

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
PROCESS OF THE MOZAMBICAN INTEGRATED
TRANSMISSION BACKBONE SYSTEM (STE PROJECT)
– PHASE 1: VILANCULOS - MAPUTO**

ENVIRONMENTAL IMPACT STUDY

FINAL REPORT

VOLUME III – ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN



**ELECTRICIDADE
DE MOÇAMBIQUE, E.P.**

Illuminating the Transformation of Mozambique

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LIST OF ACRONYMS AND ABBREVIATIONS

BFD	Bird Flight Diverter
BMP	Biodiversity Management Program
C-ESMP	Contractor Environmental and Social Management Plan
CLO	Community Liaison Officer
CO	Carbon Monoxide
E&S	Environmental and Social
EDM	<i>Electricidade de Moçambique, E.P.</i>
ESH	Environmental, Social, and Health
EIS	Environmental Impact Study
EPC	Engineering, Procurement and Construction
ERP	Emergency Response Plan
ESAP	ESHS Action Plan
ESCCM	Environmental, Social and Communication Control Manager
ESCO	Environmental and Social Control Officer
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
GRM	Grievance Redress Mechanism
N/O	No Objection
NO ₂	Nitrogen Dioxide
O ₃	Ozone
OE	Owners Engineer
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RP	Resettlement Plan
SO ₂	Sulphur Dioxide
T-line	Transmission Line
TSP	Total Suspended Solids
WB	World Bank

WBG	World Bank Group
WHO	World Health Organization

1 Introduction

1.1 General Considerations

Electricidade de Moçambique, E.P. (EDM) is planning the implementation of the Mozambican Integrated Transmission Backbone System – the STE Project. The STE Project is a major power transmission project linking the Provinces of Tete and Maputo, through extra high voltage transmission lines. Currently, EDM is proposing the implementation of Phase 1 of the STE Project: Vilanculos – Maputo, which includes a 561 km long 400 kV line connecting these two cities, the construction of three new substations (in Vilanculos, Chibuto and Matalane) and the upgrade of the Maputo substation. **Figure 1.1** illustrates the proposed development.

In order to obtain the Environmental License required in terms of the Environmental Law (Law No. 20/1997, of 1 October) for the development described above (hereafter the “Project”), EDM developed an Environmental and Social Impact Assessment (ESIA) Process for the Project. Further to national law, the ESIA is also a requirement of the Project’s funding agencies, to ensure that environmental and social risks and impacts of the project are adequately assessed and mitigated and to inform the decision making process.

This Environmental and Social Management Plan (ESMP) was compiled as part of the Environmental Impact Study (EIS)¹ and synthesizes all environmental and social management, mitigation and monitoring measures coming out of the impact assessment provided in **Volume II** of the EIS Report.

1.2 Purpose and Objectives of the ESMP

Environmental and social management of a proposed activity is a crucial tool to ensure any project’s environmental and social performance. This ESMP aims to establish the guidelines for best practice environmental and social management of the STE Project, through a clear definition of the environmental and social actions and management procedures to be implemented in each phase of project development, as defined in the EIS.

The objectives of the ESMP are to:

- Define changes to the Project design, to be developed in both the conceptual design review to be undertaken by the Owners Engineer (OE) (referenced in section 2.1) and the detailed engineering to be carried out by selected Engineering, Procurement and Construction (EPC) Contractors, so as to avoid or minimize a number of negative impacts;
- Facilitate the implementation of relevant environmental and social mitigation actions. These will be practical, easy to implement and suited to the nature and scale of the proposed Project;

¹ In the Mozambican context, the ESIA process has three phases: screening, scoping and impact assessment. The Environmental Impact Study (EIS) is the report that presents the findings of the third phase of the ESIA process, including baseline assessment, impact assessment and mitigation and the ESMP. In the international context, this is usually referred to as the ESIA report. As such, the terms EIS report and ESIA report are interchangeable and should be read as synonyms.

