include both non-invasive and invasive exploration methods. Non-invasive exploration methods will include activities such as geological desktop studies, interpretation of aeromagnetic and remote sensing images, field mapping, ground geophysical surveys, and sampling of surface rock and soil. Invasive exploration methods, include drilling (reverse circulation or diamond drilling) and pitting/trenching. The EPL is relatively flat with small undulating hills and is therefore easily accessible via minor car tracks within the area. This minimises the clearance of vegetation in the area needed for the access routes and working sites and for the installation and development of exploration drill holes, campsites etc. Noteworthy, the duration of exploration activities will be over the license tenure, which is valid for three (3) years, once an ECC has been issued for EPL 8801.

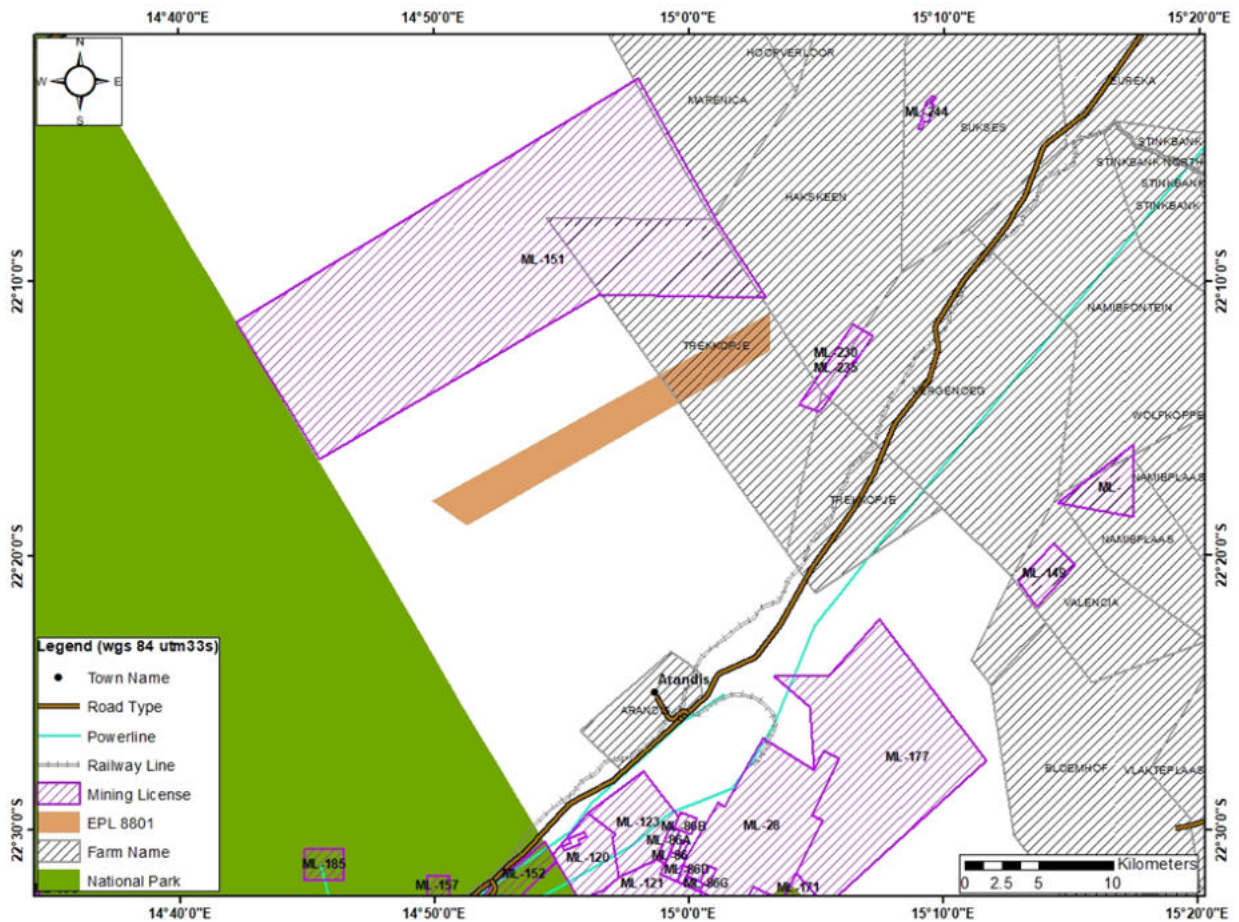


Figure 1-2: Map showing location of EPL 8801 in relation to existing Mining licenses in the area.

1.2 Purpose of document

This document is prepared as part of the Environmental Scoping and Impact Assessment for Proposed Exploration which was conducted in terms of the Environmental Management Act, 2007 (Act No 7 of 2007). This EMP serves as a vital tool for ensuring sustainable development and the protection of natural resources. Its purpose is to guide and regulate human activities in order to minimize negative environmental impacts and promote the conservation of Namibia's unique ecosystems.

This EMP aims to safeguard the diverse ecosystems, including its rich wildlife, sensitive habitats, and environment. It identifies potential environmental risks associated with development projects and outlines measures to mitigate these risks, ensuring the long-term health and resilience of the environment. It provides management measures to address the environmental effects that have been identified in the Environmental Scoping and Impact Assessment report and to give possible mitigation measures/recommendations to address these effects.

