Environmental Scoping and Management Report

The Proposed Establishment and Installation, and Operation of DanAon Energy's 60 MW PV Solar Park on a 70 Ha at Kalkrand, Hardap Region

JULY 29

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DOCUMENT INFORMATION AND APPROVAL		
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ECC Application Reference number	APP-004470	
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Proponent	Mr. Nicodemus Dantago Soreseb ML Trading Enterprise T/A DanRe Sun P.O. Box 20764 Windhoek, Khomas, 9000 Email: danaoninv16@gmail.com	
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Mr. Lawrence Tjatindi (EAP - Reviewer) 2		27 July 2024
Approval – Client 2		
Mr. Nicodemus D. Soreseb		29 July 2024

Republic of Namibia

Kalkrand Village Council

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P.O. Box 5 Kalkrand
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11 July 2024

To:

ML Trading Enterprises T/A DanRe Sun

Att: Mr. Soreseb

RE: GRANTING OF PRE-APPROVAL LETTER FOR THE CONSTRUCTION OF SOLAR POWER PLANT IN KALKRAND - TOWNLANDS

It is indeed a honour and privilege to share the outcome of the afore-mentioned caption with your esteemed company. Your request for the construction of 60MW solar power plant on the townlands of the Kalkrand Village Council was tabled and deliberated at an Ordinary Council Meeting, which was held on 10 July 2024. Taking cognizance of the investment opportunities intended for the inhabitants, the full Council expressed gratitude towards your organization in selecting Kalkrand for such massive investment initiative. Against this background, Council resolved as follows: **OCM/02/07/2024: RESOLUTION WAS PASSED TO ALLOCATE TO ML TRADING ENTERPRISE T/A DANRE SUN ON A LEASE BASIS 70HA OF LAND FOR THE CONSTRUCTION OF THE PROPOSED SOLAR POWER STATION. THE SIGNING OF THE LEASE AGREEMENT BETWEEN THE TWO PARTIES WILL BE SUPPORTED BY A MEMORANDUM OF UNDERSTANDING AIMED AT ADVANCING THE SOCIO=ECONOMIC NEEDS OF THE COUNCIL.**

It is fervently hoped that the above bears your understanding

Yours faithfully

.....

MR. JAN J. HERERO
CHIEF EXECUTIVE OFFICER
KALKRAND VILLAGE COUNCIL

KALKRAND VILLAGE COUNCIL
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''Striving toward efficient service delivery and growth''

executive summary

Project Overview

ML Trading Enterprise T/A DanRe Sun (herein referred to as DanRe Sun, the proponent), is a Namibian registered and owned solar energy company focused on green solutions for power generation. Dan Re is in the process of obtaining a license / approval from the Electricity Control Board of Namibia, to develop a 60 MW grid connected Photovoltaic Solar generating plant at Kalkrand in the Hardap Region.

DunRe Sun aims to develop the solar energy project using PV technology to generate electricity in Namibia. The project will help to decrease the country's dependency on traditional forms of energy by increasing the availability and use of solar energy. The generated electricity will be injected into the national grid, to support the country in meeting its renewable energy target.

Potential impacts may vary in terms of scale (locality), magnitude and duration e.g. minor negative impacts in the form of dust and noise pollution especially during the handling (loading and off-loading) will be experienced.

Need for the Project

Namibia, with its abundant sunlight and vast expanses of uninhabited land, stands at a pivotal juncture in the pursuit of sustainable energy alternatives. The need for clean, renewable energy sources has become increasingly urgent globally, driven by the escalating impacts of climate change and the imperative to transition away from fossil fuel dependence. As a semi-arid country, Namibia is particularly vulnerable to the adverse effects of climate change, including erratic weather patterns, water scarcity, and threats to agricultural productivity.

There are around 1 million Namibians (±54%) that lack access to electricity, which means that almost half of the country is without access, as the country has a population of approximately 2.45 million people (Tracking SDG7, 2020).

Critically, Namibia has the highest average theoretical PV Power Potential in the world. This immense potential in combination with the known environmental benefits of solar power (reduction of; CO_2 emissions; carbon footprints; and over reliance on fossil fuels) is an important driver for the proposed solar park development. Subsequently, this initiative aligns with Namibia's commitment to embracing renewable energy sources as a means to address the dual challenges of energy security and climate change.

Project Description

DanRe Sun (Pty) Ltd aims to develop the solar energy project using PV technology to generate electricity in Namibia. The project will help to decrease the country's dependency on traditional forms of energy by increasing the availability and use of solar energy. The generated electricity will be injected into the national grid, to support the country in meeting its renewable energy target. This project entails the transformation of relatively undeveloped piece of land in a proposed Solar Power Park, associated infrastructure and services. The proponent intends to install an approximate seventy thousand (~70 000) solar panel field on a 70 Hectare area to generate about 60 Mega Watt (MW) green energy. The infrastructure proposed for the entire Solar Power Plant (project) includes but is not limited to the following:

- Side-of-Pole Mount for Solar Panel and PV Modules.
- Administration Block.
- Storage and Security Rooms.
- Transmission line connected to NamPower.

The project works involve the construction and operation of a solar PV plant which includes:

- Planning and Design of Project Work – this compasses land acquisition; preliminary site investigations e.g. geotechnical assessments and topographical surveys; permit and other authorizations processes, planning and mobilization of logistics / materials.
- Site Preparation – this entails grading, landscaping, building roads and siding of project areas in order to make the sites free of obstruction prior to construction. It may also involve utilization of heavy machinery/equipment to fully prepare the landscape. This includes physically removing vegetation, any pre-existing concrete foundations.
- Building Foundation - this encompasses location of conduits into concrete shelters, placing rock in foundation bed to provide a firm surface for concrete, placing of rebar and pouring of concrete.
- Installation and Operation of plan – this entails the installation of all electrical and grounding equipment / material needed to run the plant, and continuous maintenance - it is necessary to determine and install all necessary electrical and grounding materials needed to power the project areas.

Need for an Environmental Impact Assessment

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. As a result, companies seek to manage these impacts as part of their ethical and sustainable business conduct. Similarly, identifying, avoiding, mitigating and managing impacts, is a necessary condition for DunRe Sun. to undertake its operation in compliance with the environmental legislative requirements in Namibia.

Therefore, DunRe Sun. appointed Enviro-Leap Consulting cc to conduct an environmental assessment and facilitate the process of obtaining and Environmental Clearance Certificate.

Approach to the EIA Process

The assessment process consisted of a site visit to the project location and public consultation meetings with the Interested and Affected Parties (I&APs). An environmental scoping and management plan (EMP) were compiled and constitute the application for an Environmental Clearance Certificate submitted to the Ministry of Environment and Tourism (Office of Environmental Commissioner).

Overall Recommendation

Based on the findings of the environmental scoping assessment, which concludes that all potential negative impacts associated to the proposed DanRe's energy generation operations are minimal and practical mitigation measures are available. Equally, the positive impacts can be harnessed to increase the net marginal benefits relating to the socio-economic aspects of the operations.

The proposed operations is considered to have an overall low negative environmental impact and an overall moderate positive socio-economic impact (with the implementation of respective mitigation and enhancement measures).

Based on this, it recommended that the proponent must upon obtaining their Environmental Clearance Certificate (ECC), implement all appropriate management and mitigation measures and monitoring requirements as may be stipulated in their EMP and or as condition of the ECC. These measures must be undertaken to promote and uphold good practice environmental principles and adhere to relevant legislations by avoiding unacceptable impacts to the receiving environment.

The following is a summary of the likely negative impacts that have been assessed for the different phases of the proposed exploration activities:

i. Land use (Likely impacts are negligible; the PROJECT area and sites are isolated from the distant settlements, and conservation zones).
ii. Noise (Likely impacts are low as the site is far from residential areas).
iii. Ecological and biodiversity loss (Likely impacts are localized and low).
iv. Health and safety (Overall likely impacts are low with correct PPE).
v. Solid and hazardous waste management (Likely impacts are low with a solid waste management plan and minimal hydrocarbon fuel use).
vi. Socioeconomic (Likely negative impacts are low)

Taking into consideration the findings of the environmental scoping assessment process and given the national and regional strategic requirements for infrastructure development and economic growth, it is the opinion of the EAP that the project benefits outweigh the costs and that the project will make a positive contribution towards steering Namibia on its pathway towards its vision of becoming a Logistic Hub.

Provided that the specified mitigation measures are applied effectively, it is recommended that DanRe Sun are issued with an ECC in terms of the Section 32 of the EMA No. 7 of 2007 and it's EIA Regulations of 2012.

glossary

AfDB	African Development Bank
BID	Background Information Document
BoN	Bank of Namibia
CA	Competent Authority
CLO	Community Liaison Officer
DEAF	National Department of Environmental Affairs and Forestry
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EPC	Engineering Procurement and Construction
GPS	Geographical Positioning System
KWh	Kilowatts Hour
KWp	Kilo Watts Peak
MME	Ministry of Mines and Energy
MEFT	Ministry of Environment, Forestry and Tourism
PV	Photovoltaic
PPP	Public Participation Process
SHE	Safety Health and Environment
UN	United Nations

contents

1. INTRODUCTION

The Environmental Management Act No. 7 of 2007 (also referred to as the EMA) and its Regulations promulgated in the Government Gazette No. 4878 of 2012, stipulates that for each developmental activity, which is listed as those that may not be undertaken without obtaining and Environmental Clearance Certificate (ECC), an Environmental Assessment (EA) must be conducted. The proposed handling, storage and transportation of fuel and mineral commodities triggers some listed activities in terms of the EMA.

Therefore, an environmental assessment must be conducted with an aim to identify, assess and ascertain potential environmental impacts that may arise as a result of undertaking the proposed operations. Hence, the environmental assessment is a process by which the potential impacts, whether positive or negative are predicted / identified, findings interpreted and communicating to interested and affected parties (I&APs) for inputs.

Additionally, this report presents findings of an environmental scoping process that evaluates the likely socio-economic and environmental effects the proposed operation, and further identifies suitable mitigation measures for avoiding or minimizing the predicted impacts. The envisioned EIA process was undertaken in a holistic approach encompassing different elements as shown in ***Figure 1***.

Figure 1: *Anticipated Environmental Assessment Timeline*

1.1. PROJECT APPLICANT AND PROJECT OVERVIEW

DunRe Sun (herein referred to as the proponent), is a Namibian registered and owned solar energy company focused on green solutions for power generation. Dan Re is in the process of obtaining a license / approval from the Electricity Control Board of Namibia, to develop a 60 MW grid connected Photovoltaic Solar generating plant at Kalkrand in the Hardap Region.

DunRe Sun aims to develop the solar energy project using PV technology to generate electricity in Namibia. The project will help to decrease the country's dependency on traditional forms of energy by increasing the availability and use of solar energy. The generated electricity will be injected into the national grid, to support the country in meeting its renewable energy target.

1.2. PROJECT MOTIVATION (INCLUDING NEED AND DESIRABILITY)

Namibia, with its abundant sunlight and vast expanses of uninhabited land, stands at a pivotal juncture in the pursuit of sustainable energy alternatives. The need for clean, renewable energy sources has become increasingly urgent globally, driven by the escalating impacts of climate change and the imperative to transition away from fossil fuel dependence. As a semi-arid country, Namibia is particularly vulnerable to the adverse effects of climate change, including erratic weather patterns, water scarcity, and threats to agricultural productivity.

There are around 1 million Namibians (±54%) that lack access to electricity, which means that almost half of the country is without access, as the country has a population of approximately 2.45 million people (Tracking SDG7, 2020).

Critically, Namibia has the highest average theoretical PV Power Potential in the world. This immense potential in combination with the known environmental benefits of solar power (reduction of; CO_2 emissions; carbon footprints; and over reliance on fossil fuels) is an important driver for the proposed solar park development. Subsequently, this initiative aligns with Namibia's commitment to embracing renewable energy sources as a means to address the dual challenges of energy security and climate change.

1.2.1. Need and Desirability

Namibia's average consumption rate surpasses 3000GWh/year, while its generation capacity is around 1305GWh/year. The supply gap is covered by imports from South Africa, Zambia and Mozambique. Namibia's generated electricity is mainly from:

- 260 MW hydro-electric power plant on the Kunene river in Ruacana;
- 120 MW van Eck coal-powered plant north of Windhoek;
- Paratus 24 MW heavy fuel-oil powered plant in Walvis Bay;
- 5.78 MW solar plant in Trekkopje in the Erongo region;
- 22 MW ANIXAS diesel power station at Walvis Bay;
- 20 MW Omburu PV Power plant in Omaruru; and
- 45.5MW solar park in Mariental.

Equally, the National Climate Change strategy and action plan 2013-2020 addresses actions on reducing current and future emissions including renewable energy sources and energy efficient technology. Thus Namibia has committed itself to increase the share of renewable energy to about 70 % of electricity by 2030.

Further, going ahead with the proposed activity creates potential for the following marginal net benefits:

- Contribution to Taxes and Royalty
- Technological Skill and Knowledge transfer
- Creates the most needed employment opportunities
- Attainment of the SDGs 1 and 8 in Namibia

1.3. REQUIREMENTS FOR AN ENVIRONMENTAL IMPACT ASSESSMENT

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. As a result, companies seek to manage these impacts as part of their ethical and sustainable business conduct. Similarly, identifying, avoiding, mitigating and managing impacts, is a necessary condition DanRe Sun s Investment cc to undertake its operation in compliance with the environmental legislative requirements in Namibia.

To ensure that development activities are undertaken in an economic, social and environmental sound / sustainable manner, the Namibian Constitution and Environmental Management Act No. 7 of 2007 provides for an environmental assessment process.

The purpose of the environmental assessment and therefore this report are to ensure compliance of the proposed operations with the environmental legislation in respect to managing potential impacts associated with the proposed DanRe Sun s Investment cc Exploration activities operations:

- Identifying potential socio-economic and environmental impacts
- Proposing management measures to avoid, prevent and of mitigate these
- Compile an Environmental Management for compliance monitoring and reporting on the implementation of the Environmental Clearance Certificate conditions

Table 1: List of activities identified in the EIA Regulations which apply to the proposed project

EMA No. 7 of 2007 Aspect	Description of activity	Relevance to DanRe Sun's Solar Plant Activities
Activity 1: Energy Generation, Transmission and Storage Activities	The construction of facilities for - (a) the generation of electricity; (b) the transmission and supply of electricity;	The proposed development entails the construction of facilities for the purpose of carrying out a listed activities i.e. installation of a solar plant and other associated linear infrastructure i.e. power line and substation upgrades.
Activity 4: Forestry Activities	4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorization in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.	The proposed development will require a portion of the land area to cleared of vegetation in order to create a levelled surface on which the solar panel field will be installed
Activity 9: Hazardous Substance Treatment, Handling and Storage	9.4 The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.	The proposed development shall include activities for which during construction a back-up generator may be needed that necessitate the storage of fuel on-site, although less than 30 cubic meters
Activity 10: Infrastructure	10.1 The construction of- (b) public roads; (f) cableways;	The proposed development may include the construction or laying of powerlines

Therefore, DunRe Sun. appointed Enviro-Leap Consulting to conduct an environmental assessment and facilitate the process of obtaining and Environmental Clearance Certificate.

1.4. EIA TEAM

As previously noted, Enviro-Leap Consulting (see **Table 2** for the composition of ELC's team for this EA) has been appointed by DunRe Sun. to undertake the environmental assessment required for the proposed project. A public participation process (PPP) forms an integral part of the Environmental Assessment Process to aid in identifying issues and possible alternatives for consideration. Details on the PPP are included in section 4 of this Scoping Report.

Table 2: *The EIA Management Team*

NAME	ORGANISATION	ROLE/ SPECIALIST STUDY UNDERTAKEN
Environmental Assessment Practitioners		
Shadrack Tjiramba	Enviro-Leap Consulting cc	Environment Practitioner
Lawrence Tjatindi	Enviro-Leap Consulting cc	Internal Reviewer

1.5. DETAILS AND EXPERTISE OF THE EAP

Over the past four years the Enviro-Leap Consulting has been involved in a multitude of Environmental Assessment projects across SADC and within Namibia. The Environmental Practitioners of Enviro-Leap Consulting has a combined of more than 35 years' experience in the environmental sector (management and policy), ecological research and stakeholder engagement. Consequently, the team offers a wealth of experience and appreciation of the environmental and social priorities and national policies and regulations in Namibia.

1.6. OBJECTIVES OF THE ENVIRONMENTAL SCOPING ASSESSMENT

The primary objective of this EA Report is to present stakeholders, I&APs and the Competent Authority, the DEA, with an overview of the predicted impacts and associated management actions required to avoid or mitigate the negative impacts; or to enhance the benefits of the proposed DanRe's development.

In broad terms, the 2012 EMA EIA Regulations (GG 4878) stipulates that an EIA Process must be undertaken providing to determine the potential environmental impacts, mitigation and closure outcomes, as well as the residual risks of any listed activity. Therefore, based on these (EIA Regulations), the objectives of the Environmental Assessment (EA) Process is to:

- determine the policy and legislative context within which the activity is located and note how the proposed activity complies with and responds to the policy and legislative context;
- describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- determine the nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and the degree

to which these impacts (a) can be reversed; (b) may cause irreplaceable loss of resources, and (c) can be avoided, managed or mitigated; and

- identify suitable measures to avoid, manage or mitigate identified impacts;

In terms of legal requirements, a crucial objective of the Environmental Scoping or EIA Report is to satisfy the requirements of EIA Regulations in respecting to obtaining an Environmental Clearance Certificate. This section regulates and prescribes the content of the Scoping Report and specifies the type of supporting information that accompany the submission of the ECC application to the Competent Authority.

