

SCOPING REPORT FOR 30MW SOLAR (PHOTOVOLTAIC (PV) PANEL POWER PLANT FACILITY (LIGHT INDUSTRIAL) WAREHOUSE & STORAGE IN LISELO COMMUNAL AREA, ZAMBEZI REGION

**Assessed by:**

NYEPEZ Consultancy cc

**Assessed for:**

SSN Investment cc

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June 2025

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Project Name	Proposed Solar Plant Farm Park (Light Industrial) on 50 Hectares, Liselo Communal Area
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EXECUTIVE SUMMARY OF SOLAR POWER PLANT FARM PARK PROJECT AT LISELO COMMUNAL AREA

Proposed Land Use: Solar Power plant, Warehouse & Storage facility

Total site area: 50 ha

***NB:** Please Note That This Project Was First Approved In 2017 and Subsequently Renewed In 2021 As Per the Attached Expired ECCs on a different site measured 15 hectares. Due To The Projected Magnitude, Extent, vision and Size of The Envisaged Project, The Mafwe Traditional Authority through Liselo Sub-khuta re-allocated a new site with an Increased Size of Land From 15 Hectares to 50 Hectares as The Solar Plant Farm Park project objectives which requires enough Land to Cater for the solar panels that can produce power of 30MW*

Brief Project Description

The proposed Solar Power plant park (light industrial) project is on a 50 Hectares of Land and is nonfunctional. The Solar plant farm park Infrastructure is proposed to be developed on remaining 50 hectares excluding warehousing & storage facility development. The project is situated in the Liselo communal area, situated about +- 1 kilometres from the town of Katima Mulilo in the Katima Rural Constituency. The light industrial Solar Plant Farm Park project is engaged in different activity that leads to its successful operations.

The current land use or usage of the site is virgin land, where there are no activities taking place onsite. The investor, SSN Investment cc came up with an initiative, where it decided to make use of this un-utilised land thereby proposing the development of a 30mw Solar Plant Farm Park (light industrial) on the land. The proposed site has a total size of 50 hectors and will various components that supports the solar panel plant operational system. This will include warehouse or storage area (where materials other movable products will be kept, and will also consist of administrative office on the same area.

Accessibility

The site or project area is accessible through an existing Nova gravel road that was established in the early 1980 and is still functional and is being maintained and upgraded

by the Katima Mulilo town council. The gravel road is connected to the Main tere road of Trans-Caprivi Highway. The existing road is and can be used by both heavy load transportations such as trucks and light weight vehicles

Justification

The objective of this project is to turn the land into a Solar Panel farm park for light industrial business entities within the Zambezi region. The output product of this proposed Solar power plant is to compliment the supply of affordable power supply to business entities, to residents and to regional sectors to mitigate the high demand and provide affordable electricity to different stakeholders and users, usually through an offtake power supply agreement with the Namibian Electrical Board and Nampower.

SSN Investments decided and choose to develop an industrial hub to service the community of Liselo, Mafwe Traditional Authority, Katima Mulilo and the Zambezi region at large. The developer has identified a need to shift a paradigm of trade in Namibia through strategically aligning to the industrial policy and logistic hub of Namibia. This is in line with the fact that Namibia is a net importer of goods and services, with an increasingly growing negative trade balance. For is the reason most Government policies strongly support the industrial and manufacturing industry sector. The highly motivated Directors of SSN Investments CC have thus identified Liselo area in Zambezi region as an ideal area where the company can expand in terms of industrial infrastructure for both services and manufacturing businesses given its strategic location.

Furthermore, SNN Investment want and aimed at contributing to the local economic development in the form of employment, infrastructure development and services to the people of Liselo Sub-Khuta, Mafwe Traditional Authority and Katima Residents at large. The project scope of this development proposal is vital and important to the Region and the entire Namibia as the power thought to be produced is renewable and inexhaustible energy source, generating electricity without greenhouse gas emissions and potentially lowering electricity bills. This type of energy also requires minimal maintenance, can increase property value, and offers energy independence in town, region and the whole country.



MAFWE ROYAL ESTABLISHMENT

Office of the Litunga (Chief) Linyanti Khuta
P O Box 7004 – Katima Mulilo – Republic of Namibia

June 2, 2025

The Chairperson
Zambezi Communal Land Board
Katima Mulilo
Zambezi Region

Dear Sir

SUBJECT: APPLICATION FOR RIGHT OF LEASEHOLD

Mafwe Traditional Authority hereby certify that SSN Investments cc registration No. CC/2014/03268 has been allocated a portion of land measuring 50 hectares in Liselo Communal area for solar plant. Maximum lease period granted for up to 99 years in accordance with Communal Land Reform (Act, No. 5 of 2002, section 34).

We appreciate your speed facilitation towards this application.

Yours Sincerely,

B.N. Mpango
Secretary

P M Kawana
Hon. Natamoyo



G.S. Mamili VII
His Royal Highness Litunga



Figure 1: New Consent letter_50 hectares

ECC – 01796 Serial: Efl6x91796



REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
 OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental
 Management Act (Act No. 7 of 2007)

TO

SSN Investments cc
P. O. Box 31400, Windhoek.

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

**THE EXISTING & OPERATIONAL LIGHT INDUSTRIAL (SOLAR PLANT,
 WAREHOUSE & STORAGE FACILITY) AT LISELO COMMUNAL AREA,
 ZAMBEZI REGION COMMUNAL AREA, ZAMBEZI REGION.**

Issued on the date: **2021-12-07**

Expires on this date: **2024-12-07**

(See conditions printed over leaf)



ENVIRONMENTAL COMMISSIONER
 REPUBLIC OF NAMIBIA

This certificate is printed without erasures or alterations

Reduce
Reuse
Recycle



Figure 2: Previous issued ECC for Solar power plant on 15 Hectares

Existing Land Uses

The proposed project site is situated close to other existing land uses, most of these existing developments are compatible to the proposed solar power energy. These include development such as Katima Mulilo Nampwer Grid, the Lizazi Bring making project and the Katima Mulilo Katima farm. These land uses according to the Zambezi Regional Integrated Rural Land Use (ZRIRL) these eland uses are interlinked as they influence each other and can therefore can co-exist without affecting each other's operations.

Project Schedule

SSN Investment Cc plans to start its site development activities in July 2026, where preparatory activities such as clearing of the land and fencing of the area will be implemented. The construction of the buildings and/or storage facilities will begin at the later stage in 2026 towards end of the year. Construction to end by the end of June 2027. The operation will start immediately as soon as the construction phase is completed. The decommissioning of the project activities will depend of the demand of business operation.

Public Participation Process

NYEPEZ Consultancy CC will be conducting the Public Participation Process (PPP) for the SSN Investment CC Project. In recent years, Zambezi region developments has taken a much more participatory approach on development projects, with the understanding that the socio-political and economic context of the times invites a more public focused approach. Communities that surround the development are invited to “inform and be informed” about projects through the establishment of forums in order to address concerns and maximize positive impacts where possible. It is also noted that engaging stakeholders timeously does ensure for a contribution to early project design. It is for this reason that the PPP as part of the EIA becomes the basis of a long-term stakeholder engagement process.

Environmental Impact Assessment

The EIA of the project activities will be determined by identifying the environmental aspects and then undertaking an environmental risk assessment to determine the significant environmental aspects. The environmental impact assessment has included all phases of the project namely the construction phase and operational phase. The decommissioning phase will be addressed within the EMP. The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. During the EIA, the impact of the light Industrial and storage facility Development on the biophysical and social environments will be assessed. From the assessment, it will determine which parts of the two environments will be more significantly affected as compared to others. It will be this assessment that will allow the EAP to make an informed analysis & opinion of the proposed development

EIA Objective

The objective of this Environmental Impact Assessment (EIA) is to carry out a detailed evaluation of the environmental issues of the project in accordance with the Environmental Management Act of 2007. The EIA highlights the implications of the project to the environment and also to inform the public and interested parties the project objectives, needs and constraints. This EIA also makes constructive suggestions on improving the environmental performance of the project.

- To minimize the impact of the light industrial storage facilities on the Environment, including natural resources, local residents and existing surrounding land uses; Facilitate goods movement for the benefit of local, regional, state wide, and nationwide economic growth.
- To ensure site selected for the proposed industrial and storage facility is appropriate for long term operation and that project methods are sustainable and Provide for a range of industrial, warehouse, and office land uses in the project area
- To enable the project owners SNN Investment cc to apply for a licence from the Ministry of trade and industry as per the light industrial policy

In adopting this Development Control measure, Ministry of trade and Industry as well as the Namibia Chamber of Commerce and Industry (NCCI) acknowledges the importance of the light industrial projects in the Liselo communal area. It acknowledges the vital role the industry plays in employment, the industrial sector, and indirect economic benefits.

MAIN LIGHT INDUSTRIAL ACTIVITIES

The development project will contain:

- ❖ A 30megawatt (MW) Solar Plant Farm Park (approximately on 47 hectares) and 3 hectares to be utilized for other infrastructure building such as:
- ❖ An integrated office building (consisting of reception, staff offices, staff toilets, & workers toilets)
- ❖ One Large warehouse serving as workshop area to repair damaged panels, assemble & disassemble and to other necessities
- ❖ A Storage area will store stocks solar panels, solar power batteries, backup generator, panel cable connectors/wires
- ❖ A parking area, Security guard gate room, loading & offloading zone
- ❖ Road-driveways, Pedestrian walkways & Landscaping

Moreover, below is a list highlighting certain products from the general public, government, non-governmental organisation and/or subsistence farmers that will be stored at a warehouse (on request) to keep such products safe. These will include in the region Retail Products to Be Stored at the Warehouse.

- ❖ Farming equipment
- ❖ Supermarket inventory & furniture
- ❖ Vehicle Spare parts – Inventory
- ❖ Dairy products e.g meats, milk, fish or fresh produce etc.
- ❖ Agricultural Produces and other food supplies & grains

SSN Investment cc confirms that NO hazardous and poisonous substances such as petroleum products will be stored at the warehouse facility

1. INTRODUCTION

1.1 Background

According to Pepermans et al (2005) A solar power plant is referred to a facility that generates electricity by converting sunlight into electrical energy. It utilizes solar panels to capture sunlight and convert it into direct current (DC) electricity. This DC electricity is then converted to alternating current (AC) electricity, which is usable in homes and businesses by inverters. These plants can range in size from small, rooftop installations to large-scale, utility-sized facilities.

“Warehousing is the set of activities that are involved in receiving and storing of goods and preparing them for reshipment “Warehousing is not only concerned with storage facilities but also involved in various other activities like Receiving, identifying, Holding, Assembling and preparing to meet the demand (Hughes).

The SSN Investment cc was allocated 50hectare for development of a Light Industrial development inclusive of a storage and a warehouse structure within the Liselo Communal area, just outside the town boundary of Katima Mulilo. The envisaged project site falls within the Katima Rural Constituency. Currently the land is predominantly unutilized as there are no physical activities taking place on the land. The site has few trees, shrubs and dry grass that will require removal once the project start its construction phase. Significantly the site is relatively flat and partially disturbed as the land is situated in a fast pace area under development.

Some existing and operational development located around the Solar power plant facility area include the NamPower Electricity Grid, the Katima-Liselo Green scheme, the proposed new weigh-bridge to be constructed at the Namibian-Zambia Winella Border. The Project area is therefore strategically located in order to serve its purpose and compliment to the development and efficiency of other upcoming high-value development projects. The intention and idea is to use the 47 hectares of the total 50 hectares for exclusive construction of a Solar Power (Photovoltaic Modules) plant facility, while the remaining 3 hectares shall be land reserved for construction and

development to the building structures inclusive of Warehouse, offices, storage, road reserve and parking and loading zones.

The project area is situated along well a well-maintained cutline (sand road) in the mandate of Zambezi Regional Council and the Ministry of Environment, Forestry & Tourism. This access road will be upgraded and shall be filled with gravel material to better accommodate heavy construction vehicles that will service the project. This road will provide better access to the site. This accessibility gravel road joins to the Trans-Caprivi highway which is the main highway road that goes to the Winella border post (connecting Namibia & Zambia). The winella boarder is situated about 4 kilometers from the Project site, which is an ideal location for light industrial project for both local and trans-national business.

It is further noted that in the current proposed SSN Investment cc Light Industrial Development Strategy, the property has been identified as land suitable for Industrial Development. The project will enable the potential development of 'super sites' for large single users who are looking at being located in close proximity to the Katima airport and with good accessibility to major routes.

The proponents SSN Investments cc (also co-owners Mr. Kennedy Chunga & Mr Cacious Siboleka) of the proposed Light Industrial business Project appointed Nyepez Consultancy cc to conduct the Environmental Assessments and develop an Environmental and social Management Plan (ESMP) and accompanying report for the proposed SSN investment Cc light industrial project. An Environmental Scoping Study was first undertaken to identify key biophysical and social concerns related to the project. During January 2025, Nyepez Consultancy cc conducted site visits and communicated with a range of stakeholders to identify and determine developmental issues or concerns and this report contains such findings



Figure 3: Site project areas; Old site of 15 hectares & new site of 50 hectares

1.2 Terms and reference

The terms of reference for this Environmental Assessment are to determine the potential bio-physical and social impact emanating from the construction and operation of the proposed light industrial storage project. The aims and objectives of the assessment are:

- To establish and describe the known ecological baseline conditions for environmental, health and social conditions existing in the project area from secondary information and a reconnaissance site visit
- To conduct an environmental impact identification and assessment and to provide a description of the likely environmental impacts of the proposed project during the construction and operation phases
- To also demonstrate that the Environmental Assessment complies with the current and/or expected Namibian legislation requirements for environmental, social performance and health.
- To identify and draft actions for environmental and social management plan of the proposed light industrial development
- To identify and document mitigation measures to minimise identified adverse environmental impacts

Based on the above the ESMP lists those management actions that are needed to ensure that undue or reasonably avoidable adverse impacts of the planning, construction and operations of the project are prevented and that the positive benefits of the project are enhanced or increased. It also gives responsibilities and will be used as a checklist to monitor compliance at the site.