2 LEGAL AND REGULATORY FRAMEWORK

This chapter outlines all the relevant Namibian legislation, policies and guidelines that need to be adhered to for an effective EIA process. The review of the legal framework helps to inform the Proponent, affected, and interested communities, and the decision makers at the MEFT: DEAF about the requirements and expectations, as laid out in terms of these instruments, to be met so that the exploration activities could be conducted. This EMP was carried out based on the Environmental Management Act No 7 of 2007 (EMA) and its Environmental Impact Assessment (EIA) Regulations of 2021 (GG No. 4878 GN No. 30), and following the conditions set by EMA for obtaining an ECC for permission to conduct certain listed activities. The proponent must equally ensure adherence to the regulations put in place by the Minerals (Prospecting and Mining) Act No. 33 of 1992 (Minerals Act) with regards to the exploration activities. This Act caters for the reconnaissance, prospecting, and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and provides for matters incidental thereto. Table 2-1 below outlines the relevant Namibian legislations, policies and guidelines.

Table 2-1 Legal and Regulatory Frameworks

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act (EMA) No. 7 of 2007	Necessitate that projects with adverse environmental impacts are subject to an environmental assessment process (Section 27). Details principles which must guide all EAs.	EMA and its regulations should inform and guide this EA process.
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details requirements for what should be part of the Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
Minerals (Prospecting and	To provide for the reconnaissance, prospecting, exploration and mining for, and disposal of, and	The Proponent should ensure compliance with the conditions set in the

Mining) Act No. 33 of 1992	the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto.	Minerals Act regarding exploration activities.
The Constitution of Namibia Act No. 1 of 1990	According to Legal Assistance Centre (LAC), there is no clear right to health in the Namibian Constitution. But based on Article 95 of the Namibian Constitution that deals with Principles of State Policy, the Namibian Constitution states, “the state shall enact legislation to ensure consistent planning to raise and maintain an acceptable standard of living for the country’s people” and to improve public health.	The Proponent should ensure compliance with the conditions of the Act.
Water Act No. 54 of 1956	<p>The Water Resources Management Act 11 of 2013 is not yet gazetted; hence, the Water Act No 54 of 1956 is still in force:</p> <p>Interdict the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)).</p> <p>Provides for control and protection of groundwater (S66 (1), (d (ii)).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).</p>	The safety of ground and surface water resources must be a priority throughout all exploration activities.
Water Resources Management Act No.11 of 2013	<p>The act caters for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to:</p> <p>Certify that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner accordant with, or conducive to, the fundamental principles set out in</p>	

	Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	
Soil Conservation Act No. 76 of 1969	The Act aim to prevent and control soil erosion and to protect, revamp, and conserve the soil, vegetation and water supply sources and resources, through directives declared by the Minister.	At a time of soil sampling soil conservation must be taken care of, and management measures must be part of the EMP.
Nature Conservation Ordinance No.4 of 1975	To centralise and amend the laws relating to the conservation of nature; the establishment of game parks and nature reserves; the control of problem animals; and to provide for matters incidental thereto.	The Proponent should ensure that any activities done in the project area do not in any way trade-off the wildlife and the ordinance requirements are adhered to.
Agricultural (Commercial) Land Reform Act No. 6 of 1995 (Agricultural (Commercial) Land Reform Amendment Act No. 1 of 2014))	To provide for the acquisition of agricultural land by the State for the purposes of land reform and for the allocation of such land to Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been socially, economically or educationally disadvantaged by past discriminatory laws or practices; to vest in the State a preferred right to purchase agricultural land for the purposes of the Act; to provide for the compulsory acquisition of certain agricultural land	Should there be protected plant species, which are known to occur within the project sites, these are required to be removed, a permit should be obtained from the nearest

	by the State, for the purposes of the Act; to regulate the acquisition of agricultural land by foreign nationals; to establish a Lands Tribunal and determine its jurisdiction; and to provide for matters connected therewith.	Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removing them.
Forestry Act No. 12 of 2001	The Act cater for the management and use of forests and related products/resources. It provides protection to any living tree, bush or shrub growing within 100 meters of a river, stream or watercourse on land that is not surveyed or even of a local authority area. In such instances, a license would be required to cut and remove any such vegetation. These provisions are only guidelines.	There are shrubs and trees within the proposed site to be explored. The proponent is therefore required to obtain a permit from the Forestry office to remove protected species.
Atmospheric Pollution Prevention Ordinance No. 11 of 1976	This ordinance sets for the prevention of air pollution.	Measures should be set to ensure that dust and fumes emanating from exploration activities is kept at acceptable levels.
Public Health Act No. 36 of 1919	Section 119 states that “no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.”	The Proponent and all its employees/contractors should adhere to the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	

<p>The Regional Councils Act No. 22 of 1992</p>	<p>This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 “to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.”</p> <p>The main objective of this Act is to initiate, supervise, manage and evaluate development.</p>	<p>The relevant Regional Council are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process.</p>
<p>Labour Act No. 6 of 1992</p>	<p>Ministry of Labour (MOL) aim to ensure harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.</p>	<p>The Proponent should ensure that the proposed activity does not compromise the safety and welfare of workers.</p>
<p>Best Practice Guide: Environmental Principles for Mining in Namibia- Exploration</p>	<p>Outlines the regulatory and legislative requirements for exploration in Namibia.</p> <p>Serves as a guiding framework for the exploration phase of the mining life cycle.</p>	<p>The proponent should be guided by this framework for best practice mining and exploration activities in Namibia.</p>
<p>National Heritage Act (27 of 2004)</p>	<p>Part V Section 46 of the Act prohibits removal, damage, alteration, or excavation of heritage sites or remains. Section 48 off sets out the procedure for application and granting of permits such as might be required in the event of damage to a</p>	<p>The project must ensure that no heritage resources are damaged and/or removed during its operations. All</p>

	<p>protected site occurring as an inevitable result of development. Section 51 (3) sets out the requirements for impact assessment. Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council. Heritage sites or remains are defined in Part 1, Definitions 1, as “any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface”.</p>	<p>protected heritage resources (e.g., human remains, paintings etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be removed and/or relocated.</p>
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3 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Conducting an environmental assessment prior to engaging in an activity such as mining or exploration is one means of anticipating future environmental repercussions and creating ways to avoid or minimize them. Prior to prospecting or mining a specific location, it is usual practice to have an environmental management plan in place. It's crucial to have a well-structured, all-encompassing plan in place, as well as an environmental management system put up by a certified environmental consultant to assist management in making responsible and realistic decisions. Each on-site employee should be given a simplified explanation of the EMP's needs at the start of exploratory activities. Employees must be informed that they are required to follow this plan when ECC is issued.