2. PROJECT DESCRIPTION

This section provides an overview of the conceptual overview of the DunRe Sun proposed solar energy project using PV technology to generate electricity, sites and technology selection process for identifying the most suitable exploration techniques to be adopted.

2.1. OVERVIEW OF THE PROPOSED EXPLORATION ACTIVITIES

The project will help to decrease the country's dependency on traditional forms of energy by increasing the availability and use of solar energy. The generated electricity will be injected into the national grid, to support the country in meeting its renewable energy target. Below is a brief description of the proposed main project components:

2.1.1 PV Modules, Inverters and Trackers

The PV module is the main element that composes the generator or solar field. It transforms the received solar radiation into usable electricity (DC, direct current) by means of the photovoltaic effect through its several silicon cells that form the module. The project shall consist of more than 35 inverters (with a capacity to generate 45.52 MW>), the power plant controller shall be installed in order to manage all the inverters and Grid Requirements.

Figure 2: *Illustrate the typical installation of solar panel filed, similar to which DanRe Sun envisage to install*

To enhance optimum solar uptake, the proposed plant may explore a tracking system such as the Axone horizontal single-axis tracker, which aims at minimizing the angle of incidence between the incoming irradiance and the panel, rotating on its axis back and forth in a single direction, with an inclination range of +45 to -45 degrees.

Equally, it is imperative for the PV Solar to connect to the existing grid. This will require transformation of the voltage from 480V to 33kV to 132kV. The normal components and dimensions of a distribution rated electrical substation will be required. Output voltage from the inverter is 480V and this is fed into step up transformers to 132kV. An onsite substation might be required to step the voltage up to 132kV, after which the power will be transmitted into the national grid.

2.1.1 Connection Boxes, Wiring and Grounding / Lightning Protection

For DanRe Sun to produce up to 50MW, the proposed facility will require numerous linked cells placed behind a protective glass sheet to form a panel. Multiple panels will be required to form the solar PV arrays which will comprise the PV facility. The PV panels will be tilted at a northern angle in order to capture the most sun. The solar field presents two association levels:

- Solar panels fixed mounted 72720 x 550w Canadian solar panels
- Parallel association of strings (modules connected in series);
- Parallel association of buses.

The parallel association of strings will be made directly throughout the tracker by means of technology specialized for this purpose; both string poles shall be connected to their corresponding bus. All materials will be of high conductivity copper with the sufficient section to assure the required Safety principles, in compliance with local standards.

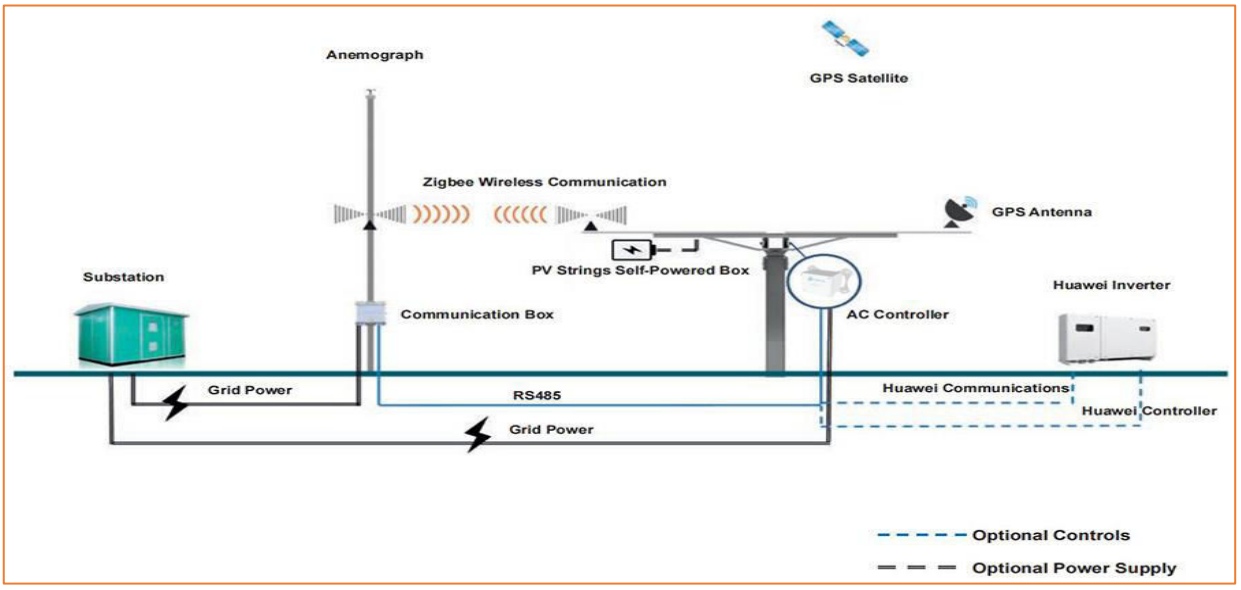

***Figure 3**: Schematic illustration of a complete solar park circuit layout and associated infrastructure*

***Table 3**: Technical details for the proposed facility*

Component	*Description / dimensions*
Height of fencing	Approximately 2.5 meters
Height of PV panels	1,5 meters
Area of PV Array	70 Hectares
Area to be occupied by laydown areas	• Permanent Laydown Area: 70 Hectares • Construction Laydown Area: ~500 m²
Other possible buildings	• Security Room: ~40 m² • Office: ~200 m² • Staff Locker and Changing Room: ~200 m²
Number of inverters required	Minimum 20
Area occupied by inverter / transformer station/ substations	• Inverter Transformer Station: ~19m2 • Substation: 15 400m2
Capacity of on-site substation	132kV
Proximity to grid connection	Approximately 3.5 kilometres

2.1.1 Monitoring and Control System / Station

The Monitoring and Control System shall be composed of a SCADA application (Supervisory Control and Data Acquisition), hosted in a local server installed in the Control Station of the plant and several Remote Terminal Units (RTU), installed in each inverter area, that acquire data generated by inverters, field metering, solar tracker and protection devices to an estimated value of N$612,000,000.00.

In addition, the control station shall be equipped with the necessary equipment according to Occupational Risks Prevention national normative and to Fire Protection Standards.

2.1.1 Civil Works and Security System

All construction activities shall occur within the site boundary limits with the exception of those activities related to the interconnections between the site and the common infrastructures i.e. powerlines connecting to the NamPower Substation situated about 3.5 km south of the proposed plant. Foundations and site conditioning shall be made according to the requirements, local and or national civil construction standards, Topographical and Geotechnical study of the site. All the foundations shall endure any load or combination of loads due to wind.

A boundary fence systems designed to prevent the intrusion of outsiders and provide protection against theft and vandalism, shall be installed around the premises. This system is structured in different areas; the anti-intrusion system and camera system, which are continuously in operation and under surveillance. The system shall cover the strategic locations and sensitive areas of the project, for comprehensive surveillance and monitoring from central control room. A fence shall be installed in the perimeter of the site according to local standards. It shall be covered with the necessary number of cameras, maintaining the capability of anti-intrusion detection.

2.2. PROJECT LOCATION

The DanRe Sun's proposed project site is situated in Southern Namibia, in the Hardap Region within the Kalkrand Village townlands (**Figure 4**, shows the location and site of the proposed project, and **Table 2**, shows the corner coordinates).

Kalkrand itself is accessible via a well maintained bitumen road (B1 Road) that connects it to the Town of Mariental and DanRe Sun's site is accessible directly via both the B1 (Trans-Oranje Highway) and C21 gravel road exiting the village towards the western direction. Other section of the project will only be accessed by foot to ensure minimum impacts on the receiving environment.

Table 4: *Corner coordinates of the proposed development site*

Corner point	Latitude	Longitude
A – DanRe Sun Site Point 1	-24.086544°	17.586155°
B – DanRe Sun Site Point 2	-24.082071°	17.589798°
C – DanRe Sun Site Point 3	-24.094365°	17.594797°
D – DanRe Sun Site Point 4	-24.091842°	17.598545°

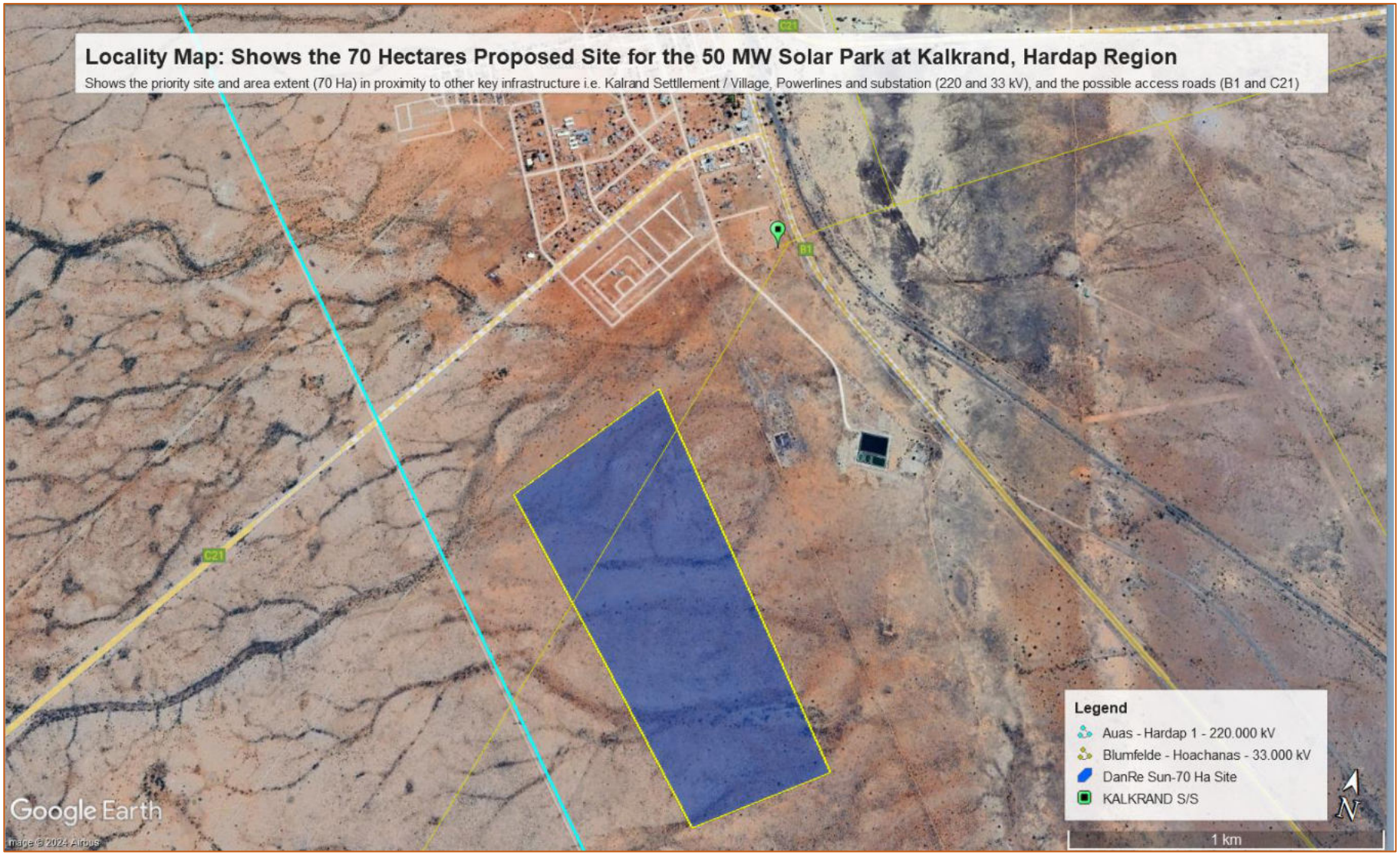

Figure 4: *Shows the location and extent (70 Hectares) of the proposed DanRe Sun's PV Solar Park at Kalkrand, Hardap Region*

2.3. SUPPORTING INFRASTRUCTURE

2.3.1 Basecamp

Before any operation commences, there is need to construct supporting infrastructure such as buildings for office operations, changing rooms for the workers, and power source to supply the site with power. Therefore a 132 KV transmission line will be built from the existing grid to connect the substation to the site.

Given the location of the proposed project site is situated within the townlands, there will be no need in for setting-up camp, but it rather recommended that as much as possible available logging facilities such guesthouses and rental home be utilised to house the project staff. Otherwise, a suitable site must be identified in collaboration with all relevant authorities including the Village Council. Where practical and possible, it is strictly recommended that for unskilled labour, local community members are employed and thus accommodated at their existing homestead to mitigate and reduce potential conflict with the conservancy wildlife and livestock management protocols.

During the construction and operation period, it is anticipated that about 10 – 20 persons will be employed, although only four staff are allowed to lodge on-site on an alternating (rotating) basis. The project specialists such as engineers, electricians, and project management crew, will be hosted on either a short-term or special visit basis, and thus might not all be present on-site simultaneously.

Therefore, it is highly recommended that temporary ablution facilities must be provided and limited to within the existing base-camp footprint pre-identified national park campsites, and the necessary authorization must be obtained prior to installation of any such facility.

In terms of waste generation and management, the predominant type of waste that will be generated during the exploration activities, in small volumes, is domestic waste i.e. packaging material (paper, wooden box, plastic sampling bags), and potentially hydrocarbons from diesel oil should a power generator needed. Domestic waste must be stored in heavy duty garbage bags and disposed of correctly at the Keetmanshoop waste disposal site.

2.3.2 Water supply

Adequate water provision for the whole development is required for domestic as well as for the construction of foundation mainly for mixing concrete and cement mixture. Fortunately the Kalkrand Village is connect to a NamWater Water Supply Scheme pipeline, thus there shall be sufficient water to meet the requirements for the proposed project. The demand of water expected to be approximately 15m^3 per month during construction and approximately less than 50m^3 per month average over the period of operation. This demand can be supplied through the existing village water supply system. The majority of this usage is for the cleaning of the solar panels.

2.3.3 Power supply

Electricity use will be limited and will primarily be related to the lighting of the facility and domestic use. Design measures such as the use of energy saving light bulbs would be

considered by the developer. During the day, electricity will be sources by the photovoltaic plant, and from the electricity connection at night.

2.3.4 Access roads / tracks

DanRe Sun's site is accessible directly via the D861 exiting the village towards the north-western direction. Other section of the Project will only be accessed by foot to ensure minimum impacts on the receiving environment.
As far as is practicable, all site particularly the base-camp and drill sites shall be accessed through existing tracks, therefore no new roads or tracks will be created. Additionally, it is highly recommended that motorised access is minimised as much as practically possible, especially during geological mapping, sampling and geophysical surveys.

Overall, all access by vehicles must be limited to existing tracks while all new access routes to the drill sites should be identified, agreed upon with the landowners and demarcated prior to the commencement of drilling activities.

2.3.5 Waste (Domestic / Hazardous) Management

Domestic Waste: Different waste containers will be provided onsite for waste sorting and safe disposal of waste generated onsite. These will be collected on a monthly basis and sent to nearest approved waste management facility in the area such as Kalkrand own waste disposal site or alternatively the Mariental site.

Sanitation: Portable ablution facilities with septic tanks will be put up for sanitation purposes for the solar power generation teams and will be emptied in good time according to manufacturers' instructions.

2.4. DECOMMISSIONING AND CLOSURE PHASE

Taking into consideration that the proposed project does not involves major construction activities, however, decommissioning might be necessary after the 25 year life-span of the panels. Consequently, any impacts associated by default with this phase of a project are not assessed in details at this stage. Although the following may apply:

- The PV facility would be disconnected from the NamPower grid
- The inverters and PV modules would be disconnected and disassembled
- Concrete foundations (if used) would be removed and the structures would be dismantled
- The underground cables would be unearthed and removed and buildings would be demolished and removed
- The fencing would be dismantled and removed.
- The roads can be retained should the landowner choose to retain them, alternatively the roads will be removed and the compaction will be reversed.
- Most of the wires, steel and PV modules are recyclable and would be recycled to a reasonable extent. The Silicon and Aluminium in PV modules can be removed and reused in the production of new modules.

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter of the Scoping Report provides an overview of the affected environment for the proposed exploration activities. The receiving environment is understood to include biophysical, socio-economic and heritage aspects which could be affected by the proposed development or which in turn might impact on the proposed development.

3.1 BIOPHYSICAL ENVIRONMENT

Namibia is characterized by four land type systems , the Namib, which runs along the entire west coast from the port town of Lüderitz, northwards into southern Angola; the Succulent Karoo which lies south of Lüderitz and extends across the Orange River into South Africa; the Nama Karoo which occurs immediately to the east of the previous two desert systems and covers most of the southern third of Namibia, tapering to a narrow belt from central Namibia northwards; and the Southern Kalahari which extends eastwards across to Botswana. However, the Trans-Zambezi route only crosses through three of these, namely the Namib Desert, Nama Karoo and the tree and shrub savannah.