2. POLICY AND LEGAL FRAMEWORK

Situation analysis Namibia is developing a coordinated approach to light industrial development projects and regulation. Central to this effort must be the creation of institutional arrangements that promote light industry and coordinate the various agencies and other entities involved in regulation and support. Currently in place and in force are:

This section, in table format, describes the environmental framework of the project.

Table 1: Environmental framework of the project

LEGISLATION/GUIDELINE/POLICY	APPLICABLE CLAUSE/POLICY	COMMENTS
Namibia 's Environmental Assessment policy (1995)	List of activities that require EA.	Tourism facilities need to be assessed in terms of the impact on the natural and social environmental and resources.
Communal Land Reform Act	List of activities that may not be undertaken without a clearance certificate: 6.tourism development activities	Conduct a EA in terms of the tourism development and submit to MET in order for a clearance certificate to be issued.
1994 White paper on tourism (MET 1994)	Tourism must provide direct benefits to local people and aid conservation.	Emphasis should be on local benefits from tourism.
1995 policy on wildlife, management utilisation and tourism in communal area (MET 1995a)	To allow rural communities on state land to undertake tourism ventures and to enter into cooperative agreements with commercial tourism organisations to develop tourism activities on state land.	JV agreements with benefits to local communities should be negotiated between developers and local conservancies.
Inland fisheries resources act,2003 and regulations	Promotion,sustainable utilisation and protection of inland fisheries resources. Restrictions by limiting number of nets,mesh,sizes,net length and damaging fishing methods.	A fishing licence need to be obtained from the regional office to engage in recreational fishing in any inland waters by means of any regulated fishing gear.
Communal land reform act (act no 5 of 2002)	Allocation of rights in respect of communal land –pqr 2- right of leasehold. A right to leasehold	Application for the right of leasehold in respect of communal land must be made in the prescribed manner to the CCLB. Right of leasehold granted for
Namibia transport Act 22 of 1999	Guides and control the use of road by heavy and light vehicles on Namibian public roads	

Once Operational – the proponent would source permits from the relevant authorities and these includes;

- a) The premises will be operated under the bylaws of the Katima Town Council, Liselo Traditional Authority, and Mafwe Traditional Authority and permits will be sourced in this regard.
- b) The Local Authority Act
- c) Permit from Agronomic Department at Ministry of Agriculture
- d) Permit from Ministry of Mines and Energy & Namibia Electrical board
- e) Ministry of Environment, directorate of Forestry

Table 2: Other relevant legal frameworks related to waste management in Namibia

Framework	Emphasis
Atmospheric Pollution Prevention Act No. 45 of 1965	<i>Prevention of pollution of the atmosphere.</i>
Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1992	<i>Environmental sound management of hazardous waste and other wastes through the reduction of their movements, for the purpose of reducing their impacts on human health and environment</i>
Hazardous Substances Ordinance No. 14 of 1974	<i>Control of toxic substances (including manufacture, use, disposal, import and export).</i>
Pollution Control and Waste Management Bill of 1999	<i>Prevention and regulation of air, water and land pollutants; establishment of an appropriate framework for integrated pollution prevention and control, regulation of noise, dust and odour, as well as an establishment of a system of waste planning and management.</i>
Pollution Prevention Ordinance No. 11 of 1976	<i>Prevention of air pollution.</i>
Prevention and Combating of Pollution of Sea by Oil Act No. 6 of 1981	<i>Prohibits the discharge of oil from ships, tanker or off-shore installation and gives the state certain powers to prevent such pollution and deal with removal of oil spills.</i>
Prevention and combating of pollution of the sea by oil Act 24 of 1991	<i>Prevention of sea pollution by oil.</i>

UN Convention on the Law of the sea, 1982	<i>Protection and preservation of the marine environment including the seabed, ocean floor, subsoil and the resources in the environment.</i>
Water Resources Management Act No. 24 of 2004	<i>Prevention of water pollution.</i>

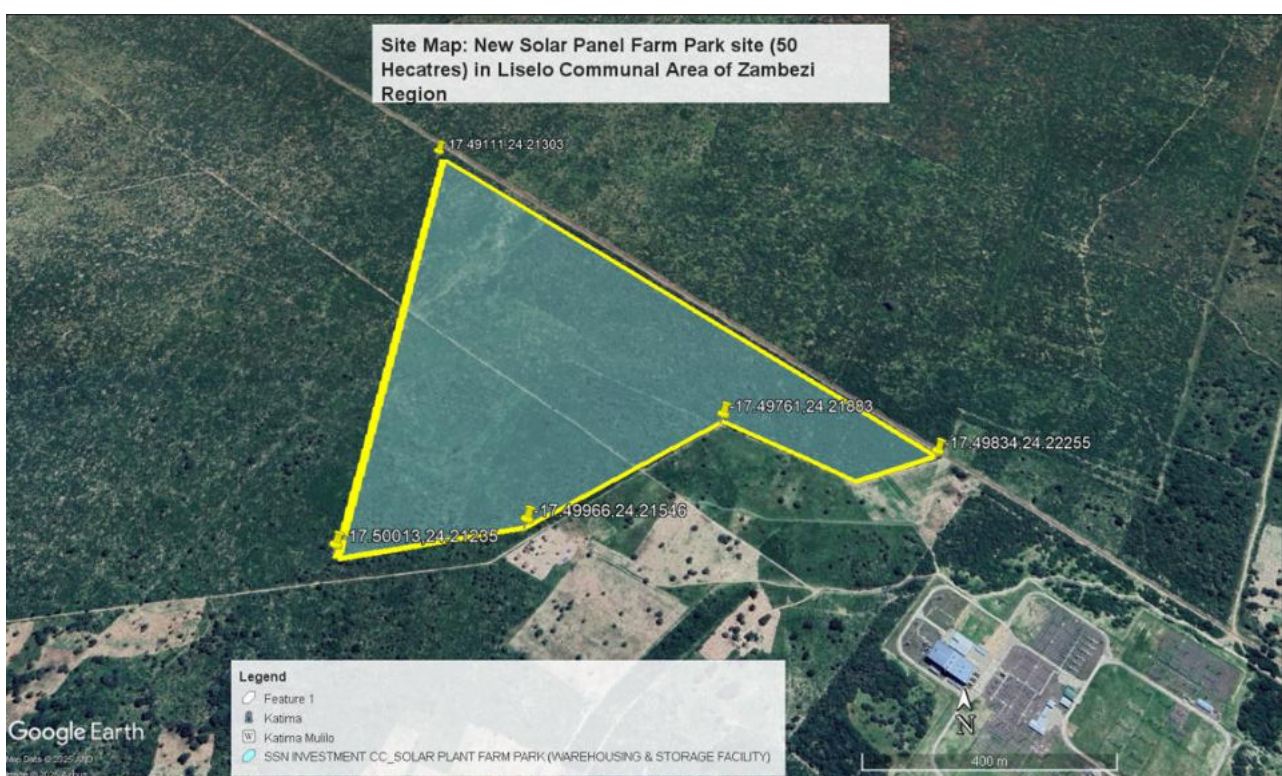
2.1 Environmental Assessment Practitioner (EAP)

Nyepez Cpnstutancy cc is the EAP that conducted this Environmental Assessment. The following sectional details of the project which need to be considered as the input to the EIA process in the subsequent sections of the report.

3. DESCRIPTION OF THE PROPOSED PROJECT

3.1 Locality

The project site and development of a Solar Panel Farm Park referred to as Light industrial is located ± 1 meter south west of the town of Katima Mulilo, few meters from the designated Nova settlement (but fenced off) in the Liselo communal area. The site falls within the communal land; thus, the land is under the custodian of the Traditional Authorities and under the administration of the Zambezi Communal Land Board in the region. From a distance the area is also located some ± 1.2 meter to the main Trans-Caprivi highway which forms a link with Namibia-Zambia Boarder of Winella situated about ± 3 Kilometre from the proposed site area.



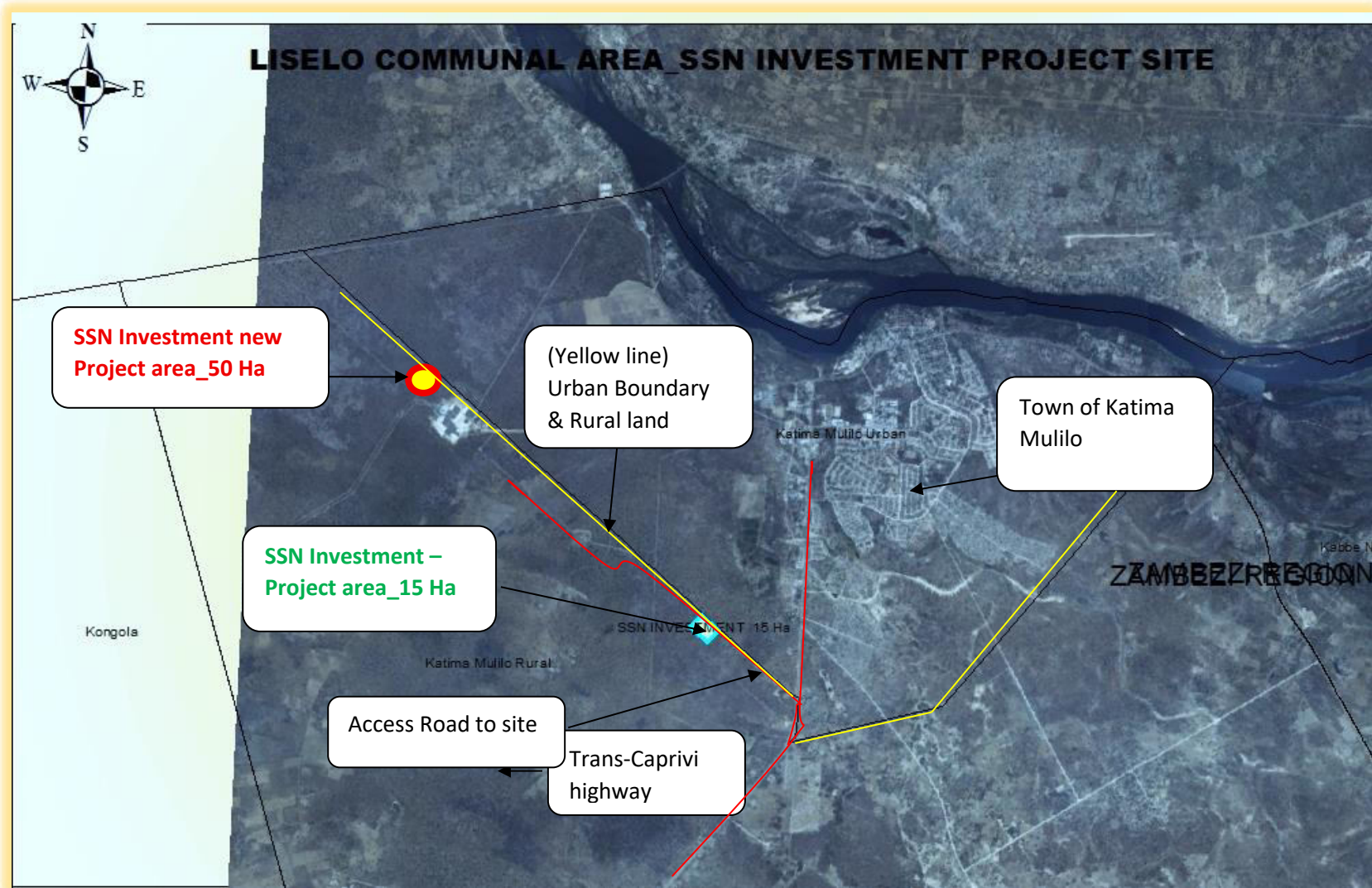


Figure 4: **Locality Map:** Solar Power Plant facility (showing proximity to the town of Katima Mulilo) at Liselo communal area

3.2 Project Rationale

The objective of this project is to turn the land into a Solar Panel farm park for light industrial business entities within the Zambezi region. The output product of this proposed Solar power plant is to compliment the supply of affordable power supply to business entities, to residents and to regional sectors to mitigate the high demand and provide affordable electricity to different stakeholders and users, usually through an offtake power supply agreement with the Namibian Electrical Board and Nampower

SSN Investments decided and choose to develop an industrial hub to service the community of Liselo, Mafwe Traditional Authority, Katima Mulilo and the Zambezi region at large. The developer has identified a need to shift a paradigm of trade in Namibia through strategically aligning to the industrial policy and logistic hub of Namibia. This is in line with the fact that Namibia is a net importer of goods and services, with an increasingly growing negative trade balance. For is the reason most Government policies strongly support the industrial and manufacturing industry sector. The highly motivated Directors of SSN Investments CC have thus identified Liselo area in Zambezi region as an ideal area where the company can expand in terms of industrial infrastructure for both services and manufacturing businesses given its strategic location.

Furthermore, SNN Investment wanted and aimed at contributing to the local economic development in the form of employment, infrastructure development and services to the people of Liselo Sub-Khuta, Mafwe Traditional Authority and Katima Residents at large. The project scope of this development proposal is vital and important to the Region and the entire Namibia as the power thought to be produced is renewable and inexhaustible energy source, generating electricity without greenhouse gas emissions and potentially lowering electricity bills. This type of energy also requires minimal maintenance, can increase property value, and offers energy independence in town, region and the whole country.