The following tables provide a summary of the identified environmental impacts and the impact assessment matrix.

Environmental Management Plan for EPL 8801

Table 3-1: Environmental impacts and assessment matrix

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
TOPOGRAPHY	Topography and Landscape	Alternation of existing topography	Operation	Short term	Low	Local	Direct	Probable	Low
	Topography and Landscape	Topographic changes and Visual Impact from overburden material.	Operation	Medium term	Moderate	Local	Direct	probable	Moderate
SOILS	Soil	Loss of usable topsoil material	Operation	Long term	Low	Local	Direct	Highly probable	Moderate
	Soil	Contamination to soil from waste disposal	Operation	Long term	Moderate	Local	Direct	Improbable	Low
LAND CAPABILITY	Socio Economic Activities	Land utilization for the benefit of the people	Operation	Long term	High	National	Indirect	Probable	Moderate

Environmental Management Plan for EPL 8801

	Terrestrial ecology and biodiversity	Decreased in vegetated land (biodiversity zones) within the Exploration zones	Operation	Long term	Low	Local	Direct	probable	Low
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Environmental Management Plan for EPL 8801

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Groundwater quality	Groundwater source and soil may be polluted vehicular movements, mineral exploration drilling, etc.	Operation	Short term	High	Local	Direct	Probable	Moderate
	Surface water quality	Increased sediment load from exposed surfaces	Operation	Short term	Low	Local	Direct	Probable	Moderate
	Surface water quality	Storm water generation from, the large open surface area may create storm water which may result in pollution.	Operation	Long term	High	Local	Direct	Highly Probable	Moderate
	Surface water quality	Increase in surface water run- off from a large open surface area on site because of vegetation removal	Operation	Short term	Moderate	Local	Direct	Improbable	Low

Environmental Management Plan for EPL 8801

AIR QUALITY	Air Quality	Generation of dust during drilling and campsite construction.	Construction, operation	Short term	Low	Local	Direct	Probable	Moderate
	Noise Pollution	Generation of dust during drilling and campsite construction.	Construction and operation	Long term (operation)	Low	Local	Direct	Probable	Low
	Topography and Landscape	Visual impacts due to use of unsustainable disposal methods	Construction and Operations	Long term	Low	Local	Direct	Probable	Moderate

Environmental Management Plan for EPL 8801

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Terrestrial ecology and biodiversity	Loss of habitat, and clearing or damage to vegetation	Construction and Operations	Long term	Moderate	Local	Direct	Probable	Low
FAUNA	Terrestrial ecology and biodiversity	Loss of habitat and clearing or damage to vegetation	Construction, Operation	Short Time	Moderate	Local	Direct	Highly Probable	High
FLORA	Terrestrial ecology and biodiversity	Proliferation of invasive species Establishment of bush encroachers in disturbed areas.	Construction and Operations	Long Term	Low	Local	Direct	Probable	Low
	Terrestrial ecology and biodiversity	Illegal collection of firewood	Construction and Operations	Long Term	Low	Local	Direct	Probable	Low

Environmental Management Plan for EPL 8801

	Terrestrial ecology and biodiversity	Clearing of land may lead to destruction of protected vegetation and loss of biodiversity. Loss of mature and protected tree species due to clearing of land for parking space.	Construction	Short Term	Moderate	Local	Direct	Highly Probable	Moderate
	Terrestrial ecology and biodiversity	Uncontrolled/accidental fires	Construction and Operations	Long Term	High	Local	Direct	Probable	Moderate
Socio- economic	Socio Economic Activities	Temporary employment prospects in the area	Construction	Short Term	Low	Local	Direct	Probable	Moderate Positive
Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Socio Economic Activities	Security concerns due	Construction and Operations	Long	High	Local	Direct	Probable	Moderate Positive

Environmental Management Plan for EPL 8801

		to increased number of persons in areas							
	Socio Economic Activities	Job creation construction workforce	Construction and operations	Long term	High	Local	Direct	Highly Probable	Moderate Positive
	Socio Economic Activities	Job creation permanent workforce	Operations and constructions	Long term	Moderate	Local	Direct	Probable	Moderate Positive
	Contributing to the National economy	Improved transport infrastructure and services	Operations	Long Term	Moderate	National	Direct	Highly Probable	High Positive
	Contribution to Local Economy	Employment and local procurement.	Construction and Operations	Long Term	Moderate	Local	Direct	Probable	Moderate Positive

3.1 Mitigation measures

Table 3-2 Environmental impacts and mitigation measures

Impacts	Mitigation
<p>Socio Economic</p>	<p>The population change can be mitigated by employing people from the local community and encouraging the contractors to employ local individuals.</p> <p>The perception of risks will be mitigated by putting up safety signs wherever possible and ensuring that all employees and visitors to the site undergo a safety induction course.</p>
<p>Soil</p>	<p>During any excavating and clearing the contractor shall take care to remove as little topsoil as possible. All soil within 100mm of the cleared surface level shall be regarded as topsoil.</p> <p>Remove and separately stockpile any subsoil material that can be used for site backfilling.</p> <p>Topsoil shall be stockpiled (and seeded) in areas within the site boundary and approved by the Project Engineer in conjunction with the Environmental Consultant, for reuse and restoration.</p>
<p>Flora and Fauna</p>	<p>Some habitat areas such as the river and tunnel outcrops will be avoided wherever possible.</p> <p>A fauna survey will be conducted to determine the effect of fragmented habitat to game species should the need arise.</p> <p>No animals shall be killed, capture or harmed in any way.</p>

