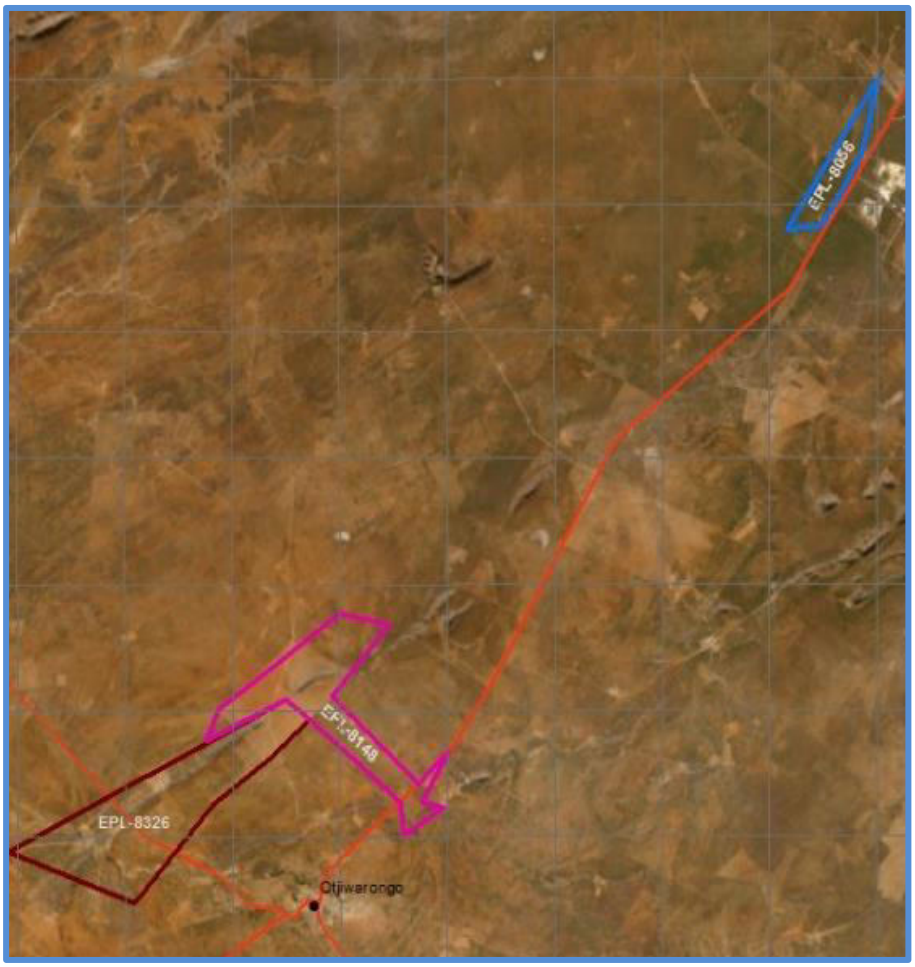
ENVIRONMENTAL IMPACT ASSESSMENT

FOR PROPOSED EXPLORATION ACTIVITIES ON EPL 8148, 8326 & 8056 IN OTJIWARONGO DITSRICT, OTJOZONDJUPA REGION, NAMIBIA



ENVIRONMENTAL SCOPING REPORT

FINAL

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ACRONYMS

TERMS	DEFINITION
BID	Background Information Document
CA	Competent Authorities
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
JBIC	Junior Baiano Industrial Consultants
MEFT: DEA	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs
PPE	Personal Protective Equipment

EXECUTIVE SUMMARY

Junior Baiano Industrial Consultants (JBIC) cc has been engaged by **Olupale Investments** to conduct an Environmental Impact Assessment (EIA), develop an Environmental Management Plan (EMP) and apply for an Environmental Clearance Certificate for proposed exploration activities in an area covered by EPL 8148, 8326 & 8056 respectively, Otijiwarongo District, Otjozondjupa Region - Namibia. The objective of the exploration activities is to establish the financial viability of mining operations for the following group of minerals: Dimension stone, Base & Rare metals, Industrial minerals and precious metals.

In terms of the Environmental Impact Assessment Regulations 2012, the proposed project triggered the application for an environmental clearance certificate because of the following activities:

Environmental Impacts

- Waste materials produced during construction and operational phases of the project.
- Surface and groundwater impacts during construction
- Land clearance resulting in vegetation and biodiversity loss.
- Health and safety impacts during construction and operation.

Social and Economic Impacts

- Establish the viability of mining in the project area and if feasible make efficient use of the resource and contribute to the nation’s macro economy;
- Contribute to the economic and social well-being of people and households of the Otijiwarongo local community and the Otjozondjupa region through the provision of household incomes and development outcomes that can be derived from the exploration and potential mining activities;
- To offer an alternative source of income to the local community through direct employment; and indirect employment from various business that support the project activities.
- An EMP has been developed to mitigate any anticipated possible impacts of the project to the environment.

Public Participation Process

Interested and Affected Parties were notified of the project through site notices and newspaper adverts. All relevant information regarding consultation is covered in Chapter 4 of this document and attached in Appendix A.

Recommendation

The Environmental Assessment has led to the conclusion that the majority of the anticipated project impacts can be managed and mitigated during the project's development and operation stages. Should the recommendations in this study and the EMP be put into action, the significance of the impacts can be diminished to levels and times that are more or less tolerable. All developments could move forward as long as the general mitigating measures outlined are at the very least put into action.

Given that the suggestions made in this report and the EMP are carried out, it is advised that the proposed exploration acquire an Environmental Clearance Certificate.

1 CHAPTER ONE: BACKGROUND

1.1 INTRODUCTION

In the Otijiwarongo District, Otjozondjupa Region, a region covered by EPL 8148, 8326 & 8056 respectively, Olupale Investments plans to conduct mineral exploring activities for the following group of minerals: Dimension stone, Base & Rare metals, Industrial minerals and precious metals. An Environmental Impact Assessment (EIA) is required for projects that are covered by the Environmental Management Act of 2007 (Act No. 7 of 2007), including the proposed exploration activities. These regulations are outlined in Schedule of Government Notice No. 30 (2012).

Due to the risks associated with breaking the law and the desire to achieve sustainability, Olupale Investments decided to conduct an EIA for its anticipated exploration activities. Before a project may move forward, an EIA must receive an Environmental Clearance Certificate (ECC) from the Ministry of Environment and Tourism (MET). For its exploration activities, Olupale Investments has set out to complete an Environmental Impact Assessment (EIA). The Environmental Impact Assessment (EIA) is the official evaluation process to identify, anticipate, assess, and justify the ecological, social, and related biophysical impacts of the project on the environment as well as the affected and interested parties. It offers information on potential mitigation measures and steps to take to avoid or lessen any effects or hazards that may result from the exploration activities.

Olupale Investments has designated JBIC to carry out the EIA and create an Environmental Management Plan (EMP) for the proposed project in accordance with the requirements of the Environmental Management Act No. 7 of 2007. This document is a component of the request for an ECC for the proposed project that must be made to the DEA's office in accordance with the rules and laws of the Environmental Management Act No. 7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of February 6, 2012).

1.2 PROJECT LOCATION

The project site is located in the Otijiwarongo District, Otjozondjupa Region, Namibia. The images and locality maps below gives a local layout view of the project site.