The Zambezi Regional Poverty Profile (2004) points out that the Zambezi region is the second-poorest region after Ohangwena and in terms of the Human Poverty Index (HPI) published by the UNDP for 2000, the Zambezi (Caprivi) ranks as the poorest in the

country. The region has an HPI of 36.0, which is much higher than the average of 24.7 for the country as the whole. Hence this type of proposed business can therefore only benefit the surrounding communities and bring long term quality of life for local people in Liselo area, town of Katima Mulilo and the Zambezi region at large.

The main Project objective are:

- Implement Economic Development Element Goal 1 of the region General Plan by creating a revenue-generating use that capitalizes on nearby transportation corridors, stimulates employment, and responds to current market opportunities.
- Provide new land uses that are compatible with existing surrounding uses and consistent with the Katima Mulilo General Plan and Zoning Ordinance.
- Concentrate industrial uses near existing roadways, highways, and freeways to reduce traffic congestion, air emissions, and impacts to residential neighbourhoods.
- Provide for a range of industrial, warehouse, and office land uses in the project area.
- Facilitate goods movement for the benefit of local, regional, state wide, and nationwide economic growth.
- Provide new development that will generate a positive fiscal balance for the City in the years ahead.
- Develop multiple adjacent parcels concurrently with industrial, warehouse, and office land uses in a planned, orderly, and efficient manner that avoids creating fragments of open space that will be difficult to use in the future

4. DESCRIPTION OF SITE INVIRONMENT

4.1 Introduction

In the following sections highlights the current biological, physical and socio-economic conditions of the study area are discussed and their sensitivities to change are considered

4.2 Location

The proposed site for the project is in the communal or rural area, where sufficient unutilised land is available and is suitable for this business proposal type of business at a lower economic cost. This location is socially and environmentally more feasible due to the following:

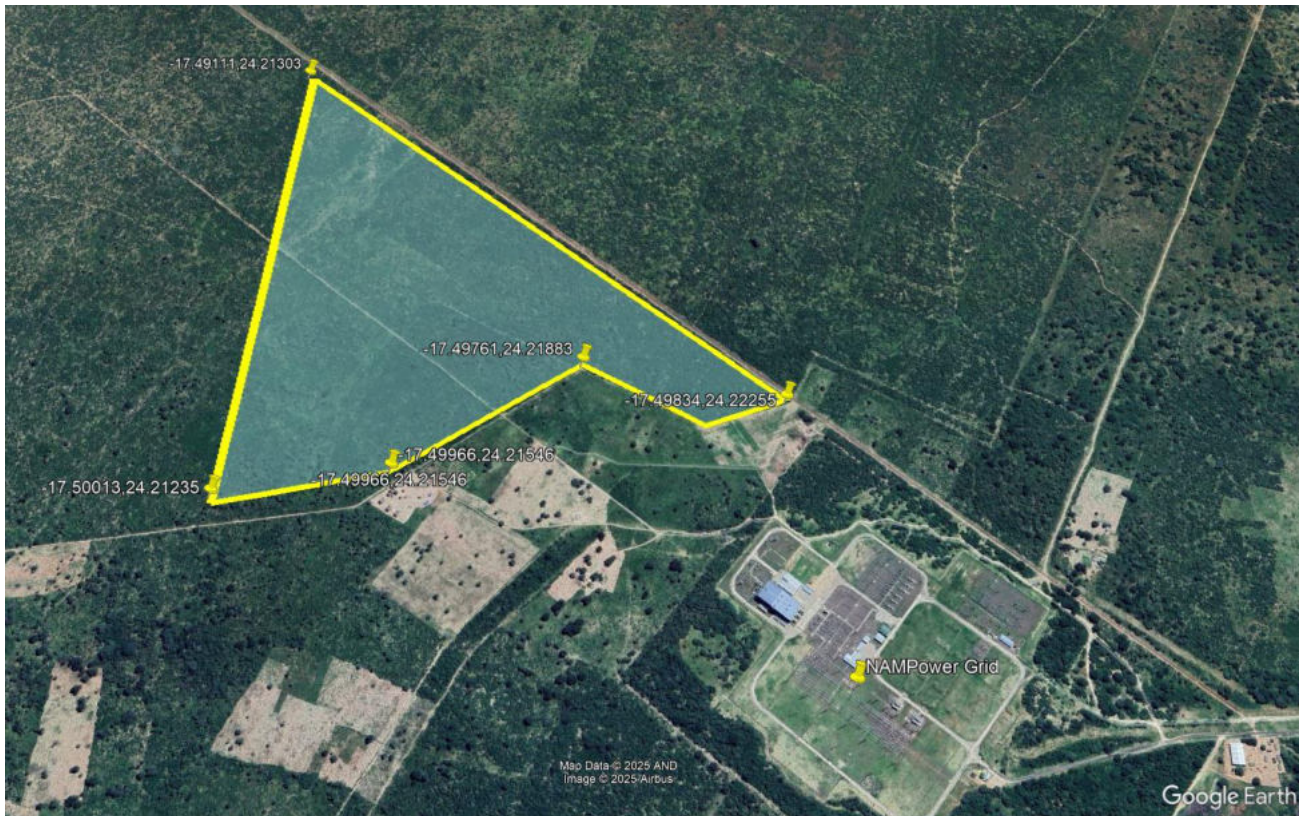


Figure 5: Site project area_50 Hectares

- High of proximity to social amenities, services and infrastructure;
- Locating a light Industrial development close to other urban facilities;

Furthermore, the site is situated alongside an existing and well services gravel road and close to a newly developed Brick making project that is also situated in the Liselo communal area outside the jurisdiction of Katima Town Council

4.3 Climate

The Zambezi Region (formerly Caprivi Strip) has a hot climate. Rain usually falls in the form of heavy thunderstorms. There is a Wet season, which coincides with the summer

months of November to April. During the dry winter months, from May to October, there is virtually no rainfall (although the rains sometimes begin in late October). It gets very cold in the morning, especially from May to July.

Dry Season: May to October – Winter

These months are the coolest of the year (except for October) and there is almost no rain at all. It gets drier as the winter progresses.

- ❖ May, June, July & August – It is usually sunny and totally dry. These are the coolest months and the average afternoon temperature is 27°C/81°F. It is cold in the early morning at around 10°C/50°F. Warm clothing for early-morning game drives is necessary.
- ❖ September & October – Temperatures are increasing. October is the hottest month with average afternoon temperatures of 35°C/95°F and much higher peaks. Early mornings are less cold at around 19°C/66°F. The rains usually start toward the end of October or in early November.

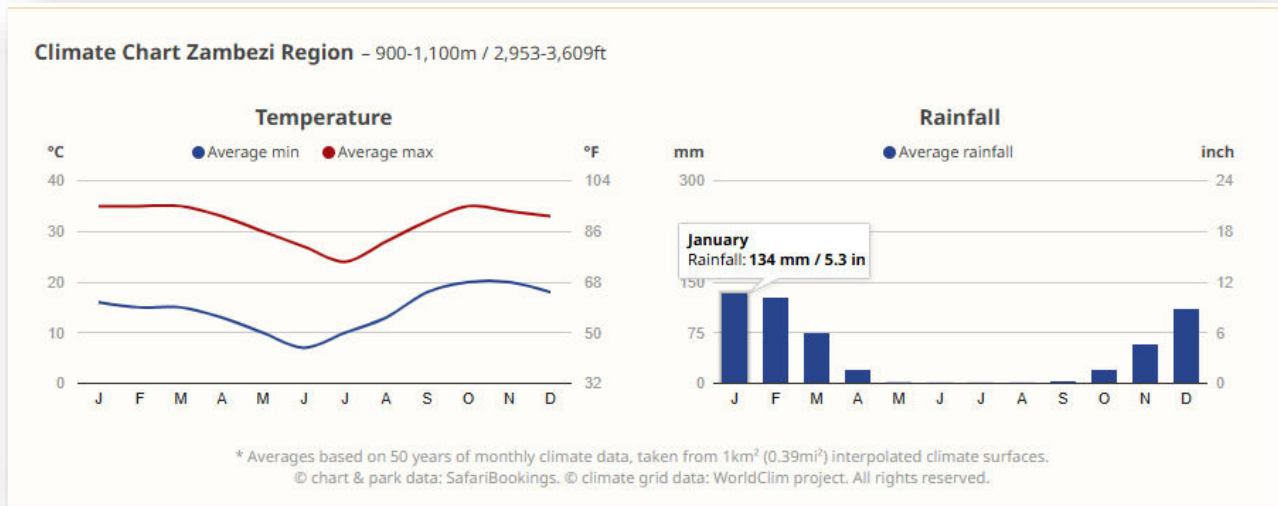
Wet Season: November to April – Summer

The Wet season falls in the hot summer months, but rainfall isn't very high. Afternoon thunderstorms can be expected on some days. It is mostly sunny and hot. Early mornings are mild.

- ❖ November & December – The rains usually start in late October or early November. It is still mostly dry, but you can expect the occasional thundershower to bring relief from the long, dry winter. Afternoon temperatures are around 34°C/93°F.
- ❖ January, February & March – January and February are the wettest months. Afternoon thunderstorms are common, but it is mostly sunny during the day. It usually cools down after rain and average daytime temperatures are around 35°C/95°F.
- ❖ April – Rain decreases rapidly in April and there are less and less days with precipitation. Temperatures start to drop slowly.

The climate data below (table below) is typical for Southern part of Zambezi region and is expected to occur at the farming production site.

Table 3: sensitivities and potential impact related to climate



4.4 Topography and Geology

The Zambezi Region is characterized by its low-lying, flat topography, primarily within the Kalahari Basin and its extensive network of wetlands and rivers. The region is heavily influenced by the Zambezi River and its tributaries, including the Kwando, Chobe, and Cuando rivers, which create extensive floodplains and swamps. The region is a vast, flat plain, with an elevation of about 3,100 feet (950 meters).

The Geology of Zambezi Region is underlain by the Kalahari Group, which consists of unconsolidated sands, silts, and clays. The area has also been shaped by the formation of linear sand dunes, which are remnants of a drier period in the past. Groundwater investigations have explored the region's aquifers, revealing information about recharge sources, residence times, and potential vulnerability to pollution. The project site however comprises of the landscapes:

- Dry forest with associated grass
- Sandy soil.

- The geology is dominated by the sand and dry savannah grassland. The geographical location and utilisation of a site's natural topography may benefit proposed development project to avoid potential land use conflicts.

4.5 Hydrology

The Zambezi Region, in Namibia, is characterized by its unique hydrology, dominated by the Okavango River and its associated floodplains and wetlands. The region is relatively flat and low-lying, leading to significant inundation during high flood periods. The hydrology is further influenced by the presence of the Kwando-Linyanti River system and the Kalahari basin.

The locality of the proposed project area is not constrained by any water bodies, wetlands or surface water drainage lines. The project has no potential adverse impact to the natural environment. At the same time, the area is not prone to flooding, hence the underground water levels are uncertain and could only be predicted and/or estimated by the hydrological expertise for water sources.

4.6 Air quality

According to latest report released by Zambezi Static Inverter Plant on Friday, July 4th. Report shows that the Air quality for Zambezi region on a daily basis will be good, meaning that air quality is satisfactory and air pollution poses little or no risk. According to 0 to 500 indexes, the air quality for Zambezi is between values of 19 and 41. Existing air quality is measured based upon ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare.

The ambient air in the project area is good in terms of quality since the area is neither in an environment that would compromise its quality. Some uncontrolled fires at times cause occasional smoke but it is insignificant to create pollution. SSN Investment cc as project owners will not tolerate burning on its property.

The sensitivities associated with surface and groundwater features as well as the potential impacts the project may have on these features are contained in Table below.

Table 4: sensitivities and potential impacts related to surface and underground water

Environmental features	Description	Sensitivities	Potential Impacts of Project on feature
Zambezi river system	Relatively large river that holds water permanently throughout	- The Zambezi river is a large river and feeds other catmint rivers such as Lake Lyambezi & Chobe rivers. - high flowing river - Can change direction east or west depending on inflow from Kwando –Linyanti - There is no information available on groundwater levels in the region - Shared water resource	- No Surface water pollution - No Increase in abstraction from Zambezi River - No Pollution as there are no recreational activities - No Impact on wet land system
Groundwater hydrology	- Underground water fairly abundant and flows in a south-easterly direction in a productive porous aquifer - Water reserves fairly close to surface, between 25-65 m - Water quality excellent (Mendelsohn et al 2002)	Pollution	- Any affluent resulting from the development is likely to affect the resources in the long term - Increased pressure on sustainability of water resources

4.7 Biodiversity

4.7.1 Vegetation

Zambezi Region is characterized by a mix of woodlands, floodplains, and wetlands, with the dominant vegetation being mopane woodland. Woodlands, particularly those with *Pterocarpus angolensis* (Kiaat) and *Baikiaea plurijuga* (Zambezi Teak), are economically important for forestry. However, frequent burning and historical logging have impacted these woodlands, leading to their conversion to shrublands. The region is also considered a semi-arid tropical savannah ecosystem with very distinct wet and dry seasons. Vegetation types in the Zambezi region are characterised by soils, flooding and fire. The four land types in the Zambezi shows considerable variation in terms of abundance and size of plant species and communities identified to provide an overview of the dominant plant species and communities (Mendelsohn et al 1997).

The Project site therefore has distinct communities of *Burkea-Terminalia* woodland (Hines, 1997). However, according to Lushetile (2009) this vegetation class has reduced species richness in comparison to other vegetation classes. Figure 5: captures the site structure and vegetation on the project site surrounding.

