



FINAL NON-TECHNICAL SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

MUNYATI 100MW AC SOLAR PV POWER PLANT

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ABBREVIATIONS

HSE – Health Safety and Environment
PM – Particulate Matter
NGO’s – Non-governmental Organizations
MEE – Munyati Evergreen Energy
IPP – Independent Power Producer
MW - Megawatt
OHTL – Overhead Transmission Line
ESMP – Environmental Social Management Plan
ARAP – Abbreviated Resettlement Action Plan
NTS – Non-Technical Summary

1.0 INTRODUCTION

1.1 Project Background

In September 2022, the Ministry of Energy and Power Development of Zimbabwe Munyati Evergreen Energy (Pvt) Ltd signed a concession agreement for the Design, Fund, Construction, Own, Operate and Transfer of the 100MW AC Solar PV Power Plant. The produced energy from the plant will be evacuated through a 132(88)kV 8km transmission line to Sherwood B Substation. The Project is aligned with the Government of Zimbabwe 2030 development strategy to identify priority investments in generation, transmission, and interconnection, as well as distribution and network expansion.

The project consists of the following main components:

- The solar plant (100MW), that will be built and operated by the Proponent for 25 years;
- The transmission line (10km long – (132)88kV, that will be built by the Proponent.

An Environmental and Social Impact Assessment (ESIA) has been undertaken for the solar plant including the 8km transmission line. The ESIA process involved the identification, prediction and evaluation of potential environmental and social impacts of the Project and outlines the proposed mitigation measures to manage predicted adverse impacts, as well as enhancement measures for positive impacts.

1.2 This Document

This Non -Technical Summary (NTS) provides an overview of the full ESIA and can be used as a stand-alone document during the stakeholder engagement process.

The NTS is a short document written in non-technical language that can be used to share the findings of the ESIA to the general public.

1.3 Resettlement and Compensation Action Plan

The Project has also developed plans to mitigate adverse socioeconomic impacts arising from any necessary land acquisition or restrictions on affected persons' use of or access to land, including physical displacement, in a manner that meets the IFC PS as well as Zimbabwean legislation. These plans are captured in an Abbreviated Resettlement Action Plan (ARAP). This ARAP provides a framework for any necessary land acquisition, compensation and livelihood restoration to avoid or minimizes adverse socioeconomic impacts arising from the Project-related land acquisition or access restrictions. It will be implemented during the detailed design (Executive Project) and throughout construction.

2.0 PROJECT DESCRIPTION

2.1 Project Location

Figure 1 shows the proposed site and transmission route of the Project and its context within Zimbabwe. The Project does not cross into another district and is resident in Kwekwe District.

The 132(88)kV overhead TL (10km) will connect the Sherwood B substation located in Sherwood. The current route for the Project is considered to be the preferred selection based on a ranking of potential environmental and social impacts and sensitivities and consideration of alternatives. This is further described in Section 3 (Alternative Analysis) of this NTS.

2.2 Project Justification

Most cities in Zimbabwe are still subject to unplanned power outages which lead to public dismay and disruptions to businesses and industry activities. The socio-economic implications of an intermittent supply of energy is most severe in densely populated areas, like Harare. Among the key objectives of the Government of Zimbabwe is to develop a middle-income economy and achieve a 33% reduction of greenhouse gas emissions by 2030. A key strategy to deliver these ambitious developments is the renewable energy policy which targets 1,000 MW by 2025. All these presents great potential for the renewable energy sector in Zimbabwe. National electricity access in Zimbabwe is estimated at 40% with rural areas at 19%. According to the 2012 census, 68% of the population live in the rural areas and the main source of energy is firewood. With an installed capacity of 2,342 MW comprising 55% thermal and 45% hydro energy, the country is unable to utilise its capacity due to limited access to water and fuel as well as ageing equipment.

Zimbabwe currently uses 1,471 MW and does experience load shedding even though some power is imported from neighbouring Zambia, South Africa and Mozambique. Kariba Hydro Power Station and Hwange Coal Power Station (coal) are the main electricity generators with Independent Power Producers (IPP) contributing 12 MW. However, it must be noted that apart from the foreign currency used for imports, the country's industrial base is no longer at the same level it used to be, given the economic downturn in recent years.