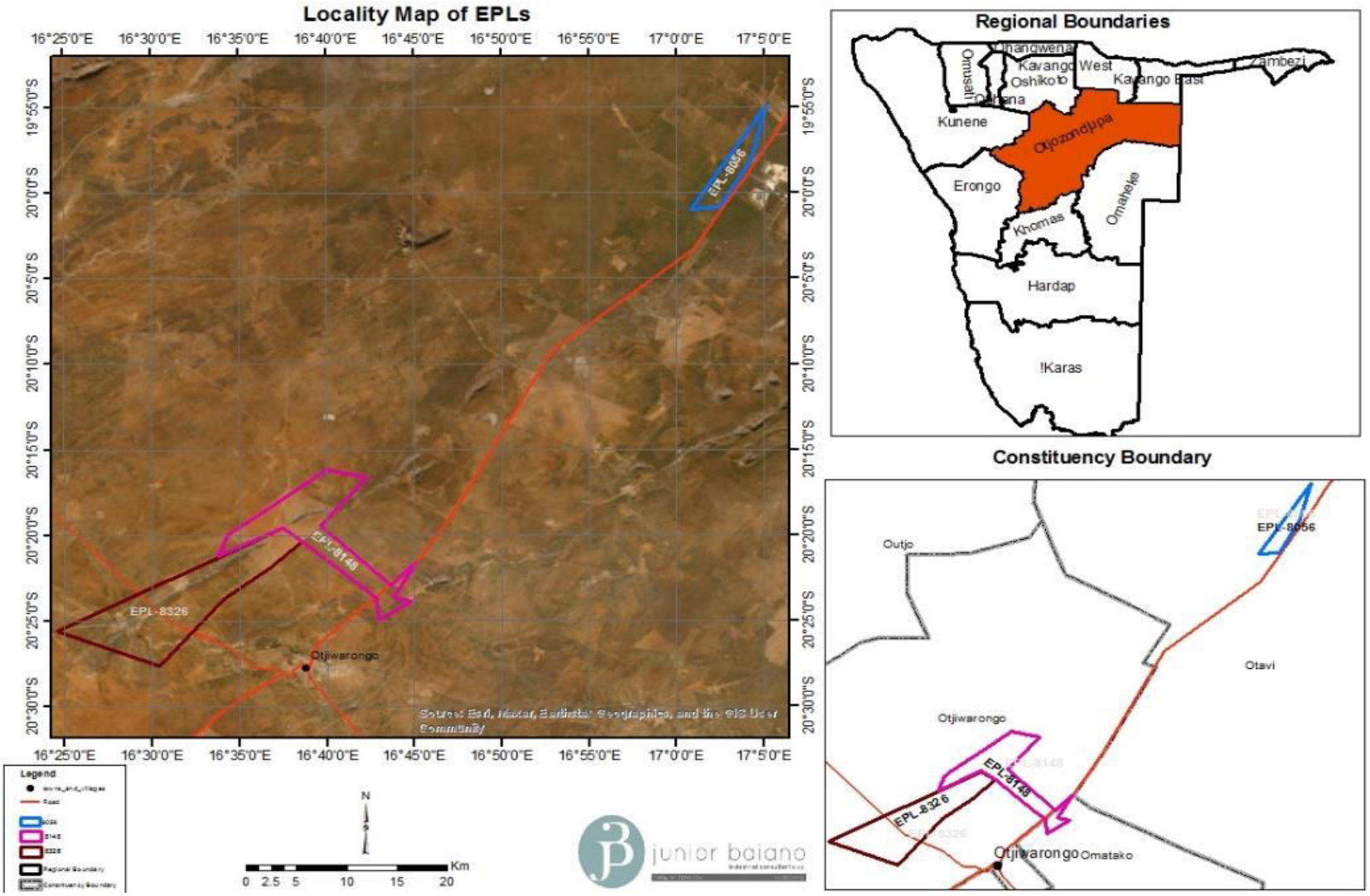


Figure 1-1: Locality Map

1.3 PROJECT OVERVIEW

The diagram below gives an overview of the project phases of the proposed exploration operation.

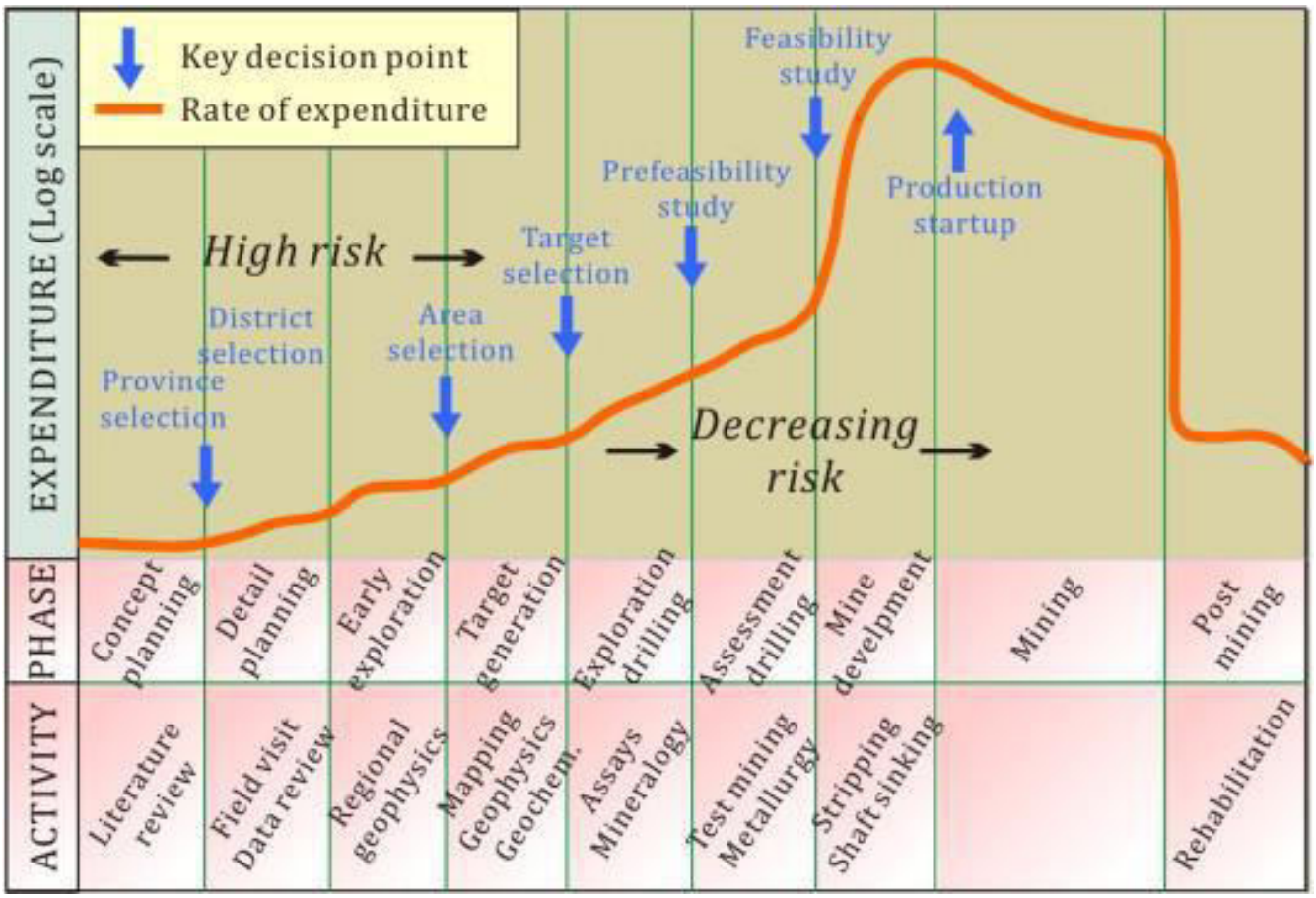


Figure 1-2: Exploration Project Phases

The overall aim of the proposed exploration project to search for potential economic mineral resource (i.e. Dimension stone, Base & Rare metals, Industrial minerals and precious metals) within prospect area. The proposed exploration programme methodologies could be characterised into desktop, regional or local field-based activities summarised as follows:

- Satellite imagery: Initial desktop exploration activities;
- Geochemical sampling and analysis: Regional field-based reconnaissance activities;
- Transient pulse: Regional or local field-based reconnaissance activities;
- Radiometric: Regional or local field-based reconnaissance activities;
- Ground Tellurics: Local field-based reconnaissance activities;
- Well Drilling (Stratigraphic): Detailed site-specific field-based validation activities.

The field-based support and logistical activities will depend on the levels of the regional, local or site-specific activities being undertaken. The activities will be supported by existing tracks and campsites / farmstead.

In the absences of existing tracks, the field team will created such new tracks depending on the scale of exploration (regional, local or site-specific activities).

In the absence of existing suitable campsite / farmstead, temporary camp will be setup at suitable locations in line with the EMP provisions. The size of the exploration camp will depending on the scale (regional, local or site-specific activities) of exploration being undertaken.

The figure below shows the summarised environmental flow chart of the exploration project.