The site comprises of a cleared vegetation site; hence vegetation is in a disturbed state. The site does not have a fully functional ecosystem due to the disturbance by the surrounding business development activities and road which has fragmented the landscape. Therefore, destruction of vegetation will be not on a pristine landscape. The landscape can be enhanced with re-afforestation with desired species after construction to create micro-habitats. A nested plot design was used to capture species occurring at the site. The results are captured below:

Table 5: Vegetation species prevalent in the project area surrounding

Tree species	Protection status
Tree layer	
3 <i>Burkea africana</i> Hook.	Protected
11 <i>Terminalia sericea</i> Burch. ex DC.	None
1 <i>Strychnos spinosa</i> Lam.	Protected
1 <i>Philenoptera violacea</i> (Schinz) Schrire	Protected
1 <i>Piliostigma thonningii</i> (Schumach.) Milne	Protected
1 <i>Vachellia erioloba</i>	Protected
Shrub layer	
<i>Ochna pulchra</i> Hook.	Namibian Near-endemic

<i>Vachelia erioloba</i> E.Mey.	Protected
<i>Bauhinia petersiana</i>	Protected
<i>Ximenia caffra</i> Sond. var. <i>caffra</i> Zehneria <i>marlothii</i> (Cogn.) R.& A.Fern	None
<i>Terminalia sericea</i> Burch. ex DC.	None
<i>Opuntia ficus-indica</i>	None - Invasive species
Herbs	
<i>Annona stenophylla</i> Engl. & Diels ssp.	N/A
<i>Acrotome inflata</i> Benth.	
<i>Bauhinia petersiana</i> Bolle ssp. <i>petersiana</i>	
<i>Combretum collinum</i> Fresen. ssp. <i>collinum</i>	
Grass	
<i>Aristida adscensionis</i> L.	N/A
<i>Aristida stipitata</i> Hack. ssp. <i>Stipitata</i> ssp. <i>minuta</i>	
<i>Aristida meridionalis</i> Henrard	
<i>Cenchrus ciliaris</i> L.	
<i>Digitaria seriata</i> Stapf	
<i>Eragrostis rotifer</i> Rendle	
<i>Eragrostis porosa</i> Nees	
<i>Grewia flavescens</i> Juss. var. <i>flavescens</i>	
<i>Hermannia eenii</i> Baker f.	
<i>Heteropogon contortus</i> (L.) Roem. & Schult.	
<i>Hermstaedtia fleckii</i> (Schinz) Baker & C.B. Clarke	
<i>Indigofera flavicans</i> Baker	
<i>Kyllinga alba</i> Nees	
<i>Lonchocarpus nelsii</i> (Schinz) Heering	
<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh	
<i>Urochloa brachyura</i> (Hack.) Stapf	

Terminalia sericea was observed to be the dominant species at site. *T. sericea* can be invasive and its distribution is widespread. There is no protection for this species under current regulations. Wood from this species may be used as firewood after destructive activities on site. *Strychnos spinose* bears edible fruit and *Ochna Pulchra* makes beautiful ornamental trees. These can be uprooted and transplanted to a desirable position. *Opuntia species* is a threat native vegetation and therefore should be destroyed immediately to avoid infestation of this alien species. The *Burkea africana* is a timber species. Trees of this species observed on the plot were all of less than 45cm in diameter, should a need arise for such trees to be removed the Directorate of Forestry

should be informed. *B. africana* wood can be used for household items such as stool and pestles.

4.7.2 Birds

The Zambezi Region have an excellent bird-watching destination, with more than 450 species of birds recorded. The region supports many birds not found elsewhere in Namibia. Most of the Okavango Delta specials can be seen here, including slaty egret, racket-tailed roller and wattled crane. From November to April, permanent water in the region makes it a popular stopover for many migrants from Eurasia and elsewhere in Africa. A variety of waders is abundant throughout the year.

As a result of the unavailability of surface water at the project site, the area or the proposed site does not have abundance of bird species. Birds are mostly confined to the river side and floodplain swamps of the mighty Zambezi River located about +-4 kilometres from the project area

4.7.3 Wildlife

Although sometimes harder to spot them in the drier parks of Namibia, there is a great deal of wildlife in the Zambezi Region. Animals are attracted to the lush vegetation and permanent water sources. Buffalo and elephant are plentiful and there are lots of predators. There are no rhinos, but other animals to look out for include giraffe, zebra and wildebeest. Furthermore, the Zambezi Region has some magnificent permanent marshes and is flooded for part of the year. This creates a perfect habitat for water-loving animals, which are scarce in the rest of the country. Hippos and crocodiles are abundant in the rivers. Antelope, such as waterbuck, red lechwe and the rare semi-aquatic sitatunga, thrive in the marshes.

The Solar power plant area is situated closest to the town boundary of Katima Mulilo, the area does not have abundance of any wildlife species. There is only availability of few and small livestock's that graze in the area during the wet seasons when pasture gemminates. Domestic livestock animals such as goats are some of the animals that can be observed in the area. Wild animals are mostly found in the wetlands of the East & South of Zambezi region which possess great value to the local communities in terms of tourism attraction in that part of the region area.

4.7.4 Agriculture

The Zambezi Region has a mixed agricultural system which focus on both crop cultivation and livestock farming. Key crops include maize, sorghum, millet, beans, groundnuts, and melons, with maize being a staple food. Livestock farming involves cattle, goats, poultry, and pigs. The region's agricultural practices are influenced by its annual rainfall of 600mm and the presence of rivers like the Zambezi, which can cause seasonal flooding

The proposed solar plant project area however does not include any commercial and or subsistence farming taking place on the land, as the geology of the site is not suitable for such land uses. A proportion of people living within Liselo area (comprising of Mafwe & Totela) has since occupied the area centuries years ago and have since used the area hunting & gathering livelihood activities.

Economic activities

The Zambezi region has a primarily agricultural and natural resource-based economy. Subsistence farming, livestock rearing, and fishing are major sources of livelihood for the majority of the population, while tourism and forestry are emerging sectors. Mixed farming is common with crops like maize, sorghum, millet, beans, groundnuts, and melons grown. Cattle farming is particularly important, with goats, donkeys, poultry, and pigs also raised. Fishing provides an important source of protein and income for many residents. The region's wildlife, including elephants, and national parks like Bwabwata, Nkasa Rupara, and Mudumu, attract tourists, making tourism a growing sector and the Region has gazetted community forest areas and forestry projects focus on conservation, beekeeping, and sustainable resource management. Consequently, the

project is situated in an area surrounded by active economic activities. this include the NamPower Electricity Grid, the Katima-Liselo Green scheme, the proposed new weigh-bridge to be constructed at the Namibian-Zambia Winella Border.

4.7.5 Benefits and increased economic activities

Namibia aspires to be an innovation-driven economy. To become more innovative, the country needs to improve the level and quality of our education, strengthen the research performance and promote innovation and knowledge transfer in all corners of the country. The country should make full use of information and communication technologies to ensure that innovative ideas can be turned into new products and services that create growth and quality jobs and help address other societal challenges.

Due to the small population size in our country and the need to benefit from economies of scale, the third principle underlying Namibia's Industrial policy is that the country's economic policy will be geared towards openness. This will ensure market access for domestically produced products and services. Regional economic integration and our World Trade Organization (WTO) commitments towards economic openness will continue to comprise key elements of Namibia's industrialisation agenda and programmes, (Namibian Industrial Policy). Some economic benefits of this type of business are;

- Consolidation, Break bulk, Cross Dock, processing postponement, stock piling seasonal storage
- Service benefits - spot stocking, Assortment, mixing, production support, market presence

As a result the developers (SSN Investments cc) paid a once-off administrative & social responsibility fee of N\$ 10,000.00 as per the agreement with the Mafwe traditional authority. Substantive contributions will also be given to support the Liselo community and the local Liselo Combined School on socio-economic matter as well as to support the local Liselo sub-khuta as part of the benefits from the operation of the project. The project will also create employment opportunity employing about 75 people as per the table below.

Employment	Number
Skilled staffs	25
Unskilled staffs	50
Total	75

However, a leasehold rental fee will also be paid to the Zambezi Communal Land Board as per the communal Land Reform Act No.5 of 2002. The month to the land board will be paid in the account opened by the GRN through the Ministry of Land Reform. As a result of the long-term mutual relationship between the owners of SSN Investment and Liselo community is developed. Significant community empowerment such as on job training, assistance for education financial assistance will also be offered to the community.

5. DESCRIPTION OF THE PROJECT

5.1 The project activities will be implemented in the following stages according to the project

Preparation Phase

Approvals will be obtained from relevant wings of the government such as Ministry of Environment (Directorate of Forestry), NORED, Nampower and Electrical Board, . The preparation of the EIA report is being done to necessitate approval from these regulatory authorities. The mobilization of equipment and structures is also being carried during this phase.

Construction Phase

The proposed project includes the design, construction and operation of a Solar power plant on a 470,000 square metre area (47 hectares) and construction of an administrative offices, logistic warehouse and storage area on a 30,000 square metre. an administrative offices, logistic warehouse and storage buildings will be constructed on the entry point of the project site, surrounded by loading and parking areas, internal driveways and pedestrian walkways, and landscaping.

“Tilt-up” construction methods would be used to construct the warehouse building. With the tilt-up method, concrete elements such as walls, columns, and structural supports are formed horizontally on a concrete slab; usually the building floor, but sometimes a temporary concrete casting surface near the building footprint. After the concrete has cured, the elements are "tilted" to a vertical position with a crane and braced into position until the remaining building structural components, including roofs, intermediate floors, and internal walls, are secured. Once all structural components are secured, architectural design elements, including a neutral, complementary collar palate and a variety of building materials, will be applied to the exterior of the building.

Operation Phase

When fully developed and/or constructed operational, the light industrial development will receive bulk material products from different business retailers, wholesaler, company individuals that will hire or rent to pay for safe keeping /storing their products in the warehouse facility.

5.1.1 Construction phase activities

Construction of the Solar power plant will be undertaken or carried out in one continuous phase, beginning mid-2026 and lasting approximately one year. Occupancy of the warehouse building is projected for the latter half of 2027. Onsite construction activities will involve site preparation, including but are not limited to clearing, grading, and excavating; casting and assembly of the structures; paving the loading and parking areas; and various infrastructure and frontage improvements.

Office block: An administrative staff office building that will be constructed at the project site. The office building will consist of one office for all administration staffs and it shall contain (x2) restrooms/bathroom for both male and female. Furthermore, within the vicinity of the project area, additional two (2) bathrooms for General workers will be constructed to cater for both skilled and unskilled (75) workers to be employed at the project. As a result, one (2) septic tanks with a maximum capacity of 20 000 L will be installed to absorb the human liquid waste produced from the office building ablutions.

Solar Power Plant: PV panels or Photovoltaic panel is a most important component of a solar power plant. It is made up of small solar cells. This is a device that is used to convert solar photon energy into electrical energy. Generally, silicon is used as a semiconductor material in solar cells. The typical rating of silicon solar cells is 0.5 V and 6 Amp and it is equivalent to 3 W power.

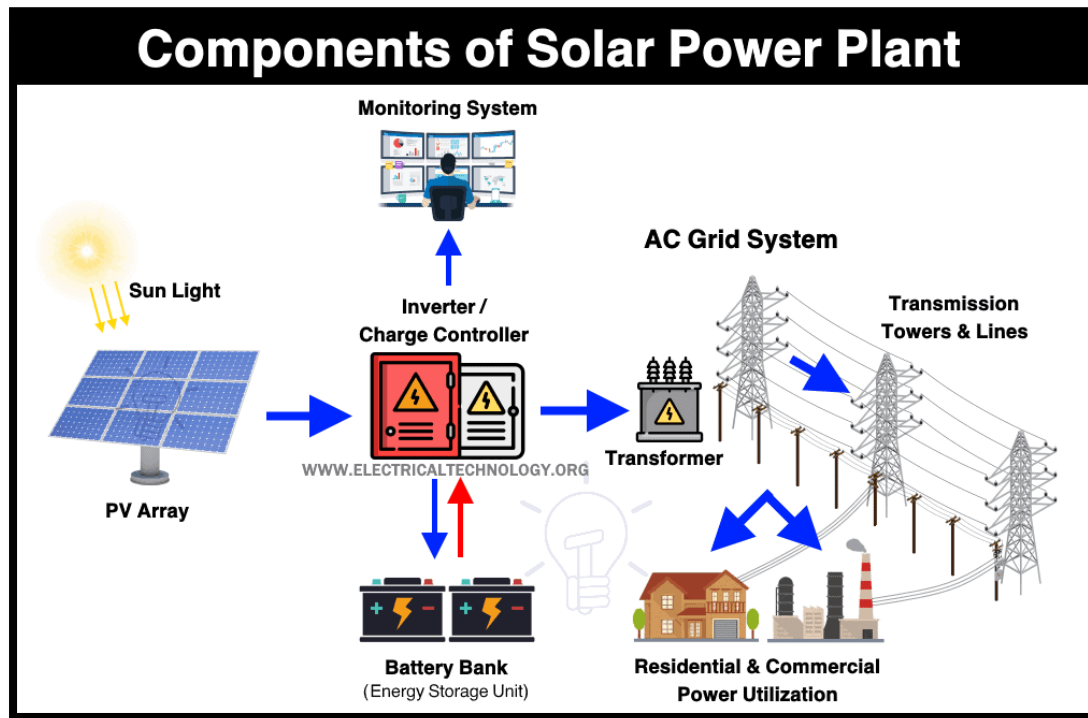


Figure 6: PV panels or Photovoltaic panel

The number of cells is connected in series or parallel and makes a module. The number of modules forms a solar panel. Construction of a Solar Power plant will major components of the solar photovoltaic system are listed below.

- Photovoltaic (PV) panel
- Inverter
- Energy storage devices
- Charge controller
- System balancing component



35



❖ Photovoltaic (PV) Panel

A 30mw PV panels or Photovoltaic panel a most important component of a solar power plant will be constructed by specialized consultants on a 47 hectares portion. Solar panels will be made up of small solar cells. This is a device that is used to convert solar photon energy into electrical energy. In General, silicon will be used as a semiconductor material in solar cells. The typical rating of silicon solar cells is 0.5 V and 6 Amp, which is equivalent to 3 W power. The number of cells will be connected in series or parallel to make a module. Therefore, according to the project proposal, the solar power plant will need a number of plates are mounted and a group of panels also known as Photovoltaic (PV) array. The type of solar panels to be used will be Monocrystalline Solar Panels.