3.1.1 Climatic Conditions

About 22% of Namibia's land is classified as desert (hyper-arid), 70% is classified as arid to semi-arid and the remaining 8% is classed as dry sub-humid (Mendelsohn et al. 2003). Most of the country receives an annual average of more than nine hours of sunlight per day. The north and south of the country experience the highest temperatures with the average maximum for the hottest month being over 34°.

In Kalkrand, the summers are hot and mostly clear; the winters are short, cool, windy, and clear; and it is dry year round (*Figure 5*). Over the course of the year, the temperature typically varies from 4°C to 35°C and is rarely below -0°C or above 38°C. (Mendelsohn et al. 2003).

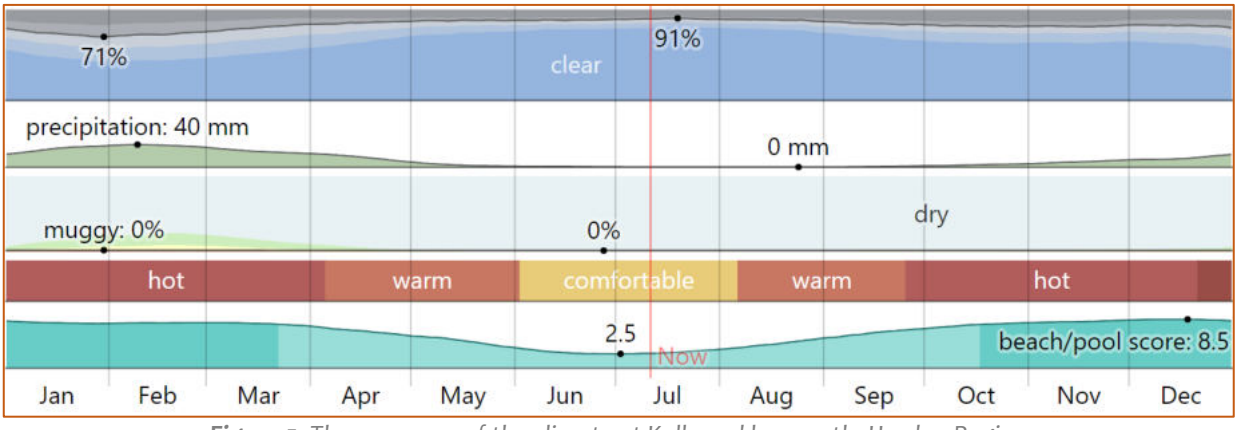

***Figure 5**: The summary of the climate at Kalkrand by month, Hardap Region*

The *hot season* lasts for *3.3 months*, from *November 14* to *February 23*, with an average daily high temperature above 32°C (***Figure 6***). The hottest month of the year in Kalkrand is *December*, with an average high of 35°C and low of 19°C.

The *cool season* lasts for *2.6 months*, from *May 25* to *August 14*, with an average daily high temperature below 25°C. The coldest month of the year in Kalkrand is *July*, with an average low of 4°C and high of 23°C.

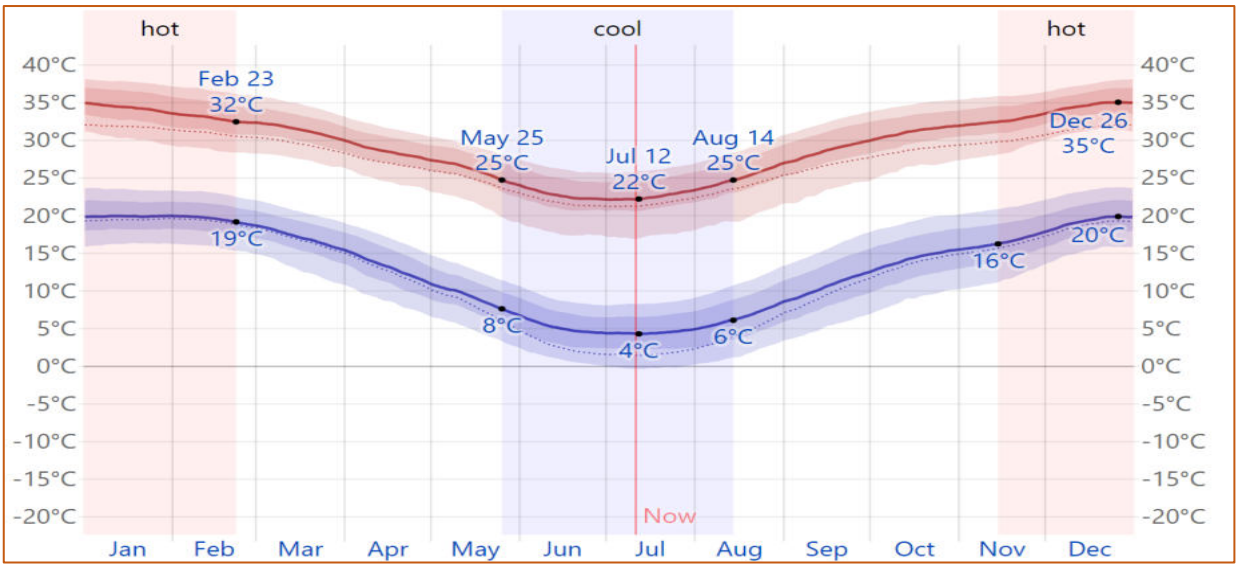

Figure 6: *The summary of average temperatures, with daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.*

*Below is the total daily incident shortwave solar energy reaching the surface of the ground over a wide area, taking full account of seasonal variations in the length of the day, the elevation of the Sun above the horizon, and absorption by clouds and other atmospheric constituents. Shortwave radiation includes visible light and ultraviolet radiation. The average daily incident shortwave solar energy experiences significant seasonal variation over the course of the year. The brighter period of the year lasts for 3.2 months, from October 22 to January 28, with an average daily incident shortwave energy per square meter above 8.1 kWh (**Figure 7**).*

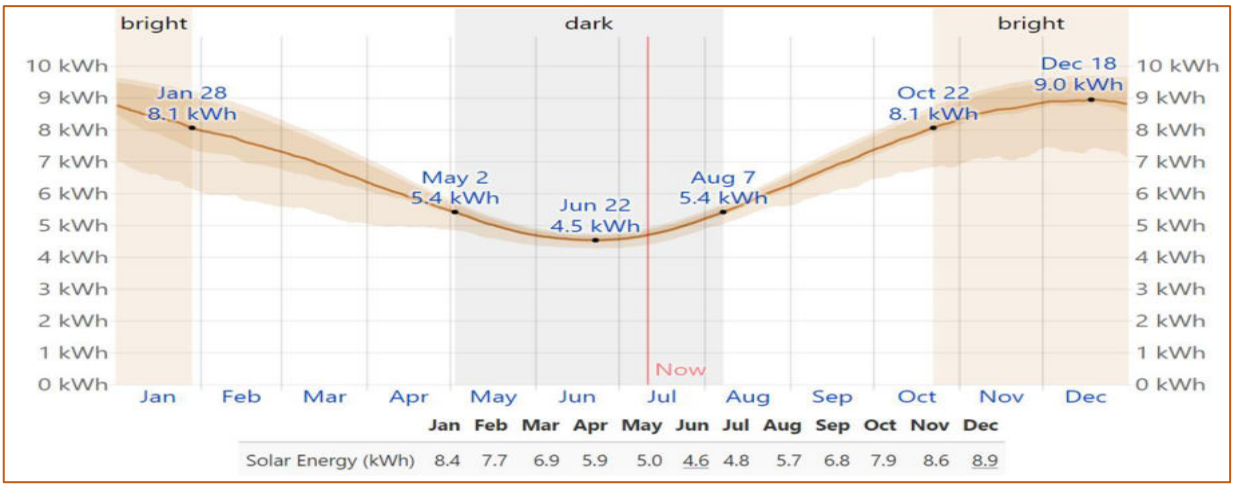

Figure 7: *The summary of average daily incident shortwave solar energy, with average daily shortwave reaching the ground per square meter (orange line), with 25th to 75th and 10th to 90th percentile bands.*

The brightest month of the year in Kalkrand is December, with an average of 8.9 kWh. The darker period of the year lasts for 3.1 months, from May 2 to August 7, with an average daily

incident shortwave energy per square meter below 5.4 kWh. The darkest month of the year in Kalkrand is June, with an average of 4.6 kWh.

Rainfall is highly erratic and unpredictable with an inter-annual coefficient of variation that ranges from about 30% in the north-east to over 100% in the driest areas. A wet day is one with at least 1.00 millimeters of liquid or liquid-equivalent precipitation. The chance of wet days in Kalkrand varies throughout the year.

The *wetter season* lasts *3.4 months*, from *December 29* to *April 11*, with a greater than *11%* chance of a given day being a wet day. The month with the most-wet days in Kalkrand is *February*, with an average of *6.1 days* with at least *1.00 millimetres* of precipitation (**Figure 8**). The *drier season* lasts *8.5 months*, from *April 11* to *December 29*. The month with the fewest wet days in Kalkrand is *August*, with an average of *0.1 days* with at least *1.00 millimetres* of precipitation. Based on this categorization, the most common form of precipitation throughout the year is *rain alone*, with a peak probability of *22%* on *January 26*.

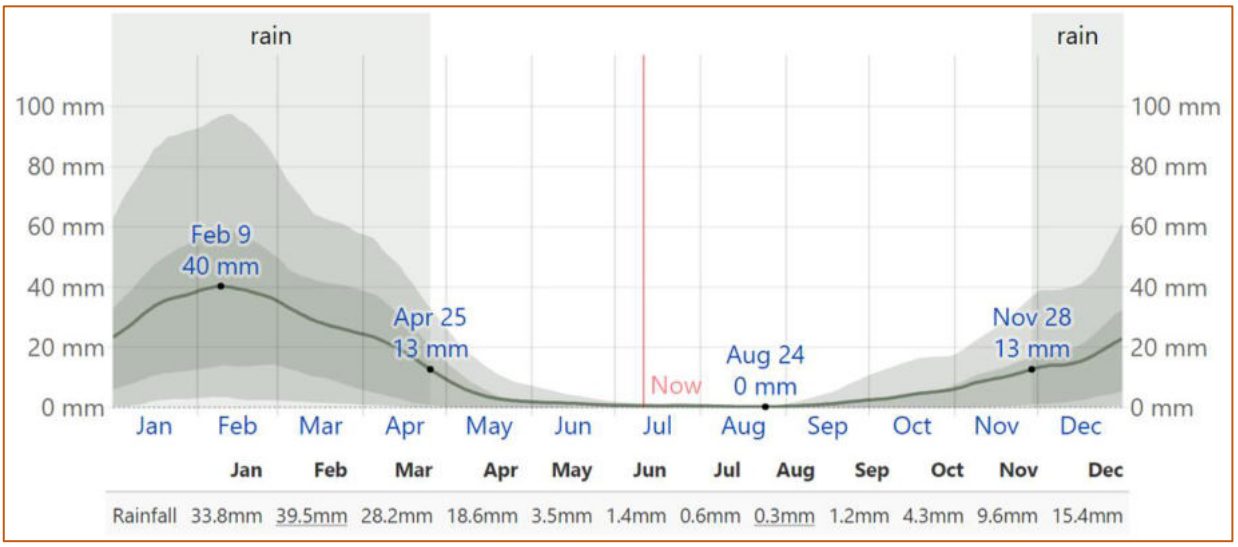

Figure 8: *The summary of the rainfall, the average rainfall (solid line) accumulated over the course of a sliding 31-day period cantered on the day in question, with 25th to 75th and 10th to 90th percentile bands.*

The *rainy* period of the year lasts for *4.9 months*, from *November 28* to *April 25*, with a sliding 31-day rainfall of at least *13 millimetres*. The month with the most rain in Kalkrand is *February*, with an average rainfall of *39 millimetres*. The *rainless* period of the year lasts for *7.1 months*, from *April 25* to *November 28*. The month with the least rain in Kalkrand is *August*, with an average rainfall of *0 millimetres*.

At Kalkrand, the predominant average hourly wind direction varies throughout the year. Although the prominent winds blows from the west for 3.7 weeks, from April 10 to May 6 and for 4.6 months, from August 3 to December 21, with a peak percentage of 40% on September (**Figure 9**).

Otherwise, it blows from the north for 2.6 weeks, from March 23 to April 10 and for 2.9 months, from May 6 to August 3, with a peak percentage of 37% on July, and from the east for 3.1 months, from December 21 to March 23, with a peak percentage of 31% on January 1 (Robertson et. al, 2012).

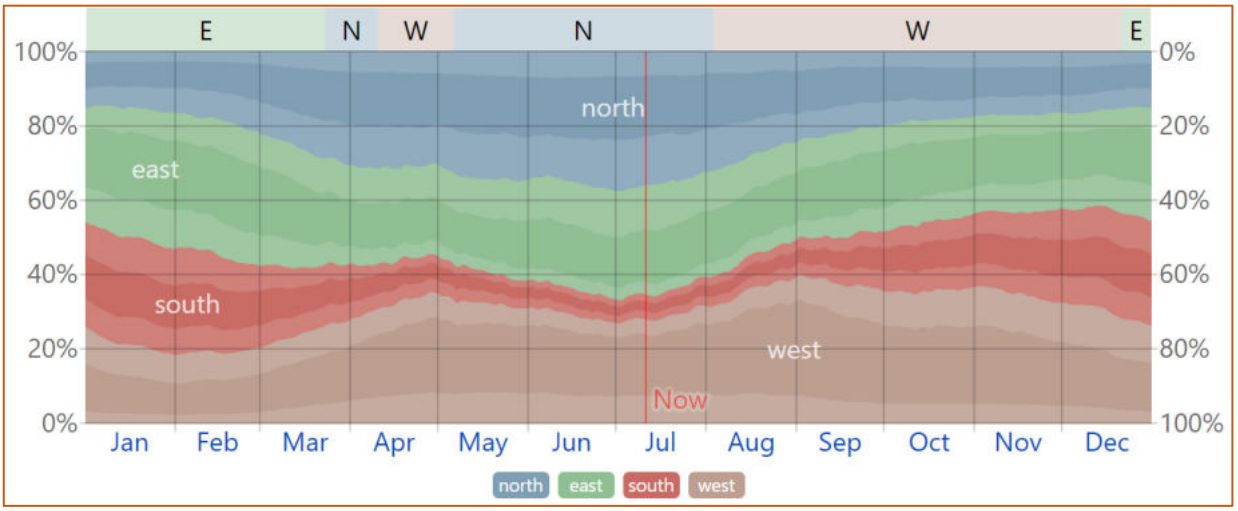

Figure 9: *The summary of the windrose (speed and direction), the mean wind direction is from each of the four cardinal wind directions, and the lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest).*

3.1.2 Geology and Topography

The Kalkrand area is characteristic of the Nama-Karoo Basin. This area accommodates a large, flat lying plateau which dominates much of Southern Namibia (Mendelsohn, Jarvis, Roberts, & Robertson, 2002). The landscape is extremely barren and rocky (Ministry of Agriculture, Water and Forestry, 2011).

The local geology consists of outcrops with black limestone located on the top, underlain by a clay rich marl (occurring as a schist in tectonised areas) and then gravel (occurring as quartzite in tectonised areas). Most of the southern region's surface geology is dominated by shale/sandstone sequence and black limestone of late Namibian age (**Figure 10**).

The local and regional geology were subjected to numerous events of deformation which led to the formation of geological faults, fractures and folds.

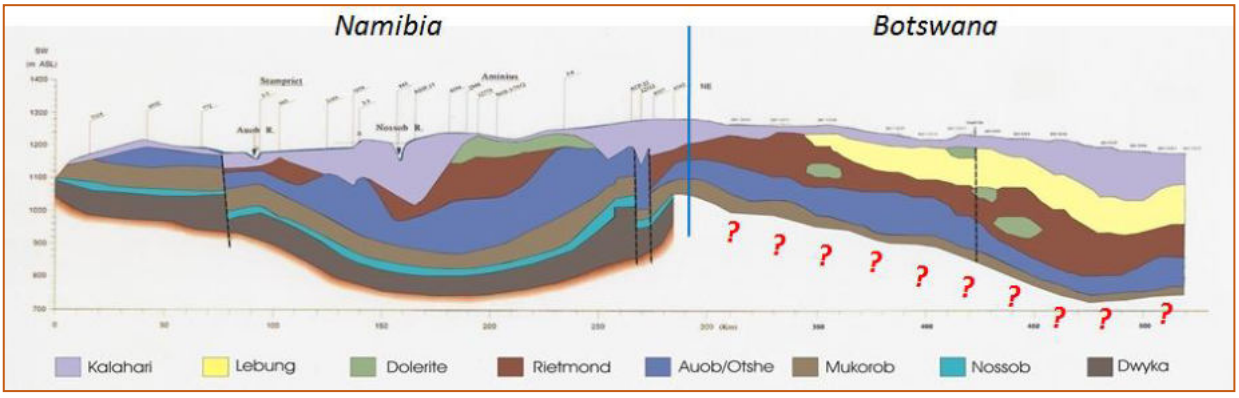

Figure 10: *Structural section across the Namibian geological formation across a west-to-east gradient (Geological Survey 2011).*

The topography within 3 kilometres of Kalkrand contains only modest variations in elevation, with a maximum elevation change of 111 meters and an average elevation above sea level

of 1,377 meters. Within 16 kilometres contains only modest variations in elevation (243 meters). Within 80 kilometres contains significant variations in elevation (907 meters).

