ENVIRONMENTAL SCOPING REPORT FOR THE APPLICATION FOR A MINING LICENCE ON EPL3218 IN KARAS REGION.

OLD APPLICATION REFERENCE NUMBER: 231122002503

PREPARED FOR:

CLEAR SUN NAFRIPP MINING (PTY) LTD

PREPARED BY:

outrun consultants cc

NOVEMBER 2023

DOCUMENT CONTROL SHEET

Compiled By:	…….. J T MUKUTIRI - LEAD EIA PRACTITIONER OUTRUN CONSULTANTS CC	07 / 08 / 2024 …….. Date
Reviewed By:	…… FREDRICK BOTMA – MANAGER CLEAR SUN NAFRIPP MINING (PTY) LTD	…….. Date

Revision	**Description**	**Date Issued Revision By:**
Final Draft	Considered Proponent's comments on First Draft	……..DATE:07/08/2024.... J T MUKUTIRI - LEAD EIA PRACTITIONER
Final	Approved Final Report	……..DATE:…….. FREDRICK BOTMA – MANAGER

APPROVAL

This Environmental Scoping Report was done to the satisfaction of CLEAR SUN NAFRIPP MINING (PTY) LTD in accordance with the requirements of the project and I support the recommendations contained in this report.

……..

MANAGER: CLEAR SUN NAFFRIP MINING (PTY) LTD

Date: ……

PURPOSE OF THE DOCUMENT

The Environmental Scoping Report (ESR) was compiled as part of the Environmental & Social Impact Assessment (ESIA) for the application for a mining licence for the proposed mineral mining activities on EPL3218 in Karas Region. It describes the proposed studies or terms of reference of what will be assessed in the ESIA study for this project if necessary and the methodology to be followed. The ESR will be submitted to the Ministry of Mines and Energy (MME), Competent Authority and the Ministry of Environment, Forestry & Tourism (MEFT) for approval in compliance with the requirements of the Environmental Management Act (EMA), No.7 of 2007 and the Environmental Impact Assessment Regulations, No. 30 of 2012.

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LIST OF ABBREVIATIONS

Abbreviation	Full Name
BID	Background Information Document
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
ESIA	Environmental & Social Impact Assessment
ESMP	Environmental & Social Management Plan
GG	Government Gazette
GN	Government Notice
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism

GLOSSARY

"Biome" A biome is described as an area with similar vegetation and includes all animal life that lives in that area.

"**Competent authority**" is defined as an organ of state which is responsible, under any law, for granting or refusing and authorisation; or the competent authority identified in terms of section 30 of the EMA, Act, 2007.

"Environment" this refers to the ecology, economy, society and politics.

"Endemism" is the state of a species only being found in a single defined geographic location, such as an island, state, nation, country or other defined zone; organisms that are indigenous to a place are not endemic to it if they are also found elsewhere.

"**Listed activity**" means an activity listed in terms of section 27 (1) or 29.

"Mineral exploration" is the process of finding ores (commercially viable concentrations of minerals) to mine. Mineral exploration is a much more intensive, organized and professional form of mineral prospecting and, though it frequently uses the services of prospecting, the process of mineral exploration on the whole is much more involved.

"**Organ of state**" means any office, ministry or agency of State or administration the local or regional sphere of government or any other functionary or institution: exercising a power or performing a function in terms of the Namibian Constitution, or exercising a public power or performing a public function in terms of any law but does not include a court or judicial officer.

"**Proponent**" means a person who proposes to undertake a listed activity.

"Public" refers to the community or people in general.

“Stakeholders” – this refers to the people, organisations, NGOs that are directly or indirectly affected by the project and / or have an interest in the project.

EXECUTIVE SUMMARY

This scoping study was undertaken for the proposed **MINERAL MINING ACTIVITIES ON EPL 3218 IN IN KARAS REGION, NAMIBIA.** It was done in accordance with the requirements of the Environmental Management Act (EMA), No.7 of 2007 and the Environmental Impact Assessment Regulation, No. 30 of 2012, gazetted under the Environmental Management Act, No. 7 of 2007. Furthermore, it will determine the potential need and structure of further environmental and social impact assessment, if any. The planned scope of this project comprises open cast mining and recovery of precious and semi-precious stones on EPL3218. The necessary infrastructure and equipment is already in place since it is the same infrastructure used during the exploration phase. The scoping process was initialized by compiling a Background Information and invitation to participate Document (BID) followed by publishing notices of the Environmental and Social Impact Assessment (ESIA) in the local print media and posters pinned in public places in the nearest settlement at RoshKor Township. **Advertisements were published in the Villager and the Windhoek Observer newspapers during the period from the 20th of October 2023 to the 30th of October 2023.** Posters were posted in public places in RoshKor Township at least two (2) weeks before the meeting. Key stakeholders were engaged directly during the scoping period, and they emphasized that the ESMP should comply with the National Policy on Prospecting and Mining in Protected Areas. Rehabilitation should be on-going. The major issues identified for consideration in the ESIA and ESMP relate to short to medium term employment benefits linked to the mining phase. Most of the potential negative impacts identified were short term and minor while a few major impacts related to ground water contamination, air pollution and vegetation clearing. However, these can be managed through implementation of the proposed mitigation measures presented herein. It is thus the opinion of the EAP that this Environmental Scoping Report (ESR) and Environmental & Social Management Plan (ESMP) accompanying this ESR is sufficient to issue an Environmental Clearance Certificate ECC).

DOCUMENT STRUCTURE / ROAD MAP

The Scoping Report is intended to meet all requirements as stipulated in environmental management Act (2007) and its Regulations of 2012. To provide clarity to the reader, a document roadmap is provided in terms of the regulatory requirements (Table 1):

CHAPTER	TITLE	OVERVIEW
	Purpose of the Environmental Scoping Report	N / A
	Executive Summary	N / A
	Document Road Map	N / A
1	Introduction	This section contains project background information about the proposed mining project, ESIA process followed, details of the Proponent and the Consultant.
2	Legislative and Policy Framework	Highlights both international and domestic laws and policies that govern the planned project.
3	Public Consultation	Details the public and stakeholder consultation process followed and its findings.
4	Assessment of Alternatives	An analysis of various alternatives on the project.
5	Description of the Receiving Environment	Presents baseline environmental description of the project area against which project impacts will be evaluated in the future.
6	Identification and Evaluation of Potential Impacts	Presents both non-significant and significant impacts identified during the scoping phase of the ESIA.
10	Conclusion and Way Forward	
11	List of References	List of references quoted in the document

1 INTRODUCTION

1.1 Background

THE NAMIBIAN FORMER ROBBEN ISLAND POLITICAL PRISONERS TRUST (NFRIPT) was granted with mineral rights title Exclusive Prospecting License No. 3218 (the EPL) in respect of precious stones within the informal Block 3 along the Northern bank of the Orange River. NFRIPT appointed Clear Sun Contracting Services Namibia (Pty) Ltd (CSCSN) to conduct contracting services on behalf of NFRIPT in terms of exploration, prospecting operations, bulk sampling, and subsequent mining.

NFRIPT agreed to transfer the EPL into a new Company: Clear Sun NAFRIP (Pty) Ltd (Proponent) in which terms CSCSN took up a 26% stake for a purchase consideration as more fully disclosed in the Joint Venture Agreement concluded between the parties. CSCSN (a subsidiary of Clear Sun (Pty) Ltd, Gateway Plans (Pty) Ltd, Kirdyn Boerdery and Touchstone (Pty) Ltd, South African based companies) invests, facilitates and coordinates prospecting and subsequent mining operations, acting as contractors / sub-contractors. The aforementioned companies were formed specifically to combine various expertise and experiences into one organization with the purpose to successfully commission, coordinate and operate prospecting and mining concessions within Namibia.

NFRIPT was granted with mineral rights title an ***Exclusive Prospecting License No. 3218*** on 18 June 2003 for a period up to 3 (three) years with a current renewal, expiring on 30 January 2024. During the time from 2003 and 2023 some exploration and prospecting operations mainly within area 1, 2 and 3 were carried out. In 2021 CSCSN constructed and installed a rotating wash plant with the capacity to treat 80 Tons/hour of screened material. The plant was constructed on demarcated area 3, shown on Figure: 1 below. Prospecting results on these deposits provided the estimation of significant inferred reserves and forecasted resources of diamonds in the gravel deposits of EPL3218.

During previous periods (2003 – 2020), prospecting- and bulk sampling work was carried out through the excavation of pits and trenches with small-scale bulk sampling, mainly on area 1, 2 and 3. No rehabilitation was done on the mineral area with previous operations. These pits, trenches and sampling holes / areas contributed insight for CSCSN during exploration to identify target areas during Prospecting Operations.

The proponent, Clear Sun NAFRIPP Mining (Pty) Ltd is planning to embark on mining of Precious stones from EPL 3218 located in Karas Region. The planned work will comprise of open cast mining and recovery of precious and semi-precious stones. Mineral mining activities are listed activities that require an Environmental Clearance Certificate (ECC) from the Ministry of Environment, Forestry & Tourism (MEFT). It is against this background that the Proponent appointed an independent consultant, Outrun Consultant to conduct the Environmental Impact Assessment (EIA) to comply with the requirements of the Environmental Management Act (2007).

Due to increased awareness of environmental issues being no longer limited to biophysical components, this led to the introduction of Social Impact Assessment (SIA) as a component of the EIA and over time an Environmental and Social Impact Assessment (ESIA) was introduced. An ESIA is now widely used for assessing potential project impacts during the planning phase of listed projects. An Environmental and Social Impact Assessment tool is an integrated process that captures the interrelationships between land and society. Outrun Consultants was tasked to conduct the Environmental and Social Impact Assessment for the mineral mining activities on EPL 3218 by the Proponent, Clear Sun NAFRIPP Mining (Pty) Ltd.

1.2 Project Location

The proposed project is in the Karas region, along the Northern bank of the Orange River about 40 km to the south-east of Rosh Pinah and 65 km to the north-western direction from Aussenkehr in the Karas Region. The mineral area is linear to the C13 road connecting Aussenkehr with Rosh Pinah. The locality map of the proposed project is shown in Figure 1 below.

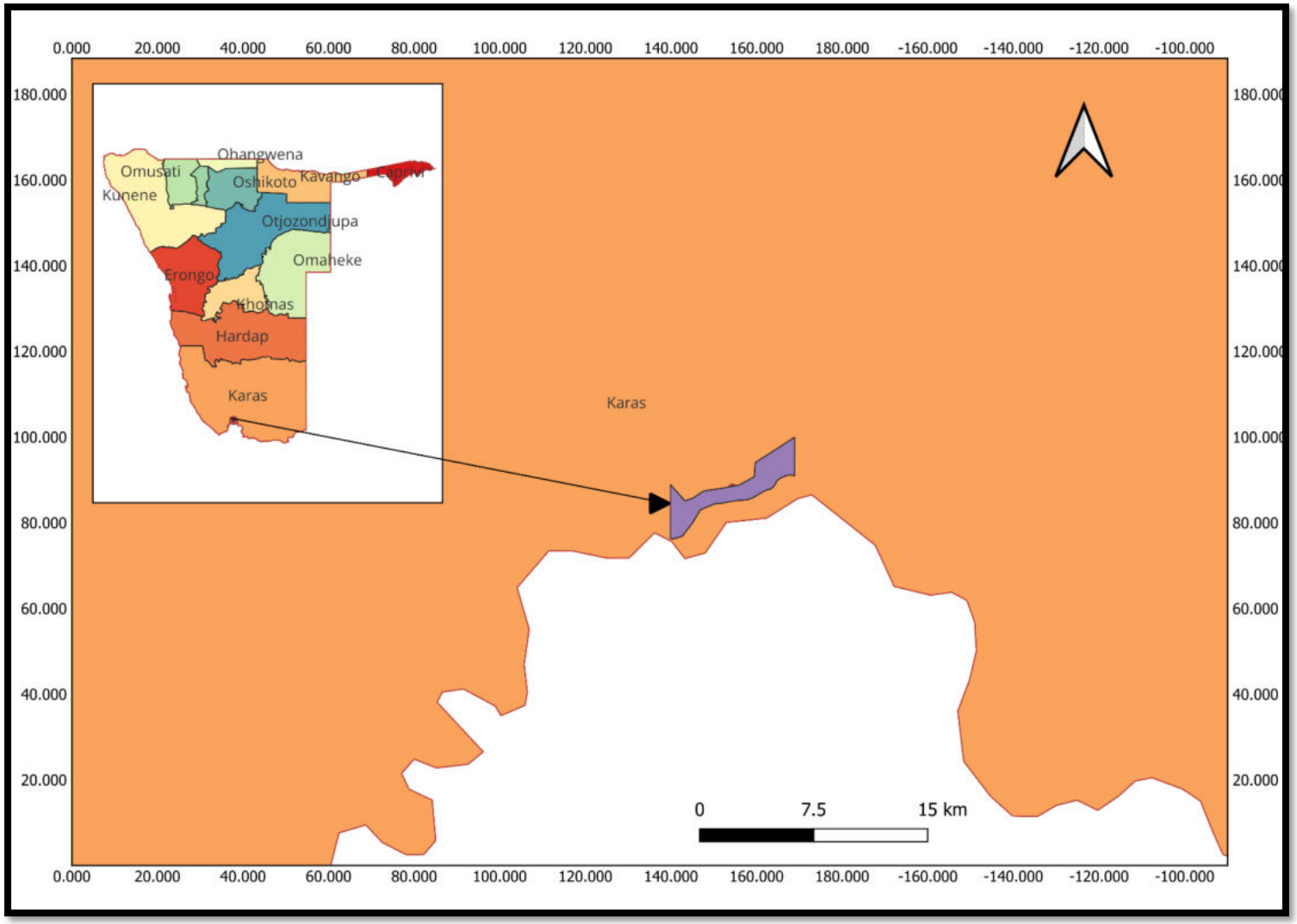


Figure 1: The location of the project area (EPL 3218) in Karas Region.

1.3 Project Description

The planned mining program is based on the expected geological conditions for the concerned license area.