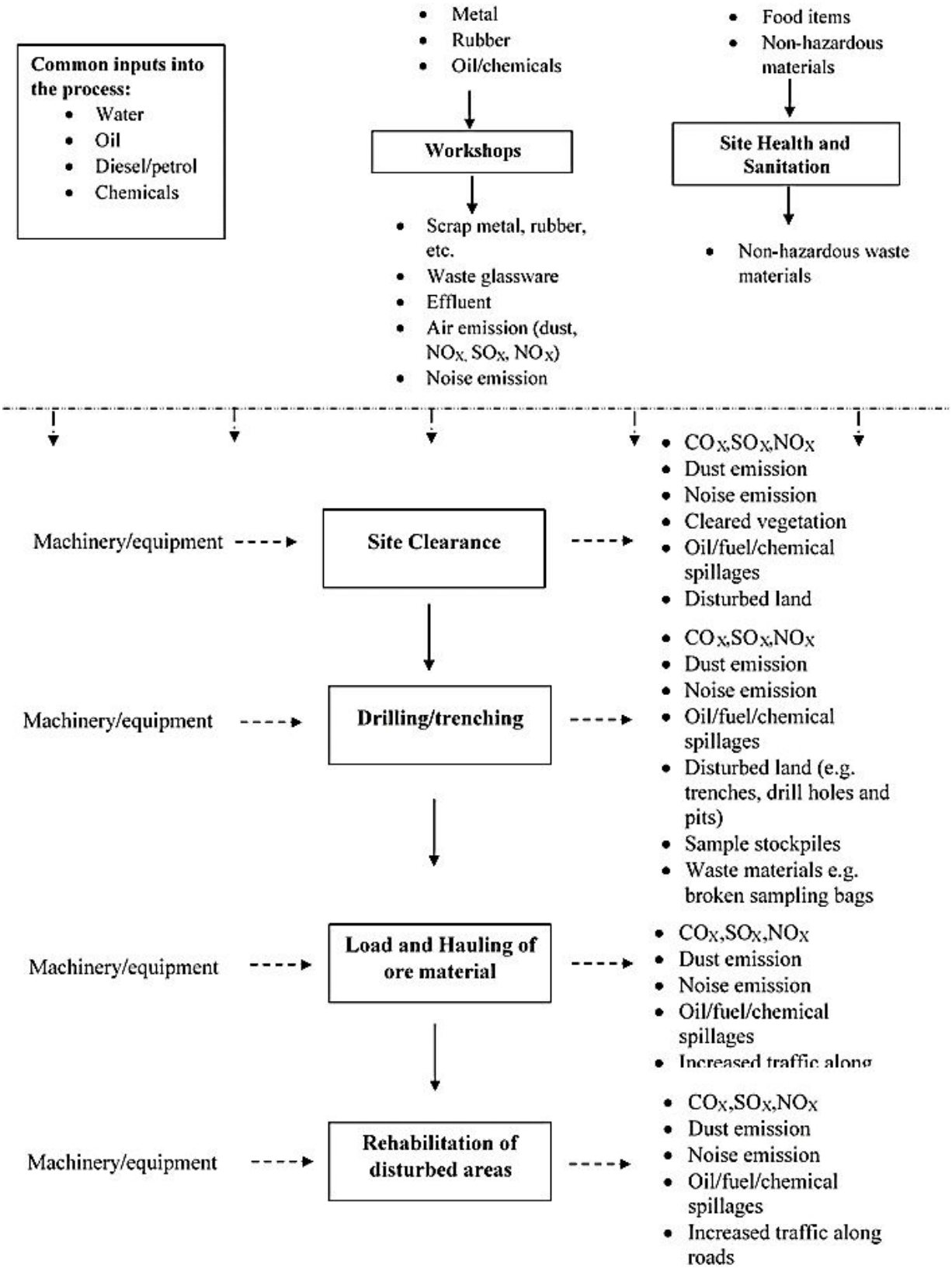


Figure 1-3: Summarised Project Environmental Flow Chart

1.4 ACCESSIBILITY

The site is easily accessible from an existing access roads connecting to the nearby towns and rest of Otjozondjupa region.

1.5 INFRASTRUCTURE AND SERVICES

- The project area is near established infrastructure (i.e. good roads, rail, water and electricity).
- Borehole water capability of the area allows for borehole drilling to satisfy the operation's water requirements.
- During exploration phase, mobile temporary toilets will be used and these will be managed by an independent contractor.

1.6 NEED AND DESIRABILITY

Mining, Namibia's leading economic sector, accounts for roughly 20 percent of Namibia's GDP every year. Namibia has various natural resources including diamonds, uranium, copper, gold, lead, tin, graphite, lithium, cadmium, zinc, salt and vanadium. In 2015 the mining industry accounted for approximately 19,000 jobs in Namibia in comparison to 14,000 in 2011. Indirectly the mining industry contributes to the livelihood of 100,000 people. Namibia is an up-and-coming source country for critical minerals, which are important for renewable energy technologies. The country has the potential to develop new mining projects. This shows that the mining sector has great potential to grow and continue to development in the country (BDO, 2018).

Namibia's largest industry, mining, generates around 20% of the country's annual GDP. Diamonds, uranium, copper, gold, lead, tin, graphite, lithium, cadmium, zinc, salt, and vanadium are just a few of Namibia's natural resources. In Namibia, the mining sector supported over 19,000 jobs in 2015, up from 14,000 in 2011. The mining sector indirectly supports the livelihood of 100,000 people. Namibia is an emerging supply nation for essential minerals that are necessary for renewable energy technology. The nation has the capacity to create new mining ventures for commodities like Dimension stone, Base & Rare metals, Industrial minerals and precious metals. This demonstrates that the mining industry in the nation has enormous potential to expand and advance (BDO, 2018).

The Harambee Prosperity Plan and National Development Plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. These Plans also include specific growth targets milestones and strategies for the sustainable deployment of Namibia's resources to achieve the stated economic and social development goals. Mining is one of the major targets aimed in the NDP5. This project, is a major step in addressing the objectives of the developmental plans and targets of the Namibian government, as mineral exploration is key to ensuring the financial viability of mining operations.

1.7 PROJECT ALTERNATIVES

The project will not be implemented if the No-Go option is selected. The no-project alternative would mean that the various potential impacts/risks emanating from the proposed project would not be experienced. Thus the current uses and value and other potential land uses of the site are likely to be retained.

In addition there would no increased pressure on resources such as water which are already under strain. There also would be no increased chances of pollution and other potential negative impacts that would emanate from project activities.

If the project is implemented it is anticipated that the project will have the following benefits

- Validate the viability of mining in the project area and if feasible make efficient use of the resource and contribute to the nation's macro economy;
- Contribute to the economic and social well-being of people and households of the Otjiwarongo districts through the provision of household incomes and development outcomes that can be derived from the exploration and potential mining activities;
- To offer an alternative source of income to the local community through direct employment; and indirect employment from various business that support the project activities.

These benefits will not be realised if the project does not take place. With the current needs for economic growth in the region and nation, it is imperative that the project should be undertaken. If the proposed exploration activities are not carried out this will furthermore impede economic development and socio-economic progress.

Due to the project's numerous environmental and socio-economic benefits, and that the identified environmental impacts can be suitably mitigated it has been determined that the No

Go option can be eliminated. Should the Competent Authorities (CA) refuse the authorisation of the proposed project, the 'No Go' option will be "implemented" and the status quo of the site will remain intact - leaving the site in its present state.

Table 1-1: Other Alternative Considerations

Item	Description	Alternatives	Comments
1.	Siting	• Current site	This is the only site that proponent may conduct the project activities (as per EPL granted)
2.	Transportation	• Road • Rail • Water (Atlantic ocean)	Given the location of the project road is the most cost effective means of transport.
3.	Solid Waste Disposal	• Construction of a solid waste disposal site at the project site • Disposal of solid waste off site	Construction of a waste disposal area on site is feasible. The Rs (Reuse, Reduce and Recycle) of waste management must be applied before disposal.
4.	Water and Sanitation	• Drilling a Borehole on site • Septic tank • Mobile toilets	Boreholes may be drilled on site and mobile toilets put in place.
5.	Energy	• Electrical energy. • Gas. • Wood based fuel. • Solar. • Diesel.	At the current moment the energy options that are available for the exploration operations are solar, wood fuel, electricity, gas, diesel and petrol. Electrical energy has to be connected via powerlines. A cost benefit analysis will be conducted to determine the feasibility of drawing power lines to the mine sites. For all emissions released on onsite due to carbon based fuels, it is to be ensured that they within acceptable limits. .

1.7.1 Conclusion

It is recommended that the project goes ahead, with the proposed exploration activities as a viable option as it is a cost effective and sustainable land use option.

2 CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 INTRODUCTION

This EIA Report for the exploration project has been prepared in reference to identified Namibian laws and regulations that impinge on the project throughout all its phases. Legislation is one of the most important instruments of government that ensures the following:

- Acceptable pollution control and waste management
- Conservation and utilisation of resources
- Sustainable land-use planning and regulation
- Safe and healthy workplace environments
- Determination amongst others things of the rights and responsibilities of individuals and authorities to whom the legislation applies.

The international and national laws, agreements and treaties that govern the social and environmental issues of the project are outlined in the following sub-section. The sub-section take into account brief summarises of selected legislation; it do not seek to provide comprehensive details of all legal obligations that apply to the project but rather an overview.

2.2 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The pursuit of sustainability is guided by a sound legislative framework. In this section, relevant legal instruments as well as their relevant provisions have been surveyed. An explanation is provided regarding how these provisions apply to this project.

Table 2-1 - Legal Compliance

Aspect	Legislation	Relevant Provisions	Relevance to the Project
The Constitution	Namibian Constitution First Amendment Act 34 of 1998	• Article 16(1) guarantees all persons the right to property, to acquire, own and dispose of property, alone or in association with others and to bequeath such property. • "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilisation of living natural resources basis for the benefit of all Namibians, both present and future." (Article 95(l)).	• The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practicing any profession, or carry on any occupation, trade or business in the country. • Through implementation of the environmental management plan, the proposed mineral exploration activities will ensure conformity to the constitution in terms of environmental management and sustainability.
National Development Plans	NDPs	• Namibia's overall Development ambitions are articulated in the National Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. The Government has so far launched a 4th NDP focusing	• The proposed project will propel NDP4 targets in mining and development, adding on this will come with increased employment opportunities in the local communities.

		on high and sustained economic growth, increased income equality Employment creation.	
Archaeology	National Heritage Act 27 of 2004	• Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to carry out works or activities in relation to a protected place or protected object"	• Any heritage resources discovered would require a permit from the NHC for relocation.
	National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	• "No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: • Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD; or • any other archaeological or palaeontological finds	• The proposed site of development is not within any known monument sites, both movable and immovable as specified in the Act, however in finding any materials specified in the Act, contractors on site will take the required route and notify the relevant commission. • An archaeological impact assessment was deemed not necessary for this piece of land because of its locality and field reconnaissance survey conducted.
Environmental	Environmental Management Act 7 of 2007	• Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). • Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)). • According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of	• This Act and its regulations should inform and guide this EIA process. • The project proponent will ensure that all provisions of the mining EMP are implemented and regular environmental compliance auditing conducted by independent consultants.