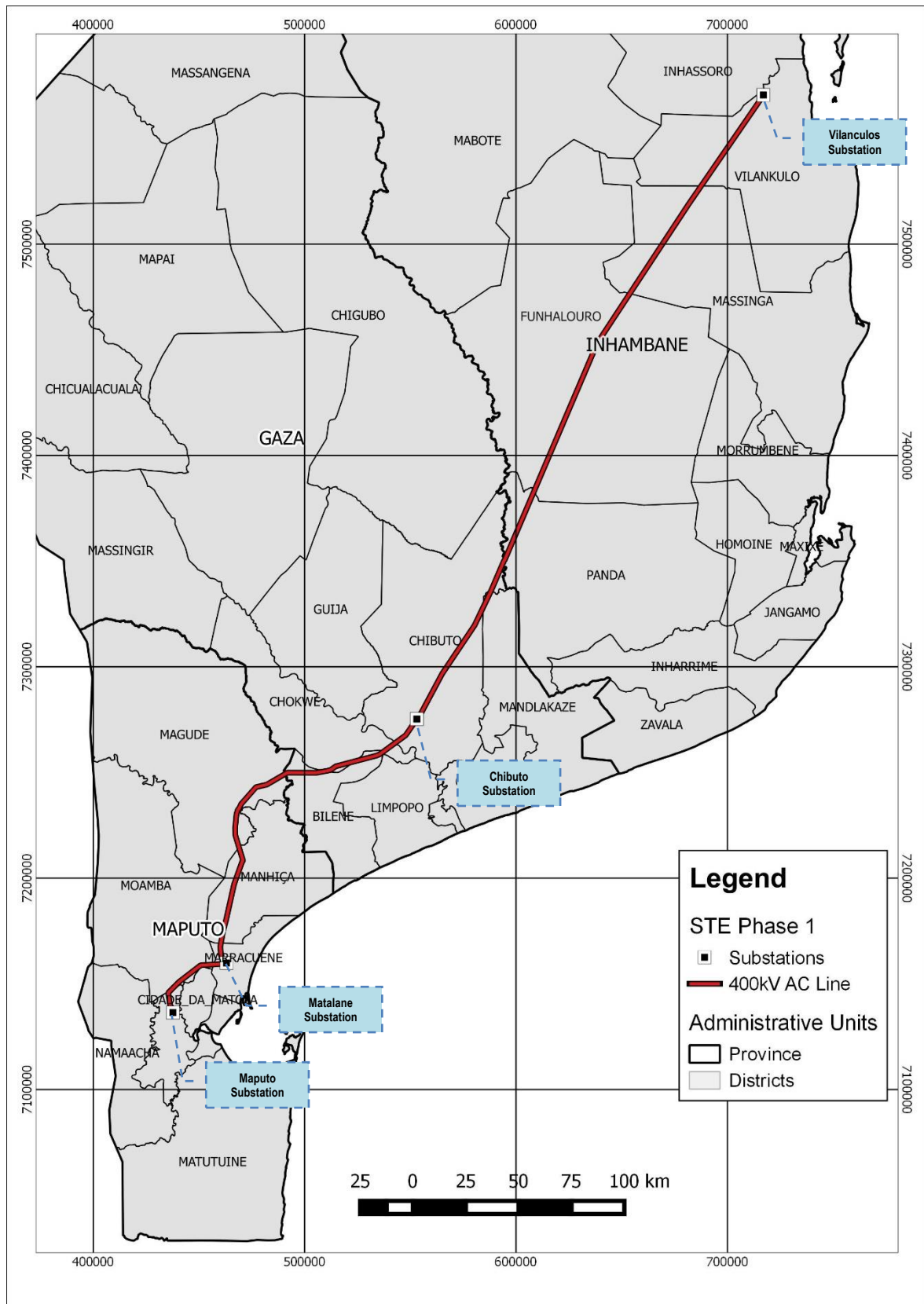


Figure 1.1 – Proposed STE Project (Phase 1: Vilanculos – Maputo)

- Define the environmental and social management requirements throughout the life cycle of the Project, and the responsibilities of each of the key role players and establish the actions and deliverables required of each party to effectively implement these requirements;
- Identify (and provide) management programs and a specific ESHS Action Plan (ESAP) setting forth the commitments to be carried out by each party to achieve the environmental, social, health and safety management requirements during all project Phases, as defined in the EIS. The ESAP is provided in section 2.5 below;
- Encourage and achieve the highest environmental and social performance and response from all employees and contractors;
- Ensure that management efforts are proactive and focused to prevent impacts from occurring; and
- Supplement the proactive approach with reactive measures to minimize the severity or significance of any impacts that cannot be prevented at source.

By formally documenting environmental and social management measures and commitments, the ESMP serves a vital role in ensuring that potential negative impacts are minimized and positive impacts enhanced. The ESMP, therefore, is a tool that guides the management and monitoring of impacts. In the event that impacts are found to be higher than initially predicted, additional mitigation measures will need to be implemented to control, reduce or prevent an impact from occurring. As such, this ESMP will need to be continuously updated and amended as necessary, throughout the project life cycle, to ensure that any negative impacts from the STE Project are prevented or reduced and positive ones are enhanced.

As noted above, the ESMP documents the environmental and social management measures and commitments resulting from the EIS. It is important to note, however, that at the time of development of the EIS and associated ESMP the detailed engineering design was not available. As such, some of the mitigation measures and commitments resulting from the EIS and included in the ESMP will need to be further defined to be more site-specific, once the detailed design information is available.