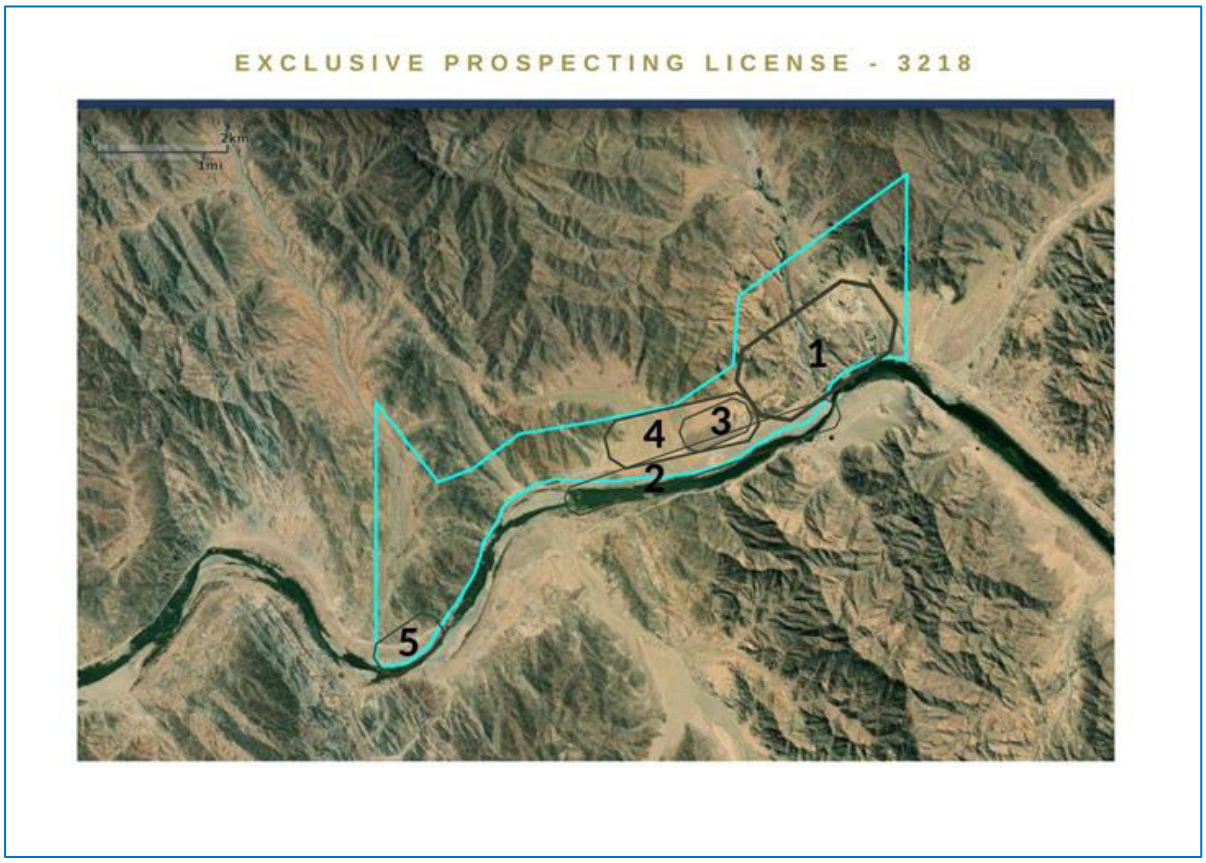


Figure 2: Demarcated areas targeted for mining diamonds on EPL3218.

1.3.1 Description of the diamondiferous deposits

The diamondiferous placer deposit has the following characteristics: (SG = 2.2)

DESCRIPTION	UNIT	QUANTITY
Total area	Ha	1 136,72
Total area of demarcated areas for Operations to be compiled on	m^2	3,174,000
Area of each demarcated area:	m^2	721,582

	II		1,103,588
	III		342,905
	IV		665,798
	V		195,184
Average barren gravel thickness:	I	m	3,5
	II		6
	III		17
	IV		7
	V		2
Volume of barren gravel stripping works:	I	Cubic meters (m^3)	2,526,482
	II		6,621,528
	III		5,829,385
	IV		4,660,586
	V		390,368
Average diamondiferous gravel thickness:	I	m	3
	II		2
	III		3
	IV		2
	V		1,5
Volume of diamondiferous gravel thickness:	I	Cubic meters (m^3)	1,082,373
	II		2,207,176
	III		1,028,715

	IV		1,331,596
	V		292,776
Tonnages of barren gravel stripping works:	I	Tons	5,558,260
	II		14,567,361
	III		12,824,647
	IV		10,253,289
	V		858,809
Tonnages of diamondiferous gravel thickness:	I	Tons	2,381,220
	II		4,855,787
	III		2,263,173
	IV		2,929,511
	V		644,107
Average diamond contents:	I	carat/100t	0,1
	II		0.8
	III		0.4
	IV		0,4
	V		0.4
Prospected diamond reserves:	I	carat	2,381
	II		18,105
	III		9,052
	IV		11,718
	V		2,576

Average estimated price per carat	**USD**	**1 115.28**
Total estimated value of diamonds *in situ*	**USD**	**50,442,174**

1.3.2 Exploration activities carried out on EPL3218

It was observed during exploration that probably because of access to richer diamondiferous debris in the catchment area, the Miocene aged palaeo-Orange River deposits (also termed Proto-Orange River deposits) were better mineralized than the younger deposits, with the current bed of the Orange River in this region being virtually barren of diamonds. The Miocene sediments occupy high level terraces, but further downstream (e.g. Xarries at Bloeddrif) very rich Miocene deposits are found in deep bedrock scours, covered by younger, low-grade deposits which are also termed Meso-Orange River deposits.

On Block 3 a remnant of a high level (Proto-Orange River) terrace is present, with indications of scour features underneath younger sediments at lower elevations. During the limited period under review for Exclusive Prospecting License period, endorsed: 31 January 2022 to 30 January 2024, CSCSN focused mainly on higher, proto terraces during exploration activities to determine whether diamonds were present in the mineral region and, if so, whether the occurrences were viable and practicable for mining. Following the successful discovery of economical viable diamonds upon the proto terraces, CSSCSN commenced focusing on determining the feasibility of further deposits in the Lower Meso terraces. Through its exploration work between January 2022 and November 2023, CSCSN proved the potential and feasibility viability of both, the Proto- and Meso Terraces within the mineral area of EPL3218.

Figure 3: High (Proto) Terrace Gravel.

Figure 4: Middle (Transitional) Terrace Gravel.

Figure 5: Aerial view of the bulk sampling plant on EPL3218.

To ascertain the viability and feasibility of the project, the CSCSN exploration program included bulk sampling via excavation and bulk treatment of material using a two 16-foot rotary plant.

Figure 6: Two 16-foot rotary treatment plant on EPL3218.

The mining program will commence with a review of existing geological maps, existing geological reports, analysis of existing geophysical data (such as electromagnetic and radiometric data from the geological Survey of Namibia, GSN), and any other relevant existing

data and information from the project area. Based on this desktop review, a refined mining program will be formulated.

1.3.3 The period of the prospecting- and mining operations.

It is necessary to proceed from requirement of maximum daily capacity of the washing device with preserved high quality of diamondiferous gravel processing, when determining the period of prospecting and mining work of the Enterprise. It was established during exploration that optimum daily volume of diamondiferous gravel processing of secondary gravel (screened gravel) is 70 ton/hour on 2 X 16ft rotating pans with shift duration of 20 hours, totaling 1 400 tons / day (636.36m3). Run of Mine Tonnage (ROMTON) will be 280 ton/hour, totalling 5 600 tons / day (2 545m3) from which small and medium size placer deposits of +28mm and -6mm can be exploited. To obtain 70 ton/hour secondary gravel, 240 ton (ROMTON) primary gravel should be exploited.

The annual quantity of shifts with 5 days working week is 250 shifts / year. Thus 636,364 m3 of gravel will be processed for mining per year: 1.1 Total estimated reserves of areas 1, 2, 3 and 5 (Figure: 2.2) is estimated to be 20 281 683 m3 (This reserve calculation excludes area 4 which reserve will be determined through a drilling phase); 1.2 275,556 m3 of gravel processed during prospecting equates to 1,3% of the total reserve on the mineral area (1, 2, 3 and 5); 1.3 With mining operations and an increase of production to the required 636,364m3 / year, the period required for mining operations is between 25-30 years.

1.3.4 The Planned Diamond Mining and Recovery Method

1.3.4.1 Selection of Mining method

Taking into consideration the size of the mining area, depth of the gravel deposits, open cast mining is the preferred method with stripping and excavation of diamondiferous gravel in the quarry by excavators, loaded onto dumper trucks for screening as set out in Figure: 7 below.

Figure 7: Open cast mining during the exploration phase on EPL3218.

The gravel mined from the quarry is transported to the screening area. The screening area is located close to the quarry, to reduce cycle time and use the waste screened material (+32mm) for rehabilitation in the mine quarry area. A semi-stationary plant is used for screening, consisting of a primary grizzly scalping screen in line with a secondary mobile scalping screen. The primary screen removes boulders of 110mm or bigger in diameter, material is fed to the secondary mobile screen with a conveyor from the primary screen to remove +32mm material. Figure: 8 illustrates the screening plant used in the EPL3218 operations during exploration, and the same will be used for mining operations.

Figure 8: Semi-stationery screening plant used on EPL3218 during exploration activities.

1.3.5 Ore Treatment Method

Earthmoving Machines Earthmoving fleet with the capacity to handle 240 ROMTON per hour is used in the operations. The fleet of earthmoving mining machines and mobile screens for mining operations comprise of the following:

- Excavators (48 Tons, 34 Tons) – 3
- Excavator with Hydraulic Ripper (38 Ton) – 1
- Grizzly Scalping Screen (1000 Ton/Hour – 1
- Front end Loaders (3,5m3, 4m3, 5m3,5 m3) – 4
- Dump Trucks (10m3, 20m3, 20m3, 30m3, 30m3)- 5
- Mobile Findlay Screen (600 Ton/Hour) – 1

1.3.6 Plant Equipment

Due to the absence of power lines and industrial centres remoteness, geographical location of the diamondiferous deposits, a requirement of maximum autonomy of the Enterprise and as minimum as possible power capacity of the concentrating machines

predetermined use of a serially manufactured and exploited on the placer deposits of the South-West Africa wash plant, which consists of the following units:

- Mobile Screen – Finlay with Grizzly Screen.
- Feeding bin with conveyor.
- High Frequency Screens.
- 2 X 16ft Rotating Wash Pans.
- De-watering Screen with Tailings Conveyor.
- Concentrate De-watering Screen with Conveyor.
- Concentrate Holding bins.
- Bourevestnik Final Recovery Unit.
- Workshop Area.
- Arial View of Wash Plant.

1.3.7 Wash Plant Operations

During Wash plant operations, secondary screened, diamondiferous gravel is hauled from the screen area with dumper trucks, stockpiled at the wash plant and fed by a loader to the circular rotating pan wash plant as follows:

- Into a feeding bin with conveyor;
- The gravel is conveyed to high frequency screens where -6mm sand is discarded with a conveyor and used for rehabilitation;
- Screened diamondiferous gravel (+6mm; -32mm) is conveyed to the 2 X 16ft closed circular rotating pans. Final concentrate is separated from tailings in the separator based on density using a medium called puddle (puddle is mixed by

using a certain soil and water mixture to obtain a density needed to separate the concentrate from the tailings).

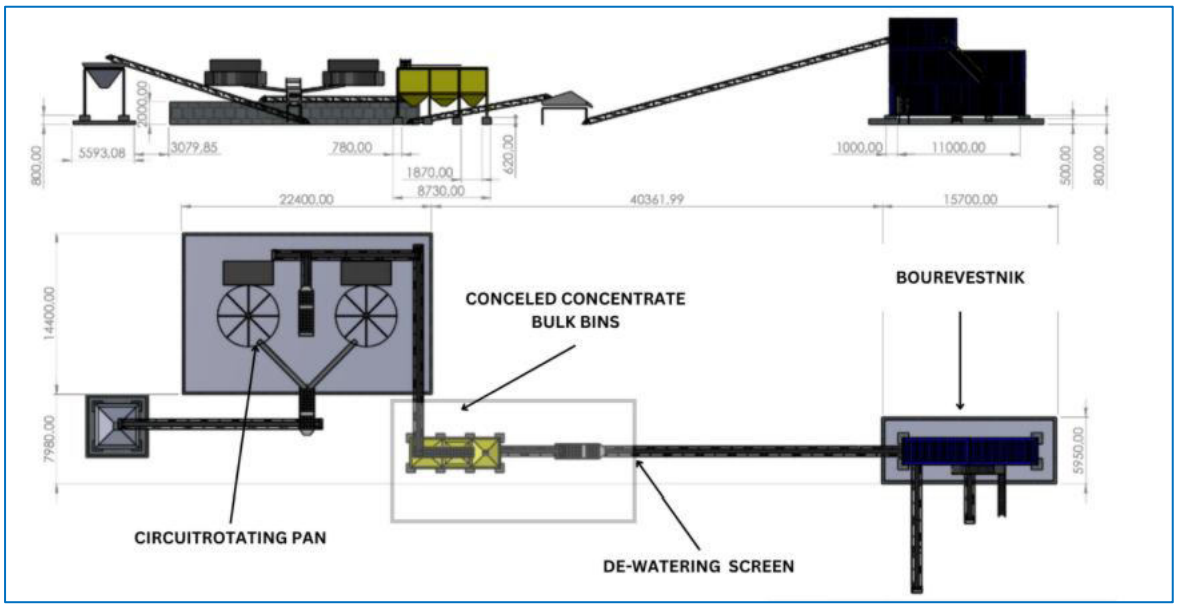
- Material with a lower density (-2,6 Specific Gravity) is distracted and discarded as tailings.
- Final concentrate (+2,6 Specific Gravity) (Heavy density materials and diamonds) is extracted from the rotating pans with an auger and conveyed to holding bins;
- Concentrate is conveyed from the holding bins over a dewatering screen to remove puddle and excess materials prior to final recovery;
- To achieve the required productivity per shift it is necessary to use a washing plant with two 16-ft pans capable of handling up to 80 tons of treated gravel per hour.

The plant is commissioned as close to the earthmoving / mining operations as possible to ensure a better economic cycle time and to produce the diamonds in a more cost-effective manner.