Monocrystalline Solar Panels

This is the oldest type of solar panel. The monocrystalline solar panel is the most developed and very efficient type of panel. The efficiency of the latest monocrystalline panel reaches up to 20%. The cells are made of pure silicone and it is the purest form of solar panel. These panels look uniform in dark color. The shape of the cells of this panel is a round corner (oval shape). And it recognizes by appearance. This type of panel has high power output and occupies less space compared to a polycrystalline panel. But the cost of these panels is high.



Monocrystalline Solar Panels & PV Panels

Figure 7: Monocrystalline Solar Panels

❖ Inverter

The output of the solar panel is in the form of Direct Current. The most of load connected to the power system network is in the form of AC. Therefore, SSN Investment will need and have to

construct Inverter to convert DC output power into AC power. Hence, an inverter will be used in solar power plants. For a large-scaled grid-tied power plant, the inverter can connect with special protective devices and a transformer can also be connected with the inverter to assures the output voltage and frequency as per the standard supply.

❖ **Energy storage devices**

For a Solar power plant development, the batteries are used to store electrical energy generated by the solar power plants. The storage components are therefore the most important component in a power plant to meet the demand and variation of the load. This component is used especially when the sunshine is not available for few days. The capacity of a battery determined how much amount of electrical power can or will be stored. The capacity of batteries is measured in Ampere-hours (AH) rating. For example, a battery having 100 AH battery can supply 1 Amp current for 100 hours or 100 Amp current for 1 hour. The capacity of a batteries can easily get affected by the temperature. There is a reduction of 0.6% of capacity for every degree Celsius rise in temperature more than 25° C. There are two types of batteries to be considered for usage in this proposed solar power plant development are;

- Lead-Acid battery
- Nickel-Cadmium battery

❖ **Charge Controller**

A charge controller is termed a solar battery charger; a charge controller will be used to control the charging and discharging of the battery. The charge controller will be used to avoid the overcharging of the battery. The overcharging of a battery may/will lead to corrosion and reduce plate growth. In the worst condition, it may damage the electrolyte of the battery.

❖ **System balancing component**

Is a set of components used to control, protect and distribute power in the system. These devices will ensure that the system works in proper condition and utilize energy in a proper direction. It also ensures maximum output and security of other components of a solar power plant.

4.7.6 Type of Solar Power Plant to be constructed

The solar power plant is classified into two types according to the way load is connected.

- Standalone system
- Grid-connected system

However, project proponent SSN Investment intend to utilise the Standalone solar power plant system. The stand system is an independent power plant. It is not connected with a grid. It is directly connected with the load. This type of plant is used in a place where a grid is not available like forest, hilly area etc. This type of plant can be used as a power backup plant when the power of the grid is not available, this plant is used to supply the load. A battery and charge controller are an optional part of this system. But in most cases, the battery and charge controller are used with this system to increase reliability. DC loads can directly connect with this plant. But in the case of AC load, the inverter is required to convert DC power into AC power. Generally, this type of system is not used to generate electrical power in bulk amounts. This type of plant uses to operate small loads or in emergency conditions only.

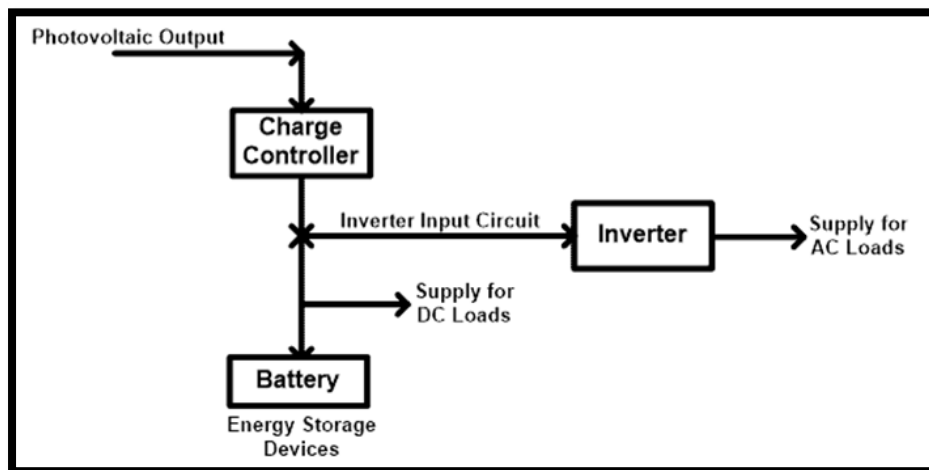
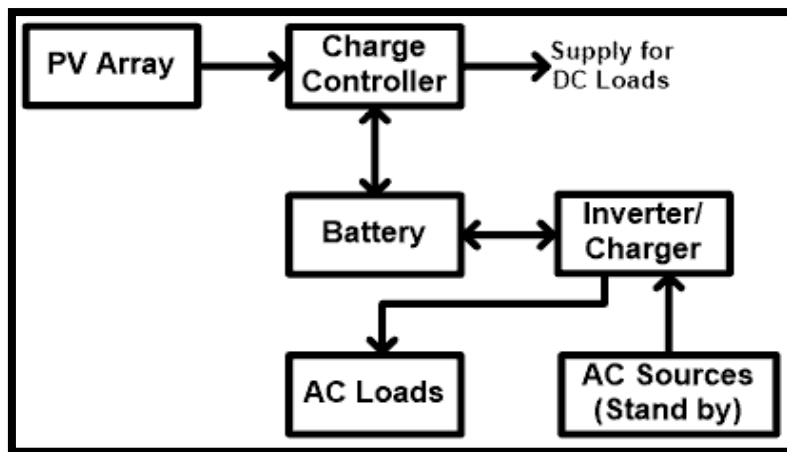


Figure 8: Standalone solar power plant system

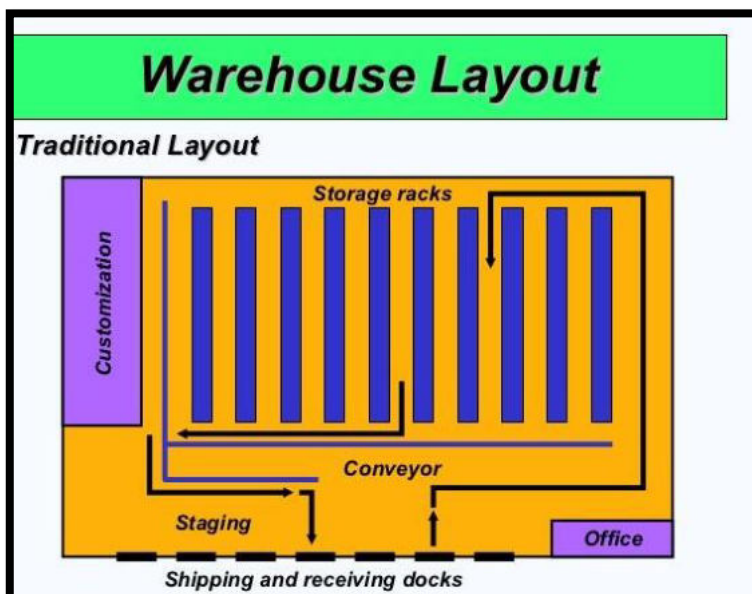
Standalone System with AC and DC Loads

With the standalone system, the project plan to establish and construct a standalone System with AC and DC Loads. This system operates in such a way that output of the solar panel is in the form of Direct Current (DC) power. Hence, DC load can directly connect with the solar system. But if you need to connect the AC load, the inverter is necessary to convert the DC power into Alternate Current (AC) power. Generally, this plant will be connected with other AC sources also. And this source is used to charge a battery during sunlight is not available. The block diagram of this system is shown in the figure below.



4.7.7 Warehouse & Storage facility

“Warehousing and storage are an act of storing and assorting the finished goods so as to create maximum time utility at minimum cost”. The Need for storage arises both for raw material as well as finished products. Storage involves proper management for preserving goods from the time of their production or purchase till actual use. When this storage is done on a large scale and in a specified manner it is called warehousing. Now a days, many private firms are turning to distribution centers rather than constructing the warehouses. Warehouse management is a key part of the supply chain. AIMS: To control the movement and storage of materials within a warehouse. The systems also direct and optimize stock put away based on real-time information about the status of bin utilization. A WMS monitors the progress of products through the warehouses. It involves the physical warehouse infrastructure, tracking systems, and communication between product stations



5.1.2 Operational phase activities

On the ground, operations will be conducted in the following manner:

- The project administration office will be operational from Monday to Friday. While Warehouse and Storage shall be used for safekeeping of project materials and equipment's.
- The solar power panels will be constructed and will be operational on a 24-hour basis by supplying inverted renewable energy into alternate current which is stored in batteries and supplied for consumer use in the form of electricity
- A power take-off agreement with Nampower & NORED will be signed to license the supply of power to business entities
- There will be continuous and/or ongoing solar panel repairs, replacement and restorations in case of damaged panels

6. ASSOCIATED INFRASTRUCTURE

6.1 Water

Water supply to the project site will be connected through existing Nam-water pipeline that connects Nova settlement area to the Katima Mulilo Nam-Water reservoirs. A separate consumer user account shall be opened with Nam water for the Company's water consumption bills on a monthly basis. This water is and will be suitable for both human & animal consumption. Based on the method used for water connection and the source of water, NO water extraction permits are required for this project. There will be two sources of water supply.

6.2 Electrical Services

The project proponent SSN Investment cc plan to connect to the existing Nampower electrical grid by means of a transformer. The Solar Power Plant is situated just next to an active high voltage PowerGrid under the mandate of Nampower. This will make it easier to enable connection to this existing PowerGrid.



Figure 9: Existing Nam-Power Electrical Grid next to the Solar power plant

6.4 Solid Waste removal

Solid waste materials be produced in the project area will be collected and stored into waste wheelbins and dustbins that shall be constructed and deployed within the project boundary. These solid wastes that will be generated from the operations of the business area will be transported and disposed to the nearest and designated dumping site of Katima Mulilo town council situated about 2 kilometres from the project site. An official agreement for the solid waste disposal and charges between the proponent and Katima Mulilo town council shall be done in accordance with the local authorities act. The investor SSN Investment will take the full responsibility for the company to transport the solid wastes to the designated dumping site.



Figure 10: Solid waste rubbish bins



6.3 Liquid waste (sewage services)

Liquid waste encompasses any waste material in liquid form, originating from various sources like households, industries, and agriculture. It can be hazardous or non-hazardous, and its improper disposal can lead to environmental and health issues. To ensure proper disposal of liquid waste, SSN Investment cc intend to construct one large septic tank with a maximum capacity of 50 000 Litres to absorb the human liquid waste produced from the office building ablutions.

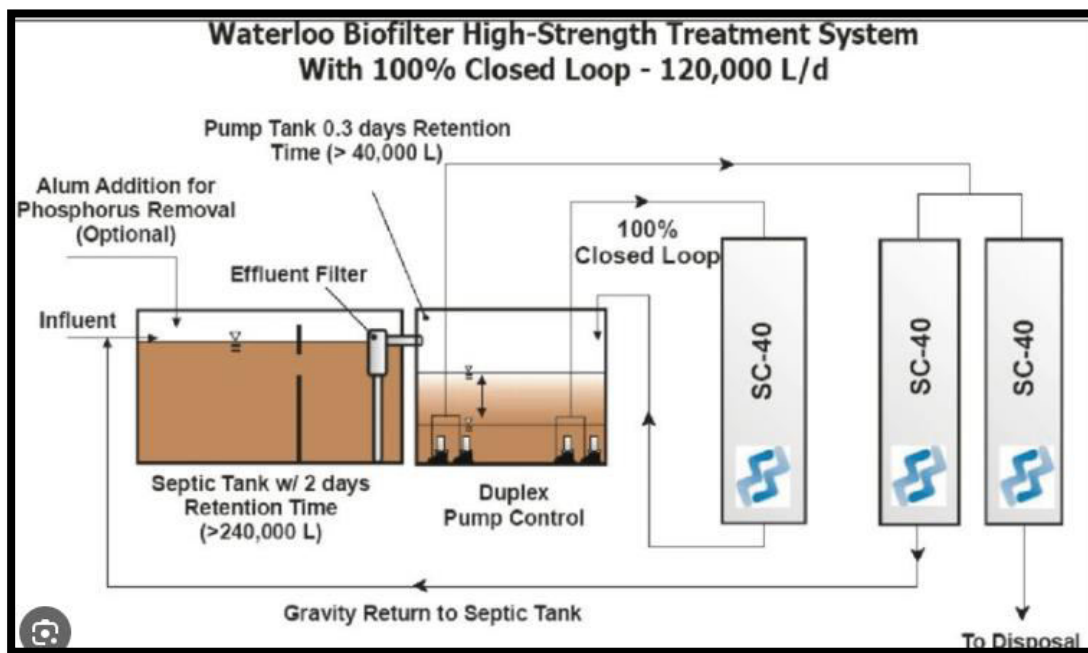


Figure 11:
Liquid
waste flow
system

7. STAKEHOLDER AND COMMUNITY CONSULTATIONS

Public participation forms an important component of the environmental Assessment process. It is defined by the Environmental Management Act (2007), as a *‘process in which potential interested and affected parties’ area given an opportunity to comment on, or raise issues relevant to specific matters.*

Public participation notices were advertised in both local and national newspaper media. The advert was in the New Era newspaper dated 06th August and 14th August 2025. Also, the project advert notice was placed at Liselo subkhuta notice board area.