Given the above, EDM will need to:

- Update and finalize the ESMP where applicable on completion of the review of the Project conceptual design by the Owners Engineer (OE) and submit any modifications to the ESMP for approval by MITADER together with a “no-objection” from the World Bank (WB). The updated ESMP, based on the reviewed conceptual design, will inform the environmental requirements and environmental specifications in the bidding documents for all EPC contracts;
- Once the EPC Contractors have completed the detailed engineering design and the detailed design has been reviewed by the OE for and on behalf of EDM, any modifications to the ESMP arising from the detailed design review will be submitted to MITADER for approval and to the WB for “no-objection”, and where applicable the EPC Contractors’ ESMP (C-ESMP) shall be amended;

- Further develop the ESMP into a Project Environmental and Social Management System (ESMS), compliant with PS1 and ISO 14001, so as to ensure that the Project is conducted and managed in a sustainable manner;
- Ensure that its contractors abide by the ESMP, making it a part of the contractors' contractual obligations. To the effect, EDM will require its Contractor to develop a Contractor ESMP (C-ESMP), in compliance with all requirements listed in this ESMP and including all management plans required in this ESMP. This C-ESMP will be developed and submitted for EDM approval and WB "no-objection" prior to the start of field construction activities. The C-ESMP shall include a detailed implementation budget.

It will also be noted that the ESMP does not address the Project's economic and physical resettlement impacts. Mitigation of those impacts will be addressed through a Resettlement Action Plan (hereinafter referred to as the RAP), as stated in the EIS. The final RAP² is being developed by EDM, and will be finalized once the final project design is available. For information purposes a preliminary Resettlement Action Plan³, accompanies this EIS, and will be replaced by the final RAP once it is cleared by the WBG.

1.3 ESMP Structure

The structure of this ESMP is presented in **Table 1.1**.

Table 1.1 – Structure of the Environmental and Social Management Plan

Chapter	Content
Chapter 1	Introduction Provides a background to the proposed Project and describes the objectives of the ESMP.
Chapter 2	Roles and Responsibilities Indicates the management structure for implementation of the ESMP and lists the roles and responsibilities of key role players throughout the project life cycle.
Chapter 3	Requirements for Detailed Engineering Provides the main requirements resulting from the EIS for the detailed engineering phase, in order to avoid or minimize impacts.
Chapter 4	Mitigation Measures for the Construction Phase Lists the mitigation and management measures to be implemented during the construction phase, in order to avoid or minimize impacts.
Chapter 5	Mitigation Measures for the Operational Phase Lists the mitigation and management measures to be implemented during the operational phase, in order to avoid or minimize impacts.

² The final overall Project RAP currently being developed by EDM will be cleared by the WBG and disclosed prior to appraisal. The RAP will include the final resettlement arrangements consistent with Mozambican legislation and WBG group safeguard policies to enable EDM to address the resettlement and livelihood impacts of land acquisition and land use change for the TTP transmission lines and substations, as well as an Ancillary Facilities RPF annex to guide the preparation, approval and implementation (by Contractors with EDM oversight) of the site specific RAPs/ARAPs related to access roads, borrow pits, worker camps and any ancillary facilities.

³ The preliminary RAP is a preparatory document which will be replaced by the final RAP once it is finalized by EDM and cleared by the World Bank and disclosed before appraisal.

Chapter	Content
Chapter 6	Environmental and Social Management Programs Provides guidelines for specific environmental and social management programs that will need to be developed and implemented by EDM or its Contractors.
Annex I	ESMP Summary Provides a summary of the proposed mitigation and monitoring frameworks in table form.

2 Roles and Responsibilities

2.1 Key Role Players

The **Proponent** of the STE Project is EDM, which will be ultimately responsible for Project implementation.

In order to assist EDM with the implementation of Phase 1 of the STE Project (the Project), EDM will develop a Project Implementation Unit (PIU) responsible for overall management of the Project. In addition, EDM will employ an Owners Engineer (OE) to support the PIU for Phase 1 of the STE Project. The OE will manage the procurement of all EPC contracts and will supervise and monitor each of the EPC Contractors appointed to carry out the detailed design, construction and commission of each of their respective parts of the Project.

Specific responsibilities of the OE acting for and on behalf of EDM are as follows:

- Review of the conceptual design and conceptual technical specifications with particular reference to Mozambique Grid Code compliance and any errors and/or omissions in the conceptual design documentation;
- Review of Project technical training requirements;
- Review of the Project schedule and the Project procurement plan, compilation of all procurement documentation and the management of the procurement process;
- Monitoring of the EPC Contractors quality, environmental, social, health and safety plans;
- Monitoring of the EPC Contractors progress;
- Coordination of commissioning and testing of the Project works;
- Supervision of the implementation of the Resettlement Action Plan;
- Review of the EPC Contractor's detailed designs and witness testing of equipment;
- Construction quality control and EPC Contracts management;
- Warranty period support.

EDM will appoint four or possibly five EPC Contractors (the EPC Contractors, or the Contractors), each of whom will be responsible for the detailed design, manufacture of equipment, construction and commissioning of their respective elements of the Project infra-structure. As such, the management of the construction environmental and social mitigation measures required under this ESMP will be the Contractor's responsibility, under EDM's overall supervision.

With regard to the operational phase of the Project, EDM will operate and manage the transmission line and substations through third party O&M contractors at least for the first two operating years commencing from the completion of construction, commissioning and testing of the Project. As such, most of the operational environmental and social mitigation and management required under this ESMP will be EDM's responsibility.