1.3.8 Final Recovery Operations

Orange River alluvial deposits are known for its ultra-low grades. Historic results have shown that to mine these areas successfully, a minimum production treatment capacity of 120 000 Run of Mine Tonnage of diamondiferous gravel is required per month. Conventional final recovery plants such as grease tables and flow-sorts not nearly consist of the production capacity of the BV plants. BV plants have a throughput of 30-100 t/h final concentrate, depending on size fractions of material treated by the final recovery. A final recovery treatment capacity of this magnitude provides for sustainable monthly operational activities. One significant difference between a BV final recovery and the conventional final recovery systems is that the treatment capacity of a BV provides flexibility on sorting of the final concentrate. There is no need to sort everyday as the final concentrate is stored in concealed bulk-bins and sorted once the bins are full. For this reason, it is easier for the holder, its representative and the diamond inspector / -commissioner to attend the final recovery operations. The BV works with ultra-modern technology. X-rays fluoresce diamonds, photomultiplier tubes (PMT`s) detect the fluoresced diamonds and gets air-ejected into a re-sorter. The process is repeated in the re-sorter to decrease the concentrate and further eliminate tailings. The whole process is completely handsfree and operated through a computerized Human Machine Interface. Having a complete handsfree final recovery ensure safety in the recovery of diamonds for the

Contractor, Holder and the Ministry. The significant difference between the BV and the conventional final recovery systems is that not only does the BV retrieve diamonds through the analysis of the diamonds fast component, but also detects the slow component to win Type II diamonds. These diamonds are commonly found at the lower Orange River fluvial system. A BV increases the recovery rate of these diamonds significantly. With a recovery rate of 98,5%, the BV enhance profitability to ensure sustainability and feasibility of operations. Final concentrate is conveyed to the final recovery. A fully automated recovery system known as a Bourevestnik sorting system is used. From the point where the final concentrate is extracted from the rotating pans, it is a secure hands-free automated system to where the diamonds is recovered by means of X-rays and Photo Multiplier Tubes.



After the removal of puddle and excess materials over the dewatering screen, material is conveyed to the Bourevestnik final recovery; The Final Recovery consists of two sorting units. A first sorter (LS-20-09) and a re-sorter (LS-OD-50-03N). The sorting units are respectively equipped with eight X-ray tubes and two photodetectors, and the second resorter is equipped with two X-ray tubes and photodetectors. Detected diamonds gets air ejected into a concealed shoot. Find below Figure: 7, a schematic presentation of the working of a LS-20-09 machine. Figure: 8 is a collection of photos illustrating the final recovery.

After completion of the final concentrate through the re-sorter, the concentrate gets automatically stored handsfree in a drop safe. The dropsafe is opened prior to each sorting, placed into position below the re-sorter and the Diamond Inspector attaches his / her seal onto the safe, once the padlocks have been locked. The full process of sorting and handling of

diamonds are described under the security plan of EPL 3218 submitted to the regional office, Oranjemund.

Figure 9: Final recovery plant on EPL3218.

1.3.9 Rehabilitation Method

The rehabilitation exercise forms part of the mining plan and execution. Infrastructure was designed with ease of deconstruction in mind, or with clearly defined dual purpose. Modular construction methods were employed so that reclamation of equipment and administration blocks at closure was simplified. This minimizes the adverse impacts on the environment which would otherwise increase the environmental liability. This is achieved in the following ways:

- All recyclable materials are sorted and disposed of at a designated site in Rosh Pinah.
- Reusable equipment and materials are removed after mining operations to be re-used in future operations.
- All excavated materials are separated and stockpiled separately following their horizons as visibly shown by their textural differences e.g. boulders, gravels and topsoil.
- All used oil is containerized and taken to oil recycling companies.

After the removal of diamondiferous gravel from quarries, it is reshaped to create a gently-sloping, free-draining topography. Trenches and excavation pits are filled with boulders followed by course gravels and lastly topsoil. Topsoil materials that were

stripped prior to site establishment and mining are used. These also serve as seed banks and naturally re-establish indigenous vegetation. Landform re-creation (soil shaping) is the process by which the mined overburden materials are placed and moved to create the “desired” final topography. The resulting topography consists of an overburden material dug out during mining and the processed materials from the recovery plant. These materials are reshaped to provide a final landform that approximates the natural environment in the area and will improve post-closure usefulness when the natural vegetation re-establishes.

While the current norm is to ensure that the final landform is free- draining and has slopes such that erosion risk is minimized, the desired approach is to ensure that the final land form conforms as closely as possible to the natural environment and blends well with the surrounding landscape. This was significantly achieved given the undulating landscape observed onsite. See figure 10 below illustrating how rehabilitation work was done to rehabilitate disturbed / mined areas during the exploration phase.

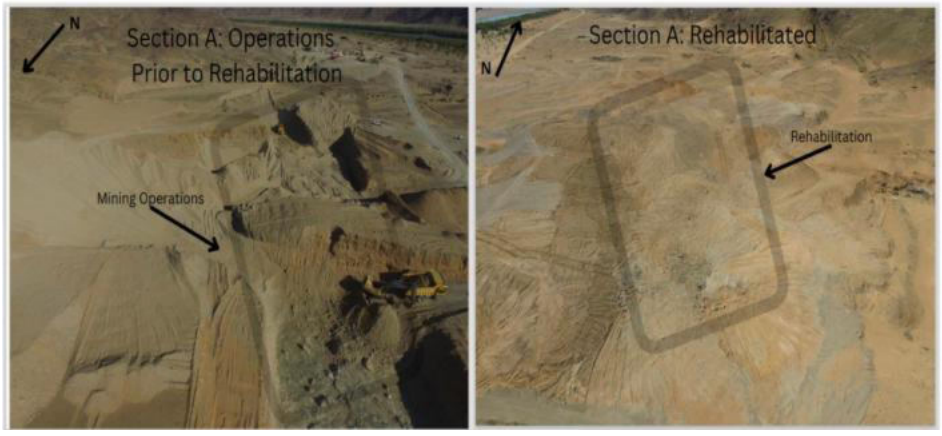


Figure 10: Rehabilitated area during exploration activities conducted on EPL3218.

Accessory Works for mining Operations The so-called open cast mine-preparation works include construction of different engineering mining structures, such as: embankments, workshops, settling dams, tailing dumps, automobile roads, sumps, working trenches, pits, bulk sampling areas as well as all works which must be done in order to organize installation and smooth running of washing devices, such as: disintegration of waste dumps, diamondiferous gravel's ridging, gravel loosening, etc.

1.3.9.1 Water Supply

Water Supply Water supply to the plant is pumped over distance of 450m. Water use for the prospecting operations is as follows: - 20 455 l/h X 24h = 490 909 L/Day - 490 909 X 22 = 10 800 000 L/Month - 10 800 000 / 1000 = 10 800m^3 /Month - 10 800 X 12 = 129 600m^3 /year. Water is supplied through the extraction of water from the Orange River using a centrifugal pump. A pump, with a water meter attached, are used to supply the necessary 20 455 L/hour water, which includes necessary daily human consumption. Drinking water will be purified by a filter system. Power supply generator (380 KVA) is located near the washing plant.

1.3.9.2 Road infrastructure and access to the target area

Figure 11: The access road to EPL3218 is connected to C28 which connects Rosh Pinah to Aussenkher. Source: Own photograph taken during the site visit.

1.4 Motivation for the Project

Mining, Namibia's leading economic sector, accounts for roughly 10 percent of Namibia's GDP every year with diamond mining being the leading sub-sector. This is an important economic sector that also contributes foreign exchange revenue and supplies basic elements to most economic sectors but has also a negative legacy social-environmental impact. Mostly it is the negative environmental impacts that are feature in the forefront, but mining has significant positive effects too. The benefits of conducting comprehensive mining activities are among others:

- Employment creation

    - The mining industry requires a diverse workforce, ranging from skilled engineers and geologists to machinery operators and support staff.
    - The mining sector often provides both direct and indirect employment, positively impacting local communities and regional economies.
    - Direct employment in mining involves jobs within the mining companies themselves, such as miners, technicians, engineers, and administrative personnel. These positions offer competitive wages and benefits, attracting skilled workers and contributing to local economic stability.
- Support services
    - Mining operations often require a range of support services, such as transportation, logistics, and maintenance, which further generate employment opportunities.

Employment preference will be afforded to previously disadvantaged Namibians. The employment opportunities generated by mining have a multiplier effect on the economy. As individuals earn income from their jobs, they contribute to local spending, supporting small businesses, retail sectors, and service industries. This increased economic activity further stimulates job creation in various sectors, creating a virtuous cycle of employment and income generation.

- Economic Growth and Development

The Mining and metals sector plays a vital role in promoting economic growth and development in both developed and developing countries. The extraction and processing of minerals contribute to the expansion of the industrial sector, diversification of the economy, and enhancement of productivity. By providing essential raw materials for manufacturing, construction, and energy production, mining acts as a catalyst for economic progress. The growth of mining activities often leads to the establishment of downstream industries, creating a ripple effect throughout the economy.

- Foreign Exchange Earnings and Balance of Trade

One significant benefit of mining is its contribution to a country's foreign exchange earnings and the balance of trade. Mining often involves the extraction and export of

valuable minerals and resources, which can generate substantial revenue from international markets. These earnings contribute to a country's foreign exchange reserves, enhancing its ability to engage in international trade and finance.
Mineral exports can significantly impact a nation's balance of trade by increasing exports and reducing import dependency. The revenue generated from mining exports helps to offset trade deficits, improving the overall trade balance. This, in turn, strengthens the country's economic stability and reduces reliance on external sources of financing.

- Infrastructure Investment

Mining activities often require substantial infrastructure development, which in turn contributes to economic growth and development of the country. The construction and maintenance of critical infrastructure in mining regions have a positive impact on the local economy and the overall socio-economic well-being of the community. One significant aspect of infrastructure investment in mining regions is the improvement of transportation networks. To transport extracted minerals from remote mining sites to processing facilities or export terminals, transportation infrastructure such as roads, railways, and ports needs to be developed or upgraded.

These infrastructure projects create job opportunities, stimulate economic activity, and facilitate the efficient movement of goods and people. Mining companies often invest in water treatment facilities, ensuring access to clean water for local communities. Sanitation infrastructure, including waste management systems, is also enhanced, promoting public health and environmental sustainability. The construction industry and related sectors also benefit from the infrastructure investment associated with mining. Increased demand for construction materials, such as cement, steel, and building supplies, stimulates economic activity, creates employment opportunities, and drives growth in the construction sector.

- Contribution to Government Revenues and Public Services

Mining plays a crucial role in contributing to government revenues and funding public services, which are essential for socioeconomic development. Through various mechanisms such as taxes, royalties, and other fiscal instruments, the mining industry

generates substantial revenue streams that support public expenditure and the provision of vital services to citizens.

One significant contribution of the mining sector to government revenues is through tax payments. Mining companies are subject to corporate income taxes, which generate significant income for government.

Additionally, the government has implemented mining-related taxes or levies, such as royalties, which are calculated based on the volume or value of minerals extracted as well as value addition. This revenue stream contributes to public coffers and can be allocated to finance various public goods and services.

Furthermore, the revenue generated from mining activities allows governments to allocate funds for crucial public services, including healthcare, education, and infrastructure development. Investments in healthcare systems lead to improved access to quality healthcare services for communities residing in mining regions. Similarly, funds are allocated to education support the development of educational institutions, training programs, and scholarships, promoting human capital development and empowering local communities.

- Environmental Stewardship and Sustainability Efforts

While the economic benefits of mining are significant, it is equally important to address the environmental impacts and promote sustainability within the industry. Mining companies are increasingly recognizing the need for environmental stewardship and implementing measures to minimize their ecological footprint.

Adoption of responsible mining practices and compliance with stringent environmental regulations are essential for mitigating the negative environmental effects of mining operations. This includes proper waste management, water conservation, and emissions control. Clear Sun NAFFRIP has invested in advanced technologies and best practices to reduce their environmental impact, such as using innovative extraction techniques, implementing reclamation plans, and rehabilitating disturbed land areas.

Investment in environmental protection and land reclamation is another crucial aspect of sustainable mining. Clear Sun NAFFRIP allocates resources to restore and rehabilitate mining sites during operations and does not wait until operations cease, ensuring that land is returned to a productive or environmentally sustainable state.

This includes re-vegetation efforts, soil stabilization, and the establishment of wildlife habitats. By reclaiming land, mining companies contribute to preserving biodiversity, conserving ecosystems, and maintaining the natural balance of the environment.

1.5 The Proponent of the Proposed Project

The proposed project is being undertaken by a Namibian company, 100 % owned by previously disadvantaged Namibians. The Proponent's details are presented below:

Table 1: The Project Proponent's details.

Name of Proponent	Clear Sun NAFRIPP (Pty) Ltd
Registration Number	2020 /
Manager	Mr. F. Botma
Address	Number 8 Sam Nujoma Drive Windhoek.
Name of Licence Holder	Clear Sun NAFRIPP (Pty) Ltd
Type of Licence	Exploration Licence
Licence Number	EPL 3218
Grant Date	18 June 2004
Expiry Date	30 January 2024
Total area	1605.986 Hectares
Target Commodity	Precious Stones

1.6 The Consultant

Outrun Consultants CC is a Namibian privately owned consultancy company doing various projects in Southern Africa Development Community (SADC) countries. Our core services are:

- Environmental Impact Assessment,
- Strategic Environmental Assessment,
- Environmental Investigations,
- Research and Training,
- Feasibility Studies,

- Agronomy, and
- Monitoring and Evaluation of Development projects.

Outrun Consultants draw its experts from regional and international universities such as Rhodes University (South Africa), University of Zimbabwe (Zimbabwe), National University of Science and Technology (Zimbabwe), University of Namibia (Namibia), VSB-Technical University of Ostrava (Czech Republic), Polytechnic of Namibia (Namibia) and the University of Twente (Netherlands). Outrun declares that we have no interests in this project and are independent and will act as such during the EIA process as required by the EIA regulations. The key team members carrying out this EIA are presented in Table 3 below:

Table 2: Outrun Team of Experts and the Roles and Responsibilities in the ESIA Study.

ORGANIZATION	**AREA OF RESPONSIBILITY / FIELD OF EXPERTISE**	**TEAM MEMBERS**
Outrun Consultants	Project management EIA coordination	Josiah T. Mukutiri and F. Botma
Outrun Consultants	EIA process	Josiah T. Mukutiri
Outrun Consultants	Literature review / Desk study	Josiah T. Mukutiri
Outrun Consultants	Legislation & Policy Review	Josiah T. Mukutiri
Outrun Consultants	Social & Gender	Dr. Oliver Chigariro
Outrun Consultants	Archaeology and Heritage	Mr. Prince Hlabangana

1.7 Process and Methodology

Given that proposed project development triggers listed/ prescribed activities under the Environmental Management Act No of (2007) and the Environmental Assessment Regulations of 2012, the process started with the appointment of the consulting company as presented above. The Consultants carried out a full EIA as required, and this chapter describes the EIA process followed during the study. The EIA study was guided by the Namibian Environmental Impact Assessment Policy of 1994 and the Namibian Environmental Management Act of 2007. Various methodologies were implemented to fulfill the requirements of each step in the EIA / ESIA process list as shown below.