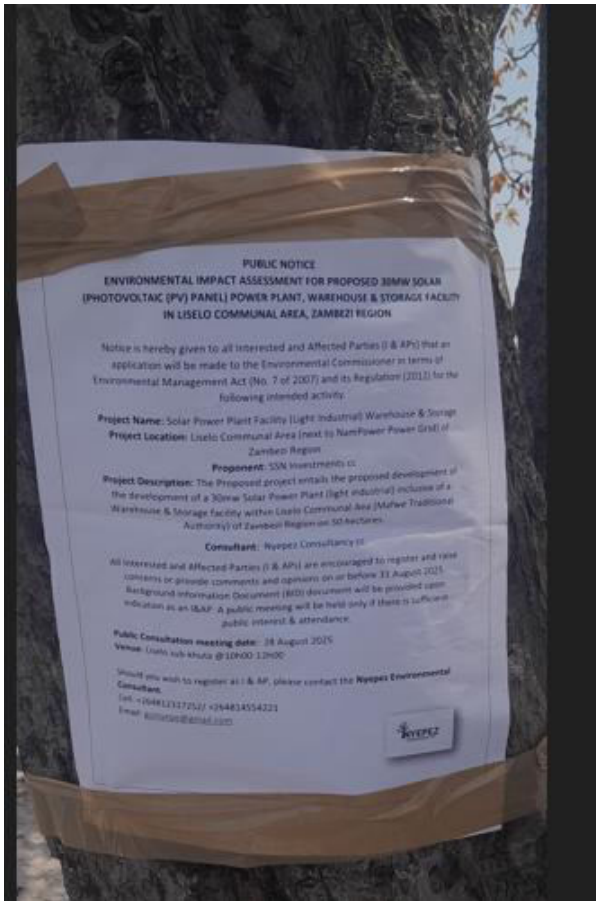


Figure 12: Notices placed Liselo subkhuta

Communication with stakeholders about the proposed light industrial Solar panel power plant development project was facilitated through the following means: through newspaper publishing, notice placed around town& at project area and through invitations letters. The stakeholders were identified in terms of relevance to the project and who could serve as a source of information

- A public consultation meeting was to be held on the 28th August 2025 where relevant stakeholders were invited, inclusive of business owners, potential investors, line ministries, Parastatals such as NORED and members of the Liselo community were identified to attend the public meeting. The venue was at Liselo sub-khuta to discuss issues and concerns regarding the proposed light industrial project Solar panel power park, as well as to raise comments, concerns and proposals for mitigations to challenges identified. A total of 18 stakeholders attended this meeting, mainly from local residents of Liselo settlement area and members of liselo subkhuta

- The following key stakeholders were Invited to the meeting:
 - Zambezi Regional council
 - Nam-Power & Nored
 - Ministry of Agriculture water & forestry (Directorate of water affairs, directorate of Engineering services & Directorate of Veterinary Services)
 - Ministry of Trade & Industry
 - Ministry of Agriculture (Engineering services department)
 - Ministry of Land reform & Business operator

Consequently, only few local residents and remembers of the subkhuta attended the meeting and majority of stakeholder failed to attend the meeting. A summary of the issues and concerns that were raised by the interested and affected parties is listed below. The purpose of presenting the issues raised by participants in this section is simply to:

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

8. MAJOR IMPACTS IDENTIFIED

A summary of the major impacts to be caused by the proposed Light Industrial development project during its operations can be summarized as follows:

Table 6: Summary of the major impacts

Potential Impact activities	
Socio economic	The project is predicted to have a positive impact on the local, regional and national economy as it will boost investment, increase household income and employment, promote local economic development and

	procurement and increase various taxes. It will promote and improve coverage of electrification to most vulnerable or areas with no access to electrified at an affordable rates
Noise	Noise was identified in the screening phase as an issue of concern and a noise specialist study was commissioned. As there are currently no noise regulations governing noise emissions in Namibia, the specialist study assessed the predicted noise levels against the South African guideline values. For construction, the increase in day-time noise levels above the already elevated baseline is less than 3 dBA at the surrounding business and tertiary areas and is below the level considered noticeable. Hence, the impact is low. Since construction activities will be limited to day-time hours, night-time impacts were not modelled.
Traffic	As the traffic generated will be substantially less than for the normal highway roads (less than 10% of the total volume generated), it is concluded that the contribution to overall traffic volumes and impacts on road sections and intersections within the trans-Caprivi highway will be the same as that predicted by the Traffic Study 2009 i.e. low.
Visual	The visual assessment looked at the change to the view and the response of the public to that change, and to the overall effect with respect to visual amenity. The Solar panel power plant, the warehouse & Storage will be 15 m in height, about 50 m from the nearest residences and clearly visible from the Trans-Caprivi & the access gravel road to the site area.
Air quality	The main pollutant will be dust generated during the construction operations and wind erosion of exposed surfaces during episodes of strong winds. With appropriate mitigation measures like wetting down, dust curtains, and curtailment of activities in very windy conditions, it should ensure that the significance of the impact during construction is low. The impact is localised and is not considered an issue for the wider public
Archaeology	The site is within the communal land but situated adjacent to the town's industrial setting, which is slowly modified and unlikely to contain any archaeological remains. The impact is therefore assessed to be low. As

	all historical sites are protected under the National Heritage Act 2004, if in the event that any historical site is uncovered during construction works, it will not be disturbed and a permit will be obtained from National Heritage Council prior to any disturbance.
Groundwater	Existing information on groundwater in the vicinity of the project indicates that it is normal, shallow and fit for both human & animal consumption. Potential pollution sources could arise during the construction activities, especially in the event of a spill. Potential significance of the impact in the unmitigated scenario is medium which can be reduced to low through proper construction management and controls i.e. bunding, containment and clean up measures
Wastewater and waste material	Wastewater will be generated through the washing of surfaces, ablution facilities and general usage. All wastewater generated by the operations will be collected and discharged to sewer following pre-treatment. All stormwater will be diverted away from the site. The main waste arising from the proposed operation will include broken pallets, packing material, plastic wrapping, and cardboard cartons etc. The overall impact arising from wastewater and solid waste is considered low. Measures will need to be taken to where possible minimise, reuse and recycle waste material, in particular with respect to the plastic wrapping

The impacts are summarised in the following table, together with their significance rating:

Aspect	Impact	Significance of Impact (negative unless stated otherwise)	
		Without Mitigation	With Mitigation
Socio Economic	Increased economic development	Medium +	
	Increased trade development with Zambia	Medium +	
	Job creation	Medium +	
	Increased influx of people to Katima Mulilo	Medium	Low
	Loss in property value	Medium	Low
Noise	Noise impact on residences during construction	Low	Low

	Noise impact on residences during operation, particularly those living at the T-Junction alongside Trans-caprivi highway (Nova location)	Low	Low
Traffic	Traffic impact traffic volumes and road sections with the town of Katima Mulilo	Low	Low
	Traffic impact on stakeholders within the project site	Low	Low
Visual	Visual impact during construction on surrounding residences	Medium	Medium
	Visual impact during operations on surrounding residences	Medium	Medium-low
Air Quality	Air quality impact during construction due to dust generation	Medium	Low
	Air quality impact during operations due to accidental ammonia release and carbon monoxide emissions	Low	Low
Groundwater	Groundwater impact during construction due to pollution	Medium	Low
	Groundwater impact during operations	Low	Low
Wastewater & Waste Material	Wastewater and waste material generated during both construction and operations	Low	Low

Summary

The project has the potential to benefit Liselo Community and the local economy. The challenge for the proponent SSN Investment cc is to ensure that in achieving these benefits, they prevent or mitigate the negative social and environmental impacts that will arise from the project. The mitigation measures discussed above are detailed in the EMP and SSN Investment cc will be legally bound to implement these measures.

Key Consideration Area

- Contribute to local economy
- Employment Creation
- Local level economic empowerment

9. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION

9.1 Assessment of Impacts

The purpose of this section is to assess and identify the most prominent environmental impacts and provides possible mitigation measures that are expected from both the operational and the decommissioning for the activities of the light industrial development. The potential environmental effects associated with the implementation of the proposed project are evaluated in the following environmental issue areas:

- Aesthetics
- Air Quality
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Transportation and Traffic

These identified impacts will be assessed and evaluated in different phases of the development. By subjecting each of the potential impacts to the criteria stipulated above, it is possible to establish the significance of each impact prior to implementing mitigation measures and then after mitigation measures have been implemented. Detailed descriptions of management actions in terms of mitigation measures are contained in the accompanying ESMP.

The process of accessing the significance of each of the possible impacts is contained in the above tables. It must be noted that the impacts described in these tables considers the nature of the potential impact before (pre) and after (post) mitigation as set out in the ESMP.

Although the significance rating of the most of the impacts can be reduced considerably to a “low significance” by implementation proper mitigation measures the proponent should however understand that a “low significance” impact still exerts pressure on the environment and therefore the proponent should intend to go above and beyond the prescribed mitigation and management measures provided in this report by aiming to improve the remaining environment. There are specific policies and guidelines that

address environmental issues related to the development. The policies and guidelines were referred to in the legal section.

Table 7: criteria used to describe impacts Description

Nature	Reviews the type of effect that the proposed activity will have on the relevant component of the environment and include “what will be affected and how”
Extent	Indicates whether the impact will be site specific: local (limit to within 15 km of the area); regional (limited to -100 km radius); national (limited to the coastline of Namibia); or international (extending beyond Namibia’s borders)
Duration	Reviews the lifetime of the impact, as being short (days, <1 month), medium (months, <1 year), long (years, <10 years), or permanent (generations, or >10 years).
Intensity	Establishes whether the magnitude of the impact is destructive or innocuous and whether or not it exceeds set standards, and is described as none (no impact); low (where natural/social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standard/requirements).
Probability	Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).
Degree of confidence in predictions	Is based on the availability of specialist’s knowledge and other information

The application of the above criteria to determine the significance of potential impact uses a balanced combination of duration, extent, and intensity/magnitude, modified by probability, cumulative effects, and confidence. Significance is described as follows.

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given project description. This
Medium	Where the impact could have an influence on the environment, which will require modification of the project design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term
High	Where the impact could have a significant influence on the environment and in the event of a negative impact the activities causing it, should not be permitted (i.e. there could be a no-go implication for the project, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.

The FAO guidelines for fields projects (FAO, 2012) will be used during the assessment.

Table 8: Environmental categories for FAO field projects

Environmental Category	Environmental and Social Impacts	Environmental Analysis or Assessment Required
Category A	Significant, or irreversible adverse impacts	Mandatory environmental impact assessment
Category B	Less significant adverse impacts that may be easily prevented or mitigated	Environmental analysis to identify more precisely potential negative impacts

Category C2	Minimal or no adverse impacts	No further environmental and/ or social analysis or assessment required
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NB: Based on the above FAO's categories of field project analysis, the proposed development of the light industrial Warehouse & storage development project at Liselo falls under category B, where there are less significant adverse impacts that may be easily prevented or mitigated. Environmental analysis is required to analysis to identify more precisely potential negative impacts. The following box below specifies the type of projects under Category B, which according to FAO (2012) do not require a full EIA but will require further deepening of environmental or social considerations, depending on the expected magnitude of risks. In many cases, the analysis would aim at gathering additional information in sufficient detail so as to be able to discuss concretely how risks could be addressed and minimized (and possibly eliminated) in the project design.

According to Pastakia (1998) the Rapid Environmental Assessment method can be used to assess projects related to the Poultry development project and Pastakia's method will be used during the assessment. The ranking formulas area calculated as follows;

$$A=A1 \times A2$$

$$B=B1 +B2+B3$$

$$\text{Environmental Classification (ES)} =A \times B$$

Table 9: Environmental Classification of Impacts according the Rapid Impact Assessment Method of Pastakia 1998

Environmental Classification (ES)	Class Value	Description of Class
108 to 72	5	Major positive change/impact
71 to 36	4	Significant positive change/impact
35 to 19	3	Moderate positive change/impact
10 to 18	2	Positive change/impact
1 to 9	1	Slight positive change/impact
0	0	No change/status quo/not applicable
-1 to -9	-1	Slight negative change/impact
-10 to -18	-2	Negative change/impact
-19 to -35	-3	Moderate negative change/impact
-36 to -71	-4	Significant negative change/impact

-72 to -108	-5	Major negative change/impact
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Table 10: Assessment Criteria

Criteria	Score
Importance of condition (A1) –Assessed against the spatial boundaries of human interest it will affect	
important to national/international interests	4
important to regional/national interests	3
important to areas immediately outside the local condition	2
important only to the local condition	1
No importance.	0
Magnitude of changes /effects (A2) –measure of scale in terms of benefits of an impact or condition	
Major positive benefits	3
Significant improvement in the status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in the status quo	-1
Significant negative disbelief or change	-2
Major disbelief or change	-3
Permanence (B1) –defines whether the condition is permanent or temporary	
No change/not applicable	1
Reversible	2
Permanent	3
Cumulative (B3) –reflects whether the effects will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition-not to be confused with the permanence criterion	
Light or No cumulative Character /Not applicable	1
Modern Cumulative character	2
Strong Cumulative character	3

Table 11: Criterion for Impact Evaluation (Directorate of Environmental Affairs, 2008)

Risk Event	Description of the risk that may lead to an impact
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Probability	Refers to the probability that a specific impact will happen following a risk event Improbable (low likelihood) Probable (distinct possibility) Highly probable (most likely) Definite (impact will occur regardless of prevention measures)
Confidence level	The degree of confidence in the predictions based on the availability of information and specialist knowledge Low (based on the availability of specialist knowledge and other information) Medium (based on the availability of specialist knowledge and other information) High (based on the availability of specialist knowledge and other information)
Significance (no mitigation)	None (A concern or potential impact that, upon evaluation is found to have no significant impact to all) Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design) Medium (Impacts of moderate magnitude locally to regionally in the short term, accordingly the impact is expected to require modification of the project design or alternative mitigation) High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a ‘no go’ implication for the project unless mitigation or re-design is practically achievable)
Mitigation	Description of possible mitigation measures
Significance (with mitigation)	None (A concern or potential impact that, upon evaluation is found to have no significant impact to all) Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design) Medium (Impacts of moderate magnitude locally to regionally in the short term, accordingly the impact is expected to require modification of the project design or alternative mitigation) High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a ‘no go’ implication for the project unless mitigation or re-design is practically achievable)

The following tables evaluate the identified impacts, both positive and negative of the farming project activities on the environment. This includes the social, economic and natural environment affected by the activities on the proposed site.