	No food stuff shall be left lying around as this will attract animals which may result in human-animal conflict.
Noise Pollution	Disturbance to fauna that roam the area will be minimized by training the employees on ways to minimize noise.
Air Quality	All staff on should be equipped with dosimeters that measure exposure levels to radiation. All staff must be made aware of the health risk and obliged to wear dust masks.
Water	Implementing water conservation practices to reduce water wastage and increase efficiency. Encourag the collection and storage of rainwater for non-potable uses, such as irrigation or toilet flushing. Developing and implementing water recycling and reuse systems, particularly for industrial activities. Treating and reusing water for non-potable purposes Groundwater Management: Managing and monitoring groundwater resources to prevent over-extraction and ensure sustainable use. This will involve setting up monitoring wells, implementing pumping restrictions, and assessing the aquifer's recharge rates. Desalination: Exploring desalination as an alternative water source. Although desalination can be energy-intensive, it can provide a viable option for obtaining freshwater in coastal areas where seawater is abundant.
Archaeological and Heritage Resources	Buffer zones will be created around the sites.

	<p>Adhere to practical guidelines provided by the responsible archaeologist to reduce archaeological impacts of any exploration related activities.</p> <p>All archaeological sites to be identified and protected before any development commences.</p>
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3.2 Biodiversity protection and conservation

The region values biodiversity protection and conservation due to its rich ecological diversity and unique wildlife. The town and its surroundings are home to various plant and animal species, making it a significant area for conservation efforts.

Biodiversity protection and conservation in Arandis are primarily carried out through several key initiatives:

- **Conservation Areas:** Arandis has established protected areas and wildlife reserves to safeguard critical habitats and the species residing within them. These areas are carefully managed to prevent human encroachment and maintain ecological balance.
- **Community Involvement:** Local communities in Arandis actively participate in biodiversity conservation initiatives. By engaging with residents, conservation organizations foster a sense of responsibility and stewardship towards the environment, ensuring sustainable practices are embraced.
- **Wildlife Monitoring and Research:** Ongoing wildlife monitoring and research help understand the region's biodiversity and ecosystem dynamics better. This data-driven approach guides conservation strategies and enables informed decision-making.
- **Habitat Restoration:** Efforts are made to restore and rehabilitate degraded habitats in Arandis. Replanting native vegetation and removing invasive species support ecosystem health and biodiversity.
- **Anti-Poaching Measures:** Arandis places a strong emphasis on anti-poaching measures to protect vulnerable and endangered species from illegal hunting and trade.
- **Environmental Education:** Promoting environmental education in schools and communities' fosters awareness and appreciation for the region's biodiversity. It instils a sense of responsibility for protecting the environment among the younger generations.

- **Sustainable Tourism:** Arandis promotes responsible and sustainable tourism practices that minimize environmental impact while providing opportunities for visitors to experience the area's natural beauty and wildlife.
- **Partnerships and Collaboration:** Collaborating with governmental agencies, NGOs, and international organizations strengthens conservation efforts by combining resources, expertise, and knowledge.

The commitment to biodiversity protection and conservation in Arandis is crucial for maintaining the ecological balance and preserving the unique natural heritage of the region for future generations. By implementing these initiatives and fostering a culture of environmental stewardship, Arandis aims to ensure the sustainability of its rich biodiversity and ecosystems.

3.3 MONITORING PLAN

The project monitoring is conducted under the EMP and includes:

3.3.1 Project readiness monitoring

Monitoring to check progress on project readiness and close gaps through corrective actions.

3.3.2 Operational monitoring

This is required as part of the operations of the subproject and will be undertaken by the relevant government department or a nominated private sector operator.

3.3.3 EMP and Environmental quality compliance monitoring

To be conducted by the Project Management Consultants to verify EMP compliance during project implementation. To be conducted by a competent authority or person appointed by the proponent, involving the collection and analyses of air quality, noise and water quality data at designated monitoring locations for assessing compliance with applicable environmental quality and emission standards

4 ENVIRONMENTAL SPECIFICATIONS

4.1 Compliance with the Environmental Specifications

The activities will be conducted in an environmentally and socially responsible manner. The contractor and all personnel on-site will comply with the environmental specifications contained in this section.

4.2 Training and Awareness

All site personnel and site contractors will receive the training to equip them with the necessary knowledge to comply with the environmental specifications. The MFO will ensure that an appropriate level of training is provided at all levels of site personnel.

4.3 Stakeholder Relations

All site personnel will maintain good relations with the landowners and members of the public. Any complaints received by the ECO will be addressed.

4.4 Permits

All relevant permits shall be obtained from relevant authorities. The removal or relocation of rare and endangered plants will be conserved, and should it be removed or relocated it shall be done with the required permits from the Directorate of Forestry.

4.5 Road Safety

The access roads can be dangerous at times due to dust from passing vehicles, poor camber, patches of loose sand, careless drivers and other external factors. All drivers must be aware of these hazards and take precautions to avoid them. Such precautions will include, but not be limited to:

- Complying with speed limits;
- Reducing speed considerably when visibility is poor
- Being wary of other vehicles
- Travelling with lights on even in daylight;
- Slowing down for animals and birds on the road; and,
- Being cautious of other road users– taking into account reduced visibility due to dust.