1.8 The Environmental and Social Impact Assessment (ESIA) Process

The ESIA study was conducted as follows:

- Preliminary Activities setting terms of reference for the ESIA, selecting consultant (agent who would prepare the ESIA) to do the ESIA,
- Literature review of all relevant information,
- Field work for making of detailed studies of the baseline situation. This included bio-physical environment and socio-economic conditions.
- An analysis of the potential environmental impacts. This included impact prediction and significance assessment,
- Public participation,
- The preparation of an environmental management plan for the project and finally.
- The compilation of the ESIA report.

The description of the ESIA process phases and stages mentioned above are provided under the following subheadings. It should be noted that the description is only a bird's view of the various phases followed by the assumptions and limitations derived from study of situation and discussions with the Proponent.

1.8.1 Clarification of the Terms of Reference and Levelling of Expectations

Leveling of expectations – an opening meeting was held between the consultancy team and the Proponent. The purpose of the meeting was to clarify the methodology, communication process between the Consultants and the Proponent, time frame and expected outcomes of the EIA study.

1.8.2 Literature review

Various related documents were reviewed to gather information on the potential impacts, the alternatives, how to mitigate the impacts, decommissioning and rehabilitation plan. The literature included maps, publications, and reports on topography, climate, land use, and socio-economic setup of the project area where the project site is located. The literature review helped in undertaking components and areas that would deserve attention during field assessment. The literature review which was mainly based on the desk study method included the following

1.8.3 Information search from internet, journals, books and stakeholders

Examples of similar projects, i.e., water infrastructure construction and upgrade from both developed and mainly developing world were reviewed including their merits and demerits. Besides its operation, potential environmental impacts were also reviewed.

1.8.4 Analysis of the potential environmental impacts of the project activities from typical data and research

The three major environmental compartments which are land, air and water were chosen to be observed and discussed in detail. These environmental features had been chosen because they are the main receiving environmental compartments that should be considered before implementing the project. Environmental data was analyzed to determine potential environmental impacts of the project activities. The potential impacts were ranked for impact significance as presented later in this report.

1.8.5 Field Survey

Field surveys were carried out to verify some facts obtained from the literature review. A more informed assessment was however the main objective of the field studies. This was done to confirm the condition of the area in terms of climate, soils, land use, topography and socio-economic set up of the area. It also involved surveys to identify the different environmental components and their state to determine the most likely impacts.

1.8.6 Public Involvement

A wide range of key stakeholders were invited to participate and express their views through various media communication. The consultations were done mainly to get a view of the affected parties as well as how they think the project should be carried out for minimum impacts on health, environment and the well-being of the people. Issues which were highlighted by stakeholders were incorporated into the EIA process, the project mining programme and the Proponent has committed the same during project implementation.

1.8.7 Identification and analysis of impacts in terms of magnitude and significance

Mineral mining projects have both potential positive and negative impacts on the environment. Impacts will depend on the sensitivity of the environment and the stress already imposed on it. To accurately predict the various impacts caused by the above mentioned, the ecological and socio-economic impacts were delineated. Potential environmental impacts were identified, and an analysis criterion shown in the chapter on impact prediction and analysis was used to rank the impacts.

1.8.8 Recommended mitigation measures for identified impacts

Mitigation measures were developed based on practical measures supported by research and scientific evidence. Extensive literature review of reputable publications and journals helped the formulation of mitigation measures.

1.8.9 Analysis of alternatives of the project – both economic and environmental

The analysis of alternatives was done to ensure that resources were used efficiently and that decisions were environmentally sound.

1.8.10 Development of an Environmental & Social Management Plan

An Environmental & Social Management Plan (ESMP) will be prepared to give a guideline base to the project Proponent on how the identified impacts could be mitigated and managed. The Plan will be presented in a tabular format indicating the impact, indicator, monitoring frequency and the responsible agent. When all the important information is derived from the impacts' prediction and analysis section, all the important aspects will be noted down and responsibilities assigned to monitor the different aspects.

1.8.11 Preparation of the ESIA Report

The completion of the various tasks assigned to the team members during the ESIA scoping study gave rise to separate individual reports which were collated to give this ESR. The ESIA process followed is provided under the flow chart shown in Figure 2.

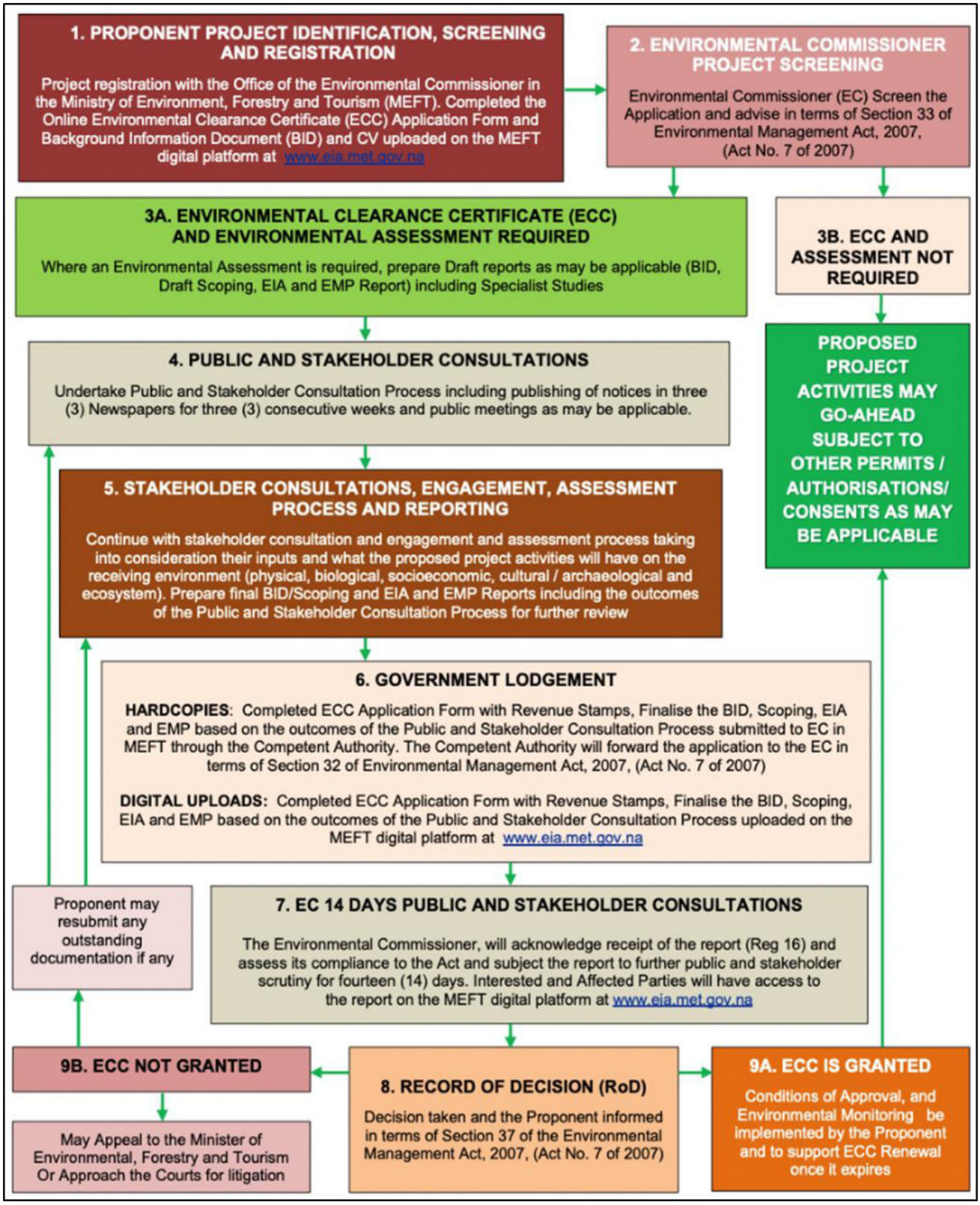


Figure 12: The ESIA Process flow.

2 LEGISLATIVE AND POLICY FRAMEWORK REVIEW

2.1 Proposed Project Authorization Requirements

The Environmental Management Act, No. 7 of 2007 stipulates that an environmental clearance certificate is required to undertake Listed Activities under the act, and it's supporting Regulations of 2012. Listed activities triggered by the proposed project in accordance with the Environmental Management Act, No. 7 of 2007 & its Regulations fell under 3. Mining and Quarrying Activities:

3.1. The construction of facilities for any process or activities which requires a license, right or other form of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act), 1992.

3.2. Other forms of mining or extraction of any natural resources whether regulated by law or not.

3.3. Resource extraction, manipulation, conservation and related activities.

2.2 Overview of Legislation

This Section is aimed at presenting a concise description of the policy and legislative context within which the mineral mining project is proposed including an identification of all legislation, policies and guidelines that are applicable to this activity and are to be considered in the assessment process. Some of the pertinent environmental legislation that has bearing on mineral mining is presented in Table 3 which describes the linkage between project activities and relevance of the various legal and policy instruments. The legislation outlined in this document is for both the local (institutional), regional, national and international perspectives.

2.3 International treaties and protocols

The following international treaties and protocols have been ratified by the Namibian Government:

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES) (1973).
- Vienna Convention for the Protection of the Ozone Layer (1985).
- Montreal Protocol on Substances that Deplete the Ozone Layer (1987).
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal (1989).
- Convention on Biological Diversity (1992).
- United Nations Framework Convention on Climate Change (1992).

    - Kyoto Protocol on the Framework Convention on Climate Change (1998).
    - World Heritage Convention (1972).
    - Convention to Combat Desertification (1994).
- Stockholm Convention on Persistent Organic Pollutants (2001).

Table 3: National Legal and Policy Instruments Relevant to the proposed mineral mining activities on EPL 3218

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
The Constitution	Namibian Constitution First Amendment Act 34 of 1998.	"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)).	Ecological sustainability concepts within the constitution should guide all projects. Protect the environment and ensure citizens enjoy their right to a safe environment. Mineral exploration and mining are known to be very destructive to the environment and to comply with the Namibian Constitution, it is important for the Proponent to embrace environmental principles in its policies and management throughout the project life cycle stages to comply.
Environmental Protection and Sustainability	National Policy on Prospecting and Mining in Protected Areas	This policy outlines the guidelines and restrictions on mining activities within Namibia's protected areas. Its primary aim is to ensure that prospecting and mining do not compromise the ecological integrity of protected environments. By regulating such activities, the policy seeks to find a balance between harnessing mineral resources for economic development and preserving Namibia's rich natural heritage.	Mining projects have been known in the past to leave a legacy of environmental destruction without rehabilitation. In response and in line with the National Policy on Prospecting and Mining in Protecetd Areas the proposed project is subject to rigorous environmental assessment and must comply with sustainable practices to minimize environmental impacts.
	Nature Conservation Ordinance 4 of 1975.	This Ordinance is a cornerstone of Namibia's legislative framework for conservation. It regulates the protection of wildlife, control of hunting activities, and conservation of natural resources. The	In the context, this Ordinance is crucial for balancing economic activities like mining, prospecting and tourism with environmental preservation given that EPL3218 is in a National Park. **Regulation of Activities:**