Mitigation of the Project's induced impacts will require active management in all project phases. Given that these phases will be under the responsibility of different role players, it is crucial to clearly define the responsibilities of the main role players across the project's life cycle, to ensure that the environmental and social management procedures defined in this ESMP are fully implemented.

The environmental and social management of the Project will thus be dependent on the actions of the following key role players:

- **Proponent** – EDM, as the Project's Proponent, will be responsible for ensuring that the Project is designed, built and operated according to the requirements set out in this ESMP. EDM will in turn discharge its supervision responsibilities for effective ESMP implementation through the services of the Owner's Engineer. This will include the following main tasks:
 - Ensure that the Project's detailed design (which will be undertaken by the each of the EPC Contractors) complies with the requirements set out in the ESMP (see Chapter 3);
 - Update and finalize the ESMP based on the final detailed engineering design and ensure that measures to be undertaken during construction and environmental technical specifications are included in the bidding documents and contractual obligations with the winning bidder for each of the contracted elements of the Project;
 - Ensure that the Contractors are fully aware of, and contractually bound to, the environmental and social management requirements set out in the ESMP for the construction phase of the different Project components (included in Chapters 4 and 6), through their inclusion in the tendering process and on the subsequent contracts;
 - Require from all Contractors the submission of a Contractor ESMP (C-ESMP), for EDM approval and WB no-objection, compliant with all requirements included in this ESMP, as well as site specific ESIAs, ESMPs and RAP/ARAP (for ancillary facilities, if required), as required, and all related management plans and method statements;
 - Supervise the Contractor's environmental and social performance, to ensure that all management requirements in this ESMP are implemented and apply payment requirements and penalties for non-compliance;
 - Implement the environmental and social management requirements set out in this ESMP for the operational phase of the Project (included in Chapter 5);
Implement the Communication Plan and the Biodiversity Management Program, as per the guidelines provided in Chapter 6 (however, the bird and bat fatality monitoring portion of the BMP will be carried out by a specialized Consultant team, to be contracted by EDM);
 - Implement the Project Stakeholder Management Plan and Grievance Redress Mechanism as per the guidelines provided in Chapter 6;
 - Implement the GBV/SEA prevention and response framework, as per the guidelines provided in section 6.8;
 - Implement a supervision and reporting framework to enforce and document the implementation of the ESMP;
 - Ensure qualified **Environmental and Social Control and Communication Manager**, Environmental Specialist, Social Development Specialist and Health & Safety Specialist are appointed or hired to supervise the ESMP implementation during construction and implement the ESMP during operational phase of the Project.
- **EPC Contractors** – the EPC Contractors, to be procured by the OE and appointed by EDM, will be responsible for developing the detailed engineering design of their respective parts of

the Project to a level of detail adequate for construction, in compliance with the requirements provided in the ESMP (see Chapter 3). Each EPC Contractor's scope of work will also include the supply of all equipment and the construction, commissioning and works testing of sections of the Project applicable to each respective EPC Contract. Each Contractor to be appointed by EDM to build the Project will be responsible for:

- Submission for EDM approval and WB no-objection of a Contractor ESMP (C-ESMP) compliant with all requirements included in this ESMP, as well as site specific ESIA's, ESMPs and RAP/ARAP for ancillary facilities, as required, and all related management plans and method statements, prior to the start of any field activities;
- Implementing all construction-related mitigation actions and developing and implementing all management plans and procedures set out in this ESMP for the construction phase (included in Chapters 4 and 6). When appointing subcontractors, the Contractors will also ensure that their subcontractors are contractually required to abide by all requirements of the ESMP;
- Presenting and implementing a workers' recruitment and management policy (including local hiring, non-discrimination, working conditions and health and safety standards, Code of conduct and Worker's Grievance Redress mechanism);
- Implementing a Community Communication Plan and Grievance Redress Mechanism.

The responsibilities of each of these key role players are described in greater detail in the following sections.

2.2 Responsibility of the Proponent

EDM, the **Proponent**, shall, through the OE, interact with each of the EPC Contractors, in order to ensure that the final design of the Phase 1 of the STE Project is compliant with the requirements set out in Chapter 3 of this ESMP.

With regards to the construction phase, EDM's responsibilities, represented by the OE, include monitoring the compliance of the Contractor with respect to the implementation of the ESMP, including the undertaking of environmental and social (E&S) management compliance audits, as well as the implementation of the mitigation and monitoring requirements under direct responsibility of EDM.

EDM aims, through the OE, to ensure high E&S standards, in compliance with international best practice and WB requirements. A review of the Project's E&S management requirements and of EDM's current organization has identified the need to strengthen EDM's internal E&S capability and capacity, in order to manage the STE Project and oversee its E&S aspects. It is acknowledged that additional human resources (further to EDM's current staff) will be needed to adequately fulfill EDM's responsibilities listed above.