4.6 Access Tracks

No new tracks will be made unless there are no pre-existing tracks, any new tracks or extensions should be established with the permission of the Municipality and other landowners.

The selected access and site roads will be clearly marked. A single road only will be used to and from each destination. Turning points for vehicles will also be pre-selected and marked. Care will be taken to avoid damage to plants.

Any elevated sites, or sites away from existing tracks, will be accessed on foot rather than by a vehicle.

4.7 Conservation of Biodiversity

Damage to protected species will be avoided at all costs.

4.8 Wildlife Poaching

No animal or bird is to be captured, killed or harmed in any way. Anyone caught violating this law will face suspension from the project and could be liable for prosecution. In a likewise manner, domestic livestock on farms may also not be harmed.

4.9 Health and Safety

All company personnel will receive a detailed induction upon joining the project and on a regular basis and be provided with the necessary PPE attire to prevent potential injuries and excessive inhalation of dust or harmful gases. Eating, drinking, and smoking while working with any materials that may contain radioactive or hazardous substances is forbidden. Good personal hygiene is encouraged (e.g., washing hands before eating) to prevent ingestion of potentially hazardous or radioactive materials. Marking disturbance areas and buffer zones to avoid unnecessary impacts. Installing sediment controls around boreholes and access roads and implementing a spill response plan and providing spill kits at all work sites

4.10 Compliance Monitoring

During exploration activities, the company ECO will conduct site compliance inspections at least once a month. After each inspection the ECO will compile an EMP compliance report for regular submission to the MFO and biannually to the MEFT or as required.

5 PROJECT ACTIVITIES

The proponent plans to conduct an exploration program on EPL 8801, focusing on base and rare metals, dimension stones, industrial minerals, nuclear fuels, and precious metals. The program includes both non-invasive and invasive exploration techniques.

Non-invasive techniques involve geological desktop studies, interpretation of aeromagnetic and remote sensing images, field mapping, ground geophysical surveys, and sampling of surface rock and soil. These methods aim to gather geological information without significant disturbance. The primary goal of non-invasive methods is to assess the need for more invasive exploration.

Invasive exploration methods, such as drilling (reverse circulation or diamond drilling) and pitting/trenching, will be used to gather more detailed data. This includes site-specific drilling, trenching, and sampling to provide a clearer understanding of mineral deposits.

The exploration program will follow a systematic approach, starting with non-invasive methods to determine if invasive techniques are necessary. If non-invasive exploration yields positive results, indicating promising mineralization, detailed site-specific drilling, trenching, and sampling will be conducted.

Throughout the program, environmental impacts will be minimized by using non-invasive techniques initially and following safety protocols for drilling and excavation activities.

The exploration program aims to identify economically viable mineral deposits while ensuring responsible environmental management and adherence to regulations.

The proposed exploration activities will be implemented through the following sequential phases:

Table 5-1 Exploration activities phases

Phase	Exploration technique	Description
Phase 1	Desktop study and geological mapping	Thorough review of geological map data, on-site visual assessments of rocks, and the use of geospatial data to identify lithological units, geological structures, mineralization zones, and alteration zones.
Phase 2	Geophysical Surveys	Using various sensing technologies to collect subsurface data to detect and assess geological features, including mineralization
Phase 3	Geochemical Sampling	Collecting earth materials (rocks, soils, sediments) for analysis to determine the presence and quantities of different minerals.
Phase 4	Trenching and Pitting	Excavating an area to obtain a bulk sample of mineralization to understand its characteristics

Phase 5	Drilling and Core Sampling	Penetrating the ground and extracting rocks from different depths to verify the geology or obtain samples for further chemical analysis
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6 RECEIVING ENVIRONMENT

6.1 Geological setting

The geological setup of the area is influenced by its location within the Damara Belt, a significant tectonic zone in the country. The Damara Belt is part of the northeast-trending intracontinental arm of the Damara Orogeny, resulting from ancient tectonic processes. Furthermore, the area is situated in the Central Zone of the Damara Belt. This zone is characterized as a high-temperature-low-pressure (HTLP) zone with various granitic intrusions that experienced significant deformation during the D3 phase, forming dome structures. The dominant geological formation in the area is the Damara Supergroup, which is divided into the basal Nosib Group and the upper Swakop Group. Within the EPL 8801, only the Swakop Group is exposed. The Swakop Group consists of several subgroups, including the Ugab, Usakos, and Navachab Subgroups. The Navachab and Usakos Subgroups are present in the project area.

The Arandis Formation is located between the Chuos and Karibib Formations and consists of schists, calc-silicates, and marbles. It was formed during multiple periods of sedimentation on a continental shelf, involving both carbonate and siliciclastic processes. The thickness of this unit varies, with more extensive development observed near the town of Arandis.

Late-Cretaceous dolerites have intruded the country rocks in a north-north-easterly direction, adding to the geological complexity of the region.

The occurrence of certain vegetation in the area is closely related to the presence of granite and rock plates that do not retain water. Run-off from these plates and the microclimate they create play a crucial role in the distribution of vegetation.