		Environment and Tourism or in a manner prescribed by the Minister. • Details principles which are to guide all EIAs	
	EIA Regulations GN 57/2007 (GG 3812)	• Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). • Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15).	• This Act and its regulations should inform and guide this EIA process.
	Pollution and Waste Management Bill (draft)	• This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment. • The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable.	• The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during construction or operation. • A waste management strategy that follows recycling, reuse and reducing will be commissioned throughout the operations.
	Soil Conservation Act 76 of 1969	• This acts makes provision for combating and for the prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia.	• The Project impact on soil will rather be localised, however this document aims at guiding the proponent during their mineral exploration activities to prevent soil erosion and contamination during operation.
	National Biodiversity Strategy and Action Plan (NBSAP2)	• The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems	• Forming part of the EIA of and EMP for this Project, the proponent will consider all associated impacts, both acute and long term, and will propose methods and ways to sustain the local biodiversity.

		protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	
	Hazardous Substance Ordinance 14 of 1974	• Provisions for hazardous waste are amended in this act as it provides "for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or 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"	• The proposed Mineral exploration operations will ensure that all possible "hazardous" categorised substances and waste will be handled by a certified hazardous waste handler.
	Atmospheric Pollution Prevention Ordinance 11 of 1976;	• This regulation sets out principles for the prevention of the pollution of the atmosphere and for matters incidental thereto. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.	• The proposed mineral exploration activities will involve the use of combustible engines for vehicles and machinery, and thus appropriate vehicle servicing should be ensured to minimise pollution. • Dust generation and release of other particulate matter should be minimised by following the dust suppression procedures in the EMP.
	Parks and Wildlife Management Bill of 2006;	• The act enacts the legal framework, to provide for and promote the maintenance of ecosystems, essential ecological processes and the biological diversity of Namibia, and the utilisation of living natural resources on a sustainable basis for the benefit of Namibians, both present and future, and	• Where protected species and endangered are to be encountered these are to be handled in line with the requirements of the Bill.

		to promote harmonious and mutually beneficial co-existence of humans with wildlife, to give effect to Namibian's obligations under relevant international legal instruments including the Convention of Biological Diversity • Provisions with regard to declaration of protected areas, entry into and residence are made in chapter V. Regulations on the protection of species of wildlife and plants are provided in Chapter VII of the Act.	
Forestry	Forest Act 12 of 2001	• Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (S22(1) • Provision for the protection of various plant species.	• The clearing of vegetation is prohibited (subject to a permit) 100m either side of a river. Certain tree species occurring in the area are protected under this Act. Permits must be obtained from MEFT in accordance with the Act. However, on site there are no trees that require clearing permit.
Water	Water Act 54 of 1956	• The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: • A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. • Prohibits the pollution of underground and surface water bodies (S23(1). • Liability of clean-up costs after closure/ abandonment of an activity (S23(2)). • Protection from surface and underground water pollution	• The proposed mineral exploration activities will be using a dry process, hence water requirements for operations are minimal since most of the water will be for sanitation and domestic usage. • All relevant permits for envisaged boreholes will be applied for with the relevant department.

Health and Safety	Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.	• 135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Social Welfare). • This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices.	• The proponent will employ several people from the local and shall ensure securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors.
	Public Health and Environmental Act, 2015	• Under this act, in section 119: "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 project will ensure compliance to the terms of the Act.
Mining	Minerals (Prospecting and Mining) Act, 1992	• The Minerals Act governs minerals prospecting and mining. The Act provides for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over minerals in Namibia; and to provide for matters incidental thereto. • The Act also ensures that mining entities undertake environmental responsibility which includes rehabilitation and waste management. • A new Minerals Bills is currently under preparation.	• This document has been conducted in compliance to the requirements of the Act, as well as ensuring that the sought-after mineral exploration authorisation is granted by the ministry of Mines-Namibia.
	Minerals Policy 2004	• The Minerals Policy is developed to ensure long-term sustainable growth in the mining sector of	• The fact that mining involved extraction/interaction with the natural

		Namibia. One of the objectives of the Policy, relevant to EIAs is to ensure compliance with national environmental policy and other relevant policies to develop a sustainable mining industry.	resources, environmental responsibility will be ensured by the proponent as part of compliance to the Minerals policy. • Further on the policy calls for value addition, and the proposed project will entail mineral processing.
Services and Utilities Infrastructure	Road Ordinance 1972 (Ordinance 17 0f 1972)	• Width of proclaimed roads and road reserve boundaries (S3.1) • Control of traffic during operational activities on trunk and main roads (S27.1) • Infringements and obstructions on and interference with proclaimed roads. (S37.1) • Distance from proclaimed roads at which fences are erected (S38)	• Although the project will not directly affect the major roads, the ore carrying trucks will at some point use the major roads. • No new road developments, power lines or sewer reticulation systems will be constructed, thus there will be minimal environmental impacts from Services and utilities infrastructure.

N.B: All identified crucial pieces of legislations will have to be adhered to by the proponent using different provisions and vehicles of compliance as indicated in their respective pieces of legislations. Where there is need to engage private consultants to facilitate compliance, the proponent is encouraged to consult qualified and certified personnel. Legal compliance auditing is to be done as part of all bi-annual reports to be conducted by the Environmental consultant.

Permits and licenses that are required, as part of compliance and authorization will have to be in place before operations commences. The most crucial license to be required before operations are as follows;

- Removal, destruction of indigenous trees, bushes or plants within 100 yards of stream or watercourse.
- Water abstraction permit, Effluent disposal permit
- Hazardous waste Storage/disposal /transportation permit
- Mineral Prospecting License

3 CHAPTER THREE: RECEIVING ENVIRONMENT

3.1 SOCIO-ECONOMIC

The project is located in the in the Otjozondjupa region (see Figure 1-1).

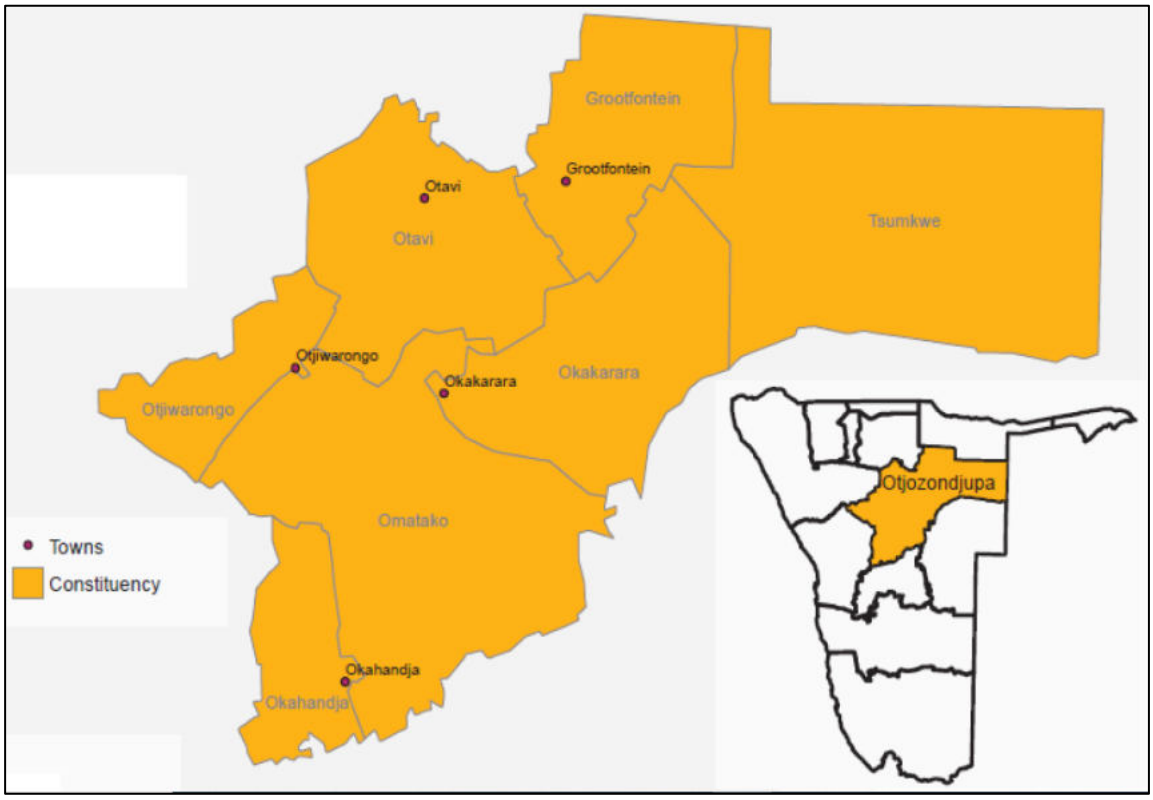


Figure 3-1: Otjozondjupa region

Otjiwarongo is a large town and the biggest business centre for the Otjozondjupa Region and regional capital. It is situated in central-north Namibia, lying on the Trans-Namib Railway and its location is at a crossroads for the railway and the B1 road, with links between Windhoek, the Golden Triangle of Otavi, Tsumeb and Grootfontein, as well as Etosha National Park. Another interest to tourists is it's convenient proximity with Waterberg National Park. The name Otjiwarongo means 'Pleasant Place' or 'Where Fat Cattle Graze' in Otjiherero.

Otjiwarongo is governed by a municipal council and as with many other Namibian towns, Otjiwarongo developed around a Rhenish missionary station, after an 1891 treaty between German missionaries and the Herero Chief Kambazembi. A German military garrison arrived in 1904 and the town was officially founded in 1906, with the implementation of a narrow-gauge railway from Swakopmund to the mines at Otavi and Tsumeb.