3.1.3 Terrestrial Ecology and Sensitivity

Namibia's vegetation and biomes are classified into five major types, shown in (**Figure 11**). These are, the Namib Desert, Nama Karoo, Succulent Karoo and the Trees and Shrub savannah. The area within 3 kilometres of Kalkrand is covered by grassland (99%), within 16 kilometers by grassland (93%), and within 80 kilometres by grassland (84%) and sparse vegetation (15%).

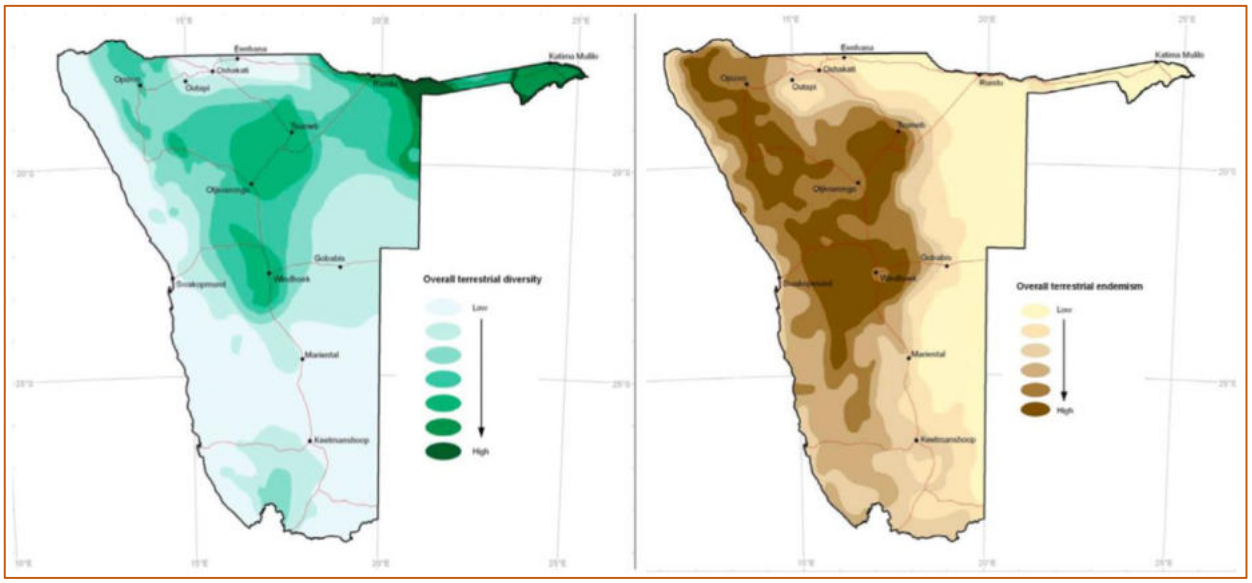

Figure 7: Shows a comparison of overall terrestrial species diversity (green) against overall endemism (brown), with the most endemism observed within operations route resulting in a "Red Flag" in terms of environmental risks.

Overall terrestrial diversity of plants and animals is highest in the north-eastern parts of Namibia (**Figure 11**, green map indicator), because of the higher rainfall and presence of wetlands and forest habitats that are not found elsewhere in the country. Many species in the north are also more tropical, with ranges that extend into neighbouring countries to the north and north-east. Species richness is highest in Namibia's mesic wetlands and woodlands in the vertebrate classes particularly (Barnard 1998).

Due to its low productivity, the south-west African arid zone is endowed with modest diversity of species compared to more mesic habitats. What is most distinctive about Namibian biodiversity is its high degree of endemism (Barnard 1998).

Unlike the concentration of biodiversity in the north-east, the great majority of Namibia's endemic species are found in the dry western and north-western regions, brown map indicator) (Barnard 1998, Mendelsohn et al. 2002). The patterns of endemism reflect the importance of arid habitats in supporting unique and specially adapted species.

In birds, the greatest diversity of southern African endemics is centred on the arid savannah and Karoo biomes and extends into the escarpment (Brown et al. 1998). Highland areas of

the country, including Waterberg, Khomas Hochland, Hardap Mountains, Brandberg, inselbergs in the Sperrgebiet and the karstveld are particularly important for many endemic plants (Mendelsohn et al. 2002).

3.1.7 Protected Terrestrial Areas

Land uses outside of protected areas are still generally defined by broad farming practices. Within the project area in the northeast of Namibia, the important land-uses include timber and non-timber forest products, fish, wildlife and tourism benefits. About 14% of this area is under conservancies and community forests, however, 82% of total household income comes from non-farming activities (MET, 2018).

Critically, an important outcome of Namibia's policy and legislative framework to devolve rights over wildlife, tourism and forestry to local land owners and custodians is that land adjacent to protected areas is often more suited and more profitable under wildlife and tourism than under conventional farming.

3.2 SOCIO-ECONOMICAL ENVIRONMENT

3.2.1 Demographic Profile

According to the Namibia 2001 Population and Housing Census, Hardap had a population of 68,249 (33,665 females and 34,579 males or 103 males for every 100 females) growing at an annual rate of 0.3%. The fertility rate was 3.6 children per woman. 46% lived in urban areas while 54% lived in rural areas, and with an area of 109,651 km^2, the population density was 0.6 persons per km^2.

The population was divided into 15,039 households, with an average size of 4.4 persons. 34% of households had a female head of house, while 66% had a male. For those 15 years and older, 54% had never married, 30% married with certificate, 1% married traditionally, 9% married consensually, 2% were divorced or separated, and 4% were widowed.

In 2001 the employment rate for the labor force (64% of those 15+) was 66% employed and 34% unemployed. For those 15+ years old and not in the labor force (29%), 29% were students, 37% home-makers, and 33% retired, too old, etc. According to the 2012 Namibia Labour Force Survey, unemployment in the Hardap Region stood at 28.8%. The two studies are methodologically not comparable.

Among households, 95% had safe water, 34% no toilet facility, 51% electricity for lighting, 77% access to radio, and 20% had wood or charcoal for cooking. In terms of household's main sources of income, 9% derived it from farming, 61% from wages and salaries, 7% cash remittances, 5% from business or non-farming, and 15% from pension.

3.2.2 Heritage and Culture Profile

In Namibia, archaeological resources are often vulnerable to developmental and mining impacts. Typical sites do not only include those found in the mountains, hills and outcrops but also those generally found in the flat areas (Namib Desert) and or in riverbeds.

Some of these site types are might be obvious to some observer, such as rock art or historical mines. Others are quite ambiguous and might appear less significant than they are, such as pre-colonial stone features. This means that it is very difficult for mining projects to avoid damage to archaeological heritage sites if they have not been located, identified and made known during EIA process.

The most commonly spoken languages at home were Afrikaans (44% of households), and Nama/Damara (44%). For those 15 years and older, the literacy rate was 83%. Nearly half of the population are from coloured and white Namibian groups. In terms of education, 84% of girls and 83% of boys between the ages of 6–15 were attending school, and of those older than 15, 73% had left school, 9% were currently at school, and 13% had never attended.

Critically, it can be assumed that there are no significant heritage resources near or with the area identified for the solar park. However, it remains necessary that in the absence of extensive heritage and culture studies in the region there remains a possibility of encountering numerous undeclared artefacts / sites of heritage importance. A search and find procedure (Appendix C) must be strictly followed in accordance with the stipulations of the Namibian National Heritage Act in the highly unlikely event that artefacts are found in the sand mining area.

4. APPROACH TO EIA PROCESS AND PUBLIC PARTICIPATION

This chapter presents the approach to the Environmental Scoping Assessment process, for the proposed DanRe Sun's energy generation activities and gives particular attention to the legal context and guidelines applicable to this assessment. The assessment approach and the steps in the Public Participation component of this scoping report were undertaken in accordance with Regulations 29 and 30 of Government Notice No. 30 of 2012. Overall, this section highlights information including the approach to stakeholder engagement, identification of issues, overview of relevant legislation, and key principles and guidelines that provide the context for this scoping assessment process. Hence, in a nutshell, the purpose of the environmental assessment is to:

- Address issues that have been identified through the Scoping Process;
- Assess alternatives to the proposed activity in a comparative manner;
- Assess all identified impacts and determine the significance of each impact; and
- Recommend actions to avoid/mitigate negative impacts and enhance benefits.

4.1 APPROACH ADPTED FOR COMPILING THE SCOPING AND EMP REPORTS

The objectives of the environmental scoping assessment are noted in Section 1 of this Report. Section 6 of this Scoping Report includes a summary of the findings, the overall conclusions and the recommendations. The Scoping Report was made available for a 30-day I&AP and authority review period, as outlined in the EMA Regulations of 2012. Although adverts were put in local newspapers i.e. the **Confidente newspaper on 21st – 27th June 2024 and 28th June – 04 July 2024, and then in The Villager newspaper on the 21st, 24th and 26th June 2024** in order to notify and inform the public of the proposed projects and invite I&APs to register, there were no particular responses or inputs received but registration by one I&AP (see **Appendix A** for detailed report).

As previously noted, the Scoping Report includes an Environmental Management Plan (EMP, **Appendix B**). The EMP is based broadly on global environmental management principles and embodies an approach of continual improvement and mitigation actions.

These are drawn primarily based on the identified potential impacts for both the construction and operational phases of DanRe Sun's proposed operations. If the project components are decommissioned or re-developed, this will need to be done in accordance with the relevant environmental standards and clean-up / remediation requirements applicable at the time.

4.2 LEGAL CONTEXT FOR THIS EIA

In accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazette and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), the activity to be undertaken by DunRe Sun. may not be undertaken without an Environmental Clearance Certificate.

4.3 LEGISLATION AND GUIDELINES PERTINENT TO THIS ENVIRONMENTAL ASSESSMENT

As the main source of legislation, the Namibian constitution makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws (those of relevant to this project are listed in Table 2) intended to protect the natural environment and to mitigate adverse environmental impacts.

Namibia's policies provide the framework to the applicable legislation. Whilst policies do not often carry the same legal recognition as official statutes, policies can be and are used in providing support to legal interpretation when deciding cases. Below are several of the key legislations applicable to the governance of certain component / aspects of the proposed operation activity. Key acts and policies currently in force include:

- Namibia's Environmental Assessment (EIA) Policy for Sustainable Development and Environmental Conservation (1995)
- Environmental Management Act (No. 7 of 2007);
- Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012)
- Namibia Agriculture Policy of 2015
- Namibia Vision 2030, and other national development plan e.g. Harambee Prosperity Plan
- Social Security Act, 1994 (Act No. 34 of 1994) and the Affirmative Action (Employment) Act, 1998 (Act No. 29 of 1998)

4.3.1 Environmental Management Act No. 7 of 2007

The environmental management act No.7 of 2007 aims to promote the sustainable use of natural resources and provides the framework for the environmental and social impact assessment, demands precaution and mitigation of activities that may have negative impacts on the environment and provision for incidental matters. Furthermore, the act provides a list of activities that may not be undertaken without an environmental clearance certificate.

The purpose of the Environmental Management Act is:

a) to ensure that people carefully consider the impact of developmental activities on the environment and in good time
b) to ensure that all interested or affected people have a chance to participate in environmental assessments
c) To ensure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment see ***Figure 14***.

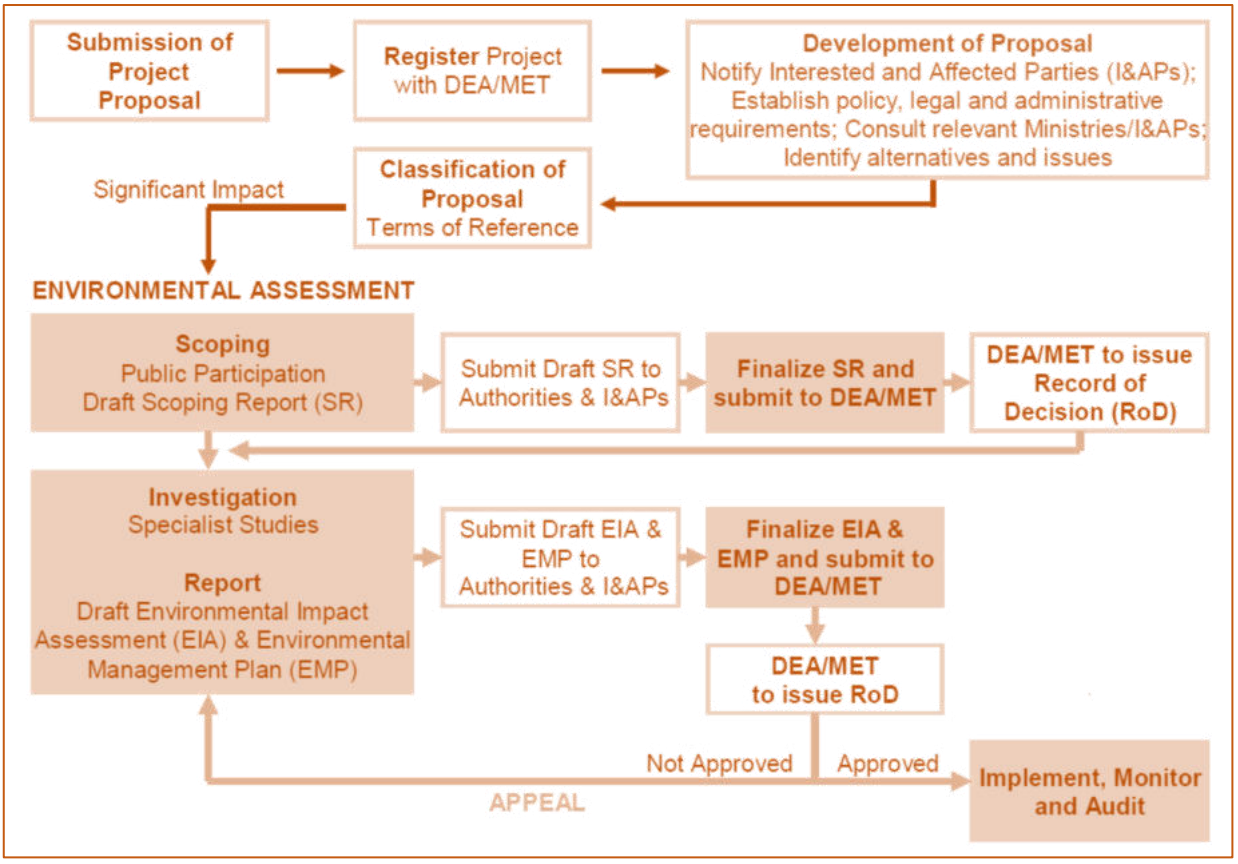

Figure 22: Illustration of the environmental assessment process in Namibia (Source: Risk Based Solution)

4.3.2 Environmental Assessment Policy (1995)

The Environmental Assessment Policy for Sustainable development and Environmental Conservation emphasize the importance of environmental assessments as a key tool towards implementing integrated environmental management. Sets an obligation to Namibians to prioritize the protection of ecosystems and related ecological.

The policy subjects all developments to environmental assessment and provides guideline for the Environmental Assessment. The policy advocates that Environmental Assessment take due consideration of all potential impacts and processes mitigations measures should be incorporated in the project design and planning stages (as early as possible).

4.3.3 Public and Environmental Health Act (Act No. 1 of 2015)

To provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters

4.3.3 Hazardous Substances Ordinance (No. 14 of 1974)

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its serves to prevent hazardous substances from causing injury, ill-health or the death of human beings.

4.3.4 Other Legal Requirements and relevance to the proposed activity

In addition to the EMA and the Environmental Assessment Policy, there exist other regulatory frameworks that DanRe Sun must comply with. This is due to the supporting infrastructure that are needed to compliment the proposed logistics hub. As such, DanRe Sun will be required to obtain additional specific permits for the supporting infrastructure as listed in **Table 5** below. The process of obtaining the additional permits can be undertaken concurrently to the EIA process.

Furthermore, the proponent has the responsibility to ensure that the project activities conform to all other relevant legal documents and guidelines as listed in ***Table 5*** below).

Table 5: *Other relevant legislation and applicability thereof* (Source: Risk Based Solution)

Legislation	Relevance
Electricity Act, 2000 (Act No.2 of 2000)	• The aim of the act is for the establishment the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licences for the provision of electricity; to provide for the powers and obligations of licensees; and to provide for incidental matters.
Labour Act, 1992, (Act No. 6 of 1992) and Regulations Related to Health and Safety of Employees	• Labour matters, rights and duties of employees. • Health and Safety of Employees Construction safety; • Electrical safety; Machinery safety; • Hazardous substances; Physical hazards and general provisions;
Namibia's Green Plan, 1992	• Namibia's Green Plan provides for the analysis of the main environmental challenges Facing Namibia and specified actions required to address them. This included a strategic plan for integrated and sustainable environmental management, which outlines key focus areas for sustainable development.
The Forest Act	• Declaration of protected areas in terms of soils and water resources • Proclamation of protected species of plants and the conditions under which these plants can be disturbed, conserved, or cultivated.
Nature Conservation Amendment Act	• Declaration of protected areas and protected species.
National Heritage Act	• Protection and conservation of places and objectives of significance, as all archaeological and paleontological objects belong to the state
National Climate Change Strategy & Action Plan 2013 – 2020	• The climate change action plan which identifies Climatic Change as a critical threat to sustainable development. Therefore, it must be addressed in a holistic manner.