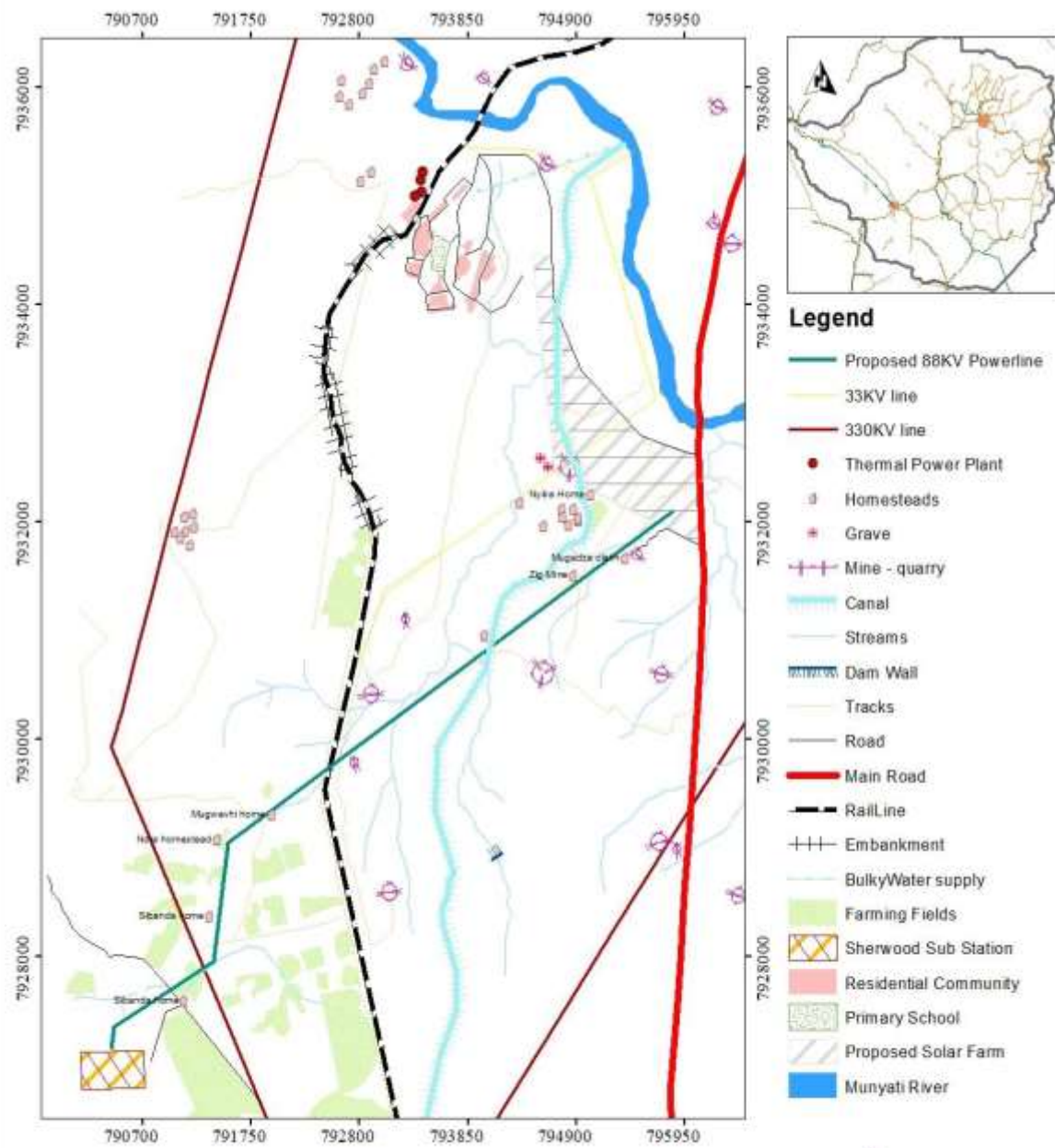


Fig 1: Solar Plant site and 132kV transmission route

2.3 Project Components

Table 1: A brief description of the Solar Plant Project

S. No	Particulars	Descriptions
1	Type of PV modules	Mono Crystalline
2	Modules Mounting Structure	Single Axis Tracking (SAT)
3	Proposed capacity	100MW AC
4	Capacity of each module proposed	610Wp
5	Model of solar PV module	Jinkosolar Tiger Neo N-Type 78HL4-BDV
6	Total number of PV Modules	188,784
7	Number of Inverters	40
8	Inverter model	SungrowSG2500HV-MV-20

Table 2: A Brief Description of the Transmission Line

S.No	Project Technical Specifications	330/132/88kV400kV Sherwood B Substation
1	Total Length of Transmission Line	8km in total length,
2	Nominal System voltage	132/88kV

The Project design will also include the following elements:

- Lightning Arrestors: two ground wires, on top of the power line for the entire 238 km length to protect the conductors;
- Beacons for aircraft signalling;
- Bird diverters on the guard cables to increase visibility of cables by birds; and
- Vibration dampers (one every 200 m on all cables);
- Temporary access roads during construction;
- Temporary tower laydown and assembly areas (40x50m area); and
- Temporary tower laydown and assembly areas (40x50m area); and
- Camps

2.4 Temporal Scope

The Project will be divided into three key phases: construction, operation and decommissioning.

The construction period will last for 12 months, and efforts will be made to shorten this schedule to a minimum of 10 months of preconstruction activities and 12 months of construction works. To achieve this goal, construction works will be divided into three teams operating simultaneously.

Many of the adverse environmental impacts predicted for this Project will occur only during the construction phase. The operational phase of the Project will be more than 25 years. Following the operational phase, a decommissioning procedure will be provided as part of the operation and maintenance manual during handover of the completed Project. . The decommissioning procedure will include site specific rehabilitation plans for the footprint of the project. All regulatory requirements will be complied with for the decommissioning phase.

2.5 The Physical Scope

The proposed transmission line route is provided in Figure 1.

Currently the route has been pegged and approved. Project layout was considered by MEE as fully compliant with national regulations and both national and international engineering best practices. MEE team is now developing the detailed design (Executive Project) after undertaking topographic surveys, hydrological as well as geotechnical on-site. Whilst the indicative route is agreed, the detail design (including exact tower heights and their foundations) shall be undertaken by the EPC contractor under the supervision of MEE in collaboration with ZETDC, and after considering results of the surveys and the mitigation proposed to minimise social and environmental impacts during this process. For the purposes of this assessment, the area of influence where direct impacts are predicted to occur is within 1000 m of the transmission lines. Not all impacts will occur within this entire zone, but this 1000 m zone is considered to be the composite area of potential direct impacts from the Project.

In addition to the direct area of influence, indirect impacts may also occur beyond this. These include the indirect impacts that may extend to nearby communities along the transmission lines (i.e. Munyati and Sherwood), as well as the residents in the Midlands Province that will benefit from the electricity supply.

Whilst the exact location of the temporary infrastructure (*i.e.* roads, laydown/ assembly areas, and camps) is not yet known, it is assumed that they will be located within the direct area of influence considered in the assessment, *i.e.* within the already mentioned 1000 m zone of the transmission line.

3.0 ALTERNATIVES ANALYSIS

3.1 Introduction

The purpose of the alternatives analysis was to identify feasible alternatives that could improve the sustainability of the Project's design, construction and operation. To minimize environmental and social impacts, a larger portion of the transmission line was made to avoid properties. There will however be a need in some areas to relocate households to pave way for the construction of the transmission line. As part of the design process, MEE investigated various options to minimize the impact on the public and the environment.

The key environmental, social, technical and economic factors were evaluated and considered based on the following criteria:

- Location alternatives - Where possible, re-route the transmission line so that no structures/properties were close to or under the lines (re-siting the facilities). Resettlement would be considered as a last option; and
- Technology alternatives - Should re-routing not be an option due to space or other factors, consideration of different technologies (e.g. transmission towers height) would be investigated. These options were evaluated against EHS, technical and economic criteria.

Consequently, both siting alternatives and technology were evaluated individually and in combination, as follows:

- From an environmental, health, safety and social perspective (environmental issues, need for any resettlement including physical as well as economic displacement, health concerns, community safety and aesthetics);
- From a technical perspective (constructability, impacts on timing and schedule for construction, maintenance / repair of infrastructure, making changes to infrastructure, disturbance to other infrastructure and accidental damage); and
- From an economic feasibility perspective (construction costs, maintenance costs and resettlement costs).

3.2 No-Go Scenario

Based on this scenario, the no-development option would mean that this component of the national strategy would not be fully implemented despite the energy generation upstream. In the short term, this scenario ensures the status quo in the biophysical and socio environment

along the project area, considering that the solar plant is being constructed at an area reserved for energy generation and majority of the line is being planned near existing corridors.