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
		legislation sets the groundwork for establishing nature reserves, national parks, and wildlife sanctuaries, ensuring biodiversity protection and sustainable use of natural resources.	The Ordinance regulates various activities within protected areas, and exploration falls under the type of activity needing explicit regulation to minimize ecological impacts. **Environmental Protection Measures:** The Ordinance requires measures to protect sensitive ecosystems from the potentially harmful effects of exploration. This includes rehabilitation of disturbed areas and strategies to prevent pollution and habitat degradation. **Conservation Oversight** Conservation officers and other authorities are typically empowered to oversee and enforce compliance with regulations within protected areas, ensuring that exploration projects adhere to conservation standards.
	The Ai-Ais Hot Springs Game Park Management Plan	The management plan for Ai-Ais Hot Springs Game Park provides strategic guidance for the conservation of the Ai-Ais Hot Springs Game Park. It includes specific strategies for managing biodiversity, promoting eco-friendly tourism, and involving local communities in conservation efforts.	The plan aims to protect the park's unique landscapes and ecosystems, while fostering sustainable tourism that benefits local economies. Additionally, the plan addresses challenges like climate change and human-wildlife conflict, ensuring the park remains a vital conservation and tourism asset for Namibia. In relation to the proposed project the following key aspects are worthwhile for the Proponent to note: **Strict Zoning Regulations:** The management plan designates specific zones within the park where different activities are permitted or restricted. Exploration activities may be limited to areas where they will have minimal impact on sensitive ecosystems.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
			Environmental Impact Assessments (EIA): Before any exploration activities can commence, they are subject to rigorous environmental impact assessments and community consultations to make sure their interests are harmonised with the proposed project. **Permits and Licensing:** Obtaining the necessary permits and licenses is mandatory for any exploration activities. This process ensures that only compliant and responsible projects can proceed. **Monitoring and Compliance:** There are provisions for ongoing monitoring of exploration activities to ensure compliance with environmental standards and regulations. Regular reporting and inspections are required to track the project's impact on the environment. **Restrictions on Disturbance:** Specific regulations may restrict certain methods of exploration that could cause significant disturbance to the park's flora, fauna, and landscapes. This might include restrictions on drilling, use of heavy machinery, or other intrusive methods. **Conservation Prioritization:** The plan prioritizes conservation objectives, and any exploration proposals are evaluated against these objectives to ensure that they do not undermine the park's primary conservation goals.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
Climate Change	National Policy on Climate Change for Namibia (2011)	The National Policy on Climate Change supports constitutional obligations of the Government of the Republic of Namibia, namely for "the state to promote the welfare of its people and protection of Namibia's environment for both present and future generation." The goal of the National Policy on Climate Change is to contribute to the attainment of sustainable development in line with Namibia's Vision 2030 through strengthening of national capacities to reduce climate change risk and build resilience for any climate change shocks. The policy reckons that Namibia has limited capacity to adapt to climate change impacts. The policy projected that Namibia would become drier with more variability in rainfall and developed strategies and action plan to cope with adverse climate change impacts, (Namibia, 2010).	The project by virtue of being mining project making use of water during the various activities and interacting with surface water resources, it is paramount to conserve the precious water resources, minimize unwarranted loss, prevent any form of pollution and contribute towards sustainable development. The Proponent should stick to the allowable quantities to abstract from the Orange River as stipulated on the Water Abstraction Permit.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
Environment	Environmental Assessment Policy of Namibia 1994.	The policy narrates guidelines to environmental management its principles as well as the EIA process to be followed for listed projects that requires environmental clearance.	The project implementation should follow the requirements of the policy starting with the guidelines for EIA for which this is the process underway. As one of the long-term key objectives, protection of resources including water should be embraced in the Proponent modus operandi.
	Environmental Management Act, (Act No. 7 of 2007) EIA Regulations Government Notice (GN) 57/2007 (Government	The Act gives general principles for the management of the environment and natural resources. Requires that projects with significant environmental impact are subjected 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 Environment and Tourism or in a manner prescribed by the Minister. Details principles which guide the EIA process.	The EMA and its regulations should inform and guide this EIA / ESIA process.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
	Gazette (GG) 3812).	Details requirements for public consultation within a given environmental assessment process (GN No 30 Section 21). Section 3 (2) (e) states that "assessments must be undertaken for activities which may have a significant effect on the environment or the use of natural resources". Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15).	
Vegetation	Forestry Act 13 of 2005 & Forestry Regulations (GN 170 of 2015.	Section 10 (1) set out the aim of the forest management as to: The purpose for which forest resources are managed and developed, including the planting of trees where necessary, in Namibia is to conserve soil and water resources, maintain biological diversity and to use forest produce in a way which is compatible with the forest's primary role as the protector and enhancer of the natural environment. Section 22. (1) (Protection of Natural vegetation) Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall	The clearing of vegetation is prohibited (subject to a permit) 100m either side of a river. Certain vegetation species occurring in the area are protected under this Act and require a permit from the Directorate of Forestry for removal.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
		on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - Republic of Namibia 20 Annotated Statutes Forest Act 12 of 2001 (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 metres of a river, stream or watercourse. (2) A person who wishes to obtain a licence to cut and remove the vegetation referred to in subsection (1) shall, in the prescribed form and manner, apply for the licence to a licensing officer who has been designated or appointed for the area where the protected area is situated.	
Health and Safety	Labour Act 11 of 2007.	Empowers the minister responsible for labour to publish regulations pertaining to health and safety of labourers (S135). Details requirements regarding minimum wage and working conditions (S39-47).	All contractors involved in the exploration activities for this project are required to comply with this Act and its regulations.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
	Health and Safety Regulations GN 156/1997 (GG 1617) Public Health Act 36 of 1919.	Details various requirements regarding health and safety of labourers. 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."	Potential nuisances (e.g. dust generation) should be considered during the exploration phase and avoided.
	Public and Environmental Health Act No. 1 of 2015	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.	The Proponent and all its employees and contractors should ensure compliance with the provisions of these legal instruments.
	Pollution Control and Waste Management Bill	The bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no person shall cause or permit the discharge of pollutants or waste into any water or watercourse."	The project activities trigger section 21 and 22 of the bill, this so because mineral exploration activities can potentially directly pollute the water sources. Exploration contractors should make it mandatory that they manage their waste in a manner that does not cause environmental threat and risk both to the surroundings and the local communities.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
		Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	
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: -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 protection of ground and surface water resources should be a priority. The main threats will most likely be hydrocarbon spills during drilling of cores and equipment / machinery maintenance.
	The Water Resources Management Act No. 11 of 2013.	The aim of the Act is to provide for the management, protection, development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.	The protection (both quality and quantity/abstraction) of water resources should be a priority. Relevant permits and or agreements to abstract and use water should be applied for and obtained from the Ministry of Agriculture, Water and Land Reform's Directorate of Water Resources Management.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
Natural Resources Conservation	Soil Conservation Act 76 of 1969	The Act established to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources in the Republic of Namibia. The Act give powers to the Minister in section 3 (d) the powers to gazette activities that relate to the run-off or drainage of rainwater, the withdrawal from cultivation, the protection and stabilizing of natural water courses and the establishment, maintenance and protection of artificial water courses	Duty of care must be applied to soil conservation and management measures must be implemented during the mineral exploration stages of the project.
Social and Human Environment	Labour Act 11 of 2007.	Empowers the minister responsible for labour to publish regulations pertaining to health and safety of labourers (S135). Details requirements regarding minimum wage and working conditions (S39- 47).	All employees hired to work for the proposed project should be compensated fairly in line with the labour laws of the country as required.
	Public Health Act 36 of 1919 Health and Safety	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.”	Provision of community labour, the input of the local communities is usually in the form of labour for the excavation, backfill and compaction of the pipeline trenches. The safety of these people is crucial particularly women, who do not have prior knowledge of handling dangerous, risk and strenuous jobs.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
	Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	
	Public and Environmental Health Act No. 1 of 2015	The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health. The public and environmental health should be preserved and remain uncompromised.	The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels.
Heritage	National Heritage Act 27 of 2004	Section 48(1) states that "A person may apply to the (Heritage) Council for a permit to carry out works or activities in relation to a protected place or protected object" Protects and conserves cultural heritage and cultural resources with special emphasis on places and sources of National heritage including graves, artefacts and any objects older than 50 years.	Mineral exploration has a potential to pass through heritage sites, graveyards or unearth heritage resources (e.g. human remains etc.). Heritage resources discovered during excavations would require a permit from the National Heritage Council of Namibia for relocation.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
Flying of Unamanned Aerial Vehicles or Drones during Geophysical Surveying	Civil Aviation Act 6 of 2016	To consolidate the laws relating to civil aviation and civil aviation offences; to provide for the powers and functions of the Minister in relation to civil aviation; to establish the Namibia Civil Aviation Authority and to provide for its powers and functions; to establish the Air Navigation Services in the Authority; to provide for a civil aviation regulatory and control framework for maintaining, enhancing and promoting the safety and security of civil aviation for ensuring the implementation of international aviation agreements; to establish the Directorate of Aircraft Accident and Incident Investigations and to provide for its powers and functions; to provide for the establishment of Namibia Register of Aircraft and the Civil Aviation Registry. It is under the same Act that the NCAA having been established pubslished the Aviation Directive **(AD 1-2-1-6)** on the 1st May 2022 to provide the legal framework for the issuance of RPAS licences to qualifying persons and was enforced from the 1st of August 2022. This was meant to enable RPAS operators to fly safe and legally, they are required to obtain an RPAS Letter of Approval (RLA) from the Flight Operations (OPS) section of	The Proponent should ensure that relevant permits are applied for and approved to fly drones during geophysical surveying by Namibia Civil Aviation Authority (NCAA) and the MEFT.

Theme	Legislation Instrument	Relevance Provisions	Relevance to Project
		the Namibian Civil Aviation Authority (NCAA) for Visual Line of Sight (VLOS) operations. For Drones, in addition, Air Navigation Services Safety Oversight (ANSSO) CAUA Application form for flying in restricted airspace should be completed before flying drones over EPL3218.	

3 PUBLIC CONSULTATION

Public and / or stakeholder consultation and participation form an important component of an EIA process as required by Section 21 to 24 of the EIA Regulations. The consultation process afforded the stakeholders and potential Interested and Affected Parties (I&APs) an opportunity to comment on and raise any issues relevant to the proposed mining activities for consideration in the assessment documents (Environmental & Social Impact Assessment (ESIA) Report) and Environmental & Social Management Plan (ESMP)). The comments, issues and suggestions raised and submitted to the Environmental Consultant greatly aid and influence the planning of the proposed mining activities in the early stages.

Furthermore, the public and stakeholder' consultation and engagement process also assists the Environmental Consultant to thoroughly identify and record potential impacts that they may have missed and the extent of investigations if necessary. This process can also aid in identifying possible mitigation measures to some potential adverse impacts or to maximize the benefits of the development in the environment. The public and stakeholder consultation for this mineral mining project has therefore been conducted in accordance with the EMA and its EIA Regulations. The consultation activities done for this project are presented under the next subsections and as per the associated Annexures (Appendices).

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

The relevant and applicable national, regional, and local authorities, and other interested members of the public were identified and registered in the list of stakeholders and I&APs. The list was updated throughout the ESIA consultation process. The completed Attendance Register and list of registered I&APs and stakeholders are provided in **Annexure 3.**

3.2 Means of Notification and Communication for Consultation

The steps taken or that guided this public consultation process are as detailed under section 21 to 24 of the EIA Regulations. The notifications and communication with I&APs and stakeholders with regards to the proposed development were facilitated through the following means and in this order:

3.2.1 The Background Information Document (BID): A Summary of the proposed Project and ESIA Process

A non-technical summary or Background Information Document (BID) containing brief information about the proposed project was compiled and shared with registered I&APs – **the BID was shared as an accompanying document, (Annexure 1)**.

3.2.2 Public Notification (Newspaper Advertisements) and Communications

The notice of the ESIA Study for the proposed project activities were published in the following newspapers, as presented below.

Table 4: Environmental scoping announcements published.

Communication channel used	**Date (s)**
The Windhoek Observer	19 October 2023
The Windhoek Observer	26 October 2023
The Villager	20 October 2023
The Villager	27 October 2023
Site Notices	**Place**
1	Spar in Rosh Pina
2	Kokerbon Restaurant – Rosh Pinah
3	Ileni Guest House – Rosh Pinah
4	Community Hall – Rosh Pinah

THURSDAY 19 OCTOBER 2023 | 19

CLASSIFIEDS

CALL FOR PUBLIC PARTICIPATION

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF NEW HOSTEL BLOCKS, KITCHEN AND DINING HALL AT OMAGALANGA VILLAGE, OSHIKUKU CONSTITUENCY

This notice serves to inform all interested and affected parties that an application for the environmental clearance certificate will be launched with the Environmental Commissioner in terms of the Environmental Management Act (No.7 of 2007) and the Environmental Regulations (GN 30 of 2012).

Project: The proponent intends to build new hostel blocks, kitchen and dining hall at the Millenium Vocational Training Institute.

Proponent: Millenium Vocational Digital Training Institute (Pty) Ltd

All interested and affected parties are hereby invited to register and submit their comments regarding the proposed project on or before **30/10/2023.** Contact details for registration and further information:

Impala Environmental Consulting
Mr. S. Andjamba
Email: eia@impalac.com, Tel: 0856630598

IMPALA ENVIRONMENTAL

ENVIRONMENTAL IMPACT ASSESSMENT

NOTICE FOR THE MINING OF PRECIOUS STONES GROUP OF MINERALS FROM EPL 3218 IN KARASBURG DISTRICT, KARAS REGION.

OUTRUN CONSULTANTS CC HEREBY GIVES NOTICE OF THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE MINING OF PRECIOUS STONES GROUP OF MINERALS FROM EPL3218. The Proponent is in the process of concluding the exploration phase on EPL3218 and wishes to apply for a mining license. An EIA is being commissioned as required under the Environmental Management Act, 7 of 2007 and Regulations of 2012. The exact location of EPL3218 is highlighted in the Background and Invitation to participate Document (BID).Interested and Affected Parties are invited to register and attend meetings as detailed below.

PROPONENT(S): Clear Sun NAFRIPP Mining (Pty) Ltd

PROJECT ACTIVITIES: Mining of Precious and Semi-Precious Stones

PROJECT LOCATION: Karasburg District –Karas Region – Map is provided in the BID.

PUBLIC PARTICIPATION: OUTRUN CONSULTANTS CC IS INVITING YOU FOR A STAKEHOLDER CONSULTATION DAY AS DETAILED BELOW:

Venue: Jan Plank Hall Date: Saturday 28 October 2023

Time: 1000hrs to 1300hrs And 1400hrs to 1600hrs

Contact Person: Josiah – 0812 683 578, E-Mail: outrungreeninfo@gmail.com

outrun consultants

"RESEARCH, TRAINING & CAPACITY BUILDING"

Figure 13: Four advertisements were published in national newspapers and are attached in the proof of public consultation document.

3.2.3 Public and Stakeholders' Consultation Meetings

Consultation Meetings

The newspaper adverts briefly explained the proposed mineral mining activities, its locality, consultation meeting details and public invitation to register as I&APs as well as submit their comments/concerns to the Environmental Assessment Practitioner using the provided contact details. Minutes that narrate the proceedings of the public meeting held (Jan Plank Hall – 28 October 2023) and the preceding email correspondences with IA&Ps are contained in the *"Proof of Public Consultation Document",* **Annexure 2.**

3.3 Feedback from Stakeholders and Interested & Affected Parties

The meeting was poorly attended, and the issues raised by the two (2) attendees had to do with application for mining procedures with the Ministry of Mines and Energy but not the planned project. Other issues raised and communicated via email were recorded and formed the basis of the ESR and ESMP documents. The summary of these few key issues is presented in the Table below:

3.3.1 Summary of issues raised during the meeting

- The project area falls under the Karoo ecosystem and contains protected and endemic plant species.
- The project should follow and comply with the rules and recommendations of the following documents:
    - National Policy on Prospecting and Mining in Protected areas

3.4 Review of Draft Environmental Scoping Report and Management Plan

The draft ESR was shared with Proponent to endorse proposed mitigation measures before it was publicized to stakeholders for commenting. The stakeholders were given 14 days from the day of the first publication to comment on the draft ESR.

3.5 Public Participation: Way Forward

Comments on the reports were incorporated to generate the final reports before submission to the Competent Authority: MEFT and the decision will be published.

4 ESIA SCOPING METHODOLOGY

4.1 Methodology

The EIA Regulations require a description of the significance of any significant effects, including cumulative effects that may occur because of the undertaking of the activity. To determine significance, each of the potential impacts identified have been subjected to the following questions displayed graphically (steps 1 and 2 - Figure 2) and in tabular form (Table 2) below. These questions form the methodology for assessing the significance of the effects or impacts identified through this EIA process:

1. The first step is to screen out (set aside) all impacts which do not fall within the scope of this project and responsibility of the proposed project.
2. The next step is to determine whether sufficient information exists to assess the potential impacts of those that remain. If insufficient information is available to assess (with a high degree of confidence) and recommend mitigation measures to address a given impact further investigation will be required. However, if sufficient information is available to assess (with a high degree of confidence) and recommend mitigation measures to address a given impact no further investigation will be required, and the impact will be addressed in the ESMP.
3. To fully understand the significance of each of the potential impacts, it is necessary to subject each to a range of assessment criteria. The application of these criteria, in determining the significance of potential impacts, uses a balanced combination of duration, extent, and intensity/magnitude, modified by probability, cumulative effects, and confidence.