3.1.1 Economy and Infrastructure

The road system in Otjiwarongo is well-developed. The national route B1, which runs through the entirety of Namibia from north to south, the C38, which goes to Outjo and deeper into the Kunene Region in Namibia's northwest, and the C33, which goes to Karibib and connects the coastal towns of Swakopmund and Walvis Bay, are all converging here. Otjiwarongo is one of the few towns in Namibia with paved and well-maintained roads even in the townships.

The TransNamib-run national railway grid is connected to Otjiwarongo. The centrally located Otjiwarongo railway station connects Otavi with the Kranzberg junction and branches off to Outjo. The historic Locomotive No. 41, which was initially imported from Germany to transport ore between Tsumeb and the port at Swakopmund, is located in front of the railroad station.

Otjiwarongo Airport is the name of the town's airport. The construction of an international airport is planned.

The B2Gold mine, an open-pit gold mine built in 2014 and owned by B2Gold, is situated about 70 kilometers (43 miles) outside of the city. The Okorusu fluorspar mine, 48 kilometers (30 miles) to the north, is a well-known supplier of fluorite specimens for mineral collectors. The mine holds the promise of providing rare-earth elements. Together, mining and related industries support around 20% of the local economy.

The proximity of Otjiwarongo to the Waterberg Plateau Park is the main draw for tourists. The Cheetah Conservation Fund, a well-known organization dedicated to safeguarding the long-term survival of the cheetah via research, conservation, and education, is based in Otjiwarongo. The Africat Foundation's Okonjima facility, which has a cheetah and leopard rehabilitation center, is also located around 50 kilometers from Otjiwarongo.

The Crocodile Ranch, one of the few captive breeding operations for Nile Crocodiles that has been registered with CITES, is located on the outskirts of the city.

The Omatjenne Dam, which was constructed 15 kilometers outside of town, provides artificial groundwater replenishment.

The largest hospital in the town is the Otjiwarongo District State Hospital, which is mostly utilized by middle-class and low-income locals and will soon be joined by a referral state hospital. The town is also home to a variety of private hospitals and clinics, including a location of MediCity Private Clinic.

Three private schools and twelve public schools make up the roughly 15 schools in Otjiwarongo. The Ministry of Education, Arts & Culture regulates grade 10 and 12 final exams for all schools. More and more kids from outside the area attend the schools in Otjiwarongo. Additionally, the community library in the town meets the reading requirements of the local populace.

The town also has a convent, the MTI and COSDEC vocational training centers, and a number of higher education institutions. There are plans to construct satellite campuses in the town for both the University of Namibia and the Namibia University of Science and Technology. The town is already home to the regional centers for the two institutions, where remote students can interact with them.

Extrapolating from the national unemployment statistics, the constituency has an unemployment rate of 33.40% and youth unemployment rate of 46.10% (Namibia Central Bureau of Statistics, 2019). This shown in the figure below.

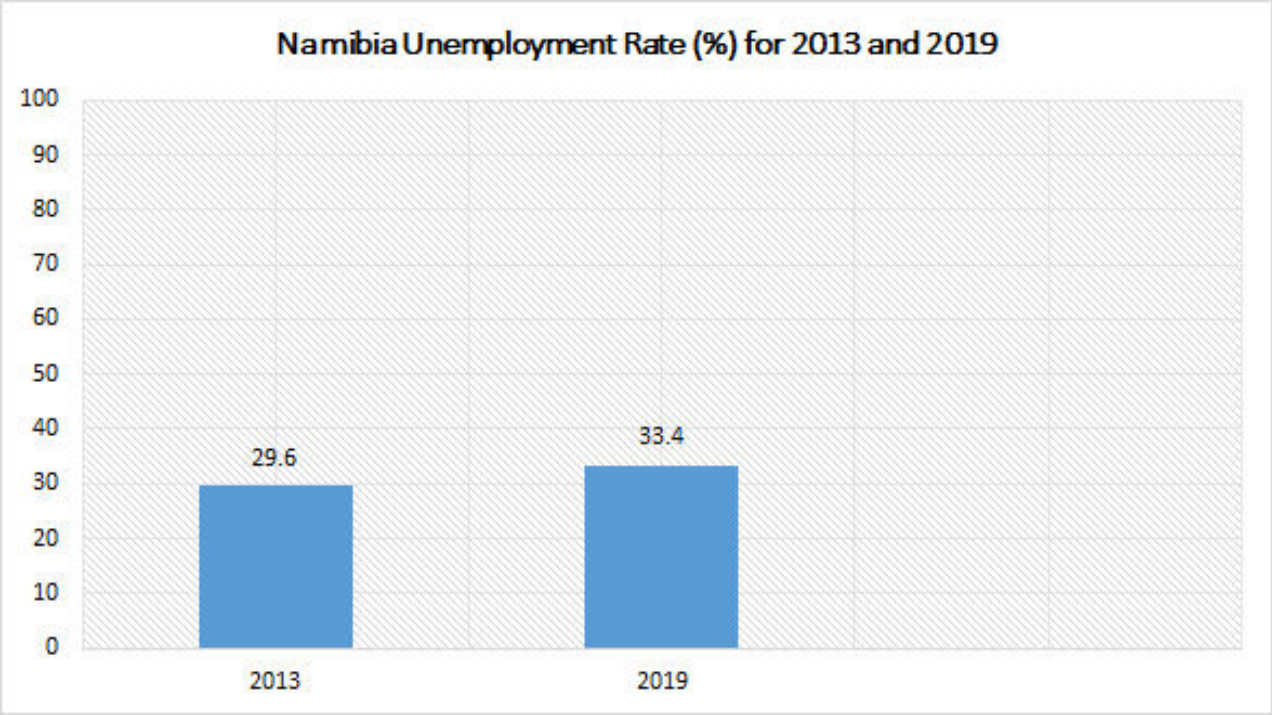


Figure 3-2: Namibia Unemployment Rate and Youth Unemployment Rate

The project will support the district's need for employment as well as the expansion of the local economy. Numerous employment opportunities are to be created for work personnel throughout the project phases. In addition other forms of employment are likely to result from spillover effects, through indirect services such as supply of raw materials, equipment, machinery, etc.

3.2 CLIMATE

The climate in the project region is characterized by a semi-arid climate that has little rainfall throughout the year, that ranges between 400-450 mm. June is the driest month, with an average rainfall of 0 mm. January, on the other hand, is the wettest month. October through March are the hottest months of the year. Temperatures during this time of year might have highs that range from 35 ºC to 45ºC. Winter generally runs from June until August. During this season, the minimum temperatures may range between 4 ºC and 8 ºC.

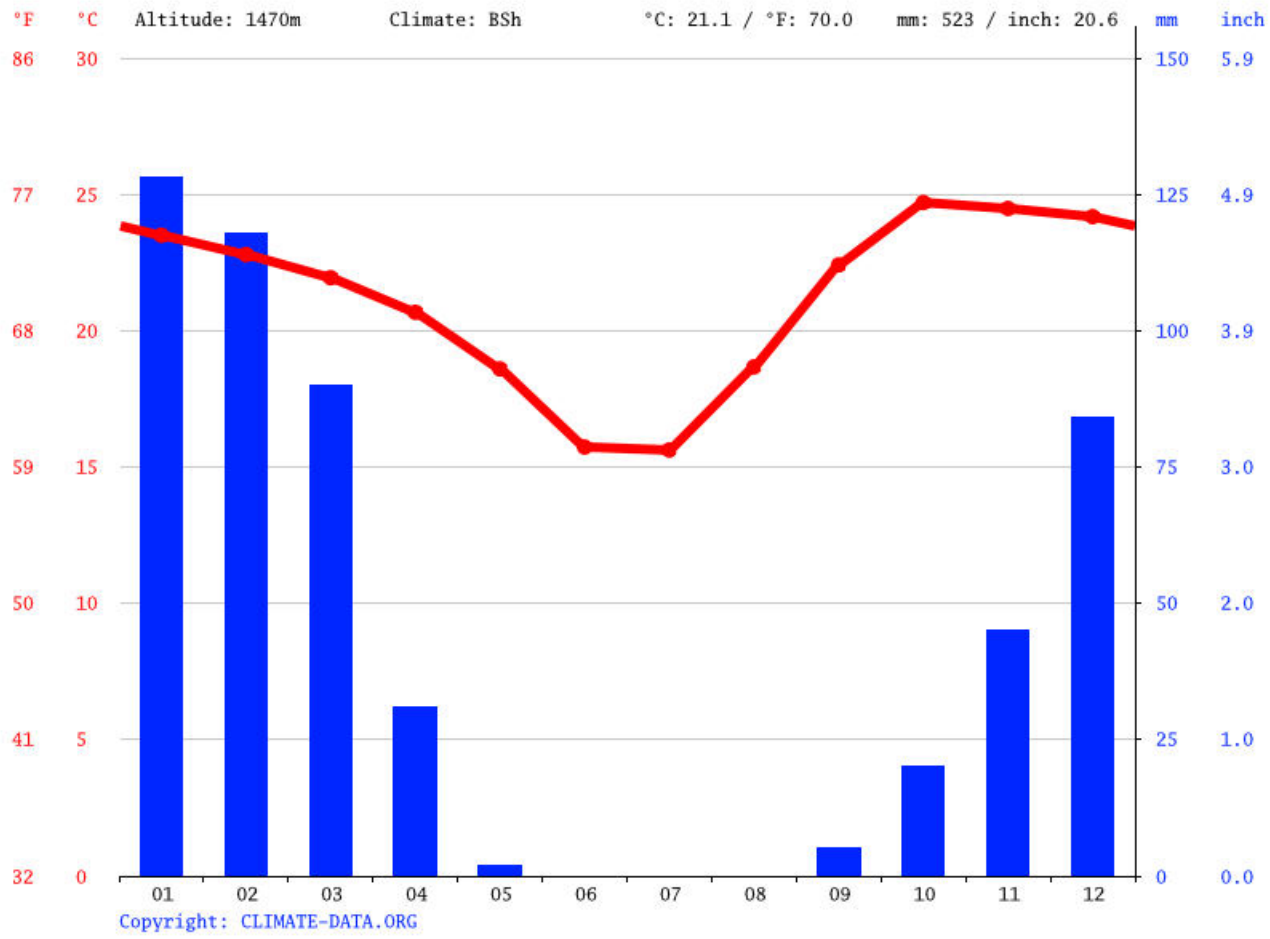


Figure 3-3: Otjiwarongo Climatic Graph

As shown in Figure 3-4 the prevailing winds of the project are from the east and southwest. However, the eastly winds are predominant.