3.3 132(88)kV Transmission Line

One route option was evaluated (see next Figure):

2023 route as described in the original ESIA approved by MEE.

Considering that the solar plant is being built near an existing Sherwood B Substation through an (132)88kV transmission line, pegging of the line was limited to follow existing lines direction and at the borders of farm land hence a single option.

For this option, the environmental and social sensitivity, as well as potential health and community safety risks were identified as generally low.

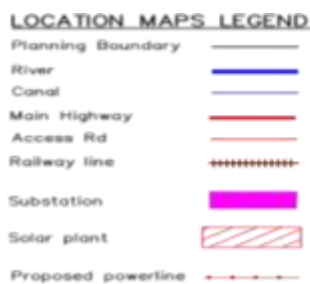


Fig 2: Transmission route from Munyati Solar farm to Sherwood Substation B

4.0 LEGAL AND ADMINISTRATIVE FRAMEWORK

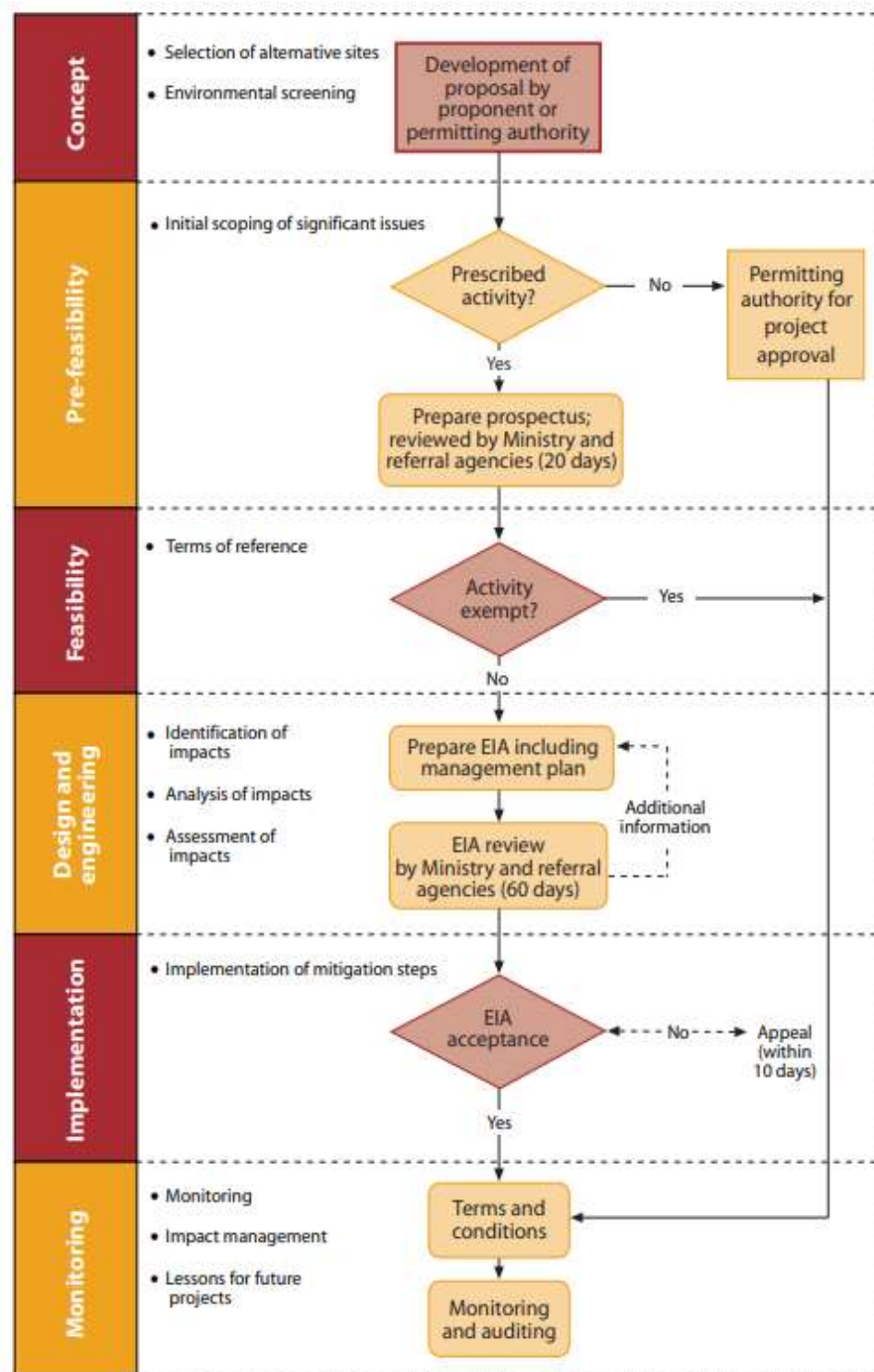
Table 3: IFC Performance Standards Triggered by the Project

LENDER REQUIREMENTS (IFC Performance Standards)			
The Performance Standards specify the IFC's conditions for environmental and social performance for projects seeking external financing. The IFC Performance Standards are divided into eight categories to identify and evaluate the potential environmental and social impacts which may occur as a result of project activities. A summary of the scope of the IFC Performance Standards and the applicability to the Project is provided below. As indicated, impacts on Indigenous Peoples were not identified.			
No	Title	Scope	Applicable to the Project
1	Assessment and Management of Environmental and Social Risks and Impacts	Defines requirements for ensuring appropriate environmental and social management policy implementation and accountability, including Environmental and Social Impact Assessment requirements	Yes
2	Labour and Working Conditions	Defines requirements for ensuring definition and implementation of fair recruitment and workforce management policies	Yes
3	Resource efficiency and pollution prevention	Defines requirements for ensuring an appropriate level of pollution prevention and abatement	Yes
4	Community Health, Safety and Security	Defines requirements for ensuring that adverse impacts from the Project on the receiving community are managed and controlled	Yes
5	Land Acquisition and Involuntary Resettlement	Defines requirements for land tenure management and community resettlement as part of Project development	Yes
6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Defines requirements for ensuring that the Project's impacts on nature, ecosystems, habitats and biodiversity are appropriately managed	Yes
7	Indigenous Peoples	Defines requirements for ensuring that the rights of autochthonous minorities are respected and that indigenous people may benefit from the Project	No
8	Cultural Heritage	Defines requirements for managing the Project's impacts on material and immaterial cultural heritage	Yes

Table 4: Equator Principles Triggered by the project

EP #	Name of Equator Principle	Triggered by the Project
Principle 1	Review and Categorization	yes
Principle 2	Environmental and Social Assessment	yes
Principle 3	Applicable Environmental and Social Standards	yes
Principle 4	Environmental and Social Management System and Equator Principles Action Plan	yes
Principle 5	Stakeholder Engagement	yes
Principle 6	Grievance Mechanism	yes
Principle 7	Independent Review by Environmental and Social Consultant	yes
Principle 8	Covenants	yes
Principle 9	Independent Monitoring and Reporting	yes
Principle 10	Reporting and Transparency, Client Reporting	yes

1.1 ZIMBABWE EIA PROCESS



Source: Adapted from MMET (1997b)

Fig 3: EIA Flow Chart in Zimbabwe

5.0 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT METHODOLOGY

Overview

The purpose of the impact assessment process was to identify any likely significant effects on receptors/resources as a result of impacts from a Project and develop appropriate mitigation measures to effectively manage these environmental and social effects. The process was iterative and can be summarized by the figure to the right.