The definitions of each of the criteria are contained in Figure 3; and finally based on the answers obtained after applying steps 1-3 a decision can be made regarding the significance of the impact based on three categories – low, medium or high (Table 13).

Does the issue fall within the scope of the project and the responsibility of the Proponent (Clear Sun NAFRIPP Mining (Pty) Ltd.)

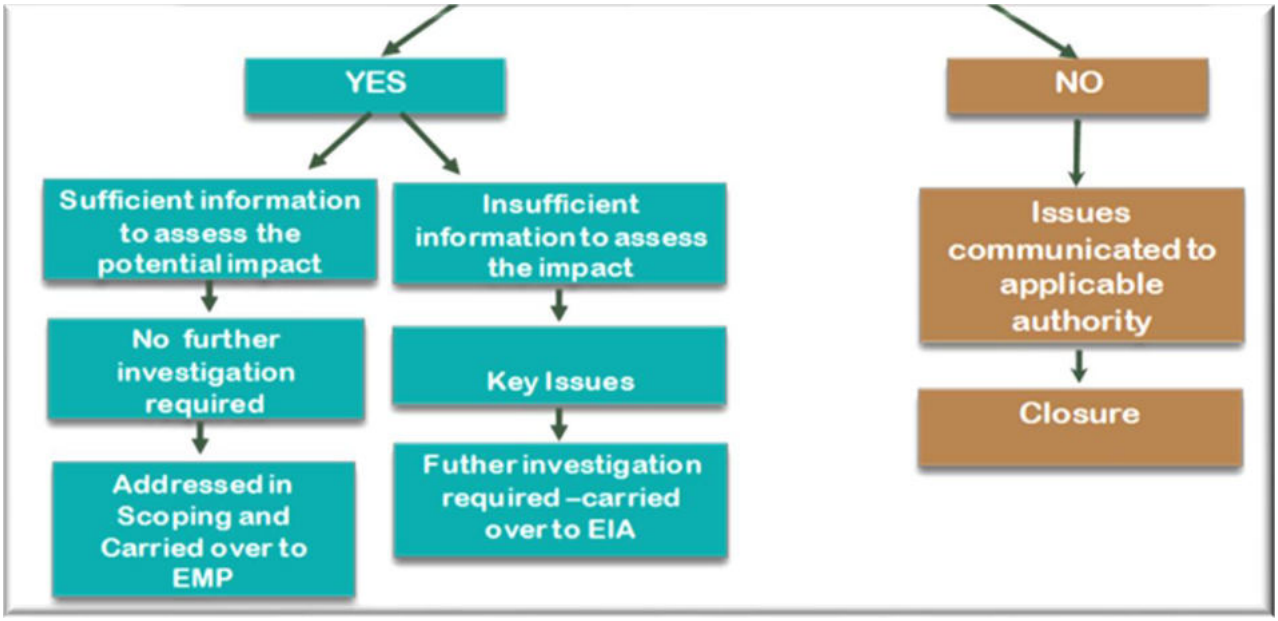


Figure 14: The screening process followed to determine key issues.

4.2 Assessment of Alternatives

4.2.1 Assessment of Alternatives

According to the EMA EIA Regulations, alternatives must be considered during the ESIA process. The Regulations state that "an alternative, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity.

4.2.2 The "No – Go" Alternative

Given that the "No-go" option is the best option for the environment since it means maintaining the status quo in which no project is implemented. However, given the developmental need the project, this option cannot be considered for the reason that potential positive economic benefits will be lost.

4.2.3 Routing Alternatives

The main ways routing alternatives were considered are that:

a. The mining contractors utilizes existing roads or tracks to access the site as opposed to opening / clearing new routes.

b. The project area is less than 50 km from Rosh Pinah and mining team will reside in the town during the mining period as they did during the exploration phase. No accommodation facilities will be erected onsite.

4.3 Baseline Studies

This chapter provides a description of the context within which the scoping exercise was conducted. It captures the baseline social and biophysical environmental conditions, with which the proposed project will interact. This information was sourced from literature review and observations made during a site visit to the project area. Weather data was obtained from the nearest weather station, the Koichab Pan Station maintained by SASSCAL WEATHERNET, (http://www.sasscalweathernet.org/). The baseline is important to detect where changes that occur because of the proposed project in the future. The study area covers the entire footprint of the project components followed by a brief overview of the possible ways or manner in which the environment features may be affected (positively or negatively) by the proposed mineral mining activities.

4.4 Climate

According to (John Mendelsohn, 2002), Namibia generally considered a hot country, but the temperatures vary a good deal, during the day, from day to day, seasonally and over much longer periods. The project area is situated partly within the Nama Karoo Biome and the southern part of the Desert biome. The air is very dry and windy and rainfall is as low as 20mm in the Rosh Pinah area (Burke, 2004).

Classification of climate: Rosh-Pinah has a desert climate (BWk, according to the Köppen climate classification), with pleasant temperatures throughout the year.

Average rainfall: 50mm - 100mm per year

Average Evaporation: Evaporation in the area is averaged 2600-2800mm.

Precipitation: Sporadic and unpredictable, high intensity, highly localised storm events between December and March.

Temperature: During the hottest month of the year, which is mainly November, the average maximum temperature is about 30 - 37 °C. During July which is the coldest month the average minimum temperature is 8 - 10 °C.

Wind direction: Winds and weather in the region are controlled by the interaction of the south Atlantic anticyclone, the northward-flowing and cold Benguela Current (with

associated upwelling), eastward moving mid latitude cyclones and the atmosphere pressure field over the subcontinent (Kamstra, 1985).

4.5 Geology

Diamond deposition in coastal Namibia and along the Orange River System was due to large scale fluvial conveyor belts. Research into sediment transport pathways associated with diamond movement from the sources in the interior of Southern Africa to sinks along the Atlantic margin has demonstrated that the Orange–Vaal drainage is the principal conduit for such movement. Moreover, sediment movement (including diamonds) is linked to tripartite conveyor-like system that involves the Orange-Vaal drainage, the Atlantic seaboard and the Namib Desert repository. Significantly, this interaction between fluvial, marine and desert processes in a Cratonic source to passive margin sink setting has given rise to the most spectacular regional gem diamond occurrence yet discovered-an area stretching from the Namaqualand cost of South Africa northwards to skeleton Coast of Namibia.

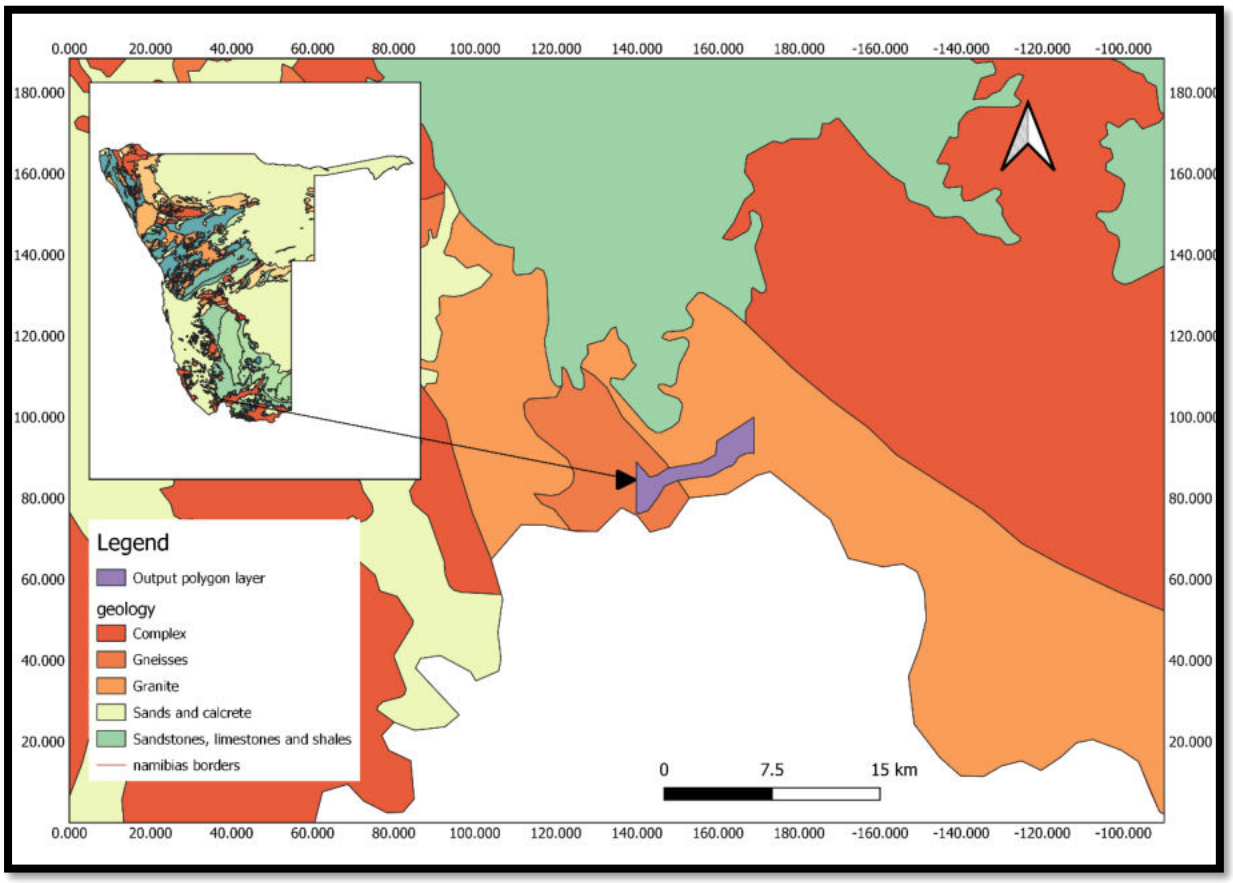


Figure 15: The geology of EPL 3218. Source: Own map.

4.6 Soils of the project area

The project area, EPL 3218 is predominantly characterised by alluvium, sand and gravels. Some of the areas are constituted by dune sands and regosols as shown in the soils map below. Regosols are soils in unconsolidated mineral material of some depth, excluding coarse textured materials and materials with fluvic properties, and have no diagnostic horizons other than an ochric horizon.

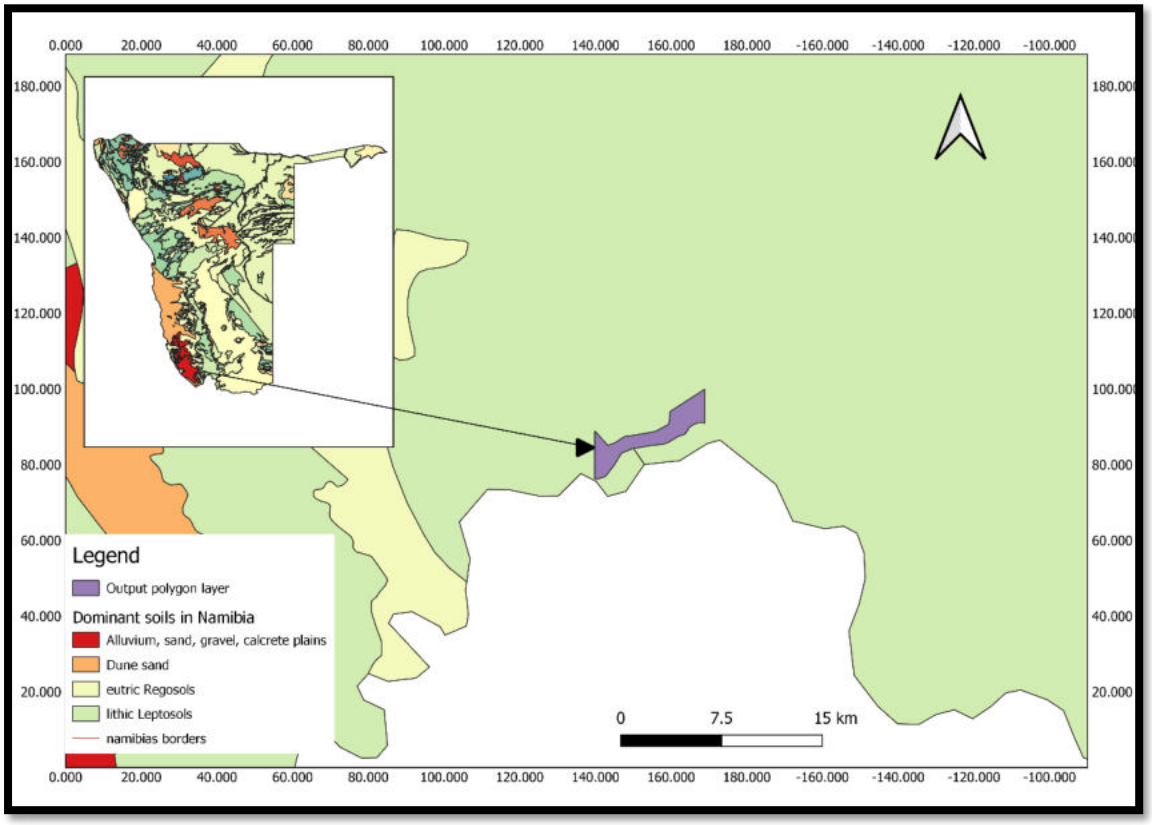


Figure 16: Dominant soil types covered by EPL 3218.

4.7 Noise;

Noise generated in the project area primarily comes from vehicles driving on the roads and ambient noise levels can be considered to be low. No noise sensitive receptors were identified within a 5 to 10km radius of the project area.

4.8 Biodiversity: Fauna and Flora

4.8.1 Fauna

Domestic animals mainly goats and sheep are present in the vicinity of the proposed project routes and general area. These domestic animals are part of the livestock kept by the commercial farmers. Some of the farms operate as safaris offering game drives on the farms.