4.3.5 Precautionary and Polluter Pays Principles

The Precautionary Principle is worldwide accepted when there is a lack of sufficient knowledge and information about proposed development possible threats to the environment. Hence if the anticipated impacts are greater, then precautionary approach is applied.

Equally, the Polluter Pays Principle ensures that the proponent takes responsibility of their actions. Hence in cases of pollution, the proponent bears the full responsibility and cost to clean up the environment.

4.4 PRINCIPLES FOR PUBLIC PARTICIPATION / CONSULTATION

The PPP for this Scoping Process was driven by a stakeholder engagement process that includes inputs from authorities, I&APs and the project proponent. In respect to provisions of the EIA Regulations, "Public Consultation" means a process referred to in regulation 21, in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters. This stems from the requirement that people have a right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions. Effective public participation also improves the ability of the Competent Authority (CA) to make informed decisions and results in improved decision-making as the view of all parties are considered.

Contrary, it is important to recognize and highlight two key aspects of public participation which must be considered at the outset:

- There are practical and financial limitations to the involvement of all individuals within a PPP. Hence, public participation aims to generate issues that are representative of societal sectors, not each individual. Consequently, the PPP is designed to be inclusive of a broad range of sectors relevant to the proposed activity.

- The PPP will aim to raise a diversity of perspectives and will not be designed to force consensus amongst I&APs. Certainly, diversity of opinion rather than consensus building is likely to enrich ultimate decision-making. Therefore, where possible, the PPP will aim to obtain an indication of trade-offs that all stakeholders (i.e. I&APs, technical specialists, the authorities and the development proponent) are willing to accept with regard to the ecological sustainability, social equity and economic growth associated with the project.

4.5 PUBLIC PARTICIPATION PROCESS

The key steps and or approach adopted for this particular Scoping assessment has been confirmed with the DEA through the registration of the proposed activity / operations on their Online EA system. All advertisements, notification letters and emails etc. served to notify the public and organs of state, on both the call for registration as I&APs and of the availability of the Scoping and EMP reports for an opportunity to comment or provide input

on the reports. Although adverts were put in local newspapers i.e. the **Confidente newspaper on 21st – 27th June 2024 and 28th June – 04 July 2024, and then in The Villager newspaper on the 21st, 24th and 26th June 2024** in order to notify and inform the public of the proposed projects and invite I&APs to register, there were no particular responses or inputs received but registration by one I&AP (see **Appendix A** for detailed report).

The correspondence sent to or received from I&APs and other competent authorities during the Scoping Phase were incorporated into the stakeholder engagement report appended to this report (**Appendix A**).

4.6 AUTHORITY CONSULTATION DURING THE EIA PHASE

Authority consultation is integrated into the PPP, with additional one-on-one meetings held with the lead authorities, where necessary. It is proposed that the Competent Authority (DEA) as well as other lead authorities be consulted as necessary and at various stages during the application review process of the DEA. During the Scoping phase, the following authorities were identified and consulted (see **Appendix C**) for the purpose of consultation:

4.7 APPROACH TO IMPACT ASSESSMENT

Potential environmental impacts were identified through both desktop literature review and consultation with I&APs, regulatory authorities, specialist and Enviro-Leap Consulting. In case of social impacts, the assessment focused on third parties only (third parties include members of the public and other local and regional institutions) and did not assess health and safety impacts on workers because the assumption was made that these aspects are separately regulated by health and safety legislation, policies and standards.

The impacts are discussed under issue headings in this section. The discussion and impact assessment for each sub-section covers the construction, operational, decommissioning and closure phases where relevant. This is indicated in the table at the beginning of each sub-section. Included in the table is a list of project activities that could cause the potential impact per phase. The activities that are summarized in this chapter, link to the description of the proposed project (see Section 5 of the EIA report).

Mitigation measures to address the identified impacts are discussed in this section and included in more detail in the EMP report that is attached in **Appendix B**. In most cases (unless otherwise stated), these mitigation measures have been taken into account in the assessment of the significance of the mitigated impacts only.

Both the criteria used to assess the impacts and the method of determining the significance of the impacts is outlined in ***Table 6***. This method complies with the method provided in the Namibian EIA Policy document and the draft EIA regulations. ***Part A*** provides the approach for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from ***Part B*** and **C**. The interpretation of the impact significance is given in ***Part D***. Both mitigated and unmitigated scenarios are considered for each impact.

Table 6: Criteria for Assessing Impacts

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE		Significance = consequence probability
Definition of CONSEQUENCE		Consequence is a function of severity, spatial extent and duration
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. IrrProjectaceable loss of resources.
	M	Moderate/measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favorable publicity.
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short-term
	M	Reversible overtime. Life of the project. Medium-term
	H	Permanent beyond closure – Long-term.
Criteria for ranking the SPATIAL SCALE of Impacts	L	Localized-Within the site boundary.
	M	Fairly widespread–Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/national

PART B: DETERMINING CONSEQUENCE					
			SEVERITY = L		
DURATION	Long-term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short-term	L	Low	Low	Medium
			SEVERITY = M		
DURATION	Long-term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short-term	L	Low	Medium	Medium
			SEVERITY = H		
DURATION	Long-term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short-term	L	Medium	Medium	High
			L	M	H
			Localized Within site boundary Site	Fairly widespread Beyond site boundary	Widespread Far beyond site boundary
			SPATIAL SCALE		

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/Continuous	H	Medium	Medium	High
	Possible/frequent	M	Medium	Medium	High
	Unlikely/seldom	L	Low	Low	Medium
			L	M	H
			CONSEQUENCE		

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M = medium and L = low and + denotes a positive impact.

This section outlines the assessment methodology and legal context for specialist studies, as recommended by the DEA 2006 Guideline on Assessment of Impacts. In addition to the above, the impact assessment methodology includes the following aspects:

Spatial extent – The size of the area that will be affected by the impact/risk:

- Site specific;
- Local (<10 km from site);
- Regional (<100 km of site);
- National or International (e.g. Greenhouse Gas emissions or migrant birds).

Consequence – The anticipated consequence of the risk/impact:

- Extreme (extreme alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they permanently cease);
- Severe (severe alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Substantial (substantial alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes, i.e. where the environment continues to function but in a modified manner); or
- Slight (negligible alteration of natural systems, patterns or processes, i.e. where no natural systems/environmental functions, patterns, or processes are affected).

Duration – The timeframe during which the impact/risk will be experienced:

- Short term (less than 1 year);
- Medium term (1 to 10 years);
- Long term (the impact will cease after the operational life of the activity (i.e. the impact or risk will occur for the project duration)); or
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient (i.e. the impact will occur beyond the project decommissioning)).

Probability – The probability of the impact/risk occurring:

- Very likely or Likely;
- Unlikely or Very unlikely; and
- Extremely unlikely

5. ASSESSMENT OF ALTERNATIVES AND IMPACTS

5.1 ASSESSMENT OF IMPACTS AND MITIGATION

This chapter discusses the alternatives, as well as the selection process of the preferred alternatives that have been considered and assessed as part of the Scoping Phase. The 2012 EIA Regulations (GG4878) define "alternatives", in relation to a proposed activity, "as different means of meeting the general purpose and requirements of the activity, which may include alternatives to the:

- property on which or location where the activity is proposed to be undertaken;
- type of activity to be undertaken;
- design or layout of the activity;
- technology to be used in the activity; or
- operational aspects of the activity; and
- Includes the option of not implementing the activity".

The Scoping Report therefore provided a full description of the process followed to reach the proposed preferred activity, site and location within the site. It further includes the following as a minimum:

- The consideration of the no-go alternative as a baseline scenario;
- A comparison of the reasonable and feasible alternatives; and
- Providing a methodology for the elimination of an alternative.

5.2. NO-GO ALTERNATIVE

The no-go alternative assumes that the proposed project will not go ahead i.e. the proposed DanRe's proposed mineral prospecting does not realize. This alternative entails that the operations would not drive any environmental change and result in no additional environmental impacts on the PROJECT site.

It favors the *status quo* or baseline against which other alternatives are compared and will be considered throughout the report. However, the likely negative environmental impacts of other current and future user that may still happen in the absence of the proposed activities includes: Natural dust and generation of particulate matter during windy event particularly resulting from other regional economic activities such as construction, mining and tourism, pollution and environmental degradation associated with current land use along and around the proposed project route and sites.

Therefore, in terms of the "No-go Alternative", potential economic gains that may never be realized if the proposed activities do not go-ahead include: loss in income for both the mining license holder and investors, unemployment and the loss of socio-economic benefits derived from current and future export and import trading opportunities. Most importantly, is the reduced regional integration in terms of trade and investment, loss of direct and indirect contracts and employment opportunities, export earnings, foreign direct investments and various taxes payable to the Government.

5.3. TECHNICAL ALTERNATIVES

The technical alternatives relate to the power lines and the option of including a battery storage facility on the site.

5.1.2.1 Power lines

The proposed solar PV facility is situated in close proximity (Approx... 3.5 km) to NamPower Kalkrand substation and will tie in with the existing substation. The complementary power line (consisting of preferably an overhead transmission line) route will be designed considering the shortest possible route will be considered and applicable approval obtained.

5.1.2.1 Battery storage facility

It is proposed that a nominal up to 60 MWh Battery Storage Facility for grid storage would be housed in stacked containers, with a maximum height of 5m and a maximum area of 50m^2 of batteries and associated operational, safety and control infrastructure. Three types of battery technologies are being considered for the proposed project: Lithium-ion, Sodium-sulphur or Vanadium Redox flow battery. The preferred battery technology is Lithium-ion.

Battery storage offers a wide range of advantages to Namibia including renewable energy time shift, renewable capacity firming, electricity supply reliability and quality improvement, voltage regulation, electricity reserve capacity improvement, transmission congestion relief, load following and time of use energy cost management.

5.1.2.2 Technology alternatives

There are several types of semiconductor technologies currently available and in use for PV solar panels. Two, however, have become the most widely adopted, namely Cadmium Telluride (CdTe) and Copper Indium Gallium Diselenide (CIGS).

Further, the best solar panels have come a long way in the last decade or so, with innovations to boost their performance and efficiency. Below (**Table 7**), are three generations and seven types of solar panels, including monocrystalline, polycrystalline, perovskite, bi-facial, half cell and shingled. Below is a summarized comparison of the benefits and drawbacks of each, along with a rundown of where each different type of solar cell shall thrive.

Table 7: Consideration of alternative solar Technology, with summarized comparison of the benefits and drawbacks of each

Gen	Type of solar cell	Efficiency rate	Advantages	Disadvantages	Best for
1st	Monocrystalline	15 to 20%	Highly energy-efficient, very well performing in low-light conditions and more adaptable to hotter temperatures	Expensive	Small, domestic solar arrays, homeowners with bigger budgets and homes in the south of England
	Polycrystalline	13 to 16%	Affordable, simple and about as durable as monocrystalline panels	Less energy- and space-efficient than monocrystalline panels and not as temperature-agnostic	Homeowners on tighter budgets; homes in lower-temperature areas, such as Scotland or the north of England
2nd	Thin-film silicon (a-Si)	7 to 10%	Affordable and adaptable to a wide range of construction needs and building types	Low energy- and space-efficiency and not long lasting	Larger, industrial-scale commercial solar arrays
3rd	Dye-sensitised	11 to 14%	Cost-effective, visually appealing, tolerant of higher temperatures and well performing in low-light conditions	Less efficient than traditional silicon-based solar cells	Homes in areas with low light or frequent cloud cover and houses in warmer or less predictable climes
	Perovskite	25 to 27%	Highly efficient (this quality is swiftly improving)	Difficult to mass produce, prone to current-voltage hysteresis and not as durable as other solar solutions	Domestic and commercial solar arrays in emerging and developing countries (less frequently seen in the UK)
	CPV and HCPV	Up to 41%	Extremely efficient	Expensive and requiring costly equipment, such as tracking systems, to secure near-constant access to sunlight	Large-scale solar farms, regions with high solar irradiance and remote and off-grid applications
Future	HJT	24 to 26%	Highly efficient, sleek and inconspicuous in design and very well performing in high temperatures	Expensive and harder to find and purchase than traditional silicon-based solar panels	Domestic urban environments where available space is at a premium and homes in hotter climates
	Bifacial	16 to 22%	Energy-efficient, versatile, and very well performing in diffuse and low-light conditions	Requiring more careful positioning, placement and installation and more expensive than most alternatives	Areas with high surface reflectivity, such as sandy or snowy environments
	Shingled	Around 22%	More energy efficient and better at producing energy than traditional solar cells	Expensive, limited in market availability, complex to manufacture and potentially more prone to hot spots	Homes with limited roof space and partially shaded urban environments

5.4. CONCLUDING STATEMENT ON ALTERNATIVES

Namibia's industrial ambition is articulated in Vision 2030, which stipulates that the country should be an industrialized nation with a high income by the year 2030. In terms of the production and export structure, Namibia aspire to build the bridge from producing and exporting predominantly primary commodities to offering value added and service-orientated products. The production and export structure would also be more diverse, enabling the economy to better withstand exogenous shocks.

Namibia's average consumption rate surpasses 3000GWh/year, while its generation capacity is around 1305GWh/year. The supply gap is covered by imports from South Africa, Zambia and Mozambique. Equally, the National Climate Change strategy and action plan 2013-2020 addresses actions on reducing current and future emissions including renewable energy sources and energy efficient technology. Thus Namibia has committed itself to increase the share of renewable energy to about 70 % of electricity by 2030.

In case of social impacts, the assessment focused on third parties only (third parties include members of the public and other local and regional institutions) and did not assess health and safety impacts on workers because the assumption was made that these aspects are separately regulated by health and safety legislation, policies and standards.

The No-Action Alternative comparative assessment, suggests that environmental impacts of a future in which the proposed activities do not take place, may be good for the receiving environment because there will be no potential negative or positive environmental impacts associated with the proposed activities (mineral exploration).

5.5. ASSESSMENT OF IMPACTS AND MITIGATION

Mitigation measures to address the identified impacts are discussed in this section and included in more detail in the EMP report that is attached in **Appendix B**. In most cases (unless otherwise stated), these mitigation measures have been taken into account in the assessment of the significance of the mitigated impacts only

5.2.1 IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

Potential impacts in respect to the Biophysical (Table 10) environment involves particularly the terrestrial ecology (**Table 8**) environment and relate mainly to mineral prospecting and mining activities within the proposed PROJECT area and receiving environment.

Potential impacts in respect to the Biophysical environments (**Table 8 - 10**) involves, given that the proposed activity entails non-invasive and consumptive mining development activities but rather limited to prospecting presents mainly secondary potential impacts. Geological surveys and rock sampling, and desktop research creates opportunity for the project staff members to access otherwise reserved park areas and thus temptations for poaching and collection of natural resources. Details of the potential impacts are demonstrated in the following tables:

Table 8. Impact on the Biophysical Environment – Project site Access for Construction and operation

Impact Event	**Disturbances on Biodiversity**					
Description	During the construction of the proposed Solar PV Power Plant, access roads to the construction site would have to be established. Also, the access roads to the site established during the construction of the Solar PV Power Plant would be fully operational and would have to be managed during the operational phase.					
Nature	Tracks leave scars that can remain for centuries, affecting the aesthetic qualities of the dunes and the surrounding gravel plains, reducing the attractiveness of the area as a recreational destination. Littering of the beaches and the desert due to increasing tourism is a general problem. Camping outside of designated areas occurs during peak holiday periods.					
Phases: Phases during which the project has implications of accessing the project area are highlighted below; Significance assessment was carried out on the use of access tracks which presents a short-term risk.						
Construction Phase	**Operational Phase**			**Decommissioning Phase**	**Post Closure**	
• Accessing of project area for delivery / supply of materials • Land preparation and leveling and construction of foundations prior to installation of panels	• Accessing of project area for delivery of supplies, undertaking of maintenance (cleaning of panels and replacement as may be needed) works and security patrols			N/A	N/A	
Severity	Taken together, the disturbances will have a minimum to medium severity given that limited number of vehicles will be used and no new access track will be created, these can be drastically minimized to very low with mitigation measures.					
Duration	The Significance of the potential impacts is very high given the project location i.e. near a settlement					
Spatial Scale	Low, localized if activities are restricted to the pre-identified project area and use of existing access routes thus limiting potential impacts spatially					
Probability	Low to Medium, especially considering that the project site is located within an already developed environment					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L-M	L	L	H	L	H
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	L	L	L	L	H
Conceptual Description of Mitigation Measures	• Planning of access roads or any changes to the existing access roads needs to be done in consultation with the Local Authorities as well as the Roads Authority of Namibia • Planning of access roads should be mindful of limiting gradients in order to reduce run-off induced erosion. • Existing roads that link the site to neighbouring areas should not be obstructed or damaged through construction endeavours. • Transportation through community areas should be discouraged by all means. Operators of vehicles used during construction, particularly heavy equipment (Graders and trucks etc.) should be mindful of their limited fields of view and be on the lookout for possible pedestrians. • The proponent should also restrict access to the site with a focus on high risk structures or areas depending on the site-specific situations through interventions such as; fencing, signage, and communication of risks to the local community.					