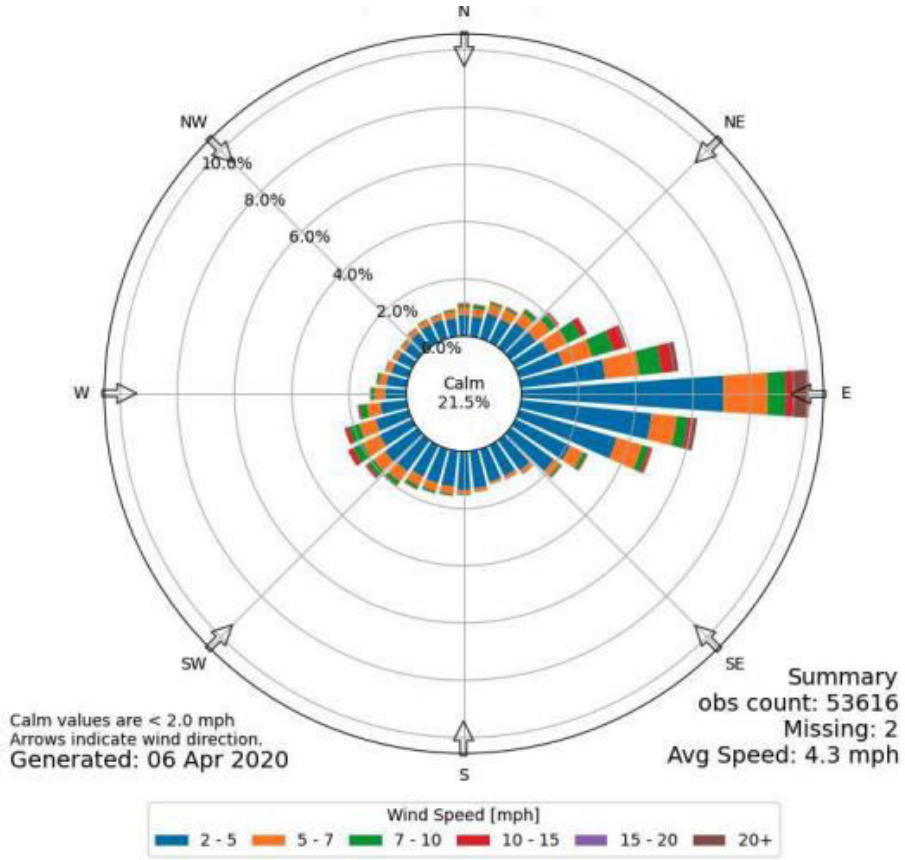


Figure 3-4: Area's Prevailing Winds

Source: Lowa State University, 2022

Taking into account the climate conditions of the project area there is need for appropriate planning and preparation both in the establishment of the project and its operation. The area is susceptible to droughts and extended dry periods. The type of impacts/risks that may occur under these conditions include:

- Inadequate water supply
- Possible conflicts with local community and other businesses regarding the utilisation of shared water sources.

High temperatures during summer can also affect project workers. The major impact associated with high temperatures and exposure to the sun is heat stress. Heat stress impacts may affect workers' health (through heat related illnesses), safety (inhibiting abilities to perform tasks in already hazardous environments), productivity (thermally stressful conditions may result in decreased pace of work) and morale.

3.3 FLORA AND FAUNA

The Thornbush shrubland (Acacia Tree and-shrub Savanna Biome) flora type covers the local vegetation in and around the area (see regional map of Otjozondjupa region below). It

can be broadly categorized as having a structure of vegetation resembling dense shrubland, with rather dense stands of woody shrubs and trees. Plant growth can occasionally become increasingly shrubby, especially in areas with shallow soils, steep slopes, and rocky, hilly terrain. Most of the woody vegetation vary between 1 and 3 meters in height. The dominant perennial grasses in the biome are *Stipagrostis uniplumis* and *Eragrostis rigidior* which can be found in areas where the soil is sandier. As a guide to information regarding any protected species around the facility, the Forestry guidelines shall be taken into consideration.

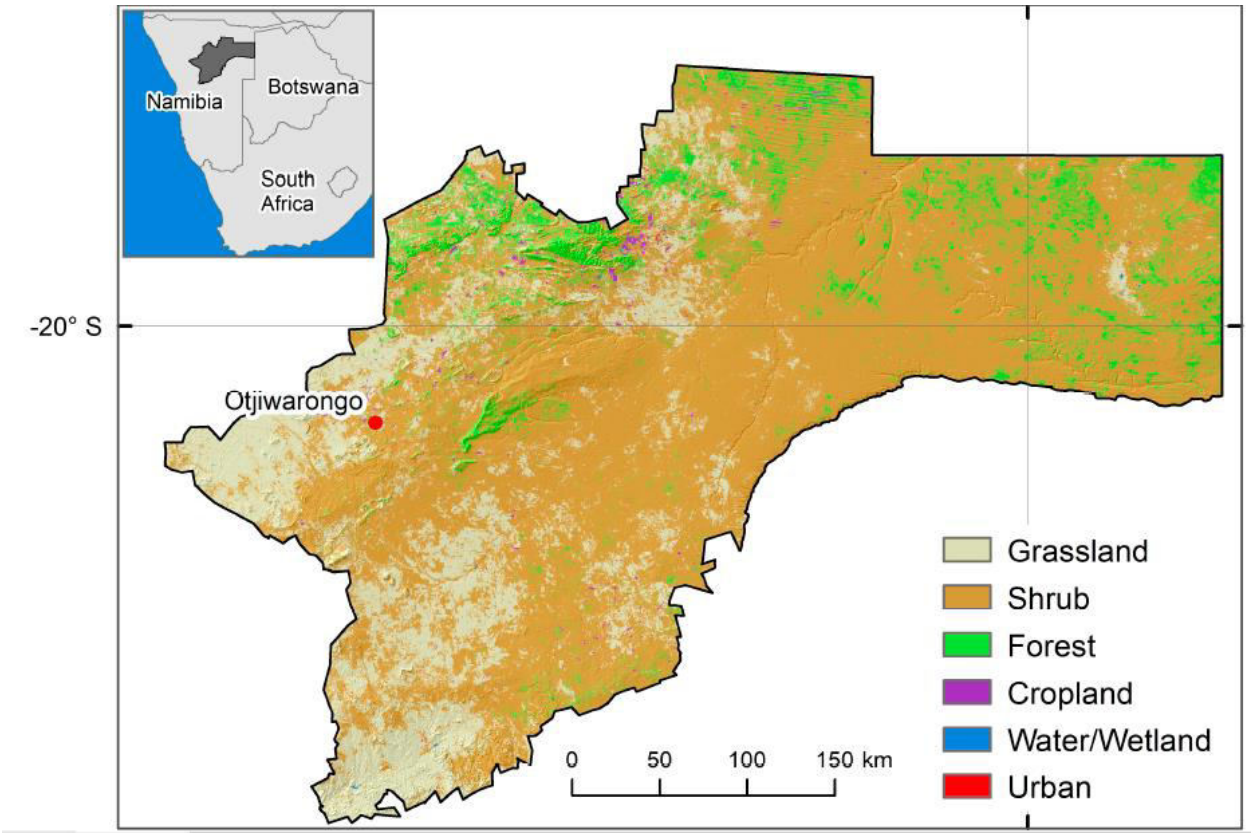


Figure 3-5: Regional Vegetation Map

This vegetation consists of sparsely spaced trees and shrubs, populated mainly with mostly indigenous trees of tall to medium height. The indigenous trees found within the vicinity of project are those typical of Acacia Tree and-shrub Savanna Biome.

Birds, rodents and reptiles frequent these trees and vegetation. Bird species found in the area include Southern Yellow-billed (Tockus leucomelas), Fork-tailed Drongo (*Dicrurus adsimilis*), White-browed Sparrow-Weaver (*Plocepasser mahali*), Rock Martin (*Ptyonoprogne fuligula*), Grey Go-Away-Bird (*Corythaixoides concolor*), Crimson-breasted Gonolek (*Laniarius atrococcineus*) and Ring-necked Dove (*Streptopelia capicola*).