Most of the wildlife are endemics of the karoo biome, spring boks (*Antidorcas marsupialis*), Grant's rock mouse (*Aethomys granti*), the bushytailed hairy-footed gerbil (*Gerbillurus vallinus*), Visagie's golden mole (*Chrysochloris visagiei*), The Brukkaros pygmy rock mouse (*Petromyscus monticularis*), the riverine rabbit (*Bunolagus monticularis*) and Shortridge's rat (*Thallomys shortridgei*). The ferruginous lark (*Certhilauda burra*) and Sclater's lark (*Spizocorys sclateri*) are among the birds that are strictly endemic to the ecoregion, with birds like the tractrac chat (*Cercomela tractrac*), Namaqua prinia (*Phragmacia substriata*), Karoo scrub robin (*Cercotrichas coryphaeus*), red lark (*Certhilauda burra*), red-headed cisticola (*Cisticola subruficapillus*), and the Karoo chat (*Cercomela schlegelii*) are near-endemic to the area (Dean et al., 1991, Barnes, 2000). The reptile fauna that are found in the region is the Karoo dwarf chameleon (*Bradypodion karrooicum*) and Boulenger's Padloper (*Homopus boulengeri*). Common predators include spotted hyena and brown hyena, bat eared fox, black-backed jackal, porcupine, Cape fox and aardwolf.

4.8.2 Flora

The project area is characterised Succulent steppe vegetation on the southern part of the EPL constituted by the northern part of the Succulent Karoo Biome. This biome is mainly made up of succulent shrubs thriving on steep slopes or landforms. The northern part of the EPL is covered by Southern desert biome. Although very arid, it occurs at the interface of the area receiving winter rainfall and is rich in biodiversity and endemism which is important for conservation purposes.

The Succulent Karoo and Nama Karoo biomes, both located in southern Africa, boast a unique variety of plant species adapted to their specific environments. Here is a list of plants commonly found in these biomes:

4.8.2.1 Succulent Karoo Biome:

- Lithops spp. (Living Stones).
- Conophytum spp.
- Aizoon spp.
- Mesembryanthemum spp.
- Trichodiadema spp.
- Crassula spp.
- Tylecodon spp.
- Aloe dichotoma (Quiver Tree)
- Pachypodium namaquanum (Halfmens)

Euphorbia mauritanica (Yellowmilk Bush)

4.8.2.2 Nama Karoo Biome:

- Pentzia spp. (Karoo Bushes).
- Eriocephalus spp. (Wild Rosemary).
- Rhigozum trichotomum (Three-thorn Rhigozum).
- Lycium spp. (Kraalbos or Wolfberry).
- Pteronia spp. (Resin Bush).
- Salsola spp. (Saltbush).
- Gomphocarpus fruticosus (Milkweed)
- Sarcocaulon spp. (Bushman's Candle).
- Hoodia spp.
- Acacia karroo (Sweet Thorn).

These lists highlight just a few of the many remarkable plants adapted to the unique conditions of the Succulent Karoo and Nama Karoo biomes. Conservation efforts are crucial to preserving the diverse and special flora in these regions.
The Succulent Steppe, more commonly known as the Succulent Karoo, is a unique ecoregion characterized by its rich biodiversity and high endemism, especially of succulent plants. Here is a list of notable plant species found in this biome:

4.8.2.3 Notable Plants of the Succulent Steppe (Succulent Karoo):

- Aizoaceae Family (Ice Plant Family)
    - Lithops spp. (Living Stones)
    - Conophytum spp.
    - Mesembryanthemum spp.
    - Drosanthemum spp.
- Crassulaceae Family
    - Crassula spp. (e.g., Crassula arborescens, Crassula rupestris)
    - Tylecodon spp.
    - Kalanchoe spp.
- Euphorbiaceae Family
    - Euphorbia mauritanica (Yellowmilk Bush)
    - Euphorbia virosa (Milk Barrel)

- Aloaceae Family
    - Aloe dichotoma (Quiver Tree)
    - Aloe variegata (Partridge Breast Aloe)
- Apocynaceae Family
    - Pachypodium namaquanum (Halfmens)
    - Hoodia spp.
- Asteraceae Family
    - Othonna spp.
    - Ruschia spp.
- Asphodelaceae Family
    - Bulbine spp.
    - Trachyandra spp.
- Burseraceae Family
    - Commiphora spp. (e.g., Commiphora Africana, Commiphora capensis)
- Examples of Common and Noteworthy Species:
    - Trichodiadema spp. (Various species such as Trichodiadema bulbosum)
    - Sarcocaulon spp. (Bushman's Candle)
    - Lampranthus spp. (Vygies)
    - Aridaria noctiflora

- Shrubs and Other Flora:
    - Ruschia intricata
    - Juttadinteria spp.
    - Eriocephalus spp. (Wild Rosemary)
    - Euryops spp. (Resin Bush)
    - Gibbaeum spp.

The plants in the Succulent Steppe are adapted to survive in the arid conditions, exhibiting traits such as water storage mechanisms, deep root systems, and reduced leaf surface area to minimize water loss. Conservation efforts are critical to preserving the extraordinary biodiversity of the Succulent Steppe.

Here are the notable plant species found in the Succulent Karoo, classified by conservation status:

4.8.2.3.1 Critically Endangered

- Conophytum serratum
- Conophytum wiggettiae

4.8.2.3.2 Endangered

- Conophytum miniatum
- Conophytum subterraneum

4.8.2.3.3 Vulnerable

- Aloe pillansii
- Lithops optica
- Pachypodium namaquanum

4.8.2.3.4 Near Threatened

- Aloe dichotoma
- Ebracteola montis-moltkei

4.8.2.3.5 Least Concern

- Tylecodon paniculatus
- Crassula arborescens

Conservation statuses can change over time due to environmental factors, human activities, and conservation efforts, so it's important to refer to the latest resources such as the IUCN Red List for the most up-to-date information.

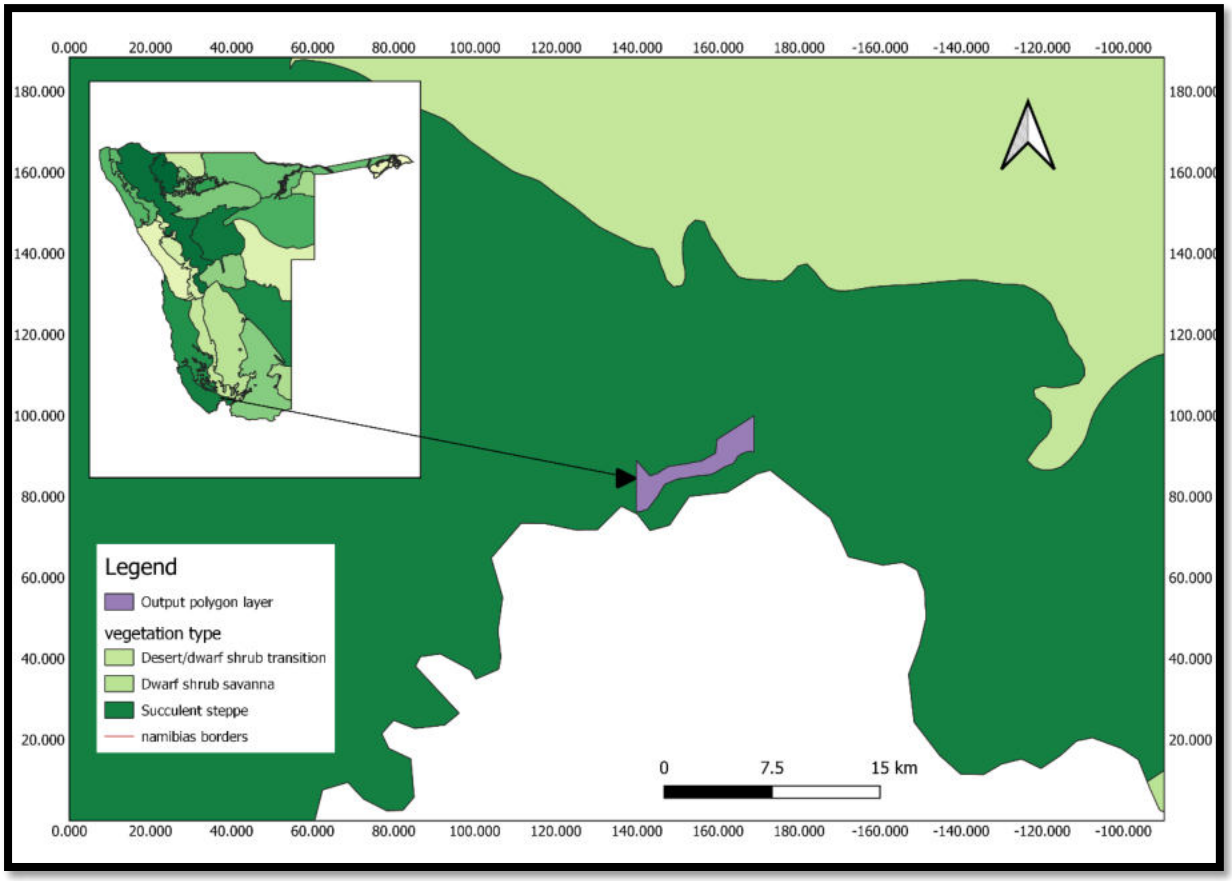


Figure 17: Dominant vegetation types expected to occur on EPL 3218.

4.9 Vegetation conservation importance and endemism on EPL 3218

EPL 3218 boundaries can be seen that they cover an area identified as a center of plant endemism and high conservation importance. Karoo Succulent Steppe biome is a unique and ecologically significant region located in the Karoo region of South Africa and Namibia. Here its conservation importance and endemism:

4.9.1 Biodiversity Hotspot

The Karoo Succulent Steppe biome is considered a biodiversity hotspot due to its high level of plant diversity and endemism. It is home to a wide range of succulent plant species that have adapted to the arid conditions of the region.

4.9.2 Endemism

The biome is characterized by a high level of endemism, meaning that many plant species found here are unique to this region and not found anywhere else in the world. This makes conservation efforts in the Karoo Succulent Steppe particularly important to protect these rare and specialized species.

4.9.3 Threatened Ecosystem

Like many other arid ecosystems, the Karoo Succulent Steppe is facing threats from factors such as habitat loss, overgrazing, mining, and climate change. Conservation efforts are crucial to protect the unique plant species and habitats in this biome.

4.9.4 Unique Adaptations

The plants in the Karoo Succulent Steppe have evolved unique adaptations to survive in the harsh and arid environment of the region. Succulent plants, in particular, store water in their fleshy leaves or stems to withstand long periods of drought.

4.9.5 Ecological Services

The biome provides essential ecological services such as soil stabilization, water regulation, and habitat for a variety of wildlife. Conservation of the Karoo Succulent Steppe is not only

important for preserving biodiversity but also for maintaining ecosystem functions and services.

Overall, the conservation of the Karoo Succulent Steppe biome is crucial to protect its unique plant species, support biodiversity, and maintain the ecological integrity of this ecologically significant region.

4.10 Land-use in the project area

The area is predominantly a tourism area bordering the /Ai-/Ais Hot Springs Game Park in Karas Region. It boasts of Africa's largest natural gorge, some of the world's oldest rock paintings, and is one of the richest botanical hot spots on earth and Namibia's most popular hiking trail. The /Ai-/Ais Hot Springs Game Park was proclaimed in 1968, and extended to cover the rugged and relatively unexplored Huns Mountains in 1988. The park borders directly on the Richtersveld National Park in South Africa. A treaty was signed in August 2003 between Namibia and South Africa, creating the /Ai-/Ais-Richtersveld Trans frontier Park (ARTFP).The area has also been a targeted for diamond mining historically and still remains a prime ground for mining and mining activities. As a result that also makes mining a threat to conservation efforts.

5 ENVIRONMENTAL ASPECTS AND IMPACTS ASSESSMENT

5.1 Introduction

A key part of the Scoping Process is the preliminary identification and consideration of issues and concerns that may impact (positively and/or negatively) with the biophysical and socio-economic environments. The issues that were identified as potentially significant during the Scoping Phase for the basis on which further studies if necessary will be conducted during the EIA Phase. The identified potential impacts are assessed following a recognized methodology to determine the magnitude of impact and whether the impact was considered significant and thus warrant further investigation. The assessment considered all stages of the proposed mineral mining and recovery from the Washing plant.

5.2 Evaluation of identified Potential Impacts

The evaluation of the significance of the impacts was determined using the standard criteria presented below and was guided by Namibia's legal requirements and international best practice.

5.3 Description of Potential Impacts

The potential impacts on environmental and social resources arising from the proposed development include direct and indirect impacts. The table below presents the overview of likely aspects arising from each of the key project activities and considers their likely interaction with socio-economic and environmental resources and receptors.

Table 5: Impact Assessment Criteria employed

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%

5.3.1.1 Impact Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact "without mitigation" is the main determinant of the nature and degree of mitigation required. Once the above factors (in **Table 6**) have been ranked for each potential impact, the impact significance of each is assessed using the criteria in **Table 7**. The impact significance will then be rated according to the significance classes (also presented in **Table 7**).

Table 6: Impact significance (IFC, 2012)

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

Table 7: Environmental Impacts Identification and Evaluation.