The detailed impact assessment methodology that was used complies with international best practice for impact assessment. The overarching principles of this methodology are illustrated here, but note that each ESIA topic area have specific criteria for defining receptor sensitivity/vulnerability and impact magnitude.

Evaluation of Significance

The significance of the potential effect on receptors/resources is determined through the combined consideration of:

- the sensitivity/vulnerability of the affected receptor/resource, and
- the magnitude of the potential impact

Note that the term ‘**magnitude**’ is used as shorthand to encompass various possible dimensions of the predicted impact, such as:

- the nature of the change (what is affected and how)
- its size, scale or intensity;
- its geographical extent and distribution;
- its duration, frequency, reversibility
- where relevant, the probability of the impact occurring as a result of accidental or unplanned events.

		Sensitivity/Vulnerability/Importance of Receptor or Resource		
		Low	Medium	High
Magnitude of Impact	Negligible	Not Significant	Not Significant	Not Significant
	Small	Not Significant	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

Fig 4: Significance Evaluation

There is no statutory or agreed definition of significance however, for the purposes of this assessment, the following practical definition is proposed:

An impact will be judged to be significant if, in isolation or in combination with other impacts, the effects will be a notable change from baseline conditions and may require mitigation to management environmental/social effects/risks.

Magnitude and vulnerability/sensitivity will be looked at in combination to evaluate whether an impact is significant and if so its degree of significance. The principle is illustrated here.

The impact assessment process evaluates both beneficial and adverse impacts, however the magnitude rating is only assigned for adverse impacts.



Fig 5: Residual Impacts/Effects

Residual Impacts/Effects

Is it still significant?

Once mitigation has been identified, a re-assessment of impacts was undertaken to determine the magnitude and significance of any residual effects (after mitigation) is undertaken. Consideration was also given as to whether the impacts have been reduced to as low as reasonably practicable (ARAP) and if any further mitigation of remaining significant effects is technically or financially feasible.

6.0 SCREENING AND SCOPING

6.1 Introduction

Potential impacts of the Project were identified through a process whereby the features and activities (both planned and unplanned) associated with the pre-construction, construction and operation of the Project were considered with respect to their potential impact on resources/receptors. Potential impacts have been classified in one of three categories:

- No interaction: where the Project is unlikely to interact with the resource/receptor;
- Interaction likely, but not likely to be significant: where there is likely to be an interaction, but the resultant impact is unlikely to change baseline conditions in an appreciable/detectable way; and
- Significant interaction: where there is likely to be an interaction, and the resultant impact has a reasonable potential to cause a significant effect on the resource/receptor

The completed Potential Interactions Matrix is presented in Table 5:

- The interactions that are coloured white were ‘scoped out’ of further consideration in the impact assessment process as no interactions were expected.
- The interactions that are coloured grey have also been ‘scoped out’ as a result of further investigation which indicated based upon past experience and documented data that any such interactions are unlikely to be significant.
- The interactions that are shaded black were retained for further consideration in the impact assessment process.

Table 5: Potential Interaction Matrix

Resources/Receptors	Environmental Resources													Socio/Economic Resources								
Project Activities/Hazards	Air Quality & Fugitive Emissions	Landscape and Visual Amenity	Water Quality Resources (Surface and Ground)	Land Contamination	Noise and Vibration	Soil Erosion	Waste (including Hazard Waste)	Change of Land Use	Geology and Topography	Avian Species	Flora and Fauna (Excluding Avian)	Ecosystem Services	Invasive/Alien Species	Community Health and Safety	Occupational Health and Safety	Land and Livelihoods	Economy and Employment	Demographic Pattern	Access to Infrastructure & Services	Cultural Heritage	Electromagnetic Field	Cumulative Impact
Construction Phase and Decommissioning																						
Solar Plant Site and Transmission Corridor Clearance																						
Excavation Work																						
Equipment/Material/ Worker Transport																						
Accidental Events (Spills/Uncontrolled Releases)																						
Waste Storage Disposal																						
Operation Phase																						
Presence at Site																						
Ongoing Maintenance (including vegetation control)																						

