

**REVISED AND UPDATED ENVIRONMENTAL MANAGEMENT PLAN
(EMP) FOR THE EXISTING & OPERATIONAL LIGHT INDUSTRIAL
(SOLAR PLANT, WAREHOUSE & STORAGE FACILITY) AT LISELO
COMMUNAL AREA, ZAMBEZI REGION COMMUNAL AREA,
ZAMBEZI REGION**



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Renewal of Environmental Clearance for:
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PREFACE

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 updated and reviewed 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

1. INTRODUCTION

The existing and operational light industrial storage facility project is on a 11.7 Hectares of Land and is a functional project. The Warehousing and Storage facilities infrastructures are developed on 2.5 hectares and existing, while in future the Solar plant Infrastructure is proposed to be developed on remaining 9.2 hectares. 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 project is engaged in different activity that leads to its successful operations.

Current only a small portion of 2.5 hectares of land is being utilized for Warehousing & Storage facility land use. About 9.2 hectares of remaining project land is unutilised but planned for future development or establishment of Solar Plant for the expansion of the project. Therefore, the entire 11.7 hectares shall in future be fully utilised for development establishment. This is according to the leasehold title obtained from the Ministry of Land Reform by the proponent for the establishment and operation of the Light Industrial (Solar Plant, Warehouse & Storage Facility) At Liselo Communal.

The proponent and investors (SSN Investments cc) came up with this brilliant initiative, to establish and to make use of the 11.7 hectares of land as allocated by the Land Board and the Mafwe traditional Authority. The site has a total size of 11.7 hectares and consist of four (4) storage facility buildings (where materials & other movable products are kept and/or will be kept), and also consist of administrative office on site.

The site or project area is accessible through an existing 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 tare 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.

The Environmental Clearance Certificate for Light Industrial (Solar Plant, Warehouse & Storage Facility) was approved and issued in 2017. however, the three (3) year period of the clearance has lapsed, hence the application for renewal. SSN Investment CC saw a demand for light industrial storage facility in Katima Mulilo or the Zambezi region which prompted the proponent (SSN Investments cc) to propose and establish this industrial development

investment. The objective was to turn the land into an industrial area and storage facility for light industrial business entities within the Zambezi region.

SSN Investments decided and choose to develop an industrial hub to provide services to 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 of the Government policies deliberately support the industrial and manufacturing industry. The highly motivated Directors of SSN Investments CC have thus identified Katima Mulilo as the town where the company can expand in terms of industrial infrastructure for both services and manufacturing businesses owing to 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 and intended to make the designated area a hub for light industrial structure for entrepreneur & business entities in Zambezi Region.

SSN Investment cc has reappointed Nyepuz Consultant cc to apply for the Renewal of an Environmental Clearance Certificate which has expired. The Environmental Impact Assessment (EIA) was conducted under the requisites of the Environmental Management Act (EMA) (Act 7 of 2007) and its Regulations (2012).

1.2 Main Objective

- To apply for the renewal of the Environmental Clearance Certificate (ECC) for existing and operating Light Industrial (Solar Plant, Warehouse & Storage Facility) At Liselo Communal Area, Zambezi Region which was obtained in 2017 (the First initial certificate was acquired by Nyepuz Consultancy cc on behalf of the proponent (SSN Investments cc)
- To provide a brief background of the existing project and its proponents;
- Provide the Renewed, Compliant and updated Environmental Management Plan for the project and explain.
- To explain the process that was followed during the Environmental Scoping Study;

1.3 Project Development Activities

The Light industrial (Solar Plant, Warehouses & storage facility) was established in 2017 for operational commercial business purposes. The following facilities were established on the site.

- A office building (consisting of reception, 2 staff toilets, & two toilets for workers)
- Two Large warehouses& Industrial storage building facilities
- A parking area, loading & offloading zone
- Pedestrian walkways & Landscaping
- Reserved 9.2 hectares of land for future Solar plant panel power generation

1.4 Aims of the Study

The aims of initial scoping submitted was to:

- Comply with Namibia's Environmental Assessment Policy, Environmental Management Act (2007) and its February 2012 EIA Regulations;
- To provide for a compliant and updated Environmental Management Plan for activity monitoring and evaluation purposes
- Consult all Interested and Affected Parties (I&AP's) to ensure that their input is taken into account;
- Review the legal and policy framework and its relevance to this project;
- Describe the biophysical and socio-cultural environment of the project to determine its sensitivities and suitability;
- Identify and assess impact related to the construction, operation and later decommissioning of the poultry farm and associated infrastructure and propose suitable mitigation strategies.
- In 2017 a Compiled Scoping Report and Management plan in line with the 2012 EIA Regulations of the Environmental Management Act (2007) and terms of reference was submitted, approved and an initial Environmental Clearance Certificate **dated 05 July 2017 issued. The first approval was issued through the old ministerial manual approving system, which therefore means the expired Clearance Certificate is not found online but filled in the Ministry's registry.**

1.5 Locality

The project site and development of a Light industrial (Solar Plant, Warehouses & storage facility) is located ± 2 meter west south west of the town of Katima Mulilo, few meters from the designated (but fenced off) Katima Mulilo cemetery, 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 Land Board in that Particular region. The Leasehold certificate measuring 11.7 hectares is here by attached. From a distance the area is also located some ± 600 meter to the main Trans-Caprivi highway which forms a link with Namibia-Zambia Boarder of Winella situated about ± 8 Kilometre from the proposed site area.