As a result of the capability and capacity analysis referred above, EDM is currently developing a number of activities to strengthen its overall E&S capacity, including:

- The consolidation and strengthening of its E&S unit;
- The development of an integrated Environmental and Social Management System (ESMS), as a reliable and systematic approach to manage, oversee and report on E&S performance of EDM's projects;
- The strengthening of EDM's health and safety capacity and the integration of health and safety management into the ESMS.

The primary objective of the ESMS development is to ensure that EDM has the necessary skilled resources internally, and an appropriately scaled and designed system to implement the E&S management plans and requirements of the STE Project Phase 1, according to the WB E&S standards and international good practice.

The development of the ESMS will include the improvement of current policies, procedures, management and monitoring programmes, enhancement of reporting and continuous improvement capacity, as well as training and capacity building (and support with recruitment where required) of EDM's management and technical personnel, and in particular E&S team, to ensure they are able to implement the system.

Specifically with regard to Phase 1 of the STE Project and the management of its E&S performance, EDM's PIU will appoint an **Environmental and Social Control and Communication Manager (ESCCM)**⁴, who will be supported by specialists appointed by the OE to supervise the implementation of the ESMP. The ESCCM will report to the EDM PIU Project Director. The OE will support the ESCCM with the provision of the following services and specialists:

- Environmental Specialist;
- Social Development and Resettlement Specialist; and
- Health and Safety Officer.

The ESCCM supported by the OE specialists will work within the ESMS.

The OE's environmental, social and health and safety specialists will be permanently onsite to monitor the adequate implementation of the ESMP and associated health and safety plans. The ESCCM will be a qualified technician, with experience in similar projects in Mozambique or Southern Africa. The OE's support team will have adequate qualifications and expertise to address the work (social and environmental). Personnel to be hired to fulfill these roles will be qualified E&S staff with adequate experience and health and safety staff with a certification in OHSAS 18001:2007, NEBOSH or similar.

The ESCCM supported by the OE shall have the following responsibilities:

- Ensure that EDM's and/or Supervising Engineer's E&S personnel are on site daily and diligently ensuring implementation and reporting of the ESMP, RAP and all related Plans;
- With respect to EDM's direct implementation of E&S actions:
 - Finalize and implement the Communication Plan and the Biodiversity Monitoring Plan, as per the guidelines provided in Chapter 6;

⁴ The responsibilities of ESCCM can be entrusted to another position, such as the Owner's Engineer, depending on the organizational structure to be designed by EDM for the Project.

- Finalize and implement the Project Stakeholder Management Plan and Grievance Redress Mechanism as per the guidelines provided in Chapter 6;
- Finalize and implement the GBV/SEA prevention and response framework, as per the guidelines provided in section 6.8;
- With respect to supervision of the Contractors:
 - Ensure that the Contractor is duly informed of the ESMP and associated responsibilities and implications of this ESMP prior to commencement of the activities, ensuring the necessary E&S documents are included in expression of interests, tenders, contracts and budgets and are contractually binding upon the contractor and tied to payments and penalties;
 - Inform key, on-site staff of their roles and responsibilities in terms of the ESMP, through initial social and environmental awareness training;
 - Monitor, review and verify compliance with the ESMP by the Contractor, as well as any sub-contractors, if applicable;
 - Ensure the Contractor's E&S performance is in accordance with national law and good international industry practice;
 - Undertake audits, supervisions and/or inspections of any sites where the Contractor is undertaking activities related to the Project, to verify the Contractor's compliance with the ESMP requirements, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month;
 - Identify areas of non-compliance and define measures to rectify them in consultation with EDM management, Contractor and/or Project Affected People (PAP), as required;
 - Ensure that the Contractor remedies E&S problems in a timely manner and to the satisfaction of the affected people, EDM, and authorities (when necessary);
 - Request a Contractor's ESMP, Worker's policy (including workers' Grievance Redress Mechanism - GRM) and Code of Conduct as part of the construction contract prior to mobilization, and method statements from the Contractor prior to the start of specific activities;
 - Review and approve all Environmental, Social and Health (ESH) documents produced by the Contractor (as requested in this ESMP), to ensure that they comply with the standards established in this ESMP, national laws and standards as well as international guidelines (such as the WB Safeguard Policies and applicable Environmental, Health and Safety Guidelines);
 - Ensure induction material includes Project appropriate E&S issues;
 - Approve E&S training programs and other awareness initiatives;
 - Monitor and report on the effectiveness of the ESMP as a tool for managing design, construction and post construction impacts. Provide feedback for continual improvement in E&S performance;
 - Undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other ESH related documentation, as necessary, to confirm the Contractor's compliance with the ESMP requirements;

- Respond to changes in project implementation or unanticipated site activities which are not addressed in the ESMP, and which could potentially have environmental or social impacts, and advise EDM and the Contractor as required;
- Review, approve and archive the Contractor's ESMP Performance Reports. Prepare consolidated E&S performance reports including tracking of issues, non-conformities and non-compliances and their closure to the satisfaction of EDM.