IMPACT / ACTIVITY	AFFECTED ENVIRONMENTAL AND SOCIAL COMPONENTS															Project phase	Duration	Magnitude with project	Extent / Spatial scale	Type	Probability	Significance without mitigation
	FAUNA AND FLORA	WATER QUALITY	WATER QUANTITY	LAND USE	SOIL AND SLOPE STABILITY	VISUAL INTRUSION	AIR QUALITY	HUMAN SETTLEMENTS	PUBLIC NUISANCE	INFRASTRUCTURE & SERVICES	AGRICULTURE	ARCHAEOLOGY	PUBLIC HEALTH & SAFETY	SOURCE OF INCOME	CULTURE & HERITAGE							
Vegetation Clearing	√	√	√	√	√	√	√		√		√		√	√	√	M	Short	Small	Local	Direct	Medium 25 - 75%	Minor (-)
Air pollution	√	√	√	√			√	√	√				√	√		M	Short	Moderate	Local	Direct	Medium 25 - 75%	Minor (-)
Soil pollution	√	√	√	√	√	√	√		√	√	√			√		M	Short	Small	Local	Direct	Medium 25 - 75%	Minor (-)
Ground water pollution	√	√	√	√				√		√	√		√	√		M	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Major (-)
Solid waste Generation	√	√	√	√		√	√	√	√	√	√		√	√		M	Permanent	Moderate	Local	Direct	Medium 25 - 75%	Major (-)
Vehicular Movements	√			√	√		√	√	√				√			M	Short	Small	Local	Direct	Medium 25 - 75%	Minor (-)
Hazardous Substances storage and handling	√	√			√		√						√			M	Permanent	Moderate	Local	Direct	Medium 25 - 75%	Major (+)
Excavation of trenches	√	√	√	√	√	√	√		√	√			√	√		M	Short	Small	Local	Direct	Medium 25 - 75%	Minor (-)
Employment Creation	√			√	√			√		√	√		√	√	√	M	Temporary	High	Regional	Direct	High >75%	Moderate (+)
Land Use change	√	√	√	√	√	√		√	√		√	√		√	√	M	Permanent	Medium	Local	Direct	Medium 25 - 75%	Minor (-)
Occupational Hazards													√			M	Short	Small	Local	Direct	Medium 25 - 75%	Minor (-)

IMPACT / ACTIVITY	AFFECTED ENVIRONMENTAL AND SOCIAL COMPONENTS														Project phase	Duration	Magnitude with project	Extent / Spatial scale	Type	Probability	Significance without mitigation
	FAUNA AND FLORA	WATER QUALITY	WATER QUANTITY	LAND USE	SOIL AND SLOPE STABILITY	VISUAL INTRUSION	AIR QUALITY	HUMAN SETTLEMENTS	PUBLIC NUISANCE	INFRASTRUCTURE & SERVICES	AGRICULTURE	ARCHAEOLOGY	PUBLIC HEALTH & SAFETY	SOURCE OF INCOME	CULTURE & HERITAGE							
Pressure on local services and Resources	√		√	√	√			√	√	√	√			√		**M**	**Short**	**Medium**	**Local**	**Indirect**	**Medium 25 - 75%**	**Minor (-)**

Key: M – Mining phase

5.4 Potentially Significant Impacts scoped into the ESMP.

The following section describes potentially significant issues based on the findings from the site visit and consultations held with IAP's. Many of these impacts can be adequately addressed through the implementation of appropriate mitigation and management measures.

Table 8: Identified potential significant impacts to be into ESIA and ESMP.

Environmental / Social Aspect	***Project phase***	***Nature of Impact (+ / -ve)***	***Potential Impact***	***Assessment findings***
Excavations	M	-ve	Destruction of protected plants	Protected plants maybe located in the mining target areas. Proponent should relocate them before they are destroyed to areas under rehabilitation and / or to a net house onsite for possible translocation.
Water abstraction from the Orange River	M	-ve	Unsustainable abstraction of exceeding allowable rates.	Water is a limited resources and abstraction should be guided by the allowable flowrate. Permit should be obtained from MAWLR.
Ground and Surface water pollution	M	-ve	Ground and surface water pollution due to: 1. Point source ground water pollution from refueling point. 2. Point source pollution from hazardous chemical spills.	Servicing of equipment and machinery should be conducted off the site on a concrete floored surface fitted with water collection and oil separator.

Occupational Hazards	M	-ve	Occupational health and safety hazards in the mining industry are common.	Proponent should have SHE policy in place and enforced by a SHE Officer
Solid waste generation	M	-ve	The mining activities will generate solid waste.	The proponent will develop a waste management plan to counter the impact of waste generation and dispersal on and project foot print area. All liter should be disposed of at the nearest designated disposal site (Proponent should arrange with Roshkor Township).
Waste management (liquid)	M	-ve	Liquid waste management should conform to standards to alleviate potential ground water contamination through unprotected areas of aquifers.	Proponent should make use of Dixy toilets which should be emptied at a designated sewer system.
Noise pollution	M	-ve	Noise from equipment and machinery during mining	Noise can be a nuisance to the quiet inhabitants and tourists from the quiet environment. Power efficient tools/machinery should be used. Workers should be given protective equipment when operating noisy equipment while noisy operations can be done during the day
Land Use change	M	+	Land use change during operation may be triggered	Create awareness and formulate implementation plans that harmonize mining and existing status quo.

			by discovery of economic mineral deposits resulting in increased economic activity.	
Air quality	M	-ve	The mining activities generate dust and other particulate matter.	Excavation activities will discharge some form of air pollution into the atmosphere and marginally affect the ambient air quality of the vicinity. Dust should be included in the ESMP; due to the risk it may pose to human receptors during excavation, loading of gravels and hauling to the Washing plant and mitigation measures will be assigned to it in the ESMP.

Key: M – Mining

5.5 Mitigation Measures

Mitigation measures will focus on reducing the effects of the potential environmental and social impacts identified and to ensure that an acceptable measure of mitigation options during mining can be maintained when an impact cannot be avoided completely. An ESMP will be developed and will set out the management and mitigation measures for the project, responsible parties for implementation, monitoring and enforcement, monitoring indicators and indicators for the respective impacts.

6 CONCLUSION AND WAY FOWARD

6.1 Conclusion

The negative impacts with a high or medium significance rating have been identified. Mitigation measures have been devised and discussed to address these to ensure that this project is rolled out in the most sustainable way possible. The key impacts and their mitigation measures are summarized below:

- ❖ Flora Fauna impacts:

The best measures for the protection of wildlife are those measures that avoid impacts to wildlife habitat. The licenced area is withing the boundary of the protected area buffer zone and should not infringe upon the protected area or other critical or sensitive ecological areas, even if it means leaving some of the target product.

  - ➢ If the need for clearing of vegetation arises, plants should be identified, classified and based on their conservation importance possible relocation should be explored.
  - ➢ High value plants should be removed and optimally utilized to harness the associated benefits.

- ❖ Air Quality and Noise Pollution:
  - ➢ Before mining starts, air quality should be taken to take note of the level of air pollution in the area.
  - ➢ This should be used as a baseline and these measurements must be taken every month during the operation and 6 months after the mining for precautions to be taken if necessary.
  - ➢ Dust suppression techniques (e.g. wetting down, use of all-weather surfaces, use of agglomeration additives) for roads and work areas, optimization of traffic patterns, and reduction of travel speeds;
  - ➢ New areas should be cleared and opened-up only when absolutely necessary;

- ❖ Impacts on Landscape, Underground water
  - ➢ Strict measure has to be taken so that the mining is taking place within the licenced area.

It is concluded that most of the impacts identified during this assessment can be addressed through the recommended mitigation and management actions for mining activities of this project. Should the recommendations included in this report be implemented, the significance of the impacts can be reduced to reasonably acceptable standards and duration.

6.2 Way Forward

The ESR was submitted to MME being the competent authority for issuing of consent to allow MEFT to conduct the necessary review as required before issuing an ECC. The decision from MEFT will be communicated registered I&APs as required under the EMA Act.

7 REFERENCES

Burke, A. (2004). *Wild Flowers of the Southern Namib.* Windhoek: Namibia Scientific Society.

Carruthers, J. (2008). Conservation and Wildlife Management in South African National Parks 1930s–1960s. *Journal of the History of Biology 41*, 203-236.

Christelis. G, S. W. (2011). *Groundwater in Namibia: An explanation to the Hydrological Map.* Windhoek: Department of Water Affairs.

Giess, W. (1998). A preliminery vagetation map of Namibia. *Dinteria*, 60 -65.

Greg Christelis, F. S. (2015, September). *GEF Transboundary Water Assessment Programme*. Retrieved from GEF Transboundary Water Assessment Programme: https://ggis.un-igrac.org/documents/1619/download

John Mendelsohn, A. J. (2002). Atlas of Namibia: A portrait of the Land and its People. *ResearchGate*.

Namibia, R. o. (2010, October 01). *Adaptation*. Retrieved from United Nations Development Programme Namibia: https://www.adaptation-undp.org/sites/default/files/downloads/namibia_nationalclimatechangepolicyfornamib.pdf

Namibia, R. o. (2021, December 6). *Law and Environmental Assistance Platiform*. Retrieved from United Nations Environment Programme: https://leap.unep.org/countries/na/national-legislation/forest-act-2001-no-12-2001

Raison. (2011, June 01). *E-Library.* Retrieved from Environmental Information Service Namibia: http://the-eis.com/elibrary/sites/default/files/downloads/literature/Cuvelai_poster_Vegetation_lowres.pdf

Sorensen, P. (2013). The massive Ohangwena II aquifer in northern Namibia. *International Journal of Environmental Studies*, 173 to 174. Retrieved from https://www.tandfonline.com/doi/full/10.1080/00207233.2013.779149?scroll=top&needAccess=true

Weber, E. A. (2016, February 01). *Research*. Retrieved from Green Policy Platiform: https://www.greengrowthknowledge.org/research/equator-principles-do-they-make-banks-more-sustainable

8 ANNEXURE 1: BACKGROUND INFORMATION AND INVITATION TO PARTICIPATE DOCUMENT (BID)

9 ANNEXURE 2: PROOF OF PUBLIC CONSULTATION DOCUMENT

10 ANNEXURE 3: CONSULTANT'S CVS

CV for Josiah T. Mukutiri

1. **Proposed Position:** Lead Environmental Assessment Practitioner
2. **Name of Firm:** Outrun Consultants cc
3. **Name of Staff:** Josiah T. Mukutiri
4. **Date of Birth:** **28 March 1976**
5. **Nationality:** Zimbabwean

Membership in Professional Bodies:

Member of International Association for Impact Assessment (IAIA)

Member of Environmental Assessment Professional of Namibia (EAPAN)

Key Qualifications:

Institution [Period]	Degree(s) or Diploma(s) obtained:
Aldersgate College (Philippines)	Master in Business Administration (MBA)
University of Zimbabwe (UZ), (01/2000 – 12/2003)	BSc Honours in Applied Environmental Science (HAES)

Additional Qualifications:

i. Assessing and Valuing Ecosystem Services For Policy Impacts in The Context Of A Biodiversity Economy-GIZ Resource Mobilisation Project, Namibia
ii. Leadership skills, Kellogg Foundation – Southern Africa
iii. Training and Facilitation skills, African Intellectual Resources
iv. Research Skills, Woburn Business School
v. Waste Management and Pollution Control, University of Zimbabwe

PROFESSIONAL EXPERIENCE

Languages:

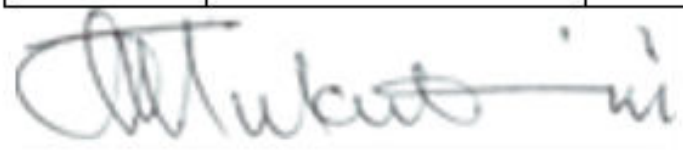
Language	Reading	Speaking	Writing
English	Excellent	Excellent	Excellent
Shona	Excellent	Excellent	Excellent
Afrikaans	Poor	Poor	Poor

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience and me.

Employment record relevant to the assignment:		
Period	**Employing organization and your title/position. Contact info for references**	**Summary of activities performed relevant to the Assignment**
04/1997 – 07/1999	Broken Hill Proprietary (BHP)- Full time employment **Senior Process Controller**	*Base Metal Refinery process control* Efficient recovery of base metals and platinum group of metals. Waste management and pollution control Updating sampling protocols Implementation occupational health, safety and environmental standards Conducting internal occupational health, safety and environmental audits.
01/2000 – 12/2003	Undergraduate Student	Student pursuing Bachelor's degree in Applied Environmental Science Honours.
01/2003 – 12/2006	**University of Zimbabwe** **Research and Teaching Assistant** **References** Professor S. Mpepereki Dept. of Soil Science & Agricultural Engineering Faculty of Agriculture Email: smpepe@agric.uz.ac.zw	*Research and Teaching Assistant* Conducting first and second year lectures, field and laboratory practicals Grading examinations, assignments and practicals Invigilating exams
2010 – 12 / 2013	**USAID-Medical Sciences for Health (MSH) contract.** **Outrun Consultants cc** **Environmental Consultant** For references: Benjamin Ongeri / Evans Sagwa, USAID- MSH Management Tel.: +264 61 228 016 Email: esagwa@msh.org.na / bongeri@na.pfscm.org	The design and installation of new waste management facilities at Katutura hospital Intermediate, Windhoek, Namibia. Characterisation and developing a waste management plan for Intermediate Hospital Katutura and all other health facilities in Khomas Region. Developing broad specifications of equipment requirements for the proposed waste management facilities. Technical evaluation of bids
2010 – 12 / 2013	**USAID-Medical Sciences for Health (MSH) contract.** **Outrun Consultants cc** **Environmental Consultant** For references: Benjamin Ongeri / Evans Sagwa, USAID- MSH Management Tel.: +264 61 228 016 Email: esagwa@msh.org.na / bongeri@na.pfscm.org	Environmental Impact Assessment for the new incinerators at Intermediate Hospital Katutura. Conducting public consultations. EIA Practitioner responsible for identifying potential impacts and assessing impacts significance. Assessing technological alternatives. Compiling Environmental Management Plan (EMP).
2012	Africa Humanitarian Action (AHA) contract	This was a research-based assignment. Deaths were reported at Osire Refugee Settlement and was suspected to be due to contaminated borehole water causing panic and

	Outrun Consultants cc **Environmental Consultant** For references: Ms. Aynalem Tekle-Giogis, Country Representative Tel.: +264 61 235 107 Email: aha@africaonline.com.na	resulting in refugees abandoning borehole water. I was contracted to assess the potential of groundwater contamination by pit latrines at Osire Refugee Settlement. Activities included geological and hydrological mapping of the area, characterisation of soils, identification of potential sources of microbial contaminants and microbial analysis of ground water.
	EIF – Climate Change Partnership Programme	Training of small scale farmers in Etunda Irrigation Scheme.Training covered, preseason budgeting, land preparation, Conservation agriculture, planting, Integrated Pest Management, Harvesting, grading and handling of fresh produce.
Since 2017 to date	Social Security Commission - DF **Outrun Consultants cc** **Business Consultant** For references: Ms. Mungunda, Managing CEO Tel.: +264 811 457211	Apparising business plans for Small Scale Farmers in Otjiwarongo -Otjivegi and Hano Foundation in Okatjoruu
2017 – 2018	Ministry of Land Reform and Resettlement – Programme for Communal Land Development (PCLD) funded by EU – Basket Fund Socio-Economist Consultant For References: Jericho Mulofwa Programme Manager Tel: +264 812 706 404 Email: jericho.mulofwa@gmail.com	Assessing the socio-economic status and benefits of small-scale commercial farming units in Oshikoto Region. This involved designing data collection tools, socio-economic baseline data collection, analysis and report writing.



Signature

03 January 2023

Date (Day/Month/year)