7.0 SUMMARY OF BASELINE CONDITIONS

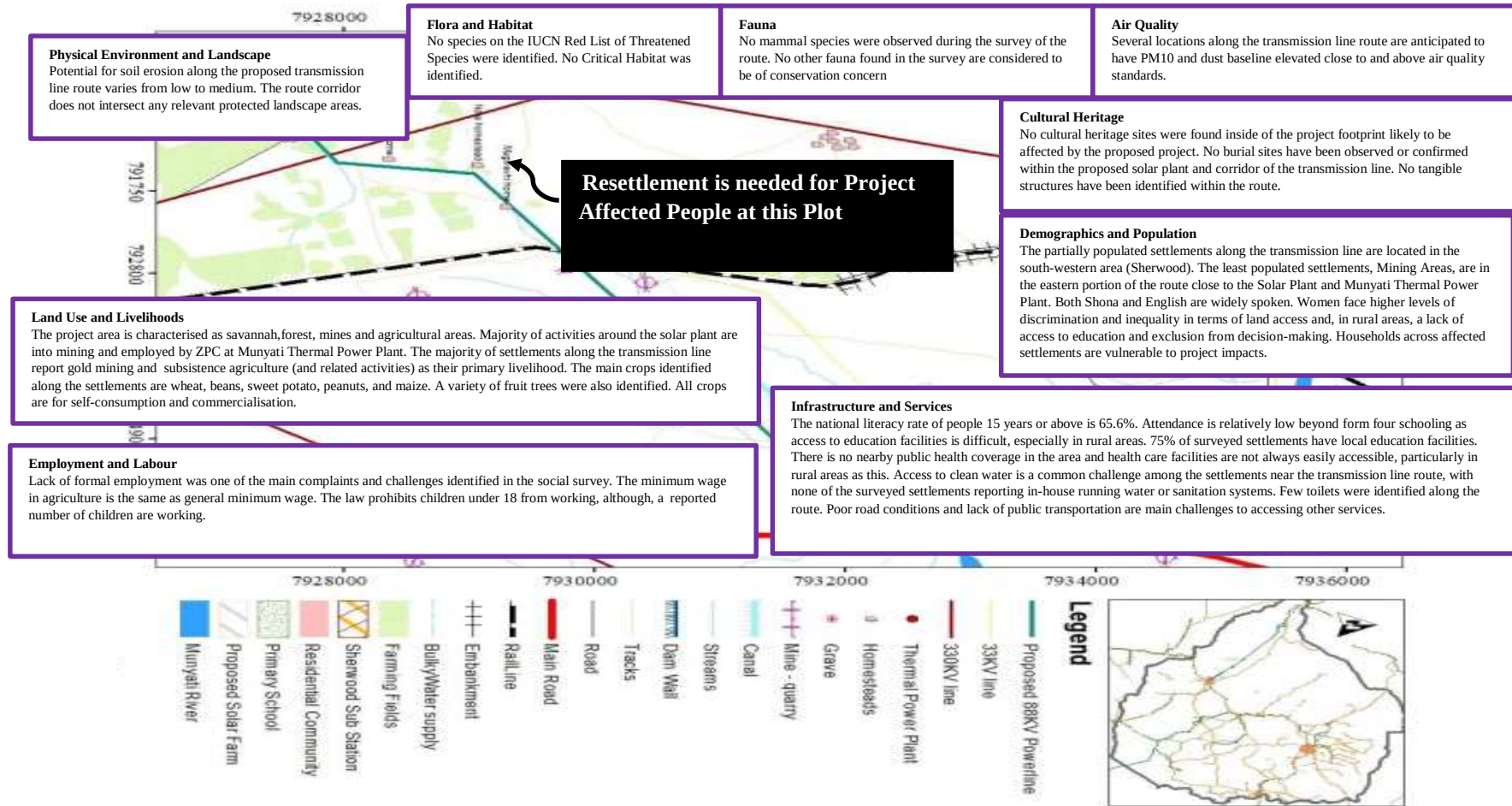


Fig 6: Summary of Baseline Conditions

8.0 STAKEHOLDER ENGAGEMENT

8.1 Engagement During the ESIA Development

During the development of the ESIA, engagement activities were undertaken consisting of public consultation organised by Enviroforensic Intelligency & Technology. The results of this consultation are part of the ESIA document.

As part of the project disclosure and social baseline data collection for the ESIA, extensive stakeholder engagement was undertaken, including project disclosure engagement meetings with government departments, nearby landusers/potentially affected community members, PAPs, vulnerable groups and NGOs. The objectives of the engagement process are illustrated in Figure 5.

Stakeholders identified for inclusion in engagement activities meet one of the following criteria:

- Have an interest in the project
- Would potentially be impacted by or have an influence on the project (negatively or positively); and/or,
- Could provide commentary on issues and concerns related to the project

Engagement was undertaken between June 2023 to November 2023 as well as social baseline data collection engagement activities:

Participants: Government departments, nearby landusers, traditional leadership, local governance leaders, PAPs, vulnerable groups and NGOs

Activity description: Government departments consultation meeting, community meeting and consultation, Focus Group Discussion with community members, Key Informant Interview, and informal discussion with community representatives.

Purpose: Inform on the project and survey, ground-truthing, village profiling and data collection. Further details on the engagement activities are documented in the separate project's Stakeholder Engagement Plan.

8.2 Considerations for Future Stakeholder Engagement

The stakeholder engagement programme is designed to cover all phases of the project. In this regard, all engagement activities during the operation will be managed and promoted by Enviroforensic Intelligency & Technology. The general objectives of stakeholder engagement are outlined below.