REPUBLIC OF NAMIBIA
MINISTRY OF LAND REFORM

**CERTIFICATE OF LEASEHOLD FOR ANY PURPOSE OTHER THAN
AGRICULTURAL PURPOSES OUTSIDE A DESIGNATED AREA**
As in the Communal Land Reform Act, 2002 (Section 33, Regulation 16)

Certificate No: **ZAMCLB-ROL-008010**

It is hereby certified that a Right of Leasehold has been granted to:

Right holder: **SSN INVESTMENT'S CC**
Company Registration Number CC2014/03268

Residential address: 232 Omanzete Street
Postal address: P O Box 31400, Windhoek

Nature of right holder: Juridical Entity

Description of portion of land in respect of which land right has been granted:

UPI:	LISELO300310	Constituency:	Katima Mulilo Rural
Area:	Liselo	Traditional Authority:	Maŋwe
Parcel size:	11.7 ha	Traditional	Liselo
Region:	Zambezi	Administrative Area:	

Description of land right which has been granted:

Approved land use:	Commerce, finance and business (Warehouse and Industrial Store)	approval date:	10.06.2020
Leasehold period:	29.06.2020 until 29.06.2045		
Other right on parcel:		approval date:	

Signature of CLB Chairperson/ Secretary Date



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Figure 1: Project area Leasehold certificate, 11.7 hectares



Figure 2: Project locality site area

The project area locality is socially and environmentally more feasible due to the following:

- 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. The main socio-economic developmental activities in and outside the town of Katima Mulilo closest to the proposed project which are the Chinese corrugated zinc or iron sheet manufacturing industry, the Pumba and Lizazi brick making projects and the proposed Liselo shopping plaza. These production activities are situated in the diameter of +- 50 meter to 1km from the proposed project site. This situation makes the project development site ideal location for light industrial development in the region and to uplift the industrialisation level of the town of Katima mulilo