The area is known to host diverse invertebrates which include the following Orders of insects: butterflies (*Lepidoptera*), spiders, scorpions (*Arachnids*), grasshoppers (*Orthoptera*), termites (*Isoptera*), ants, wasps, bees (*Hymenoptera*), flies (*Diptera*), beetles (*Coleoptera*) and plant bugs (*Hemiptera*) and many others which can be identified if surveys are to be carried during the breeding wet season.

3.4 GEOLOGY AND HYDROLOGY

The geology of the area generally comprises units, slightly of the Damara granites and largely of the Swakop Group. The Damaran metasediments have been intruded by granites in a broad zone between Otjiwarongo and Okahandja and the coast. The Swakop Group comprises from the base upwards the Adler, Quelle, Okomis, Omusema, Karibib, Tinkas, and Fahlwater Formations. These formations are oriented in a predominantly SW-NE direction, are part of the Damara Sequence and are 850 – 600 million years old (Mendelsohn et al, 2002). The regional area is situated in the centre of the Damara trough. Classical geosyncline sedimentation produced a thick pile of ill-sorted sediments, which form the Ugab and Khomas sub-groups of the Swakop Group (Damara Sequence). On the platform edges of the trough chiefly calcareous sediments were deposited. Both rock suites were subsequently folded and metamorphosed, and granitic intrusion took place. Bands of marble and quartzite in these otherwise phyllitic metamorphic rocks are of hydrogeological significance. The youngest intrusive rocks in the area are complexes of postKaroo age like the Brandberg, Messum Crater in the Goboboseb Mountains, Paresis Mountain and scattered smaller outcrops (Groundwater in Namibia, 2018).

The landscape is undulating and covered with regosols soil type. The soil is eautric, which is fertile with high base saturations. Regosols are medium or fine textured soils of actively eroding landscape, the thin layers lying directly above rock surfaces from which they are formed, these soils never reach depths of 50 cm. The central regions of Namibia dominated by regosols are especially susceptible to erosion where there is any degree of slope. Vegetation cover on these thin soils is generally sparse because they cannot provide most plants with sufficient water or nutrients. Areas with regosols can support low-density stock farming or wildlife (Mendelsohn et al, 2002).

The area is in the Kunene South Groundwater Basin. The general direction of the groundwater flow is east, towards the Omatako, Okahandja, and Erongo Basins. The groundwater potential of fractured aquifers in the Swakop Group of the Damara Sequence is generally low (Groundwater in Namibia, 2018). However, the carbonates (marbles and

limestones) are of moderate potential and at properly selected targets like fracture zones and karstified contact zones, even high yields can be found. This depends on the amount of rainfall and associated weathering and recharge. The most significant aquifer presently utilised is the marble aquifer north and north-east of Otjiwarongo. The Otavi Mountains form part of a karst landscape, which means that well-defined surface drainage systems are absent, or follow only short distances before surface water penetrates. Although a drainage pattern can be identified, the flow of surface water is more defined by topographical valleys than the presence of streambeds (Mendelsohn et al, 2002).

4 CHAPER FOUR: PUBLIC CONSULTATION

4.1 OVERVIEW

The public consultation process forms an important component of the Environmental Assessment process. It is defined in the EIA Regulations (2012), as a "*process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters*" (S1). Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding our process.

Formal public involvement has taken place via public consultations and focal meetings, newspaper announcements to inform the public that such a large-scale project is under consideration. The public consultation process has been guided by the requirements of Environmental Management Act (EMA) No. 7 of 2007 and the process has been conducted in terms of regulation 7(1) as well as in terms of the EMA Regulations of GN 30 of 6 February 2012 and the World Bank EIA standards and project ToR.

Its overriding goals have been to ensure transparency in decision making and to.

- ✓ Ensure stakeholder concerns are incorporated in project design and planning;
- ✓ Increase public awareness and understanding of the project and
- ✓ Enhance positive development initiatives through the direct involvement of affected people.

The objectives of the public participation is to build credibility through instilling integrity and of conducting the EIA, Educate the stakeholders on the process to be undertaken and opportunities for their involvement and build stakeholders by establishing an agreed framework accordingly. This requires accessible, fair, transparent and constructive participation at every stage of process. Inform stakeholders on the proposed project and

associate issues, impacts and mitigation and using the most effective manner to disseminate information.

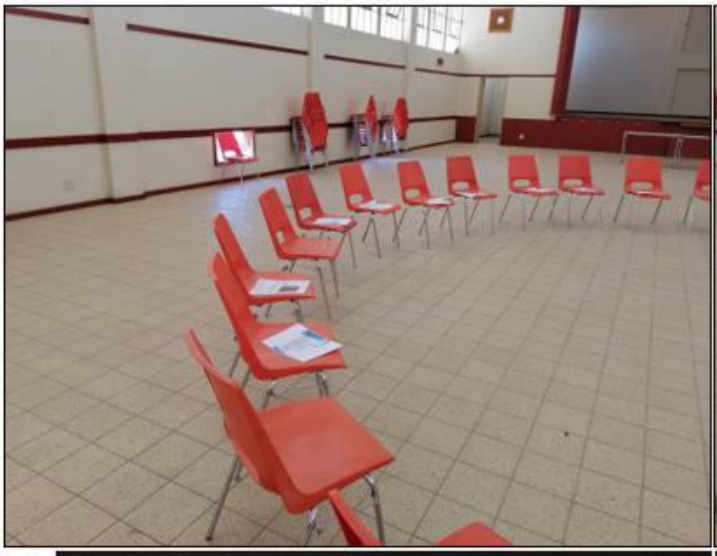
In this section of the report, the results of consultations with various classes of stakeholders are summarized. The results of consultations with other stakeholders and community members who took part in this EIA are attached as Appendices.

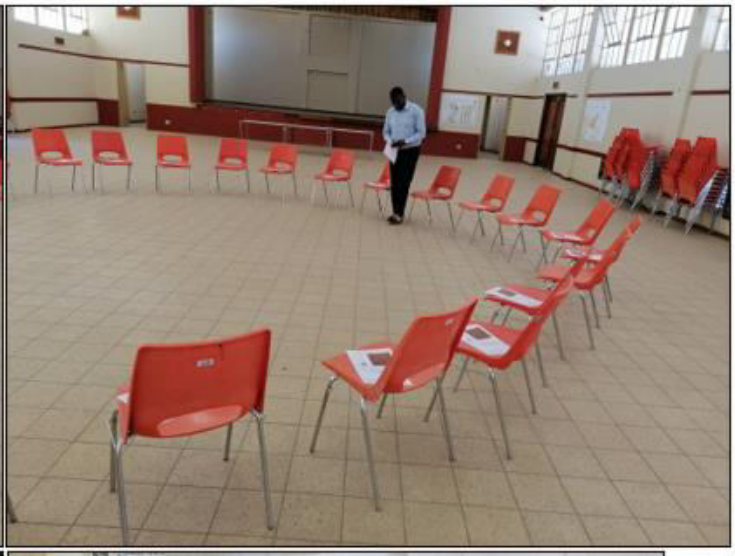
The consultation was facilitated through the following means:

- A Background Information Document (BID) containing the project description, the EIA process and an invitation to participate was shared with stakeholders and community members.
- Invitation to participate notices were published in the local newspapers (Confidante) as shown in the table below and Appendix A of this document.
- Announcement of EIA process verbally in the common public meeting points.
- Placement of a public notice at the project site and various parts of area (see photos below).
- A door-to-door consultative engagement with the nearby farms was held on Friday, 17th March 2023, and public meeting was also held at a Community Hall in Orwetoveni, Otjiwarongo on the 24th March 2023, 14h00.

Table 4-1: Details of public notification of the EIA study

Method	Area of Distribution	Language	Date Placed
The Confidante	Country Wide	English	1st March 2023
Site notices	Project site	English	1st March 2023
Public Meeting	Community Hall in Orwetoveni, Otjiwarongo	English,	24th March 2023
Door to door consultative engagement	Nearby farms	English	17th March 2023



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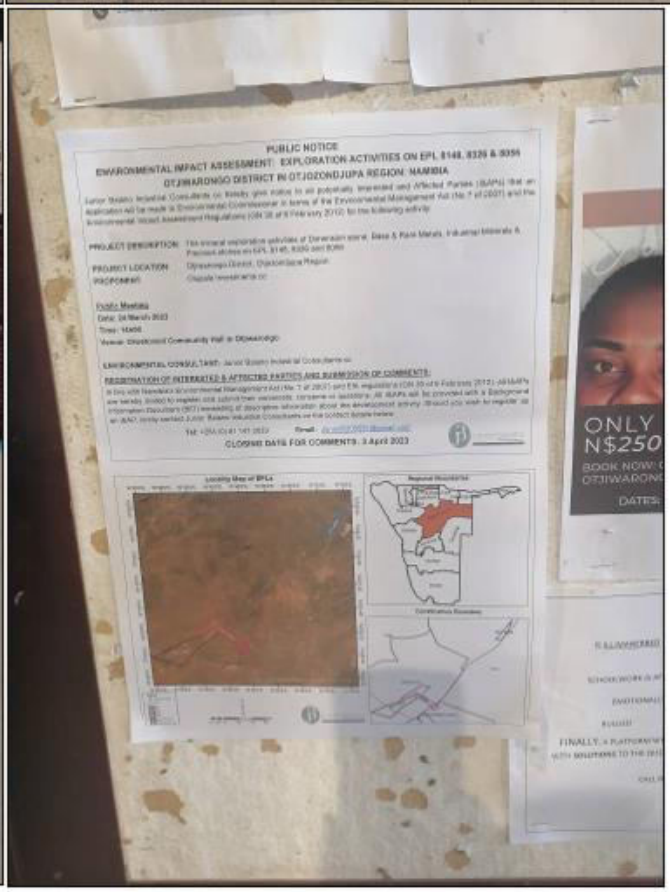
PUBLIC NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT: EXPLORATION ACTIVITIES ON EPL 8148, 8326 & 8056
OTJIWARONGO DISTRICT IN OTJOZONDJUPA REGION: NAMIBIA
PROJECT DESCRIPTION:
PROJECT LOCATION:
PROPONENT:
Public Meeting
Date: 24 March 2023
Time: 10h00
Venue: Otjiwarongo Community Hall in Otjiwarongo
ENVIRONMENTAL CONSULTANT:
REGISTRATION OF INTERESTED & AFFECTED PARTIES AND SUBMISSION OF COMMENTS:
CLOSING DATE FOR COMMENTS: 3 April 2023
ONLY N$250