The ESCCM will also be responsible for evaluating compliance to the stakeholder engagement, as set out in the Communication Plan Framework (section 6.5 of this ESMP). Specifically, the ESCCM is the point of contact for lodging of grievances and suggestions resulting from the Project's construction phase (please see additional details regarding the GRM to be developed and implemented for the STE Project in section 6.7 of this report).

EDM will arrange for independent audits on the EDM's compliance with this ESMP. These audits will be conducted by qualified Independent Auditors, and will cover environmental, social, and health and safety issues. The frequency of these audits will be every four months, during construction and until the operations E&S management plans are in place, and for one year thereafter. The audits may be reduced to annual thereafter, depending on the results of the audits.

With respect to the operations Phase, develop (prior to commissioning) and implement the require E&S management plans including without limitation;

- A Waste Management Plan for substation operations;
- An Emergency Response Plan for the substation operation.

2.3 Responsibility of the EPC Contractors

The **EPC Contractors** shall be responsible and contractually bound for the development of all E&S management plans and implementation of all E&S management actions outlined in this ESMP for the detailed design and construction phase (see Chapters 3, 4 and 6) and shall abide by the ESCCM's instructions regarding the implementation of the ESMP.

Based on the requirements of this ESMP, each of the Contractors will develop its own ESMP (a C-ESMP). The Contractors' C-ESMPs will be submitted for EDM approval and WB no-objection prior to the start of any field construction activities and will include all E&S requirements included in this ESMP and at least the following management plans (further to those already outlined in chapter 6 of this ESMP):

- Camp and Housing Management Plan;
- Security Management Plan;
- Borrow Pit and Quarry Management Plan;
- Access Roads Location and Management Plan;
- Soil and Erosion Management Plan;
- Traffic Management Plan;
- Local Recruitment and Working Conditions Plan;

- Local Procurement Plan;
- Community Health and Safety Plan
- Training and Skill Transfer Program;
- Workers' Health and Safety Management Plan;
- Rehabilitation and Revegetation Plan;
- Environmental and Social Code of Conduct for all Contractor's personnel to follow;
- Emergency Response Plan;
- Contractors' GRM for Communities and Workers;
- Method Statements, including, but not limited to: erosion control, water crossing, work in heights, and others that may be required by the ESCMM.
- ESIA's, ESMPs, ARAPs, RAPs for ancillary facilities, if required.

Where the ESMP calls for the Contractors to develop and implement a specific management plan or method statement, the Contractor will submit that plan or method statement for EDM approval, and WB no-objection, prior to the start of activities.

Each of the EPC Contractors will designate a team of qualified technicians to ensure that the management actions set out in this ESMP are complied with on a day-to-day basis. This team will be led by an **Environmental and Social Control Officer (ESCO)**, who shall report to EDM's ESCCM, and further to the ESCO will include at least the following personnel:

- Environmental Specialist;
- Community Liaison Officer (CLO) / Social Development Specialist;
- Health and Safety Officer.

The Contractors' teams shall be composed of qualified technicians, with experience in similar projects in Mozambique or Southern Africa. The Contractor will also retain the services of other E&S experts as needed to fulfill its obligations.

Each ESCO and his team shall:

- Develop E&S awareness training for all new site personnel (e.g. posters, tool box talks, signage);
- Develop the C-ESMP and all other plans mentioned above and ensure that all activities on site are undertaken in accordance with the ESMP, and respective CESMP and Method Statements.
- Undertake visual inspections of the activities of employees with regard to implementation of the requirements outlined in the ESMP;
- Immediately notify the ESCCM of any non-compliance with the ESMP, or any other complaints or issues of environmental or social concern;
- Write-up and submit specific management plans, as requested on this ESMP, to the ESCCM through the OE for approval;
- Review and submit Method Statements to the ESCCM for approval;
- Keep site documentation related to E&S management on site (e.g. permits, ESMP, Environmental Method Statements, Environmental License, Codes of Conduct (signed by

each employee), specific management plans, minutes of meetings, records of grievances and resolution, reports, audits, receipts for waste removal, etc.);

- Keep a regular photographic record of all environmental or social incidents;
- Monitor and record ESMP performance indicators;
- Keep any records as required in the Environmental or Social Management Programs;
- Compile and submit ESMP performance reports to the ESCCM on a weekly basis;
- Keep a log on non-conformities and non-compliances and follow up on the resolution until closed;
- Engage regularly with community members, authorities and serve as focal point for the Contractor's grievance management.

The ESCO will also ensure that all stakeholder engagement is undertaken as per the Communication Plan Framework set out in the ESMP (see section 6.5) and keep appropriate records, including meeting minutes, photographs, etc.