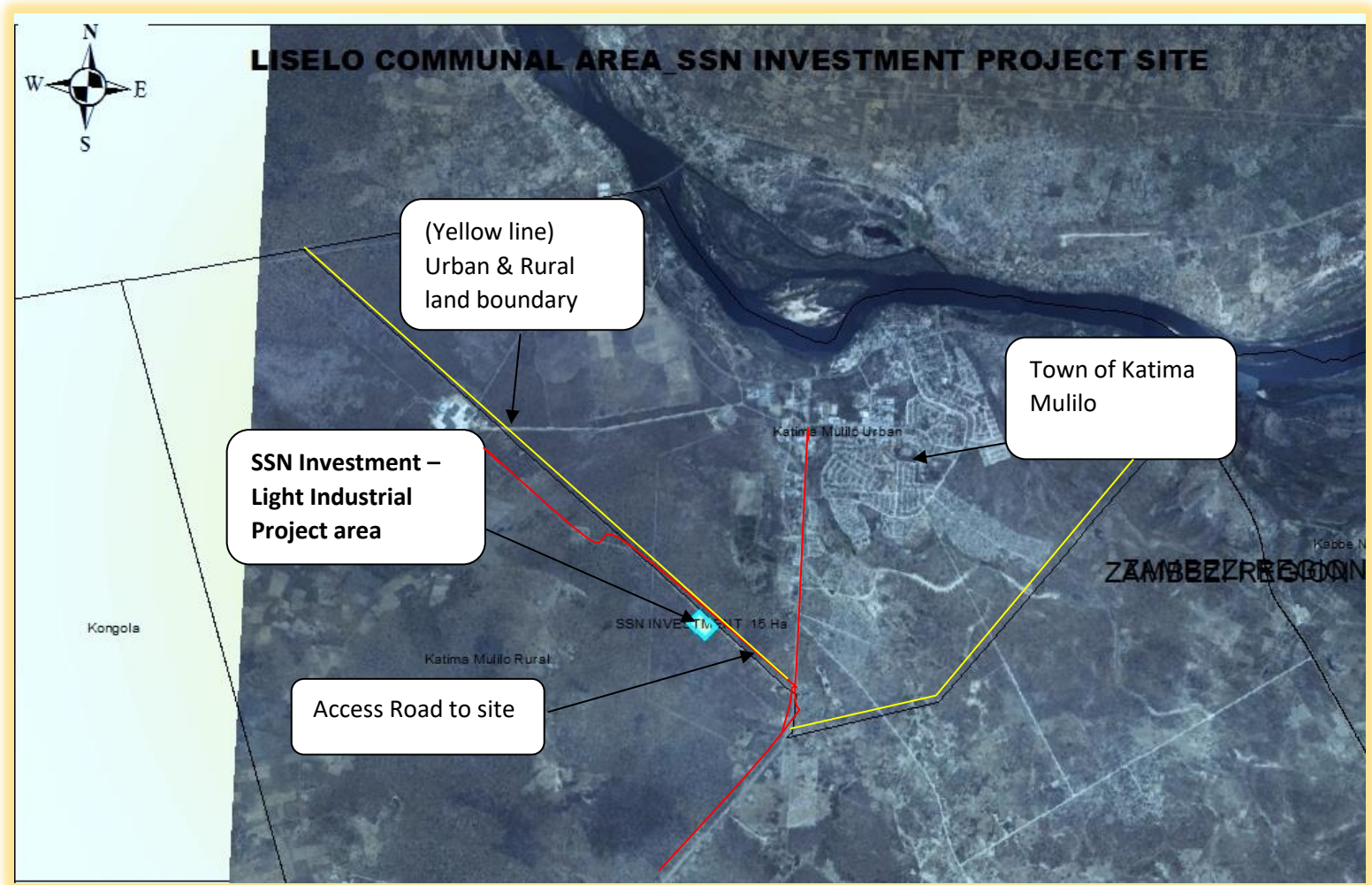


Figure 3: Project locality area

1.6 Project Economics & Operational Activities

The objectives of establishing and developing the site was to;

- 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 town/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

Project	Potential Impacts
Construction	No construction activity to be undertaken this year as the project is operational. About 70% construction was already completed in 2017 and only 30% left for future establishment of Solar plant on 9.2 hectares.
Decommissioning	Nuisance dust generated from demolition equipment and general decommissioning activities

2. LEGAL AND REGULATORY REQUIREMENTS

The Namibian Environmental Management Act (Act No. 7 of 2007) promotes the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment. With regard to managing ambient air quality in a sustainable way and limiting impacts, health-based ambient standards, emission standards, and ambient monitoring are considered the most appropriate approaches.

3. IMPACT ASSESSMENT

3.1 Identification of key impacts

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

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 trade development with the Zambian Government
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 residential 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 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 (Daily 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 Zambezi region and the local economy. The obligation 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

4. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION**4.1 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 operational and the decommissioning of activities for the light industrial development. The potential environmental effects associated with the implementation of the operational 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 were 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 sections below.

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 this EMP.

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 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 Scoping report legal section.

Table 1: 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.
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The FAO guidelines for fields projects (FAO, 2012) was used during the assessment.

Table 2: 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

NB: Based on the above FAO's categories of field project analysis, the industrial project development of the light industrial project at Liselo falls under category B, where there is less significant adverse impacts that may be easily prevented or mitigated. Environmental analysis is required for analysis to identify more precisely potential negative impacts. The following box below specify 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 was used to assess projects related to the Light Industrial development project and Pastakia's method was and is 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 3: 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

Table 4: 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 5: Criterion for Impact Evaluation (Directorate of Environmental Affairs, 2008)

Risk Event	Description of the risk that may lead to an impact
Probability	<p>Refers to the probability that a specific impact will happen following a risk event</p> <p>Improbable (low likelihood)</p> <p>Probable (distinct possibility)</p> <p>Highly probable (most likely)</p> <p>Definite (impact will occur regardless of prevention measures)</p>
Confidence level	<p>The degree of confidence in the predictions based on the availability of information and specialist knowledge</p> <p>Low (based on the availability of specialist knowledge and other information)</p> <p>Medium (based on the availability of specialist knowledge and other information)</p> <p>High (based on the availability of specialist knowledge and other information)</p>
Significance (no mitigation)	<p>None (A concern or potential impact that, upon evaluation is found to have no significant impact to all)</p> <p>Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design)</p> <p>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)</p> <p>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)</p>

Mitigation	Description of possible mitigation measures
Significance (with mitigation)	<p>None (A concern or potential impact that, upon evaluation is found to have no significant impact to all)</p> <p>Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design)</p> <p>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)</p> <p>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)</p>

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.

4.2 Construction Phase Impacts Prior to Mitigation

4.2.1 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 was cleared for the construction of warehouses, roads and associated infrastructure. This requires 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 project site. The local loss of this vegetation type due to the 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 but rubbles to be disposed a given periodic intervals of the week.
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.