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FAX: 067-302823 OTJIWARONGO
PUBLIC NOTICE
ENVIRONMENTAL IMPACT ASSESSMENT: EXPLORATION ACTIVITIES ON EPL 8148, 8326 & 8056
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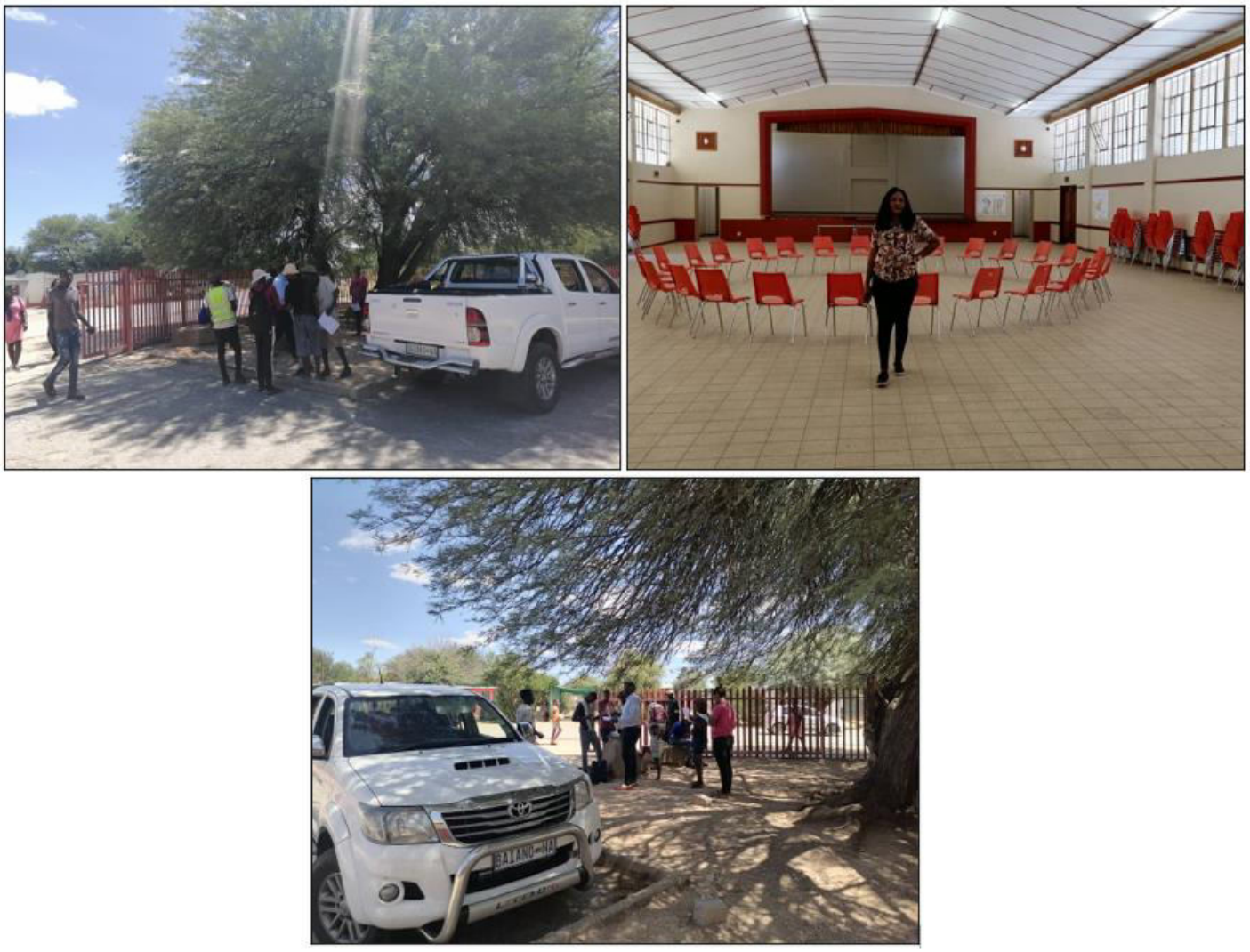

Figure 4-1: EIA Public Meeting at Notices and Stakeholder Consultations

✓ *Key Stakeholder Engagement Meeting*

A public meeting was organised on 24th March 2023, 14h00hrs at a Community Hall in Orwetoveni, Otjiwarongo. Proof of public consultation is given in Appendix A of this document as well the attendance register explaining the project and the EIA study. Given below are the details of the meeting which was held:

✓ *Identification of Interested and Affected Parties (I&APs)*

The EIA team identified and consulted the following I&APs & key stakeholders for the proposed project:

- ❖ Local authority
- ❖ Community Members.

Other I&APs were allowed to register to the EIA team and compiled a database containing their names and correspondence details. The registration was accomplished over a period of 14 days.

✓ *Consultation with Stakeholders*

Experts in relevant fields, leaders of thought in environmental matters, Organs of the State and local communities have been consulted for their opinions on issues relating to the potential ecological and socio-economic impacts of the proposed project. This provided an opportunity for stakeholders and the public at large to engage in the process and to make comments or express their concerns regarding the proposed development.

Table 4-2: Key findings of the public consultation process

SUMMARY OF ISSUES	
THEME	**ISSUE**
Economic	▪ Employment of general labour must consider employing local people. ▪ The company must take the social responsibility ▪ Improve the life being of the local residents.
Health and Safety	▪ Waste management concerns including both solid waste and wastewater. ▪ Potential air, noise and water pollution due to development. ▪ The company must provide enough health care to employees
Ecological	▪ Concerns regarding machinery oil spillages and leaks resulting land contamination, surface and ground water pollution. ▪ Hazardous waste (oil contaminated waste materials) should be contained and managed appropriately. ▪ Resources such as air and water should not be polluted during operations because communities, wild animals and livestock rely on these resources.
Communication	▪ Clear communication needs to be promoted between relevant authorities and the local community. ▪ Clarify nature of new property (how it works, what processes involved).

5 CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1 OVERVIEW

The proponent recognizes the importance of undertaking the project operation in line with sustainable development objectives and applicable legal requirements. To this end an Environmental Management Plan (EMP) for the project is being developed in order to address negative environmental impacts and enhance positive impacts. The EMP takes into account identification of potential impacts, assessment of the significance of the risks associated with these impacts and the establishment of preventive actions as well as mitigation measures. The EMP will be monitored, reviewed, and updated as necessary with the aim of continuous improvement, taking into account various changes in project operations, the biophysical environment and socio-economic circumstances.

5.2 ASSESSMENT OF IMPACTS

This section outlines how the overall methodology to assessing the project's possible environmental and social impacts. Each potential impact must be assessed in order to properly evaluate its significance. The definitions and explanations for each criterion are set out below in Table 5-1.

Table 5-1: Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	

Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%
Medium	25-75%
High	>75%

(***Adopted from ECC-Namibia, 2017)***

Table 5-2: Impact Significance

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

(Adopted from ECC-Namibia, 2017)

Table 5-3: Environmental Impacts and Aspects Assessment

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 utilisation for the benefit of the people	Operation	Long term	High	National	Indirect	Probable	Moderate
	Terrestrial ecology and biodiversity	Decreased in vegetated land (biodiversity zones) within the Exploration zones	Operation	Long term	Low	Local	Direct	probable	Low
	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

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Surface water quality	Stormwater generation from, the large open surface area may create stormwater 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
AIR QUALITY	Air Quality	Generation of dust during drilling and camp site construction.	Construction, operation	Short term	Low	Local	Direct	Probable	Moderate
	Noise Pollution	Generation of dust during drilling and camp site 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
	Terrestrial ecology and biodiversity	Loss of habitat, and clear 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	Construction and Operations	Long Term	Low	Local	Direct	Probable	Low

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
		Establishment of bush encroachers in disturbed areas.							
	Terrestrial ecology and biodiversity	Illegal collection of firewood	Construction and Operations	Long Term	Low	Local	Direct	Probable	Low
	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
	Socio Economic Activities	Security concerns due to increased number of persons in areas	Construction and Operations	Long	High	Local	Direct	Probable	Moderate Positive
	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

Environmental Impact	Element	Impact	Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	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