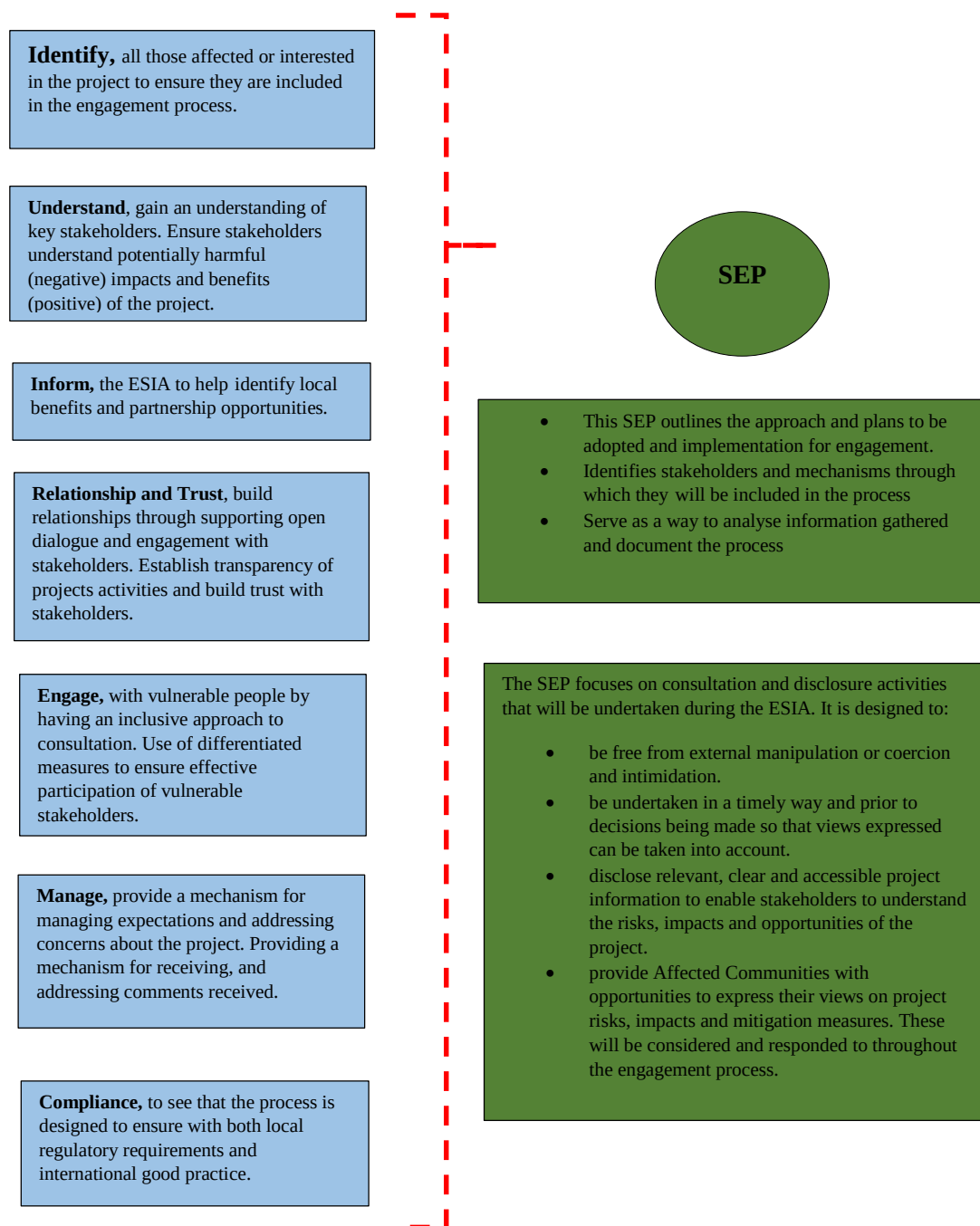


Fig 7: Objectives of Stakeholder Engagement Process

Table 6: Summary of Stakeholder Engagement Objectives and Activities for Each Project Phase

	PLANNING AND DESIGNING PHASE	CONSTRUCTION PHASE (12 MONTHS)	OPERATIONAL PHASE (25 YEARS)	DECOMMISSIONING
SEP OBJECTIVES	- Identify relevant stakeholders and appoint focal persons for communication and organising purposes. - Obtain licences and permits - Familiarize the stakeholders with the project - Record and address stakeholder concerns, issues and suggestions	- Update stakeholders on progress - Renew permits and licenses and permits - Meet focal persons - Address and grievances - Sustain peaceful working relationships with stakeholders	- Update stakeholders on progress - Manage retrenchment process - Renew licenses and permits - Address any grievances - Sustain peaceful working relationships with stakeholders	- Update stakeholders on progress - Meet focal persons - Address and grievances
SEP ACTIVITIES	- Engagement through ESIA - Undertake resettlement and livelihood restoration engagement - Disclose and implement grievance procedure - Other engagement activities	- Be present on site and regular engagement with stakeholders - Maintain grievance procedure - Maintain stakeholder engagement plan - Maintain engagement related to resettlement	- Undertake engagement related to operations - Continuous regular engagement - Disclose and implement Munyati Evergreen Energy grievance procedure - Maintain stakeholder engagement plan	- Maintain grievance procedure - Maintain stakeholder engagement plan
PROJECT ACTIVITIES	- Project Design: plant, route, profile, structure and foundation design. - Procurement, shipping and transportation activities. - Setting out and site clearing - Mine clearance - Land Acquisition - Compensation and resettlement process	- Excavations on site - Foundation construction - Structure installation - Site rehabilitation to blend with existing environs	- Operation of solar plant and transmission line - Maintenance and control activities	Demolitions on site
	RESPONSIBLE MEE, EPC Contractor and EIT	RESPONSIBLE EPC Contractor and EIT	RESPONSIBLE MEE and EIT	

8.3 Grievance Mechanism

The grievance mechanism is a process that enables stakeholders to make a complaint or a suggestion regarding the way a project is being implemented. This includes ensuring that all grievances that are received are acknowledged and logged and that the complainant knows what to expect in terms of response and when. Grievances may take the form of specific complaints for damages/injury, concerns about routine project activities, perceived incidents or impacts or requests for more information / clarity on project activities.

The primary objectives of a grievance mechanism are to:

- enhance trust and positive relationships with stakeholders
- prevent the negative consequences of failure to adequately address grievances
- proactively identify and manage stakeholder concerns and thus support effective risk management.

This grievance procedure will be implemented by EPC Contractor and only covers the pre-construction and construction phase. Following the project commissioning, Munyati Evergreen Energy will be responsible for implementing a grievance mechanism during the operational phase.

The grievance procedure described in the ESIA is proposed to ensure an effective and timely response to community complaints and maintain good community and stakeholder relations. The five phases that constitute the grievance procedure are:

- Phase 1: Grievance receipt and registration
- Phase 2: Screening and Prioritisation
- Phase 3: Grievance Investigation
- Phase 4: Resolution and Feedback to Complainant (s)
- Phase 5: Grievance Close-out and Register Update

An indicative Project feedback mechanism is illustrated below.

8.4 Monitoring and Reporting

It will be important to monitor and report on the on-going stakeholder engagement activities to ensure that the desired outcomes are being achieved, and to maintain a comprehensive record of engagement activities and the issues raised.

The following stakeholder community dialogue records and documentation will be used and maintained by EPC Contractor during pre-construction and construction phase: stakeholder list, stakeholder engagement log, commitments register, meeting minute template, grievance log and media monitoring of press and radio stories relevant to the project and unconventional related issues and activities.

The following internal reports will be developed by EPC Contractor E&S Manager:

- **Red Flag Reports:** consisting of weekly or daily reports for urgent items (e.g. high potential grievances) or incidents of significant nature.
- **Internal quarterly progress reports:** summary of engagement activities undertaken in the reporting period, grievance mechanism, risk to social license risk, limitations and priorities for the following quarter.

These reports will be discussed at quarterly meetings and will be circulated internally as required.