Table 9. Impact on the Biophysical Environment – Ground preparation and levelling

Impact Event	**Disturbances on Biodiversity in respect to ground works (leveling etc.)**					
Description	During the construction of the proposed Solar PV Power Plant, impacts on fauna, flora, social and cultural heritage are likely to be expected and may emanate from the following: Site clearing and Grading that may cause dust and habitat loss; Establishment of a temporary construction camp and mobile site office; Community grievances; Archaeological Discoveries on site.					
Nature	Important fauna and flora habitats, including displacement of associated biota such as birds and their food sources. Removal or reduction in function of ecosystem services, i.e. the drainage lines as water conduits, providing natural run-off and water to habitats.					
Phases: Phases during which the project has implications of sampling / impacts apply are highlighted below; Significance assessment was carried out on the sampling / trenching phase which presents a long term risk.						
Construction Phase	**Operational Phase**			**Decommissioning Phase**	**Post Closure**	
• Accessing for delivery of materials and construction of foundations prior to installation of panels • Upgrading of access tracks (e.g. grading)	• Accessing of project area by earth-moving equipment, to undertaking ground works consisting of land preparation, levelling and pouring of concrete foundations • Installation of solar panels and associated support infrastrures.			N/A	N/A	
Severity	Taken together, the disturbances will have a medium severity given that limited number of vehicles will be used and no new access track will be created					
Duration	The Significance of the potential impacts is very high given the project location i.e. near a national park and within a town					
Spatial Scale	localized if activities are restricted to the pre-identified project area and considering that the project site is located within an already developed environment					
Probability	Low to Medium, especially considering that the project site is located within an already developed environment					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	M	**L**	**L**	**H**	**L**	**M**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**M**
Conceptual Description of Mitigation Measures	• Strict compliance with the Forestry Act and Regulations in respect to vegetation clearing and EMP is recommended in respect to managing incidental events • It is recommended that Site clearing and Grading should be done with guidance of an environmental specialist so as to avoid habitat destruction and with possible non-toxic dust suppression measures. • Soil erosion may be caused by exposed surfaces and can be reduced by scheduling earthmoving works in a manner that avoids heavy rainfall periods as well as contouring and minimizing length and steepness of slopes as well as mulching to stabilize exposed areas. • In the unlikely event of any heritage or archaeological discoveries during the construction phase of the, the Local Authority and National Heritage Council (NHC) should be contacted immediately for guidance regarding the discovery.					

Table 10. Impact on the Biophysical Environment – Waste Management (Effluent, Solid and Hydrocarbons)

Impact Event	**Waste generation and disposal**					
Description	During the day-to-day activities of the construction of the proposed Solar PV Power Plant, different kinds of waste are expected to be generated. These include: general domestic waste, building rubble, site clearing debris, packaging, chemical/mobile toilets etc.					
Nature	Dealing with hazardous substances that may be kept and/or handled onsite, presents a pollution and fire risk that the proponent should not neglect and should take responsibility for and manage accordingly. These hazards include: paints, solvents, gases and hydrocarbons (non-exhaustive list).					
Phases: Phases during which the project has implications of waste generation are highlighted below; Significance assessment was carried out on the sampling / trenching phase which requires on-site stays.						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• No Construction envisaged at this stage	• Lodging is envisaged at existing campsite / lodge within the park		N/A		N/A	
Severity	Taken together, waste generation in respect to the proposed activities presents impacts that are of very-low severity as in general little is generated.					
Duration	The duration of the potential impacts is bound to the duration of the proposed operations thus short-term in nature					
Spatial Scale	Low, waste generation shall be limited mainly to the lodging areas and subject to property owners and thus not entirely influence by the proposed project					
Probability	Very Low, shall be limited mainly to the lodging areas and subject to property owners and thus not entirely influence by the proposed project					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**M**	**L**	**L**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**L**	**L**	**L**
Conceptual Description of Mitigation Measures	• Initially, the proponent should develop a site specific Emergency Response Plan that is to be followed in the event of emergencies that may arise from the handling and storage of hazardous substances onsite. • All domestic waste onsite should be disposed of in receptacles that promote good housekeeping and can hold all waste until such a time that the waste is to be removed from the site without causing any pollution. • All waste is to be removed from the site on a regular basis and should under no circumstances be allowed to accumulate to uncontrollable levels. • Waste from site clearing shall have to be disposed of in a manner that is in line with national laws and to the satisfaction of the Municipality of Mariental. • Contaminated products that cannot be re-used and domestic waste should be disposed of in accordance with Local Authority Requirements. Chemical/Mobile toilets to be used onsite should comply with applicable national and local authority requirements. • Chemical/Mobile toilets that are to be used onsite should complement the number of people that would make use of them in accordance with national laws. No waste should be buried or burned onsite and littering should be strictly prohibited.					

5.2.2 IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

Table 11. Environmental Impact: Human Health and Safety

Impact Event	**Disturbances to the social environments**					
Description	All construction phase related activities require human labour, directly or indirectly, and thus pose an inherent health and safety risk to construction personnel. The proposed development is expected to employ a large number of people (project staff as well as contractors). Should those recruited (particularly contractors) relocate to Kalkrand from other towns, it could contribute to the spread HIV/AIDS infections.					
Nature	It is the responsibility of the proponent to comply with the provisions set forth in the Labour Act 11 of 2007, with special attention to Chapter 4 that primarily outlines Health and Safety in the work place, as well as all other national legislations in this regard.					
Phases: Phases during which sources of social (health and safety) impacts apply are highlighted below;						
Construction Phase	**Operational Phase**			**Decommissioning Phase**	**Post Closure**	
• Accessing for delivery of materials and construction of foundations prior to installation of panels • Upgrading of access tracks (e.g. grading)	• Use of the lodging and other social facilities, as well as other social interactions			N/A	N/A	
Severity	In the unmitigated scenario, the potential risk for transmission of contagious / infectious diseases is High					
Duration	The Significance of the potential impacts is subject to the compliance with national health protocols, however given the minimal interaction of project staff and the local community impacts are classified as incidental and short-term.					
Spatial Scale	Medium, in case of near-miss incidents (were cases are not detected) the risk may be medium to high but localized if for instance project staff undergo regular testing for occupational health related conditions.					
Probability	Low, especially given that there are clear guideline and protocols governing health and safety of both contagious diseases and if they are well observed					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	H	**M**	**M**	**H**	**L**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	M-L	**L**	**L**	**M**	**L**	**H**
Conceptual Description of Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events; • Recommended mitigating measures include, but not limited to (Non-exhaustive list) - Periodic internal safety compliance audits. Health and Safety training and speciality programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards, Hazard Risk Identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed • Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site.					

Table 12. Impact on the Social Environment – Air and Noise Pollution

Impact Event	**Disturbances to the social environment**					
Description	The proposed development is expected to make use of earthmoving equipment and various kinds of machinery that may generate noise. The proponent should limit working hour's onsite to 07h00 to 19h00 and coordinate working high noise generating tasks in such a manner that provides the least nuisance to neighboring land users. No employee should be exposed to a noise level greater than 85Db for a duration of more than 8 hours per day without hearing protection, and the use of hearing protection should be enforced actively.					
Nature	Depending on the scale of groundworks activity (intensity), potential noise impacts relating to the use of large vehicles such as a tipper trucks and or excavator may be generated. Consequential impacts therefore are: • Noise from sampling / trenching machineries may be anticipated					
Phases: Phases during which sources of social (Air and Noise Pollution) impacts apply are highlighted below;						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Land preparation and leveling • Setting-up Base-camp for project staff	• Accessing of PROJECT area for surveys and sampling with project vehicles • Upgrading of access tracks (e.g. grading)		• Structure demolition and ground leveling activities • Temporary lodging for decommissioning staff		N/A	
Severity	Taken together, the disturbances will have a high severity in the unmitigated scenario. In the mitigated scenario, many of these disturbances can be prevented or mitigated to acceptable levels, which reduces the severity to low.					
Duration	The Significance of the potential impacts is subject to the proposed operation's life-time, however the identified impact's duration is incidental and short-term.					
Spatial Scale	Low, localized although cumulative as haulage along the designated routes may lead to increased traffic. The noise aspect is mainly limited to the feedlot facility site which far from residential areas.					
Probability	Very Low, the only noisy activities associated with the proposed operation are limited to the construction and decommissioning					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	L	L	M	L	H
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	L	L	L	L	H
Conceptual Description of Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events; • Noise complaint register must be kept and maintained regularly with mitigation measures adopted accordingly. • All excessive noise generating activities must be strictly carried out during the day between 08h00 (am) and 17h00 (pm) week days only. • Conditions of the Environmental Clearance Certificate and Surface-use Agreement (with the relevant Traditional Authority and Park) must be accordingly adhere to. • As much as possible, it is recommended that vehicles with the most minimum footprint are used such as smallest excavator and or portable drill rig (drawn on a trailer).					

Table 13. Impact on the Social Environment – Culture, Heritage and Scenic values

Impact Event	**Disturbances to the heritage and scenic value of the environment**					
Description	The rapid on-ground survey and desktop review for cultural and heritage sites, reveals that generally there were low/no occurrence of known cultural heritage or archaeological sites, hence the assumption is that the occurrence of undiscovered sites within the PROJECT area is low. However, evidence cultural heritage were observed at Mariental or Keetmanshoop.					
Nature	Any sites that did exist here would either have been discovered already during previous investigations (due to the accessibility of the site to archaeologists) or have been destroyed during previous solar power generation operations and or other land-uses such farming and tourism undertaken in the area.					
Phases: Phases during which sources of social (cultural, heritage and scenic values) impacts apply are highlighted below;						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Land preparation and construction activities • Temporary lodging for construction staff	• Reconnaissance activities e.g. geological mapping, topographical and remote sensing mapping		• Structure demolition and ground leveling activities • Temporary lodging for decommissioning staff		N/A	
Severity	Severity is Low, disturbances relating to field-based will be low with extremely unlikely probability of occurrence without mitigations					
Duration	The significance of the potential impacts is subject to the proposed operation's life-time (in this case short-term), hence potential impacts is incidental in nature					
Spatial Scale	Localized, although chances of damaging artifacts are very high when encountered, the probability of finding these on the PROJECT area are low and may be limited to certain rock outcrops and along river valleys.					
Probability	Very Low, the nature of operation significantly limits exploration activities to one known pegmatite belt that falls within the mining area.					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**M**	**H**	**L**	**H**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**L**	**L**	**H**	**L**	**M**
Conceptual Description of Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events • Contractors working on the site should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found in the course of development should be reported to the National Heritage Council • The chance finds procedure as outlined in the EMP must be implemented at all times, and. • Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the proposed exploration and test mining operations. • A stakeholder complaint register must be kept and maintained regularly with mitigation measures adopted accordingly, recording all concerns relating impacts of the proposed exploration activities on the cultural and scenic value of the environment which may be reported by interested and affected parties.					

Table 14. Impact on the Economic Aspect

Impact Event	**Disturbances on social and economic aspects**					
Description	Potential economic gains that may never be realized if the proposed project activities does not go-ahead include: loss in potential alternative income for the town, unemployment and the loss of socio-economic benefits derived from future mining development opportunities.					
Nature	However, it is imperative that the community is made aware that a major possible impact of exploration is the unrealistic expectations about the development of a mine. It's important for local communities to bear in mind that most exploration activity will not advance to mine development.					
Phases: Phases during which sources of social (potential social and economic gain) impacts apply are highlighted below;						
Construction Phase	**Operational Phase**		**Decommissioning Phase**		**Post Closure**	
• Land preparation and construction activities	• Use of the lodging and other social facilities, as well as other social interactions • Potential Mine development		• Structure demolition and ground leveling activities		• Retrenchments, retirement and job losses due to closure	
Severity	In the unmitigated scenario, this implies in the case where the activity take not take effect, no economic benefits shall realize hence, the severity in respect to unemployment shall be very high. However, with the implementation of the proposed operations, the severity of unemployment shall be reduced to medium.					
Duration	The Significance of the potential impacts is subject to the proposed operation's life-time, with a long-term potential					
Spatial Scale	Low, localized and only limited to the Mariental or Keetmanshoop Settlement community					
Probability	Low – Medium, probability in respect to job creation on both the temporary (during exploration) and long-term (during Mine development and operation) phases					
Unmitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L-M	**L**	**L**	**L**	**L**	**L**
Mitigated	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
	L	**M+**	**M+**	**H+**	**H+**	**H+**
Conceptual Description of Mitigation Measures	• It is critical that timely and continuous communication and dissemination of information with the local community is ensured to alleviate potential sense of social marginalization, drive gender equality and enhance the understanding and perception of the benefits associated with DanRe Sun activities • To enhance the positive impacts relating to marginal net benefits for the micro-economy (local residence of Mariental or Keetmanshoop Settlement and Erongo at large) and national economy at larger, legislative provisions to Affirmative Action and Labour Welfare must be observed • It is strictly recommended that DanRe Sun negotiates and signs a Surface Use Agreement detailing aspects of conduct and benefit distribution with all key stakeholder i.e. local community, local authority / council and other Operators or support institutions e.g. NGOs / CSOs)					

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Namibia's industrial ambition is articulated in Vision 2030, which stipulates that the country should be an industrialized nation with a high income by the year 2030. In terms of the production and export structure, Namibia aspire to build the bridge from producing and exporting predominantly primary commodities to offering value added and service-orientated products. The production and export structure would also be more diverse, enabling the economy to better withstand exogenous shocks.

Namibia's average consumption rate surpasses 3000GWh/year, while its generation capacity is around 1305GWh/year. The supply gap is covered by imports from South Africa, Zambia and Mozambique. Equally, the National Climate Change strategy and action plan 2013-2020 addresses actions on reducing current and future emissions including renewable energy sources and energy efficient technology. Thus Namibia has committed itself to increase the share of renewable energy to about 70 % of electricity by 2030.

While increased economic activities can stimulate demographic changes and alter social, economic and environmental practices in many ways. Adverse environmental and socio-economic impacts have become a major area of concern for the business community, their customers, and other key stakeholders. Therefore, to ensure that development activities are undertaken in an economic, social and environmental sound / sustainable manner, the Namibian Constitution and Environmental Management Act No. 7 of 2007 provides for an environmental assessment process.

In case of social impacts, the assessment focused on third parties only (third parties include members of the public and other local and regional institutions) and did not assess health and safety impacts on workers because the assumption was made that these aspects are separately regulated by health and safety legislation, policies and standards.

The No-Action Alternative comparative assessment, suggests that environmental impacts of a future in which the proposed activities do not take place, may be good for the receiving environment because there will be no potential negative or positive environmental impacts associated with the proposed activities (solar park development).

Overall, potential impacts may vary in terms of scale (locality), magnitude and duration e.g. minor negative impacts in the form of visual intrusion, dust and noise pollution especially during the field-based activities i.e. sampling and or trenching.

Below is a summary of the likely positive impacts that have been assessed for the different phases of the proposed DanRe Sun's solar energy generation activities:

- Socio-economic development and capacity building through partnering with foreign operators / investors, skills transfer and training on the solar energy sector shall be achieved (Likely impacts are high).
- Creation of employment opportunities and strengthening/expansion of SME business
- Consequential Infrastructure development e.g. development of a Mine should viable deposit be discovered.

The following is a summary of the likely negative impacts that have been assessed for the different phases of the proposed soar plant project:

- Ambient Air Quality and Noise Pollution (Likely impacts are Low).
- Ecological and biodiversity loss (Likely impacts are localized and low).
- Health and safety (Overall likely impacts are low with the adoption and compliance of appropriate mitigation measures).
- Accidental Spill of Hazardous substance (Likely impacts are low with proper implementation of the environmental management plan in place).
- Cultural Heritage, Archaeological and Scenic value (Likely impacts are low with proper implementation of the environmental management plan in place).

6.2 RECOMMENDATONS

Enviro-Leap environmental practitioner confidently recommends that the proposed project can proceed and should be authorized by the DEAF. The proposed operations is considered to have, overall low negative environmental impacts and potential for the enhancement of socio-economic benefits provided all protocols including the proposed mitigation measures are adhered to.

Based on this, it recommended that the proponent must upon obtaining their Environmental Clearance Certificate (ECC), implement all appropriate management and mitigation measures and monitoring requirements as stipulated in the Scoping Report and or as condition of the ECC. These measures must be undertaken to promote and uphold good practice environmental principles and adhere to relevant legislations by avoiding unacceptable impacts to the receiving environment.

6.3 STAKEHOLDER ENGAGEMENT AND MONITORING

It is important that channels of communication are maintained over the life-time of the proposed mineral prospecting project, and with all key stakeholders, members of the general public (including I&APs), as well as the local and traditional authorities, **Table 13** shows the stakeholders engagement recommendations.

Table 13: Actions relating to stakeholder communication

Issue	Management commitment	Phase
Development and maintenance of a Stakeholder engagement plan	On obtaining the Environmental Clearance Certificate and other relevant authorization it is recommended that the proponent undertakes a stakeholder engagement process to develop a Communication and Monitoring Plan for continuous reporting and feedback	All
Understanding who the stakeholders are	Maintain and update the stakeholder register, including stakeholders' needs and expectations. Ensure that all relevant stakeholder groups are included building on pre-identified and registered I&APs.	All
	A representative database would include all relevant local government, service providers and contractors, indigenous populations, local communities, Traditional Authorities (TAs), NGOs, shareholders, the investment sector, community-based organizations, suppliers and the media.	All
	Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process.	All
	Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	All
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On-contract)	

A stakeholder engagement plan is an important tool in ensuring that a good working relationship is maintained between the proponent and the community within which the activities are undertaken. It is crucial that this plan is developed in the same transparent manner and approach as the environmental assessment, and that it remains a living document which allows the stakeholder to engage with throughout the duration of the proposed activity.