4.2.2 Positive Impacts identified for the construction phase prior to mitigation

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

4.3 Operational Phase Impacts Prior to Mitigation

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

NEGATIVE IMPACTS (LOW)	DESCRIPTION OF IMPACT
Land transformation – Dust levels	The project 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 have not and 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.

4.3.2 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 is and will be maintained between the project site and neighboring land uses. Indigenous trees and shrubs are and 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 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 is 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 is one potential sources of effluent – sewage from abluion 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.

4.3.3 Positive Impacts for the operational phase prior to mitigation

POSITIVE IMPACTS	DESCRIPTION OF IMPACT
Socio-Economic: Economic upliftment	<p>Approximately 75 permanent employment opportunities created during the operational phase. Approximately 60% of the expected value of the employment opportunities will be accrued to previously disadvantaged individuals.</p> <p>The project 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</p>
Socio-Economic: Food security	<p>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.</p>
Socio-Economic: Healthier food option produced in a more humane and sustainable manner	<p>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.</p> <p>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.</p>

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) ensures that the impacts of the operational phase are minimised and include measures to reduce the identified impacts during the operation of the light industrial project activities while ensuring that the local environment is rehabilitated and employees working on the project are suitably protected to avoid accidents and injuries.

4.4 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

5. ENVIRONMENTAL AND SOCIAL MITIGATION AND MANAGEMENT PLAN

5.1 Aesthetic Mitigation Measure

With implementation of the project well designed architectural drawings in line with the required building standard and mitigation measures, impacts to aesthetics will be reduced to a level of less than significant. The proposed project does not result in any adverse significant impacts to aesthetics.

5.2 Air Pollution Mitigation Measures

The spraying of water around the areas of the construction site, borrow pits and quarry during construction work must be done to mitigate the escape of dust particles to the atmosphere. The process of spraying water should be carried out at least three times on every construction day

especially if construction work is carried out during the dry season. Haulage trucks must be covered or the aggregates sprayed with water before loading the haulage trucks.

5.3 Ground and Surface Water Contamination Mitigation Measure

Removal of soil vegetative cover should be kept at minimum and should only be carried out with absolute necessity. The development of the landscape and planting of trees and vegetative cover should be carried out after construction work. To avoid oil contaminant into water bodies, a system for the proper collection and disposal of lubricants at both site and maintenance depot should be maintained. In the absence of a sewage system, septic tanks are and/or should be located far away from ground water aquifers. The constant monitoring of ground and surface water quality

Should be maintained.

5.4 Mitigation Measure against Changes in Land Topography

Mitigation measure against changes in the topography of the land is geared towards minimizing the changes in the natural drainage pattern of the surrounding areas. To ensure this, the changes in the topography of the land should be kept at minimum. Otherwise, the restoration of the natural drainage the site relating to the surrounding areas should be restored after construction.

5.5 Noise Mitigation Measure

Mitigation measure to reduce noise around the vicinity of the site is geared towards ensuring that surrounding inhabitant and people staying in close proximity around the site are not adversely affected by noise due to the activities at the construction sites or area. The light industrial project development site area to be used for the construction work is remotely located away from residential and office areas. However, due to artisanal extraction of aggregates by locals, a few shanty dwellings are erected some 1kilometers away from the project site. Therefore, the following measures are deemed to mitigate the impact of noise to the surrounding environment.

- Fitting proper mufflers to vehicles and construction equipment to minimize noise pollution.

- Sensitization and discussion with residential and local Liselo community around the sites about the working hours and the impact of noise.
- The use of hearing protection gears by workers when exposed to noise levels above
- Construction and haulage activities to be limited to daytime.

The EMP have specific targets for each year that will be evaluated by the Annual Environmental audit. The audit can make recommendations which will necessitate Changes in the EMP. The EMP will be reviewed on an ongoing basis as new environmental challenges arise or targets/objectives are achieved. The Operations Manager will ensure that this review occurs in a timely manner.

6. 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.

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

7. CONCLUSIONS AND RECOMMENDATIONS

This Environmental Management Plan Report has addressed the key issues as identified and no significant impacts have been identified.

7.1 Conclusion

The project, has brought huge positives results for the district of Liselo communal area, Zambezi region and the entire Namibia. Both the primary, secondary and tertiary beneficiaries are widely spread across Namibia but with the largest number and therefore more positive impacts in Katima Mulilo town and surrounding environs.

The initial EIA process undertaken in 2017 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 Light Industrial 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 families were and 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 Plant, Warehouse & Storage facility development in Zambezi region and wanted the project to be implemented. NYEPEZ Consultants therefore recommends that the project to continue its operation and development due to its outlined benefits.

7.2 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 Solar Plant, Warehouse & storage facility.

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Environmental Assessment Practitioner and Management Consultants

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