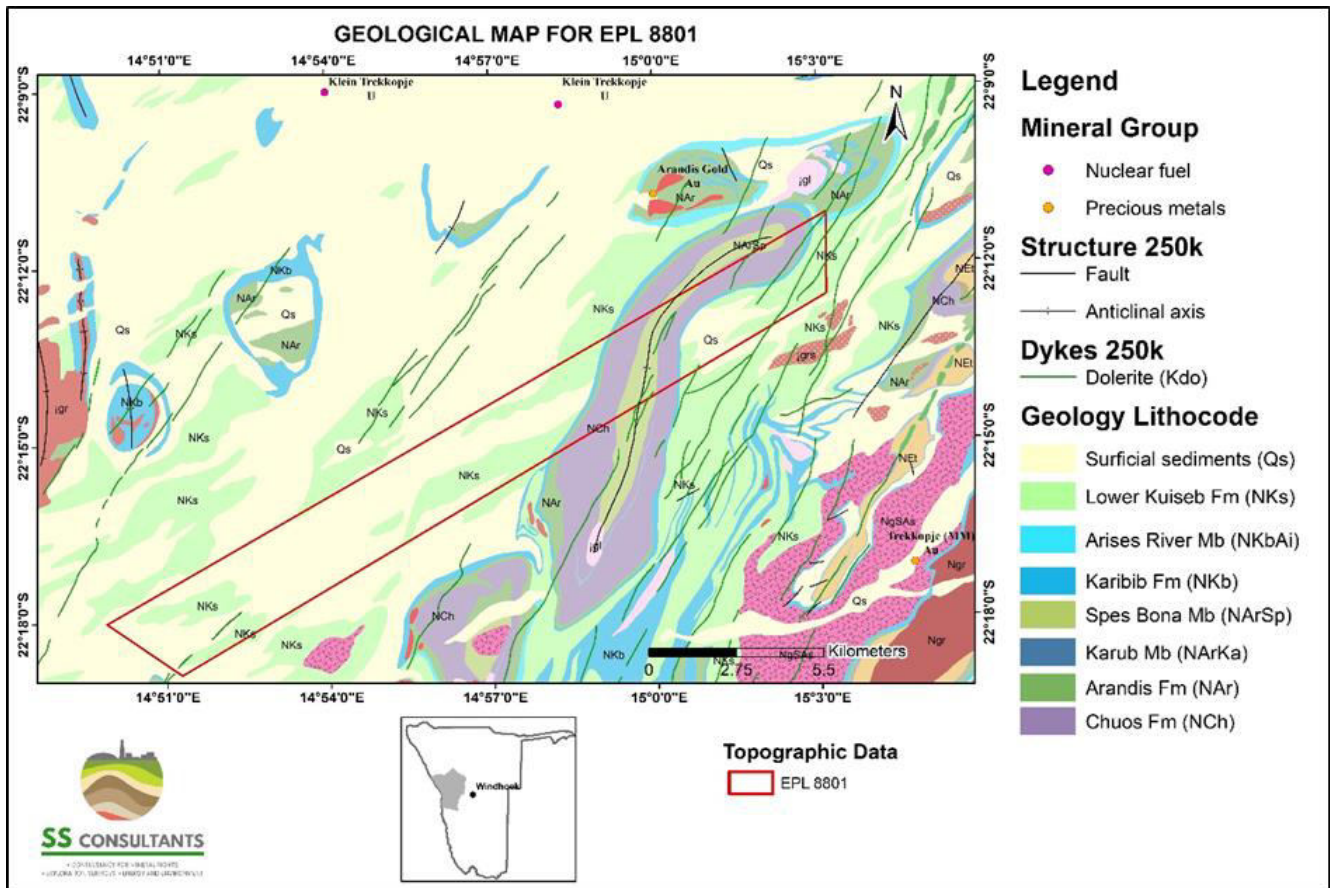


Figure 6-1 Geological map for EPL 8801

6.2 Climate

The town of Arandis experiences a desert or arid climate, which is characterized by the following rainfall and temperature conditions;

Rainfall

Arandis primarily receives rainfall during the summer season, specifically from January to March, with precipitation peaking at 10 mm during this period. The months of February and March are the wettest, both receiving 10 mm of rainfall, while June, July, and August are the driest months, with no recorded rainfall (0 mm) (Figure 6-3). In Arandis, March typically has the highest number of rainy days, averaging around 5.7 days, and February and March have the highest cumulative precipitation of 10 mm (Figure 6-4). From May to November, minimal to no rainfall is expected annually.

Temperature

During the summer months (September to March), the days are generally warm, with average high temperatures reaching 20 °C. However, nights tend to be cool. In contrast, the winter period (April to August) experiences warmer temperatures, with average highs peaking at 23.5 °C. The highest average maximum temperature occurs in April, while the lowest is observed in September and October, both averaging 20 °C. August and September have the lowest average minimum temperatures, reaching 14 °C, while March sees the highest average minimum temperature at 19.3 °C.

6.3 Flora

6.3.1 Trees / Shrubs and Grasses

Arandis is situated on the edge of the Central-Western Plains stretching from the coast to about 450 km to the east, which connects the Escarpment. The escarpment divides most of the country into two general landscapes: the low-lying coastal plain (which includes Arandis), and the higher inland plateau (Khomas Hochland to the east of Arandis). The study area is mainly comprised of four habitat types namely:

- Marble ridges; and
- Ephemeral river channels;

The central desert biome was observed within EPL area. There are common plants on site such as shrubs composed mainly of white thorn. The EPL 8801 is situated towards the eastern edge of the Central Namib Desert vegetation zone. This zone extends southwards to the Kuiseb River, and to the east, known as the Escarpment Zone. Even though the Central Namib Desert is considered a distinct vegetation zone, there is a distinctive east-west distribution pattern within this zone. This pattern is closely related to the inland distribution of coastal fog. The fog can reach as far as the Rossing Mine. However, all the plant species found within this region are considered to be drought-tolerant, drought-resistant or succulents.

6.4 Archaeological and Heritage Resources:

Arandis, Namibia, is a region believed to be home to many archaeological and heritage resources, which bear significant cultural and historical importance. Due to the potential impact of exploration activities on these resources, an Archaeological and Heritage Impact Assessment (AIA) is required as per the National Heritage Act No. 27 of 2004 and the Environmental Management Act No. 7 of 2007.