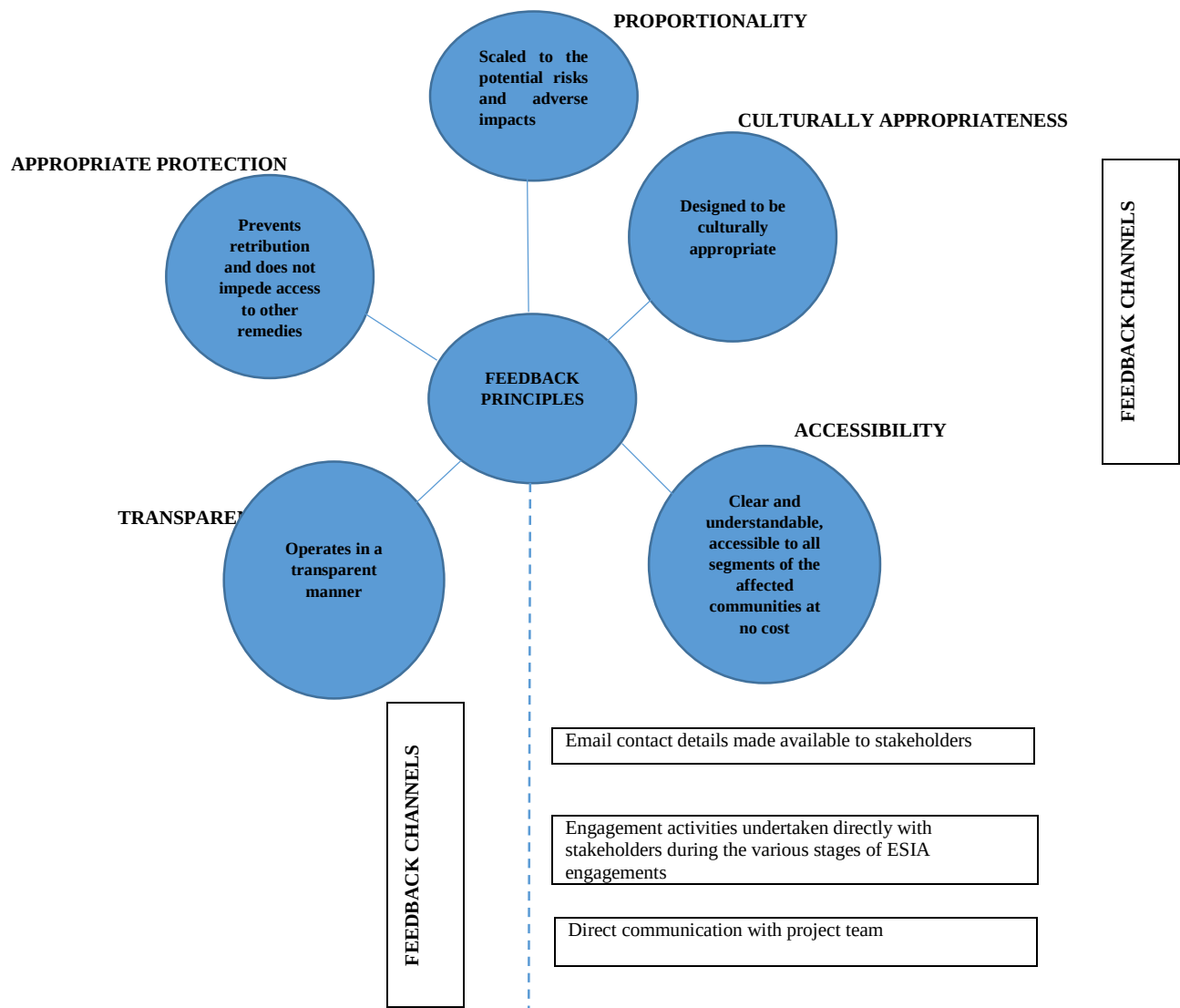


Fig 8: Feedback Mechanism

INFORM: Publicise the mechanism within the ESIA and project team build capacity of the team to manage stakeholder feedback.

RECEIVE: Receive and register stakeholder feedback throughout the ESIA process including ESIA engagement stages.

ASSESS AND ACKNOWLEDGE: Review and analyse feedback where relevant provide feedback to relevant ESIA team members.

INVESTIGATE: Investigate with appropriate team members and if required with help of stakeholders.

RESOLVE AND IMPLEMENT: Develop resolution options, respond to feedback.

CLOSEOUT AND MONITOR: Monitor and evaluate feedback as ESIA progresses.

9.0 SUMMARY OF POTENTIAL IMPACTS

Following the methodology described in Section 5 of this NTS, the significance of potential impacts were assessed. The tables below summarize the resulting significance ratings of impacts both before mitigation and after mitigation.

Table 7: Summary of Potential Impacts

Environmental /Social Variable	Project Activities/Impacts	Phase	Predicted Significance	
			Before Mitigation	With Mitigation
Hydrology, Ground and Surface water	Contamination of ground water and surface water sources. Modification of hydrological patterns due to compaction and physical disturbance.	Construction Operation Decommissioning	Moderate	Negligible
	Contamination of ground water and surface water resources.	Construction Operation Decommissioning	Moderate	Negligible
Air Quality	Road Traffic Exhaust Emissions	Construction and Decommissioning	Negligible	Negligible
	Dust and PM10 from construction and decommissioning activities.	Construction Decommissioning	Major	Negligible
Noise and Vibration	Noise from construction and decommissioning activities affecting nearby communities.	Construction Decommissioning	Moderate	Negligible
Supply Chain	Award of tenders, biased recruitment and labour violations	Construction Operation Decommissioning	Negligible	Negligible
Cultural Heritage	Vegetation Clearance	Construction	Negligible	Negligible
Waste and Materials Storage	Improper storage of construction/decommissioning materials hazardous substances and poor waste management practices	Construction Decommissioning	Major	Minor
Unplanned Events	Accidental Fuel Spills on Soils	Construction Operation Decommissioning		Minor
	Accidental Fuel Spills on Surface Water	Construction Operation Decommissioning		Minor

Environmental /Social Variable	Project Activities/Impacts	Phase	Predicted Significance	
			Before Mitigation	With Mitigation
Flora and Vegetation	Disturbance to vegetation and habitat loss and fragmentation as a result of the solar plant and transmission corridor or degradation to environment and habitat	Construction Decommissioning	Major	Minor
	Disturbance to vegetation and potential growth of invasive species along the transmission corridor as a result of the maintenance works	Construction Decommissioning	Minor	Negligible
	Alteration and disturbance of existing habitats. Improper management of the site, collision risk and roadkill	Construction Operation Decommissioning	Minor	Negligible
Fauna	Disturbance to small game and avifauna species and degradation to environment during construction phase.	Construction	Moderate	Negligible
	Increase in bird mortality due to bird strikes during operation.	Construction	Minor	Minor
	Increase in small game mortality and bird mortality due to demolition procedure	Decommissioning	Minor	Negligible
Landscape and Visual	Visual Impact	Construction Decommissioning	Minor	Minor
		Operation	Minor	Minor
Economy and Employment	Local employment opportunities, capacity building and economic development.	Construction Operation Decommissioning	Positive	Positive
	Long term local employment opportunities	Operation	Positive	Positive
	Short term employment	Construction Operation Decommissioning	Positive	Positive
	Sexual harassment and gender based violence	Operation	Moderate	Negligible