9.2 Construction Phase Impacts Prior to Mitigation

9.2.1 Negative Impacts of Low Significance for the construction phase prior to mitigation

NEGATIVE IMPACTS (LOW)	DESCRIPTION OF IMPACT
Hydrology: Storm water and drainage	The development will result in a low marginal increase in storm water run-off, especially where vegetation will be cleared for the construction of warehouses, roads and associated infrastructure. This will require some management to prevent soil erosion.
Land transformation: Erosion	Exposed land might be susceptible to wind and water erosion.
Land transformation: Dust levels	The proposed development may not result in increased dust levels during the construction phase.
Land transformation: Noise levels	Increased noise levels due to earthmoving and construction equipment.
Land transformation: Visual impact	Land clearing and soil preparation could create a temporary visual impact.
Floral biodiversity	Vegetation will be impacted where earthmoving activities (vegetation clearing and bulldozing / disturbance of the topsoil) are necessary during the construction period. The development will however not result in a complete removal of this vegetation within the development site. The local loss of this vegetation type due to the proposed development on the Subject Land will have a small overall effect and will not endanger the future of this vegetation type.
Increased traffic volume	The transportation of construction equipment and materials to the site will increase traffic levels in the area.
Waste – Sewage/effluent/ hydrocarbons	Little or no sewage will be generated during land clearing and construction. Spillage and/or leakage of hydrocarbons by construction

	vehicles and machinery may cause chemical contamination of soil and groundwater.
Waste – Building rubble and littering	There will not be a significant amount of building rubble generated during the construction phase. Construction workers might litter during this phase.
Heritage	The proposed development will not have an impact of great significance on archaeological or palaeontological remains that might be encountered during implementation of the project.

9.2.2 Positive Impacts identified for the construction phase prior to mitigation

POSITIVE IMPACTS	DESCRIPTION OF IMPACT
Socio-Economic – upliftment of quality of life	Approximately 75 new employment opportunities will be created during the construction & operation phase. Approximately 75% of the expected value of these employment opportunities will be accrued to previously disadvantaged individuals.

9.3 Operational Phase Impacts Prior to Mitigation

9.3.1 Negative Impacts of Low Significance for the operational phase prior to mitigation

NEGATIVE IMPACTS (LOW)	DESCRIPTION OF IMPACT
Land transformation – Dust levels	The proposed development may not result in increased dust levels during the operational phase.
Land transformation – Noise levels	The project site is situated in a rural area and the communities in the area should be accustomed to the sound of working machinery. The operation of light industry itself will

	not generate any significant levels of noise during the operational phase. Some noise could arise in relation to the expected increase in traffic to and from the site, especially at the end of a production cycle
Heritage	The proposed development is not expected to have any significant impact on archaeological or palaeontological remains during the operational phase.

9.3.2 Negative Impacts of Medium-Low Significance for the operational phase prior to mitigation

NEGATIVE IMPACTS (MEDIUM-LOW)	DESCRIPTION OF IMPACT
Hydrology – Storm water and drainage	The roofs of the office building & warehouse storage will increase storm water runoff. Soft surface will absorb water flow into the ground.
Hydrology – Water supply	Water use for gardening or watering the trees within the project vicinity
Land transformation – Soil chemistry and fertility	Soil chemical properties and vegetation yield can however be negatively affected if large amounts of manure is applied over long periods of time.
Land transformation – Visual impacts	The proposed project is consistent with the existing and/or proposed industrial zoning of the Katima Mulilo town council thereby creates compatible land uses All buildings and associated infrastructure will be sited as unobtrusively as possible. A natural buffer zone will be maintained between the project site and neighboring land uses. Indigenous trees and shrubs will be planted and maintained to reduce visibility from adjoining roads and properties.

Increased traffic volume	The transportation of products or material to and from the warehouses & store rooms will increase traffic levels in the area.
Land transformation – Loss of ecological processes (Ecological Support Areas)	The construction of roads and fence lines through the the project site area will impact on Ecological Support Areas (ESAs) and the level of ecological connectivity (corridors) that they offer. No disposal or irrigation of grey water will occur within a few meters from any watercourse. Ablution facilities for workers will be placed in the building.
Land transformation – Odour nuisance levels	The development will be located well away from any human settlements (about 1km) and the building will be cleaned and disinfected after every production cycle. Subject to good management of light industrial development project systems and waste disposal, odour should not present a significant impact.
Faunal biodiversity	Potential faunal habitat will be lost, transformed and fragmented due to the clearance of land and the construction of infrastructure.
Floral biodiversity	Approximately 10 ha natural veld will be cleared for the construction of warehouses and associated infrastructure.
Waste – Sewage/effluent/ hydrocarbons	There are one potential sources of effluent – sewage from ablution facilities. Relatively small amounts of waste water are generated during the cleaning office building house which occurs at the end of each production cycle.
Veldfire	Machinery and human activity will increase hellfire risk levels, especially during the dry seasons.

9.3.3 Positive Impacts for the operational phase prior to mitigation

POSITIVE IMPACTS	DESCRIPTION OF IMPACT
Socio-Economic: Economic upliftment	Approximately 75 permanent employment opportunities will be created during the operational phase. Approximately 60% of the expected value of the employment opportunities will be accrued to previously disadvantaged individuals. The proposed Light Industrial development will make the site area economically more viable. The development will be the main source of bulk material storage and warehousing since there are only 1 small material storage in the Zambezi region
Socio-Economic: Food security	The local production and subsequent operation of the industrial at the Liselo communal area will boost the Environmental Management Programme Expansion of the economy of Liselo and surrounds, while aiding in securing the local availability and access to an additional economic boost.
Socio-Economic: Healthier food option produced in a more humane and sustainable manner	The demand for safe keeping of food products is however escalating due to an increased demand for healthy living and an increased awareness regarding food welfare. The proposed project will thus supply an alternative safe place for holding or keeping food, and supplying product materials in a secure and healthier environment for the town of katima mulilo and the entire Zambezi region in a sustainable manner.

As depicted in the tables above, impacts related to the operational phase are expected to mostly be of medium significance but can mostly be mitigated to have a low significance. The extent of the impacts is mostly of low likelihood. An Environmental Management Plan (EMP) will ensure that the impacts of the operational phase are

minimised and include measures to reduce the identified impacts during the operation of the fish farm project activities while ensuring that the local environment is rehabilitated and employees working on the guesthouse are suitably protected to avoid accidents and injuries.

9.4 Mitigation Measure

Potential negative impacts can arise from poor project design, construction activities, improper wastewater and effluent discharges and unqualified farm management.

NB: Management will take into consideration careful project design, good site selection and Construction of warehouse & storage facility will minimize habitat impacts by avoiding delicate habitats and where disturbance is inevitable retaining as much vegetation as possible and replanting where necessary.

Summary of expected operational phase impacts prior to mitigation

BE=Biological/Ecological EO=Economical/Operational PC=Physical/ Chemical SC= Sociological/Cultural

Impact Category	Impact Type	Class Value
BE	Waste pollution	-1
BE	Ecosystem and Biodiversity impact	-1
EO	Fire	-2
PC	Groundwater, surface water and soil contamination	-1
SC	Skills, Technology and development	2
SC	Employment	2
SC	Cumulative	-2

10. ENVIRONMENTAL MANAGEMENT PLAN

10.1 Objectives of the Environmental Management Plan (EMP)

The main objective of the EMP is to identify the project specific activities that should be considered as having significant adverse impacts, monitoring and required mitigation measures. It is therefore in the best interest of the Developer to ensure that the capacity

of the ecosystem is sustained by mitigating environmental degradation that could potentially harm the enterprise.

The proposed management and mitigation measures, the environmental and social commitments that are supposed to be undertaken by the respective production managers and a framework for implementation of this management plan have been proposed and are for the protection of the environment and sustainability of the project and the fish industry.

As a result, the objectives of an Environmental Management Plan are to ensure the following:

- ensure that the Light industrial development operations comply with acceptable environmental standards;
- ensure that compliance with environmental legal standards is achieved and maintained in the ongoing management of operations;
- Provide clear directives for personnel regarding the actions required to prevent and/or minimise adverse environmental impacts; promote sustainable development through minimising the adverse environmental impacts in the local environment and utilizing environmental resources responsibly; and promote good relationships with the communities within which the business operates.
- To prescribe the best and practicable control methods to lessen the environmental impacts associated with the operations of the light industrial project
- To monitor and audit the performance and of operational personnel to supply such control

The investor (SSN INVESTMENT CC) should implement an Environmental Management System (EMS) similar to the ISO 14001 system. An environmental Management System is an internationally recognised and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an ISO 14001 EMS is the concept of continual improvement of environmental performance with resulting

increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following factors:

- A stated environmental policy which sets the desired level of environmental performance
- An environmental legal register
- An institutional structure which sets out the responsibility, authority, line of communications and the resources needed to implement the EMS
- Identification of environmental, safety and health training needs
- An environmental program, stipulating environmental objectives and target to be met and work instructions and control to be applied in order to achieve compliance with the environmental policy
- Periodic internal and external audits and reviews of environmental performance and the effectiveness of the EMS.

Accordingly commitment of the owner to effective environmental management provides the channel whereby strategies are transformed from the documented form and implemented. For the Light Industrial Warehouse & storage facility project, the developer is committed to implementing a comprehensive environmental management programme. The project manager/developer and Operations Manager have ultimate responsibility for the achievement of environmental targets during the construction and operational phases, respectively. The environmental programme commits the Owner to allocation of sufficient resources, continuous improvement of environmental management practices in order to fulfil social and ethical responsibility and compliance with national and international standards. The developer is responsible for the:

- Allocation of Resources
- Risk Assessment
- ensuring that the environmental policy is in place and communicated to all workers
- Designating role of staff members in EMP
- Appointment and monitoring of environmental management team

11. THE IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The information below highlights the traditional construction environmental mitigation and management including awareness building for health and safety at work sites are regarded as significant adverse environmental impacts mitigation measures. There are obvious advantages to ensuring construction sites and borrow pits are properly managed and the surrounding environment is properly restored after construction work, that erosion is mitigated, and that there is limited off site pollution. These measures can be very effective in mitigating environmental impacts for sustainable infrastructural and economic development. The following measures geared towards environmental mitigation and management is recommended to be implemented during and after construction work to address the various impacts. The proponent who is also the investor or owner of the business would be responsible to assign the responsibilities and ensure that the tasks are executed.

11.1 Construction Phase Management Plan

The overall goal for the construction phase is to undertake the activities associated with the expansion of the Light industrial project in a way that:

- Ensures that activities are properly managed in respect of environmental aspects and impacts. Protects the natural environment from degradation and harm.
- Ensures the development achieves its positive socio-economic impact.
- Complies with legislation.

11.2 Operational Phase Management Plan

The key to successful Light Industrial Warehouse & Material storage facility is good land management. The overall goal for the operational phase is to undertake the activities associated with the Warehouse & storage facility a way that:

- Ensures that activities are properly managed in respect of environmental aspects and impacts. Protects the natural environment from degradation and harm.
- Ensures that the development is properly managed in terms of the required biosecurity measures.
- Ensures the development achieves its positive socio-economic impact.
- Complies with legislation, permits and authorizations.

11.3 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

The Lodge owner or developer shall comply with the following Environmental Management and Monitoring Plan (EMMP) specific for this project. This EMMP spells out all steps to be taken by the developer to protect the environment in accordance with provisions of regulations and guidelines of the Republic of Namibia. The developer should get familiar with this EMMP and implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in the EMMP.