The AIA aims to identify, document, and assess all sensitive archaeological sites within and around the project area that could be adversely affected by exploration activities. It also seeks to determine the heritage significance of potential resources and assess their vulnerability. By estimating the extent of possible impacts, the AIA helps formulate effective mitigation measures to safeguard the region's cultural heritage.

The Arandis area holds valuable archaeological sites that provide insights into past human activities, such as ancient settlements, rock art, and cultural artefacts. Additionally, the region's heritage resources, including historical buildings, cultural landscapes, and intangible cultural heritage, contribute to the identity and heritage of local communities.

Omapipi Tageya Archaeological and Heritage Consultants (OTAH) and ESM Cultural Heritage Consultants (JV) were appointed to undertake the AIA for EPL 8801, ensuring that exploration activities proceed with due consideration and respect for the cultural and historical significance of the region.

The specialist AIA report has been submitted to the National Heritage Council (NHC). This process helps preserve and protect Arandis's rich archaeological and heritage resources, ensuring that the exploration project takes into account their value and potential vulnerability during its implementation. It is highly recommended that the project proponents or contractors should adopt the Chance Finds Procedure attached and annexed as Appendix 1, in the specialist AIA report (APPENDIX J of the Scoping report).

6.5 Potential Environmental Impacts, the key environmental aspects that could be impacted by exploration activities include:

6.5.1 Vegetation clearance

vegetation removal for drill pads, access tracks and campsites.

6.5.2 Soil erosion

Increased erosion potential due to vegetation clearance and vehicle movements.

6.5.3 Water resources

Potential contamination of surface and groundwater sources from fuel/chemical spills or discharge of wastewater.

6.5.4 Wildlife disturbance

Noise, light and visual impacts on fauna, particularly during sensitive periods.

6.5.5 Cultural heritage

Potential disturbance of archaeological or sacred sites.

7 ENVIRONMENTAL MANAGEMENT PRINCIPLES

Everyone will be expected to conduct all their activities in an environmentally and socially responsible manner. This includes all consultants, contractors, and subcontractors, as well as transport drivers, visitors, and anybody else involved in the mineral exploration project who enters the exploration regions.

The Proponent will ensure that all project participants adhere to the following principles:

- All employees will be obliged to undertake activities in an ecologically and socially responsible way.
- Safeguard the health and safety of project personnel and the public against potential impacts of the project. This includes issues of road safety, precautions against dangers on site, potential hazards; and,
- Promote good relationships with the surrounding settlements and other stakeholders.
- Wise use and conservation of environmental resources, giving due consideration to the use of resources by present and future generations;
- Prevent or minimize environmental impacts,
- Minimize air, water, and soil pollution; and conserve biodiversity.

7.1 Management Responsibilities

7.1.1 The Operating Company

The company is ultimately responsible for all stages of the project and the impacts resulting from those activities. The responsible persons will be the company's Environmental Control Officer (ECO) and Managing Director to ensure that:

- The EMP and its environmental specifications are included in contractual documents and it is required that contractors, and subcontractors, consultants etc. do meet the EMP requirements;
- The company and all its subcontractors, consultants etc. comply with all Namibian legislation and policies and any relevant International Conventions;
- Compliance with the environmental specifications are enforced on a day-to-day basis;
- Environmental audits are conducted periodically by a suitably qualified ECO to confirm that the environmental requirements are properly understood and effectively implemented;
- Sufficient budget is provided to implement those measures that have cost implications.
- The site manager must commission tree surveys well in advance of planned road construction or drill pad preparation so that the necessary site visits by forestry personnel and forestry permits are acquired; and,
- Open an effective communication between all parties concerning environmental management on the project.

7.2 Site managers

Day-to-day responsibility for environmental management will be assigned to the ECO and Manager Field Operations site manager for the duration of all operational activities to:

- Be familiar with the contents of the EMP and applicable sections of the EIA and the measures recommended therein;
- Monitor compliance with the environmental specifications on a daily basis and enforce the environmental compliance on site by communicating the ECO's directions to all personnel involved.
- In the event of any infringements leading to environmental damage, personnel need to consult with the ECO and seek advice on any remedial measures to limit or rectify the damage;
- Maintain a record (photographic and written) of "before-and-after" conditions on site;
- Facilitate communication between all role players in the interests of effective environmental management

7.3 Environmental Control Officer (ECO)

A suitably qualified ECO will be appointed who will be responsible to:

- Undertake environmental audits of overall compliance with the environmental specifications. This should be done at least bi-annually.

- Submit a site inspection report to the Managing Director and MFO;
- Advise the MFO on interpretation and implementation of the environmental specifications as required; and,
- Make recommendations for remedial action in cases of non-compliance with the environmental specifications.

7.4 Environmental Management System Framework

The proponent and its contractors will create and implement an Environmental Management System (EMS) in order to apply Environmental Management Practices. The structure for compiling a project EMS is established in this section. All environmental management paperwork will be kept in a paper and/or electronic system by the applicable exploration EMP.

These may include, but are not limited to:

Standard operating procedures for the implementation of the environmental action plan and management program.

Procedures for dealing with incidents and emergencies.

Procedures for auditing, monitoring, and reporting, as well as

EMP compliance method statements for ad hoc actions not explicitly covered in the EMP action plans.

7.5 Register of Roles and Responsibilities

Relevant roles and duties will be identified during project planning and risk assessments. All environmental commitment duties and obligations must be documented in a register. The register must include pertinent contact information and be updated as needed.

Identify key personnel responsible for implementing and monitoring the EMP.

7.6 Stakeholder Engagement and Communication

Notification of the proposed activities were advertised in the two widely common newspaper to consult the public as presented in Appendix E, to identify and contact as many potential I&As possible. The description of the project was presented, and opportunity was given for the I&As to give their comments and issues.