Additionally, the Contractor has the following general responsibilities:

- Get all necessary licenses and permits to perform the activities, including opening of access roads, borrow pits, construction camps, etc. The development of specific ESIA's and C-ESMP's by the Contractor may be required for some of these activities, as per the requirements of national law and per the WB's environmental screening and categorization procedures described in OP 4.01. Before initiating activities the contractor will submit each facility and its proposed location to EDM for E&S screening and approval of the respective management plans in accordance with the ESMP and the ancillary facilities resettlement policy framework (RPF) Annex included in the RAP. Additional guidance on this is provided in section 4.1.1 and Annex II of this ESMP;
- Get all the licenses and permits required for wastewater discharge;
- Get all the licenses and permits required for handling, treatment, transport and disposal of waste at final destination;
- Comply with all requirements included in the ESMP, presenting for EDM's approval all required specific plans and method statements;
- Allocate human and financial resources to implement the ESMP. Ensure that all the necessary equipment (e.g., waste containers, safety equipment) and materials (e.g., spill kits) are available;
- Provide E&S training to the workers;
- Carry out their own inspections to ensure compliance with the ESMP;
- Be open to periodic audits from EDM and any party designated by EDM and provide necessary information to do so;
- Implement a communication channel with local communities according to the Communication Plan Framework;
- Ensure that Subcontractors, if any, comply with the ESMP;
- Implement all necessary correctives measures. Keep record of the incidents, accidents and community complaints;

- Supervise the activities of subcontractors to ensure that they are contractually bound to and abide by the ESMP, the Code of conduct and any applicable specific plans;
- Implement the Local hiring and working conditions (including labor influx management) plan;
- Report all relevant incidents and accidents to EDM;
- Implement the Contractor community and worker GRMs; report all cases to EDM and refer unresolved cases to EDM's GRM.

2.4 Organogram

The following organogram shows the different role players and the official chain of communications proposed for the implementation of the ESMP.

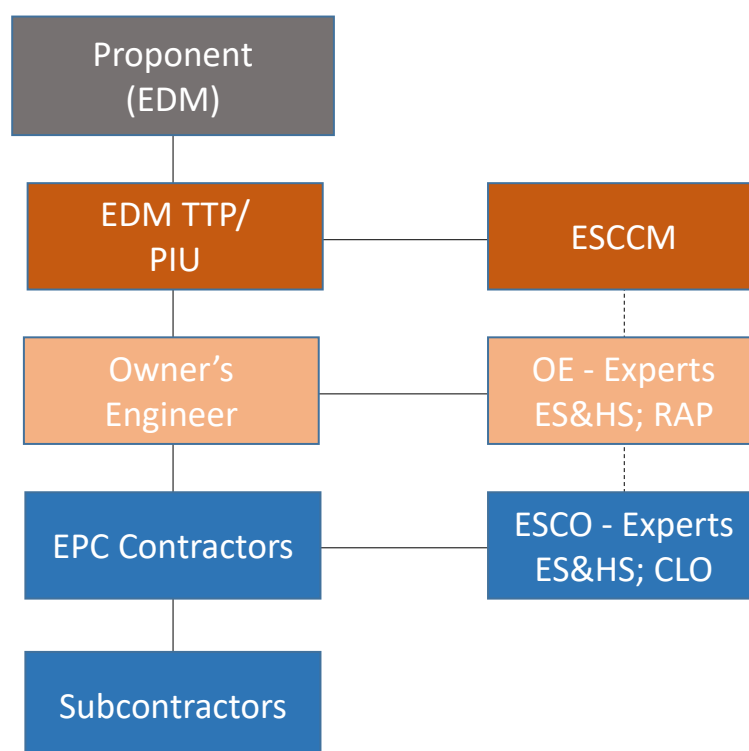


Figure 2.1 – ESMP organogram

2.5 Environmental, Social, Health and Safety Action Plan

Table 2.1 provides the ESAP, taking into consideration the requirements and deliverables discussed in this ESMP. Each deliverable listed in the ESAP will be evaluated on meeting requirements of law and WBG policies, containing the elements and commitments established in the ESIA, supporting studies, and all related plans and frameworks and containing adequate implementation, monitoring and reporting arrangements including key performance indicators.