Environmental /Social Variable	Project Activities/Impacts	Phase	Predicted Significance	
			Before Mitigation	With Mitigation
Landuse and Livelihoods	Permanent loss of livelihoods and household income as a result of permanent land take and loss of access to land and its resources	Construction	Major	Minor
	Displacement of physical structures and potential resettlement during construction.	Construction	Major	Minor
	Loss of access to forest products, related livelihood, subsistence and activities during operation.	Construction	Moderate	Minor
	Permanent loss of livelihoods and household income during operations	Operation	Negligible	Negligible
	Permanent loss of livelihoods and household income due to permanent land take and restrictions	Operation	Moderate	Minor
	Temporary loss as a result of restrictions to access agricultural land under the OHTL during decommissioning	Decommissioning	Moderate	Negligible
Supply Chain	Potential labour violation within the supply chain	Construction Operation Decommissioning	Negligible	Negligible
Climate Physical Risk	Vegetation clearance	Construction	Moderate	Minor
	Mounted solar panels	Operation	Moderate	Minor
	Removal of solar panels on decommissioning	Decommissioning	Moderate	Minor
Potential Impacts to Community Health and Safety	Risks during stringing activities	Construction	Major	Minor
	Risks during line removal	Decommissioning	Major	Minor
	Transmission line snapping/collapse	Operation	Major	Minor

Environmental /Social Variable	Project Activities/Impacts	Phase	Predicted Significance	
			Before Mitigation	With Mitigation
Worker's Health and Safety and Workers' Management	Worker health and safety and rights during construction and decommissioning.	Construction Operation Decommissioning	Major	Minor
	Worker health and safety and rights during operation.	Operation	Moderate	Minor
Community Health and Safety and Security	Community Safety (Road Accidents and Site Trespass)	Construction Decommissioning	Moderate	Minor
	Environmental Health (Noise and Air)	Construction Decommissioning	Moderate	Minor
	Interaction with Project Workforce	Construction Decommissioning	Major	Minor
	EMF Health effects	Operation	Minor	Negligible
	Increased risk to injury, exposure to hazardous chemicals, accidents and dust emissions	Decommissioning	Major	Minor
Community Health and Safety Risks from Road Transport	Health and safety risks from road transport	Construction Decommissioning	Major	Minor
Worker Retrenchment	Demobilization	Operation	Moderate	Minor
Worker Influx – Incoming workforce and workforce accommodation camp	Worker influx-incoming workforce	Construction Decommissioning	Major	Minor
	Worker accommodation camp-gender based violence	Construction Operation Decommissioning	Major	Minor
	Sexual harrassment	Construction Operation Decommissioning	Major	Minor
	Unprotected sex	Construction Operation Decommissioning	Moderate	Minor
	Poor sanitation	Construction Operation Decommissioning	Major	Minor
Security Personnel	Security personnel presence	Construction Operation Decommissioning	Moderate	Negligible
Access to Infrastructure and Services	Disruption to traffic and transportation	Construction Decommissioning	Moderate	Minor
	Improvement of the local road networks	Decommissioning	Moderate	Minor

10.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT

10.1 Introduction

One of the key outputs of the ESIA is an Environmental and Social Management Plan (ESMP) for the project. The purpose of the ESMP is to ensure that recommendations arising from the ESIA are translated into practical management actions which can be adequately resourced, monitored and reported against through the phases of the project.

The ESMP is intended to cover the project activities during construction and operation described in the ESIA report, and will be reviewed prior to the commencement of activities to ensure completeness. The main objectives of the ESMP are as follows:

- Ensuring compliance with regulatory authority stipulations and guidelines, which include local, national and international standards.
- Ensuring that there is sufficient allocation of resources on the project budget so that the scale of the ESMP related activities is consistent with the significance of project impacts.
- Verifying environmental and social performance through information on impacts as they occur.
- Periodically updating the ESMP as the project activities progress.
- Responding to unforeseen events; and
- Providing feedback for continual improvement in environmental performance.

The applicable legal and policy requirements for this ESMP include:

- Environmental Management Act Chapter 20:27
- IFC Performance Standards
- Equator Principles

The structure of the ESMP is set out according to the Plan, Do, Check and Act process:

Plan;

- Define policies and objectives for environmental and social performance
- Identify environmental and social impacts and risks of the operations
- Develop mitigations and operational controls to address impacts and risks; and
- Develop a management plan to achieve these objectives

Do;

- Implement management plan; and
- Implement mitigations and operational controls

Check;

- Monitor performance against policies and objectives; and
- Check that mitigations and operational controls are effective

Act

- Make corrections to plans, mitigations, or controls in response to performance monitoring or out of control events

10.2 Planning

Through the project development and ESIA process, mitigation measures have been identified to address environmental and social impacts associated with project activities. The project has made a commitment to implement these to ensure or improve environmental and social performance.

10.3 Implementation

The effective implementation of the ESMP (in alignment with the Stakeholder Engagement Plan and the Resettlement and Compensation Action Plan implementation) is dependent on established and clear roles, responsibilities and reporting lines within and between EMA and Munyati Evergreen Energy. This institutional framework has been established during the ESIA process.

MEE will maintain a formal procedure for communications with the regulatory authorities and communities. The personnel responsible for environmental and social issues is responsible for communication of EHS issues to and from regulatory authorities. All communications made to regulatory agencies should also be reported to personnel responsible for environmental and social issues. The Project will implement a grievance mechanism whereby community members can raise any issues of concern. All grievances and enquiries are to be logged and evaluated.

In addressing the different needs of stakeholders, the project's SEP will be modified and updated as required. Implementation will rest with the HSE Manager and the Community Liaison Team Manager.

10.4 Checking and Corrective Action

Checking includes inspections, monitoring and audit activities and is used to measure the effectiveness of mitigations. EHS inspections will be conducted weekly and formally once every six months. Monitoring will be conducted to ensure compliance with regulatory requirements. Audits will be carried out by MEE and will cover the contractor self-reported monitoring and inspection activities.

MEE will implement a formal non-compliance and corrective action tracking procedure for accidents or E&S non-compliances. In terms of reporting, MEE will keep the regulatory authorities informed of the project performance through reports and meetings.

10.5 Additional Documents

The ESMP has identified some additional plans (and policy) that will be prepared by MEE HSE Manager prior to Solar Plant Construction and Transmission Line as follows:

- Chemicals Management Plan
- Employment and Workforce Management Plan
- Community Health and Safety and Security Plan
- Occupational Health and Safety Plan
- Local Content and Procurement Plan