7.7 Communication between Parties

Emphasis will be put towards open communication between all parties, in order to reach a proactive approach towards potential environmental issues deriving from the project. This approach should guarantee that environmental impacts are anticipated and prevented, or minimised, rather than adopting a negative “policing” approach after negative impacts have already occurred. The importance of a proactive approach cannot be overemphasised, particularly in relation to preventing unnecessary tracks, and damage to vegetation (i.e. protected and endemic species) as these impacts cannot easily be remedied.

8 CONCLUSION

The Environmental Management Plan (EMP) presented in this report outlines the proactive measures that will be implemented to effectively mitigate the potential environmental impacts of the proposed exploration and possible test mining operations within EPL 8801. The EMP details a comprehensive management strategy to address environmental concerns and ensure responsible and sustainable practices throughout the project's lifecycle.

By adhering to the Environmental Regulations of 2012 and the provisions set forth by the project proponent, the approach and methodology for the Environmental Impact Assessment (EIA) will be rigorous and thorough. The EIA will assess the potential environmental consequences of the proposed activities, taking into account factors such as air quality, water resources, biodiversity, and cultural heritage resources.

The implementation of the EMP is essential to minimize negative effects on the environment while maximizing positive outcomes. It will focus on employing best practices, innovative technologies, and environmental safeguards to protect the natural surroundings and the well-being of local communities.

By following the EMP guidelines, the project aims to enhance the overall ecosystem services and value of the EPL 8801 and its vicinity. This means conserving and protecting biodiversity, water resources, and cultural heritage, while simultaneously contributing to sustainable economic development. Therefore, this environmental Management Plan embodies the project proponent's commitment to responsible and environmentally conscious practices. Through the implementation of the EMP and the rigorous EIA process, the project aims to strike a balance between exploration and environmental conservation, ensuring a harmonious coexistence between human activities and the natural environment.

9 REFERENCES

- Curtis, B. & Barnard, P. (1998). Sites and species of biological, economic or archaeological importance. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Curtis, B. & Mannheimer, C. (2005). Tree Atlas of Namibia. National Botanical Research Institute, Windhoek, Namibia.
- Du Preez, L. & Carruthers, V. (2009). A complete guide to the frogs of southern Africa. Struik Publishers, Cape Town, RSA. o Electricity Control Board (ECB). (2009), Annual Report, Windhoek, Namibia.
- IUCN,.(1996). IUCN red list of threatened animals, IUCN, Gland, Switzerland.
- Joubert, E. & Mostert, P.M.K. 1975. Distribution patterns and status of some mammals in South West Africa. Madoqua 9(1): 5-44.
- Kisting, J., 2008. Opportunities in the renewable energy sector in Namibia, Baobab Equity Management (Pty) Ltd, Windhoek, Namibia o Mendelson, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia: A portrait of the land and its people. Windhoek, Namibia: Ministry of Environment and Tourism.
- Mendelsohn, J., Jarvis, A., Roger, S., & Roberstson, T. (2012). *The coast of Kunene and the Skeleton Coast Park: Namibia's coast*. Windhoek: Namibian Coast Conservation and Management (NACOMA) project, Ministry of Environment and Tourism.
- MET. (2007). Retrieved from <https://www.namibiahc.org.uk>
- Miller, R. McG., (1983a). The Pan – African Damara OrogenodS.W.A. / Namibia, Special Publication of the Geological Society of South Africa, 11, 431 - 515. o Miller, R. McG., (1983b). Economic implications of plate tectonic models of the Damara Orogen, Special Publication of the Geological Society of South Africa, 11, 115 -138.
- Miller, R. McG., (1992). Stratigraphy. The mineral resource of Namibia, Geological Survey of Namibia, Ministry of Mines and Energy, Windhoek, 1.2 .1 -1.2.13.
- Ministry of Environment and Tourism. Republic of Namibia. (2008). Guide to the Environmental Management Act No. 7 of 2007. 56 pp Ministry of Environment and Tourism. Republic of Namibia. (2012). Environmental Impact Assessment Regulation: Envirommental Management Act, 2007.

Government Gazette No.4878. NamPower, 2010. Network Map (www.nampower.com.na) – Retrieved on 06th February 2014. o NamWater.(1998).The hydrogeological conceptual model of the Omaruru Delta (OMDEL). Ransom, A. H., (1981). Interim Report on Prospecting Grant No. M46/3/758 – Tumas Project No. 53 - Namib Desert Park – Namibia, Period April 1978 - April 1981, Falconbridge of S.W.A. (PTY) LTD, Bulletin No. 2267 (Annex 4).

Ministry of Environment, Forestry and Tourism. (2021). *Management Plan for Skeleton Coast National Park 2021/2022-2020/2031*. Windhoek: MEFT.

MIT. (2003). *Report on investment opportunities in mining*. Retrieved May 10, 2022, from http://www.mti.gov.na/invopps_text/mining.htm

Namene, C. P. (2020). *EIA REPORT: Proposed Construction of an 18MW Solar Power Plant on Lease 16 of Farm 38, Walvis Bay, Erongo Region*. Windhoek: Environam Consultants Trading (ECT).

Republic of Namibia. (2005). Namibia 's Environmental Assessment Policy for Sustainable Development and Environmental Conservation.

Republic of Namibia. (2007). Environmental Management Act No. 7 of 2007. Government Gazette No. 3966. Richards, J.P. (2009).

SARDB, 2004. CBSG Southern Africa. In: Griffin, M. (2005). Annotated checklist and provisional national conservation status of Namibian mammals. Ministry of Environment and Tourism, Windhoek.

White, N. C. (2005). *Mining geology: Exploration*. Encyclopedia of Geology.