Equally, it must be at all time readily available on request to all interested and affected parties for review and must provide clear procedures for how and where it can be accessed.

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APPENDIX A: ENVIRONMENTAL MANGEMENT PLAN

OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for the DanRe Sun solar power generation development project:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimization of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

KEEPING EMPS UP TO DATE

This Environmental Management Plan (EMP) document is designed to meet legal requirements and avoid or minimize the impacts associated with the implementation of DanRe Sun solar power generation development. It is the intention that this EMP should be seen as a "living document" which will be amended during the operation, as the activities might change or new ones be introduced.

Should a listed activity(s) as defined in the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) be triggered (as a result of future modifications/changes at the mine), this EMP will be updated as a result of another EIA process as stipulated in the regulations.

IMPACTS MANAGEMENT / MITIGATION MEASURES

Table 14. Impact on the Community Social Environment – Overall Project Activities (All Phases)

Issue	Management commitment	Phase
Understanding who the stakeholders are	• Maintain and update the stakeholder register, including stakeholders' needs and expectations. • A representative database would include all relevant local government, service providers, indigenous populations, Local Authorities / Council, NGOs or community-based organizations • Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process. • Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	All
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 15. Impact on the Biophysical Environment – Project site Access for Construction and operation

Impact Event	Disturbances on Biodiversity in respect to access tracks	
Desired mitigation outcome	The objective of the mitigation in respect to impacts on biodiversity is to ensure that as much as possible, disturbance on biodiversity is avoided and prevented while the proposed prospecting activities is undertaken.	
Proposed Mitigation Measures	• Planning of access roads or any changes to the existing access roads needs to be done in consultation with the Local Authorities as well as the Roads Authority of Namibia • Planning of access roads should be mindful of limiting gradients in order to reduce run-off induced erosion. • Existing roads that link the site to neighboring areas should not be obstructed or damaged through construction endeavors. • Transportation through community areas should be discouraged by all means. Operators of vehicles used during construction, particularly heavy equipment (Graders and trucks etc.) should be mindful of their limited fields of view and be on the lookout for possible pedestrians. • The proponent should also restrict access to the site with a focus on high risk structures or areas depending on the site-specific situations through interventions such as; fencing, signage, and communication of risks to the local community.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 16. Impact on the Biophysical Environment – Ground preparation and levelling

Impact Event	Disturbances on Biodiversity in respect to ground works	
Desired mitigation outcome	The objective of the mitigation in respect to impacts on biodiversity is to ensure that as much as possible, disturbance particularly the ecosystem functions and services is reduced and or prevented.	
Proposed Mitigation Measures	• Strict compliance with the Forestry Act and Regulations in respect to vegetation clearing and EMP is recommended in respect to managing incidental events • It is recommended that Site clearing and Grading should be done with guidance of an environmental specialist so as to avoid habitat destruction and with possible non-toxic dust suppression measures. • Soil erosion may be caused by exposed surfaces and can be reduced by scheduling earthmoving works in a manner that avoids heavy rainfall periods as well as contouring and minimizing length and steepness of slopes as well as mulching to stabilize exposed areas. • In the unlikely event of any heritage or archaeological discoveries during the construction phase of the, the Local Authority and National Heritage Council (NHC) should be contacted immediately for guidance regarding the discovery.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 17. Impact on the Biophysical Environment – Waste Management (Effluent, Solid and Hydrocarbons)

Impact Event	Waste generation and disposal	Phase
Desired mitigation outcome	The objective respect to waste generation is to ensure that the best scenic value and integrity of the affected environment is maintained and or enhanced by reducing littering through proper use of waste management facilities.	
Proposed Mitigation Measures	• Environmental awareness is an important aspect of environmental management, therefore all project staff and service providers must be educated of the environmental compliance requirements and urged to comply accordingly on induction with the project site. • Given that lodging is recommended to be at existing camp-sites and or lodges, this aspect shall be managed as part of the current property owners compliance requirements • In the field, hydrocarbon waste shall be contained (in spill kits) and stored in appropriate heavy-duty plastic cabbage , transported to the nearest waste-oil recycling / solid waste disposal facility in Mariental or Keetmanshoop • A sufficient number of spill kits shall be acquired and strategically placed, particularly near every sampling site to ensure that timely response to any potential fuel and lubricant spills is conducted (should the project require any sampling activities to be undertaken). These shall include an on-site used oil disposal bin(s) • Equally, effluent waste shall be managed in compliance with the lodging host's requirements, although during any sampling activities – temporary dry-pit toilet facility must be provided at every site.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

5.2.2 IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

Table 18. Environmental Impact: Human Health and Safety

Impact Event	Prevention and mitigation of any health and safety hazards / risks	Phase
Desired mitigation outcome	The objective of the mitigation in respect to health and safety hazards is to ensure that the health, safety and protection of both the project staff and community receive priority in terms of budgetary provision and compliance	
Proposed Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events; • Recommended mitigating measures include, but not limited to (Non-exhaustive list) - Periodic internal safety compliance audits. Health and Safety training and specialist programs should be provided as needed to ensure workers are oriented to the specific hazards of individual work assignments and all other present hazards, Hazard Risk Identification within Job Profiles/Machinery/Equipment/Work Areas and Tasks that are to be performed • Appointment of Safety Officers as custodians of safety within the workplace. In addition to these, Peer Educators and Health and Safety Representatives can also be nominated in constituent working teams in order to foster a culture of health and safety at the construction site.	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 19. Impact on the Social Environment – Air and Noise Pollution

Impact Event	Disturbances to the social environment	Phase
Desired mitigation outcome	The objective of the mitigation in respect to ambient air quality and sense of place / noise and chance is to ensure that all possible receptors are identified and practical measures are put in place to reduce these impacts and or respond with appropriate mitigation to complaints	
Proposed Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events; • Noise complaint register must be kept and maintained regularly with mitigation measures adopted accordingly. • All excessive noise generating activities must be strictly carried out during the day between 08h00 (am) and 17h00 (pm) week days only. • Conditions of the Environmental Clearance Certificate and Surface-use Agreement (with the relevant Traditional Authority and Town) must be accordingly adhere to. • As much as possible, it is recommended that vehicles with the most minimum footprint are used such as smallest excavator and or graders, trucks etc.…	
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 20. Impact on the Social Environment – Culture, Heritage and Scenic values

Impact Event	Disturbances to the heritage and scenic value of the environment	Phase
Desired mitigation outcome	The objective of the mitigation in respect to impacts on cultural and archaeological heritage integrity is to ensure that at all times, project staff are vigilant of the potential to intrude, disturb and or damage important artifacts and therefore must avoid wondering onto any protected and or sensitive known or identified site.	
Proposed Mitigation Measures	• Strict compliance with the EMP is recommended in respect to managing incidental events • A stakeholder complaint register must be kept and maintained regularly with mitigation measures adopted accordingly, recording all concerns relating impacts of the proposed exploration activities on the cultural and scenic value of the environment which may be reported by interested and affected parties. • Contractors working on the site should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found in the course of development should be reported to the National Heritage Council • The chance finds procedure as outlined in the EMP must be implemented at all times, and. • Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the proposed exploration and test mining operations.	
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 21. Impact on the Economic Aspect

Impact Event	Disturbances on social and economic aspects	Phase
Desired mitigation outcome	The objective of the mitigation in respect to economic impacts relating to the proposed activity, is to ensure that potential negative economic impacts on other and existing land-use are prevented, reduced and or mitigated and the positive ones enhanced.	
Proposed Mitigation Measures	• It is critical that timely and continuous communication and dissemination of information with the local community is ensured to alleviate potential sense of social marginalization, drive gender equality and enhance the understanding and perception of the benefits associated with DanRe Sun 's activities • To enhance the positive impacts relating to marginal net benefits for the micro-economy (local residence of Mariental or Keetmanshoop Settlement and the region at large) and national economy at larger, legislative provisions to Affirmative Action and Labour Welfare must be observed • It is strictly recommended that DanRe Sun negotiates and signs a Surface Use Agreement detailing aspects of conduct and benefit distribution with all key stakeholder i.e. local community, local authorities and other Operators or support institutions e.g. NGOs / CSOs)	All
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

Table 22. Site Closure and Rehabilitation

Impact Event	Disturbances on social and economic aspects	Phase
Desired mitigation outcome	The Proponent will commit to establishing a rehabilitation plan as part of the mine closure plan. A conceptual mine closure plan with costing is under development must be compiled by InterContinental Mining in association with Enviro-Leap and forms part of the environmental compliance and monitoring programme.	
Proposed Mitigation Measures	• DanRe Sun shall submit regular (bi-annual or annual Environmental Reports) to the relevant Ministry stating the exploration activities and environmental performance of the project. • Staff of the MET or Ministry of Mines and Energy may at any time inspect the exploration area. Internal and external monitoring should involve InterContinental Mining's safety and environmental officer and members of the MEFT. • Should the decision be taken that the project is not economically viable the area will be rehabilitated. The rehabilitation measures that are set out in the Rehabilitation Plan (to be compiled and approved by MEFT) are binding to all personnel on site including the crew and contractors.	Closure
Responsibility	DanRe Sun and Enviro-Leap Consulting (On contract basis)	

APPENDIX B: PUBLIC CONSULTATION

Friday, 19 July 2024 The Villager NATIONAL NEWS 6

Norwegian Energy Company Acquires 20% Stake in ReconAfrica's PEL in Namibia

Justicia Shipena

A Norwegian based company called BW Energy has acquired a 20% interest in ReconAfrica's Petroleum Exploration Licence 73 (PEL 73) onshore in Namibia.

This followed the formation of a strategic partnership between the two companies.

Under the agreement, BW Energy will invest US$16 million (approximately N$291 million) in equity in ReconAfrica.

This partnership aligns with recent developments, such as the spudding of the Naingopo exploration well on PEL 73, announced last week by ReconAfrica and its partner, the National Petroleum Corporation of Namibia (Namcor).

The Naingopo well will be drilled to a planned total depth of approximately 3,800 metres (12,500 feet) and is expected to encounter multiple reservoir intervals targeting both oil and natural gas.

The Naingopo well aims to target 163 million barrels of unrisked prospective oil resources or 843 billion cubic feet of unrisked prospective natural gas resources, net to ReconAfrica, based on the most recent prospective resources report prepared by Netherland, Sewell & Associates.

In the newly announced agreement, BW Energy will engage in the drilling of two Damara Fold Belt exploration wells and a 3D seismic program, with an option to participate in two Rift Basin exploration wells over a two-year period.

The agreement includes significant bonus payments for BW Energy, amounting to US$45 million (approximately N$819 million) at the declaration of commerciality and US$80 million (approximately N$1.4 billion) in production bonuses based on cash flow milestones.

The total potential consideration, including all incentives and production bonuses, is US$141 million, to be paid after achieving positive free cash flow.

The joint venture structure allows ReconAfrica to retain a 70% working interest in PEL 73, providing significant upside potential for shareholders.

The partnership with BW Energy enhances the exploration of the Damara Fold Belt and Kavango Rift Basin, leveraging BW Energy's expertise in oil and gas monetisation in the region.

The net proceeds from the public offering will be used for exploration activities, working capital, and general corporate purposes.

Additionally, ReconAfrica has engaged Research Capital Corporation as the lead underwriter for an overnight marketed public offering of units of the company at C$1.25 per unit.

The offering aims to raise gross proceeds of C$35 million. Each unit includes one common share and one common share purchase warrant, with warrants exercisable at C$1.75 for 24 months from the offering's closing, subject to an acceleration provision.

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NOTICE FOR PUBLIC PARTICIPATION ENVIRONMENTAL IMPACT ASSESSMENT

Environam Consultants Trading (ECT) hereby gives notice to all potential Interested and Affected Parties (I&APs) that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

PROJECT NAME: Proposed Construction and Operation of Farm Cleveland Solar PV Facility in Otjiwarongo, Otjozondjupa Region

PROJECT LOCATION: Farm Cleveland, Otjiwarongo, Otjozondjupa Region

PROJECT DESCRIPTION: The project entails the following:

- 10MWp Installed Capacity PV Plant
- Transmission Line Route and Interconnection

PROPONENT: SunChem

PUBLIC MEETING: Public consultation meetings will be held on 19 July 2024 at the following venue and time:

- 10:00-11:00 at C'est Si bon Hotel, Swembad Weg, Otjiwarongo

REGISTRATION OF I&APs AND SUBMISSION OF COMMENTS: All I&APs are hereby invited to register and submit their comments, concerns or questions in writing to:

Email: colin@environam.com; info@environam.com; Mobile: 081 458 4297 on or before 26 July 2024.

KELLON SUNCHEM

ENVIRONMENTAL CLEARANCE NOTICE

ERONGO Institute for Impact Sciences, Research Design & Development

Public Participation Notice in terms of Regulation No. 29, Section 21 under the Environmental Management Act (Act No. 7 of 2007)

Development of a Net Zero Industrial Park: Arandis Townlands, Erongo Region, Namibia

Notice is hereby given to all Interested and Affected Parties (I&APs) that an application will be submitted to the Environmental Commissioner for the following proposed activity:

- **Project Name:** Development of a Zero Carbon Industrial Park Utilising Wind and Solar Energy: Arandis Townlands, Erongo Region, Namibia
- **Project Location:** Arandis Townlands, Erongo Region, Namibia
- **Proponent:** Afri-Track Namibia Holdings (Pty) Ltd t/a Zero Carbon Namibia
- **Competent Authority:** Ministry of Environment, Forestry and Tourism (MEFT)
- **Environmental Assessment Practitioner:** Erongo Consulting Group (Pty) Ltd
- **Project Description:** Afri-Track Namibia Holdings (Pty) Ltd, trading as Zero Carbon Namibia, is launching an ambitious project in the expanded Arandis Townlands to harness wind and solar energy.

All Interested and Affected Parties (I&APs) are encouraged to register and raise concerns or provide comments and opinions on or before 26 July 2024. Background Information Document (BID) will be provided upon indication as an I&AP.

Due to the remoteness of the development, the Public Consultation meeting to be determined by the interest from I&APs.

Should you wish to register as an I&AP, please contact the EAP:
Call / SMS / WhatsApp: +264 81 878 6676
Email: info@erongoconsultinggroup.co.za / info@institute4impactsciences.co.za
www.erongoconsultinggroup.co.za

ZCN ZERO CARBON NAMIBIA

CALL FOR REGISTARTION AS INTERESTED AND AFFECTED PARTIES

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED ESTABLISHMENT AND OPERATION OF DANRE SUN'S 60 MW PV SOLAR PARK ON A 70 HA AT KALKRAND, HARDAP REGION

1. PROJECT SITE AND DESCRIPTION

ML Trading Enterprise T/A DanRe Sun (the Proponent), intents to obtain an environmental clearance certificate for the proposed construction and operation of a 60 MW grid connected, solar energy project using PV technology to generate electricity in Namibia. The key component of the proposed activity entails the fencing off, construction of the proposed plant, and operations thereof i.e. energy generation and transmission into the national grid via the Kalkrand Substation.

2. PUBLIC PARTICIPATION PROCESS

Enviro-Leap Consulting invites all Interested and Affected Party (I & AP) to register and receive Environmental Assessment (BID, Scoping and EMP) documents relating to the proposed project for their comments and input. Interested and Affected Parties are herewith request to register by writing to us at the address below no later than 23 August 2023.

3. COMMENTS AND QUERIES

Please register and direct all comments, queries to: Mr. Lawrence Tjatindi, Environmental Assessment Practitioner Email: eap.trigen@gmail.com

ENVIROLEAP CONSULTING cc

PUBLIC INVITATION

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED LPG FACILITY AT BRAKWATER, WINDHOEK

Notice is hereby given to all Interested and Affected Parties (I & APs) that an application will be made to the Environmental Commissioner in terms of Environmental Management Act (No. 7 of 2007) and its Regulations (2012) for the following intended activity.

Project Name: PROPOSED BULK LPG FACILITY, BRAKWATER

Project Location: Portion C (345/65/45) of Farm Brakwater No.48, Windhoek, Khomas Region

Project Description: Development of a LPG Facility to serve bulk customers.

Proponent: Eco-sense trading enterprises cc

Environmental Consultant: Ace Projects Consultants

Ace Projects Consultants has been appointed by the Eco-sense trading enterprises cc to conduct an Environmental Impact Assessment and Environmental Management Plan for the proposed development.

All interested and affected parties (I&APs) are encouraged to register and raise concerns or provide comments and opinions. All I&APs will be provided with a Background Information Document (BID) comprising detailed information for the intended activity and will be informed of the public participation process.

Should you wish to register as an I&AP and receive a BID, please contact the Ace Projects Consultants office. Tel: (+264) 814900770, E-Mail: info@aceprojects.co

DEADLINE FOR COMMENTS IS 08 AUGUST 2024

ACE PROJECTS CONSULTANTS

HIV Vertical Transmission Programs Prevent 4 Million Infections in Children

Justicia Shipena

Targeted programs for preventing vertical transmission of HIV have prevented 4 million infections in children aged 0-14 years since 2000.