Potential Environment Impact	Mitigation Measure	Monitoring Indicators	Monitoring Method	When to monitor	Who is responsible for monitoring
High expectations and resentment may have been raised regarding employment and other benefits to the communities	Continuous meetings to explain the objectives and scope of the development	Number of community meetings	Reports of community meetings	Frequent	SSN Investment cc developers to review to make actions
Environmental degradation by improper disposal of solid wastes generated by the site	Provide waste collection bins which should be regularly emptied in a designated dump site Dispose of off wastes in approved designated dumpsite and recyclable materials to be recycled and organic wastes to be composted.	Presence of clearing labelled waste collection bins No accumulation of waste materials on site Compost pits	Inspection of disposal systems in the Light industrial project area	Routine	SSN Investment cc Storage facility manager for monitoring
Contamination of surface and ground water resources by improper disposal of human wastes	Ensuring brown and grey water are not discharged into the environment through the construction of appropriate sanitary facilities Sanitation facilities to be sited 30 metres away from	Systems for brown and gray water in place Water quality of surface, ground water within 30m of the development site	Inspection and test water quality Measure distance	Prior to installation (site plans for storage facility) and after construction Quarterly (both monitoring and reporting)	Developer for implementation and Storage facility manager for monitoring

	surface and ground water sources				
Surface water and soil contamination by fuels, oils and lubricants	Fueling bays, workshops/garages including storage facilities floors to be made of an impervious material and wastes from such facilities to be fitted with oil interceptors. Design measures for handling spills	An impervious layer in all operational areas in place and Mechanisms for handling spills in place	Inspection storage facilities Test water for chemical and physical compositions	Frequently for storage facilities Quarterly for water	Developer r for mitigation implementation and Storage facility manager for monitoring
Resource use conflicts especially for water resources	Ensure the warehouse does not compete for resources with the local community by providing alternatives. Warehouse & storage facility workers to be provided with water that is treated. Prohibit workers from hunting for game meat and logging	Incidence of Conflicts reported; Distance from warehouse site to human settlement Incidence of illegal logging reported	Community meetings Complaints register	Frequent	Developer for mitigation implementation & Manager for monitoring
Air and noise pollution disrupt nearby also lead to, eye / ear infection & respiratory related complications to workers Body injuries from falls, dropped	Activities with intensive noise and air pollution to be undertaken during least disruptive times and holidays. Consultations with local affected persons, staff and	Reported injuries and accidents Evidence of workers wearing protective equipment's	Review grievance register Reports from the community leaders Site inspection meetings	Weekly and monthly during planning and design Daily during construction	Manager to supervise Developers to implement

objects, and tools and equipment	students to familiarize them with the work to be done. Provide construction workers with First Aids Kits, proper protective equipment	Number of sensitization meetings to workers Records of consultative meetings Number of complaints from local residents and students Dust levels			
Removal of vegetation leading to soil erosion & loss of bio-diversity and contaminate surface and ground water contamination	Promote labour based methods with light machinery as opposed to heavy ones Prohibit illegal logging and poaching Ensure that soils and other construction wastes are not pushed into streams and rivers	Evidence of soil erosion Presence of transported soil sediment and debris in nearby surface water Incidence of illegal logging and poaching	Inspect water bodies and borrow sites Complaint register	Frequent	Manager to supervise Developer to implement
Negative health and safety impacts of borrow areas including water-borne diseases and injuries and death	Restore and re-vegetate borrow areas as soon as possible, and inform communities about the dangers associated with using water from borrow areas	Borrow pits restored and a vegetative cover is established Injuries reported	Inspect borrow areas Monitor the status of borrow areas	Frequent	Manager to supervise Developer to implement

Soil Erosion	BEP incorporated during the design stage to allow for the correct sizing and number of culverts and other drainage structures such as side and mitre drains. In areas of steep slopes, ensure slope protection according to design	Specifications in the design for preventing erosion implemented No of gulleys and size especially after every rainy season Slope protection measures in place	Inspection of culverts and their installation	Specification during design and inspection during construction	Contractor to design and monitor Developer to implement
Altered Hydrology	Ensure that soils and other construction wastes are not pushed into rivers where the road crosses the river Work during the dry season Use the correct size and number of culverts and other drainage structures	Absence of any visible obstruction of rivers Water flow in water in streams/rivers and wetlands flowing normally Installed structures adequate to allow flow even during high flows	Inspection of water flows and installed structures	Monthly Routine during the rainy season	Developer for mitigation implementation and Manager for monitoring
Physical hazards	All workers provided with PPEs Ensure machinery and equipment conform to International Standards and regularly maintained If mitre or other drainage structures are to be used, caution local communities	Workers fully kitted with PPEs Presence of barricades around the mitre and other deep ditches	Complaints /reports from workers Inspection	Routine	Developer for mitigation and manager for monitoring

	and erect barricades around them				
Environmental Health Hazards related to contaminating water sources and denial access during installations	Provide alternative arrangements for the community and where necessary supported with construction of boreholes accompanied with health hygiene promotion Sensitize local communities about hazards associated with drinking water from the borrow areas	Sensitization meetings on possible hazards and health hygiene promotion Effectiveness of alternative arrangements Mosquito nets provided	Reports and complaints registers	Quarterly Monthly (especially during the rainy season when pits may have water in them)	Developer for mitigation and Manager for monitoring Community mobilisation Service provider to sensitise
Generators might emit noise and air pollution and contaminate the ground surface	The floor of the generator house to be made of impervious materials and generators will be frequently maintained minimize fumes and noise	Levels of noise fume and floor of generator Monitor maintenance records	Monitor fume and noise from the generator	Daily	Manager to supervise Contractor to implement
Soil erosion	In areas of steep slopes, ensure slope protection according to design- Plant grass or other ground cover using local plants to stabilize the road shoulders and borrow areas also permanently covered with vegetation Tree planting activities on public and communally	Slope protection mechanisms in place No evidence of soil erosion seen Borrow pits restored and a vegetative cover is established historic and cultural discoveries reported	Field inspection Quarterly reports	Quarterly but monthly during the rainy season Once, after restoration is completed	Developer for implementation and manager for monitoring Developer for mitigation implementation and manager for monitoring

	owned land where trees will have been cleared. monitoring to ensure that trees and shrubs within the defined retention zone are not removed immediate notice will be given if any remains or artefacts of archaeological and historical interest discovered Restore borrow pits to prevent erosion of the disturbed areas by revegetation				
Altered hydrology	Where the roadbed has been raised, provide for an adequate number and size of drainage structures	Water flows normally	Inspection	Routine in the rainy season during the construction phase	Developer & manager for monitoring during the operation phase
Environmental health hazards from water borne diseases,	Allow for water to drain from the borrow pits to prevent accumulation of water, Fence the borrow areas to prevent entrance by people and animals After completion of removal of construction materials, restore the borrow pits. A comprehensive borrow pit	Drainage structure from pit in place No stagnant pools of water Borrow pits restored and a vegetative cover is established Reports of accidents, injuries	Field inspection Reports on health and safety Compliant register	Routine during the rainy season Routine during the rainy season up to the period when the pool is devoid of water	Community mobilisation services provider to sensitise and report Developer for mitigation and manager for monitoring

	management plan to be implemented	complaints from community			
Physical hazards-injuries and death from drowning	Sensitize the local communities about hazards of borrowing of construction materials from the area. Avoid Borrow areas which are near human settlement. While borrowing activities are going on , deploy a local person as a security to keep people and cattle off the site Restore the borrow pit once the mining activity is over and a more comprehensive borrow pit management plan will be implemented by the contractor	Community meetings held Distance between borrow pits and settlement Provide mosquito nets	reports from communities inspection of location of borrow areas	Quarterly	Community mobilization services provider to sensitize and report Contractor for mitigation and developer for monitoring
Water quality degradation	Sites borrow areas 300metres from rivers, stream and wetlands and these activities should not be within the riparian belt. Topsoil, overburden should not be stored on natural drainage courses replanting with local plants to restore the original vegetation cover and prevent Erosion	Distance between borrow pits and rivers/streams and the riparian belt Turbidity in storm water levels No top soils and overburden on natural drainage courses.	Inspection Contractors reports	Once for every new borrow pit Once for every borrow area	Contractor mitigation and developer for monitoring
Loss of aesthetic value of the landscape	Allow for a setback of 50m to ensure disturbed areas are not visible from the road. Implement borrow pit	Minimum distance of 50m between the road edge and the borrow area	Inspection location	Once for every pit after establishment	Contractor for mitigation and manager for monitoring

	management plan replanting with local plants to restore the original vegetation cover and prevent Erosion	Borrow pits restored and a vegetative cover established		Twice, 1st after restoration of pit and 2nd to verify establishment of vegetative cover	
Environmental & physical health hazards associated with dust cloud from road construction and use during the operation phase	Erect speed bumps near institutions and towns to minimize dust clouds affecting large numbers of people; In areas of excessive dust during the construction phase, use water to suppress the dust Plant grass and trees as barrier to dust near public places	Speed bumps in place During the construction, the ground is wetted to reduce dust levels Tree and shrubs planted	Inspection of works Reports from communities	Monthly Routine	Contractor for mitigation and developer for monitoring
Traffic accidents if traffic signs are not installed and users not aware of their meaning	Erect speed bumps to slow down vehicles and ensure enforcement of speed limits especially around schools, trading centres and animal crossing Erect road signage that indicate the existence of schools, bridges, trading centre, forestry reserves Create community awareness on the hazards	Number and location of speed bumps/signage Number of community awareness events Number ,nature and location of traffic accidents reported (pedestrians being hit,	Inspection reports Awareness raising events Traffic reports	Routine and frequent	Contractor for mitigation and developer for monitoring Community mobilisation services provider for community meetings Traffic police for traffic reports and guidance

	associated with improved roads and the meanings of various signages.	vehicles colliding or rolling)			
Loss of vegetation along ROW and loss of integrity of the road	Regular maintenance of vegetation within the road ROW to preserve road safety, using manual or mechanical to provide work opportunities of the poor women and men and youth	Number of people trained to maintain ROW by planting vegetation	Reports Physical inspection	Quarterly Annually	Developer & facility manager

12. DECOMISSIONING PHASE

Developmental projects are usually temporary to permanent in nature and after a certain period of operation, the associated infrastructures will be decommissioned and the sites closed. It will be important that activities during this phase are carried out in an environmentally sound manner, leaving as little impact as possible on the environment. To this end, a decommissioning and closure will be developed.

The main objectives of the plan will be to:

- Promote alternative economic activities in the area that are sustainable in the future;
- Ensure the safety of surrounding communities through public consultation and the erection of warning signs.
- Return the land to conditions capable of supporting the former land use, or where this is not practical, or feasible, an alternative sustainable land use; and
- Prevent potential significant adverse effects on adjacent environs.

Where possible, SSN Investment cc will ensure that progressive rehabilitation is undertaken so that the rate of rehabilitation is similar to the rate of borrow pit operations.

Table 12: Fundamental criteria for closure

Issue	Closure Objectives
Physical stability	All remaining anthropogenic structures are physically stable
Chemical stability	The biological environment is restored to a natural, balanced ecosystem typical of the area, or is left in such a state so as to encourage and enable the natural rehabilitation and/or reintroduction of a biologically diverse, stable environment
	Closure aims at preventing physical or chemical pollutants from entering and subsequently degrading the downstream environment –

	including surface and ground waters
Geographical and climatic influences	Closure is appropriate to the demands and specifications of the location of the site in terms of climatic (e.g. rainfall, storm events, seasonal extremes) and geographic factors (e.g. proximity to human habitations, topography, accessibility of the mine)
Local sensitivities and opportunities	Closure optimized the opportunities for restoring the land and the upgrade of the land use is considered whenever appropriate and/or economically feasible
Land use	Rehabilitation is such that the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the community
Funds for closure	Adequate and appropriate readily available funds need to be available to ensure the implementation of the closure plan
Socio-economic considerations	Consideration will be taken of opportunities to communities whose livelihoods may depend on the employment and economic fallout from project activities. adequate measures made to ensure that the socio-economic implications of closure are maximized

13. CONCLUSIONS AND RECOMMENDATIONS

This environmental scoping report has addressed the key issues as identified and no significant impacts have been identified.

13.1 Conclusion

The project, when implemented, will bring huge positives for the district of Liselo communal areas, Zambezi region and the entire Namibia. Both the primary, secondary and tertiary beneficiaries will be wide spread across Namibia but with the largest number and therefore more positive impacts in Katima Mulilo town and surrounding environs.

The EIA process has allowed both the developer and other stakeholders to interact, openly identify positive and potential negative impacts both from a social-human environment and biophysical environment. Based on these interactions and also on other national and international practices, it is concluded that on the basis of the environmental and socio-economic assessment undertaken and based on a very wider consultation and the professional expertise employed, the positive impacts of Warehouse & storage facility project far outweigh the negative impacts. SSN Investment cc project has followed the due process of the law on environment. The socio-economic impacts of the project are largely positive, while negative impacts are minimal. These impacts will be adequately avoided through best management practices and compliance. No family will be displaced by the project. In addition, a project impact management and monitoring framework has been proposed and therefore merits support.

The stakeholders more especially the communities of Liselo are highly positively expectant of Light Industrial Solar power plant, warehouse & storage facility development in Zambezi region and want the project to start as soon as possible. NYEPEZ Consultant therefore recommends that the project be allowed to be implemented due to its outlined benefits.

13.2 Recommendations

Development related impacts must be prevented or mitigated by implementing strict monitoring and control. All permits and approval must be obtained from the relevant ministries or authorities for the operation of the light industrial business, such as business fitness certificates & certificates of operation from Ministry of trade. It is imperative that the mitigation measures as set out in the ESMP be implemented during the planning (layout design) construction and operational phases to prevent unnecessary damage to the natural environment.

The ESMP should be added to all contractors' agreements and be signed by such contractors. The recommendations made in this report places the developer under a legal obligation to ensure that all mitigation measures are implemented and followed

through during construction and operation of the Light industrial Warehouse & storage facility.

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Nyepez Consultancy cc
Environmental Assessment Practitioner and Management Consultant

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REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
 OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental
 Management Act (Act No. 7 of 2007)

TO

SSN Investments cc
P. O. Box 31400, Windhoek.

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

**THE EXISTING & OPERATIONAL LIGHT INDUSTRIAL (SOLAR PLANT,
 WAREHOUSE & STORAGE FACILITY) AT LISELO COMMUNAL AREA,
 ZAMBEZI REGION COMMUNAL AREA, ZAMBEZI REGION.**

Issued on the date: **2021-12-07**

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MAFWE ROYAL ESTABLISHMENT

Office of the Litunga (Chief) Linyanti Khuta
P O Box 7004 – Katima Mulilo – Republic of Namibia

June 2, 2025

The Chairperson
Zambezi Communal Land Board
Katima Mulilo
Zambezi Region

Dear Sir

SUBJECT: APPLICATION FOR RIGHT OF LEASEHOLD

Mafwe Traditional Authority hereby certify that SSN Investments cc registration No. CC/2014/03268 has been allocated a portion of land measuring 50 hectares in Liselo Communal area for solar plant. Maximum lease period granted for up to 99 years in accordance with Communal Land Reform (Act, No. 5 of 2002, section 34).

We appreciate your speed facilitation towards this application.

Yours Sincerely,

B.N. Mpango
Secretary

P M Kawana
Hon. Natamoyo



G.S. Mamili VII
His Royal Highness Litunga