This was revealed in a new report by the Global Alliance for Ending AIDS in Children by 2030 titled "Transforming Vision Into Reality," during the 25th International AIDS Conference in Munich, Germany.

The report underscores the progress made in reducing HIV infections and AIDS-related deaths among children.

Despite this progress, the report calls for an urgent scale-up of HIV services in the hardest-hit countries to meet the goal of ending AIDS by 2030.

Globally, new HIV infections among children aged 0-14 years have decreased by 38% since 2015, while AIDS-related deaths have fallen by 43%.

In May, the World Health Organisation (WHO) reported that in Namibia, access to treatment has led to a 70% reduction of vertical transmission in the last 20 years, becoming the first country in Africa, and the first high-burden country in the world, to reach a significant milestone on the path towards eliminating vertical mother-to-child transmission of both HIV and viral Hepatitis B.

In 2022, only 4% of babies born to mothers living with HIV in the country acquired the virus.

Among the 12 Global Alliance countries, several have achieved high coverage of lifelong antiretroviral therapy for pregnant and breastfeeding women living with HIV.

Uganda is nearing 100% coverage, followed by the United Republic of Tanzania at 98%, and South Africa at 97%.

Mozambique and Zambia both have achieved 90% coverage, while Angola and Kenya are at 89%, Zimbabwe at 88%, and Côte d'Ivoire at 84%.

"I applaud the progress that many countries are making in rolling out HIV services to keep young women healthy and to protect babies and children from HIV," said UNAIDS Executive Director, Winnie Byanyima.

She emphasised that with today's medicines and scientific advancements, it is possible to ensure all babies are born HIV-free and that children living with HIV receive and remain on treatment.

"Services for treatment and prevention must be ramped up immediately to ensure that they reach all children everywhere. We cannot rest on our laurels," she stated.

According to the report, Global Alliance countries are innovating to overcome barriers and accelerate progress toward ending AIDS in children.

However, despite these advances, neither the world nor Global Alliance countries are currently on track to meet HIV-related commitments for children and adolescents.

The pace of progress in preventing new HIV infections and AIDS-related deaths among children has slowed in recent years.

Tedros Adhanom Ghebreyesus, Director-General of the World Health Organisation (WHO), stated that accelerating the delivery and uptake of HIV services for children and adolescents is both a moral obligation and a political choice.

"Twelve countries are demonstrating they have made that choice, but significant challenges remain," Ghebreyesus noted.

While progress has been made in increasing access for pregnant women to testing and treatment to prevent vertical transmission of HIV, he pointed out that the world is still far from closing the paediatric treatment gap.

He highlighted the need to further strengthen the collaboration and reach of the Global Alliance.

"We must do this work with focus, purpose and in solidarity with all affected mothers, children, and adolescents."

In 2023, approximately 120,000 children aged 0-14 years became infected with HIV, with around 77,000 of these new infections occurring in Global Alliance countries.

AIDS-related deaths among children in this age group numbered 76,000 globally, with Global Alliance countries accounting for 49,000 of these deaths.

Vertical transmission rates remain high in some regions, especially in Western and Central Africa, where rates exceed 20% in countries like Nigeria and the Democratic Republic of the Congo.

UNICEF Associate Director of HIV/AIDS, Anurita Bains, revealed that only 57% of children living with HIV receive life-saving treatment, compared to 77% of adults.

To close the treatment gap, she stressed the need for global support to help governments scale up innovative testing approaches and ensure children and adolescents living with HIV receive necessary treatment and support.

In 2023, there were 210,000 new infections globally among young women and girls aged 15-24 years, with 130,000 of these occurring in Global Alliance countries.

This number is four times higher than the 2025 goal of 50,000. Preventing new infections in this age group is critical to protecting their health and reducing the risk of new infections among children.

Gender inequalities and human rights violations increase women's vulnerability to HIV and hinder their access to essential services.

Nearly one in three women globally have experienced some form of violence in their lifetime, with adolescent girls and young women disproportionately affected by intimate partner violence.

In the four Global Alliance countries with available data, current efforts are not on track to achieve the target of reducing gender-based inequalities and violence to less than 10% by 2025.

The Global Alliance for Ending AIDS in Children by 2030, launched in 2022 by WHO and UNICEF, has expanded to include civil society movements, national governments of the most affected countries, and international partners such as PEPFAR and the Global Fund.

The twelve member countries are Angola, Cameroon, Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

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NOTICE FOR ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURES (EIA) OF THE PROPOSED POULTRY PROJECT

CALL FOR PUBLIC PARTICIPATION

Alpha Events and Marketing CC, Okahao, Ongandjera, Omusati Region has appointed JP INVESTMENTS CC to conduct the Environmental Impact Assessment (EIA) for the above-mentioned Project.

The aim of this EIA is to identify key environmental aspects associated with the construction, operation, occupation, and maintenance of Poultry Business as stipulated in the Environmental Management Act (Act No. 7 of 2007), the 2012 Environmental Impact Assessment Regulations including all interested and affected parties that need to be consulted to ensure their concerns are considered as follow:

- **DESCRIPTION OF THE PROPOSED ACTIVITY:**
Construction of Chicken Poultry Project.
- **LAND USED AND DEVELOPMENT ACTIVITIES:**

The land will be rezoned to businesses area as per Local Authority Act (Act No. 23 of 1992).
- **PROJECT NATURE & LOCATION:**

Portion Land X, Erf 1213 on the western side of the Police Station in Okahao Town of the Omusati Region. The centre GPS coordinates of the sites are -17.886765° 15.058770°

- **PROJECT ACTIVITY:**
The proposed project (development) will entail the establishment and operation of a chicken farm, Meat Processing Plant, and associated infrastructures under a project.

- **PUBLIC MEETING:**
A public meeting will be held on Saturday, 10th August 2024, 12h00 at Okahao Town Council. Please do contact us to register your attendance not later than Wednesday, 7th August 2024.

NAME OF PROPONENT:
Alpha Events and Marketing CC, Okahao, Ongandjera, Omusati Region
Phone: +2648 13495963
E-mail: p87kavale@gmail.com

NAME OF CONSULTANT:
JP INVESTMENTS CC
Phone: +2648 12600555
E-mail: jpinvestmentcc@gmail.com

Project Reference Number: 2024/0801

PUBLIC NOTICE

EIA FOR THE PRPOSED EXPLORATION ACTIVITIES ON EPL NO: 9375 KARIBIB,ERONGO REGION.

In accordance with the Environmental Management Act no. 7 of 2007 and its 2012 EIA regulations, the proposed exploration activities on EPL no 9375 require an Environmental Clearance Certificate before commencement.

The proponent, Ludi Namibia Mining and Investment (PTY) LTD. is proposing to conduct exploration activities on EPL no: 9375 in Karibib district, Erongo region.

Consultant: Kalahari Geological and Environmental Solutions

Members of the public are invited to register as I&AP's for comments/inputs in order to receive further information on the EIA process on, and before the 23rd of August 2024 at kalaharigeoenviro@gmail.com

For more information please contact:
Mr Johannes Munango
Mobile: +264 811432910
Email: kalaharigeoenviro@gmail.com

KGES

CALL FOR REGISTARTION AS INTERESTED AND AFFECTED PARTIES

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED ESTABLISHMENT AND OPERATION OF DANRE SUN'S 60 MW PV SOLAR PARK ON A 70 HA AT KALKRAND, HARDAP REGION

1. PROJECT SITE AND DESCRIPTION

ML Trading Enterprise T/A DanRe Sun (the Proponent), intents to obtain an environmental clearance certificate for the proposed construction and operation of a 60 MW grid connected, solar energy project using PV technology to generate electricity in Namibia. The key component of the proposed activity entails the fencing off, construction of the proposed plant, and operations thereof i.e. energy generation and transmission into the national grid via the Kalkrand Substation.

2. PUBLIC PARTICIPATION PROCESS

Enviro-Leap Consulting invites all interested and Affected Party (I & AP) to register and receive Environmental Assessment (BID, Scoping and EMP) documents relating to the proposed project for their comments and input. Interested and Affected Parties are herewith request to register by writing to us at the address below no later than 23 August 2023.

3. COMMENTS AND QUERIES

Please register and direct all comments, queries to: Mr Lawrence Tjatindi, Environmental Assessment Practitioner Email: eap.trigen@gmail.com

ENVIROLEAP CONSULTING cc

PUBLIC INVITATION

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED LPG FACILITY AT BRAKWATER, WINDHOEK

Notice is hereby given to all Interested and Affected Parties (I & APs) that an application will be made to the Environmental Commissioner in terms of Environmental Management Act (No. 7 of 2007) and its Regulations (2012) for the following intended activity.

Project Name: PROPOSED BULK LPG FACILITY, BRAKWATER
Project Location: Portion C (345/65/45) of Farm Brakwater No.48, Windhoek, Khomas Region
Project Description: Development of a LPG Facility to serve bulk customers.
Proponent: Eco-sense trading enterprises cc
Environmental Consultant: Ace Projects Consultants

Ace Projects Consultants has been appointed by the Eco-sense trading enterprises cc to conduct an Environmental Impact Assessment and Environmental Management Plan for the proposed development.

All interested and affected parties (I&APs) are encouraged to register and raise concerns or provide comments and opinions. All I&APs will be provided with a Background Information Document (BID) comprising detailed information for the intended activity and will be informed of the public participation process.

Should you wish to register as an I&AP and receive a BID, please contact the Ace Projects Consultants office. Tel: (+264) 814900770, E-Mail: info@aceprojects.co

DEADLINE FOR COMMENTS IS 08 AUGUST 2024

ACE PROJECTS CONSULTANTS

APPENDIX C: RESUME OF EAP

...a leap towards better environmental compliance.

PROFESSIONAL PROFILE

Mr. SHADRACK TJIRAMBA
Research and Environmental Management Specialist

ID Number :	80011910445	EMAIL:	eap.trigen@gmail.com
Country of Résidence :	Namibia	Cell:	+264-816229933
Nationality:	Namibian		

PROFESSIONAL OVERVIEW

Experience Internationally:

Countries worked: Namibia, South Africa.

Languages: English (*fluently written, spoken and read*);
Otjiherero (fluently spoken, written and read)
Afrikaans (*well spoken, fairly written and read*),

ACADEMIC QUALIFICATIONS:

2009	The University Western Cape	*Post-Graduate Diploma Sustainable Land Management (NQA Level 8) Sustainable Development, Resource Economics, 2009), South Africa*
2007	University of South Africa (UNISA)	*Bachelor of Laws (LLB)*
2005	Polytechnic of Namibia	*B-Tech Land Management, 2005*

EMPLOYMENT RECORD:

May 2020-Current: Enviro-Leap Consulting Cc
Position: Lead Consultant Environmental Management

- Compile and review environmental assessment reports (environmental scoping and management plans (EMP)) for our clients in accordance with the requirements of the Environmental Management Act, No.7 of 2007 and its regulations of 2012
- Compile and review environmental policies and audits
- Reviewed and updated the Solid Waste Management Policy for Dundee Metals Mining
- Conduct environmental compliance inspections and audits
- Facilitate stakeholder engagement
- Coordinate closure and rehabilitation of development projects, such as mining sites, hazardous substance spill sites
- Prepared training manuals and facilitated workshops for Communal Land Boards

August 2015 – July 2018 (fixed- term 3 years)
Position: Project Coordinator-Basket Fund, GIZ (Deutcshe Gesellschaft Fur Internationale) Responsibilities:

- Coordinate project activities in the Omaheke and Otjozondjupa Region's
- Provide technical expertise/advise to various regional councils, land boards, traditional authorities, local level planning committees
- Coordinate the processes of revising and developing the Namibian environmental legislations (plans, strategies, regulations and Act amendments), as well as dissemination of information on these tools
- Prepare tender documents
- Coordinate project procurement needs in line with GIZ procurement policies.
- Financial reporting in line with financial guidelines for grant agreement GIZ
- Coordinate, manage the planning and implementation of project consultants' key performance areas.
- Supervise project staff and resource allocation
- Reporting in line with donor requirements

P. O. Box 25874, Windhoek +264 81 622 9933 eap.trigen@gmail.com

January 2019 – June 2019
Position: Social Policy Consultant – Gender Mainstreaming: Benguela Convention Commission. Responsibilities:

- Conducted and compiled a draft Situation Analysis Report, summarizing the findings of desk review, gender survey through the field mission and interviews
- Compiled a draft Action Plan for BCLME III Project and Gender Policy for BCC
- Hosted and facilitated a situation analysis findings validation workshop
- Produced final Situation Analysis Report, Gender Action Plan for BCLME III Project, including a proposed gender-responsive Project Results Framework with gender-responsible outputs, sex- disaggregated indicators, baseline and targets. Gender Policy for BCC

August 2011 to Dec 2012
Project Coordinator-MCA Agriculture & Environment:

- Managed the Millennium Challenge Accounts Namibia Agriculture and Environment project's activities.
- Co-Developed, implemented and monitored local-level integrated activities and annual work plans for the CBNRM.
- Undertook and provided training and technical support to the targeted conservancies as per the objectives of the CBNRM
- Ensured project compliance with donor requirements through production of and submission of technical reports according to Donor procedures trainings for land management for farmers

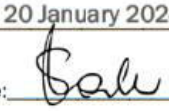
February 2004 – March 2009
Researcher: Land, Environment and Development Project-Legal Assistance Centre. June 2006 – November 2009

- Assist with desktop and field research on land, environmental and urban housing (informal settlements).
- Assist in the compilation of research questionnaires
- Conduct interviews
- Assist with project administration
- Laise with stakeholders NGO's, Government Agencies, Farmer's Associations, Ministry of Environment
- Draft research reports

CERTIFICATION

I, the undersigned, Shadrack Tjiramba, hereby certify to the best of my knowledge that the information provided herein correctly describe me, my qualifications and experience.

Date: 20 January 2024

Signature: 

P. O. Box 25874, Windhoek +264 81 622 9933: Email eap.trigen@gmail.com

PROFESSIONAL PROFILE

Mr. LAWRENCE TJATINDI
Project Manager and Environmental Practitioner

ID Number :	82110710012	EMAIL:	eap.trigen@gmail.com
Country of Résidence :	Namibia	Cell:	+264-81-486-9948
Nationality:	Namibian		

PROFESSIONAL OVERVIEW

Experience Internationally:

Countries worked: Namibia

Languages: English (*fluently written, spoken and read*);
Otjiherero (fluently spoken, written and read)
Afrikaans (*well spoken, fairly written and read)*

Languages: Project Management
Tailings Risk and water balance
Waste water treatment technologies
Feasibility studies – Mining Projects
Water Supply and reticulation design

ACADEMIC QUALIFICATIONS:

2009	University of Stellenbosch	*Senior Management Development Program (Business School)*
2007	University of Cape Town	*Bachelor of Science in Chemical Engineering*

EMPLOYMENT RECORD:

May 2022 - Current: Enviro-Leap Consulting Cc
Position: Project Management and Environmental Practitioner

- Update stakeholder register and manage engagement plan
- Conduct environmental compliance inspections and audits
- Represent Enviro-Leap at stakeholder engagement meetings
- Coordinate closure and rehabilitation of mining development projects
- Attend site visits for new projects
- Meet with clients to align requirements with Enviro-Leap' s output.Compile and review environmental policies and audits

January 2018 – April 2022 (fixed- term 4 plus years)
Position: Senior Engineer – Water and Tailings Risk Management: Dundee Precious Metal Tsumeb Smelter
Responsibilities:

- Waste water treatment and effluent quality compliance monitoring
- Ensure compliance with water abstraction permit
- Internal auditing of Tailings compliance with corporate standards and international good practice
- Operationalization of recommendations from Expert reviews and mandatory audits.
- Ensure tailings operation is in line with design specifications
- Provide specifications that feeds into the tailings design tables

April 2015 – December 2017
Position: Senior Metallurgist – Product Recovery Section: Langer Heinrich Uranium Mine
Responsibilities:

- Technical advisor to the recovery section – Setting metallurgical Operating parameters
- Test work lead for Membrane technology – Nano Filtration, Ultra Filtration, Reverse Osmosis
- Test work lead for Ion exchange separation efficiency – NIMCIX and Fixed Bed ion exchange

August 2010 to July 2014
Position: Technical Metallurgist – Water Management and Tailings Planning: Rössing Uranium Mine
Responsibilities:

- Technical advisor to the tailings management team
- Recommend improvement initiatives for return dam solution
- Formulation of 5 year deposition planning

Position: Process Control Metallurgist
Responsibilities:

- Technical advisor for the recovery section of the refinery

Position: Test work Lead – Pre-feasibility study for heap leaching of low grade Uranium ore
Responsibilities:

- Lead the test work team for the feasibility study for Heap Leaching
- Write up of study findings
- Design test work program for the study

February 2007 – July 2010
Position: Graduate Metallurgist – Sulphuric acid and water treatment plant: Skorpion Zinc mine

- Completed graduate development program
- Junior area metallurgist for the acid and water section of the plant
- Custodian of water balance of the plant
- Metal accountant for the refinery section

CERTIFICATION

I, the undersigned, Shadrack Tjiramba, hereby certify to the best of my knowledge that the information provided herein correctly describe me, my qualifications and experience.

Date: 20 January 2024

Signature: 

P. O. Box 25874, Windhoek +264 81 622 9933: Email eap.trigen@gmail.com