Table 2.1 – Environmental, Social, Health and Safety Action Plan

Action	Time	Responsibility	Comments
<p>Hiring a team of qualified E&S and H&S Project Personnel to supervise the implementation of the ESMP:</p> <ul style="list-style-type: none"> - For EDM: This team will be led by an Environmental and Social Control and Communication Manager (ESCCM), and additionally will include at least an Environmental Specialist; a Social Development and Resettlement Specialist; and a Health and Safety Officer; - For Contractors, designate a team of qualified technicians to ensure that the management actions set out in this ESMP are complied with on a day-to-day basis. This team will be led by an Environmental and Social Control Officer (ESCO), and further to the ESCO will include at least an Environmental Specialist; a Community Liaison Officer (CLO) / Social Development Specialist; and a Health and Safety Officer. 	<p>Before effectiveness</p> <p>Before construction starts in the respective work front</p>	<p>EDM</p> <p>Contractors EDM to verify</p>	<p>Consult on TOR with WB as needed</p>
Implement EDM ESMS as a reliable and systematic approach to manage, oversee and report on E&S performance of EDM's projects, particularly the STE Project Phase 1, according to the WB E&S standards and international good practice.	Per approved ESMS implementation plan	EDM	ESMS and implementation plan to receive Bank no objection (N/O)
Present Bidding Documents that explicitly include the ESMP and RAP (ancillary facilities RPF Annex) in the requirements to be fulfilled by Contractors (including requirements for specific resources and sanctions for non-compliance).	Prior to launching each RFP	EDM (OE)	Requires Bank N/O
<p>Present final updated ESMP and RAP after final design is completed and any changes in the design have been approved by EDM.</p> <p>Present specific ESMP and RAP updates upon completion of the detailed designs and/or whenever design or other project changes imply changes to ESMP and RAP</p>	<p>Thirty days after design approval</p> <p>Thirty days after final detailed design/change has been agreed with EPC Contractor</p>	<p>EDM</p> <p>EDM (Contractor)</p>	<p>Requires Bank N/O and redisclosure</p> <p>Requires Bank N/O</p>
Present evidence of transmission line (T-line) RAP full implementation for each specific section of the T-line (where the definition of a section is to be defined within each T-line EPC Contract)	Before initiating construction of the respective section	EDM	Based on the RAP implementation completion report the WB needs to provide the N/O to hand the RoW over to the contractor to start construction

Action	Time	Responsibility	Comments
GBV/SEA prevention and Response: - Present satisfactory GBV/SEA Action Plan	Before disbursement for construction	EDM	Requires Bank N/O
- Present evidence that GBV action plan is fully operational	Before initiating any construction/mobilization	EDM and Contractor	
- Report on GBV Action plan implementation	Quarterly/ annually	EDM and Contractor	
- Implement corrective measures	Whenever reports indicate and/or Bank and EDM identify a non-compliance or significant risk	EDM	
For each ancillary facility: - Conduct Environmental Screening of ancillary infrastructure and facilities: Access Roads, Borrow Pits and Construction Camps and present proposed classification	Upon definition of facility location and design	Contractor with EDM approval	Require Bank N/O and disclosure
- Present site-specific ESMP and where required RAP/ARAP	Promptly after classification approved	Contractor with EDM approval	
- Present evidence that site specific RAP/ARAP is fully implemented and site specific ESMP is fully operational	Before starting any field activities	EDM	
Present C-ESMP compliant with all requirements included in this ESMP and the RAP, as well as site specific ESIA's, ESMPs and RAP/ARAP, as required, and all related management plans and method statements, for each EPC Contractor, including: - Camp and Housing Management Plan; - Security Management Plan; - Borrow Pit and Quarry Management Plan; - Access Roads Location and Management Plan; - Soil and Erosion Management Plan; - Traffic Management Plan; - Local Recruitment and Working Conditions Plan; - Local Procurement Plan - Community Health and Safety Plan - Training and Skill Transfer Program; - Workers' Health and Safety Management Plan; - Rehabilitation and Revegetation Plan;	30 days after signing contractor agreement (always before any field activities start)	EDM (Construction Contractor)	Requires Bank N/O

Action	Time	Responsibility	Comments
<ul style="list-style-type: none"> - Environmental and Social Code of Conduct; - Emergency Response Plan - Contractors' GRM for Communities and Workers; - Method Statements, including, but not limited to: erosion control, water crossing, work in heights, and others that may be required by the ESCMM. <p>Present C-ESMP updates whenever EDM and OE approve design/method changes that impact E&S compliance</p>	Within 30 days of completion of detailed design/method review by the OE	EDM (Construction Contractor)	Requires Bank N/O
Present evidence that all licenses and permits required for construction have been obtained or are in process and local authorities have given permission for works to proceed	Prior to the start of the respective activities or construction	EDM (Contractor)	Requires submission to the WB for information and filing
Water Resource Management Program:			
<ul style="list-style-type: none"> - Present detailed/updated plan and baseline upon design completion 	Prior to start of construction	EDM	Bank N/O
<ul style="list-style-type: none"> - Report on implementation 	Quarterly/annually (full report in addition to the routine quarterly reports)	EDM	
<ul style="list-style-type: none"> - Implement corrective measures 	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	
Air Quality Management Plan:			
<ul style="list-style-type: none"> - Present detailed/updated plan and baseline upon design completion 	Prior to start of construction	EDM	Bank N/O
<ul style="list-style-type: none"> - Report on implementation 	Quarterly/annually (full report in addition to the routine quarterly reports)	EDM	
<ul style="list-style-type: none"> - Implement corrective measures 	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	
Waste Management Program:			
<ul style="list-style-type: none"> - Present detailed/updated plan and baseline upon design completion 	Prior to start of construction	EDM	Bank N/O
<ul style="list-style-type: none"> - Report on implementation 	Quarterly/annually (full report in addition to the routine quarterly reports)	EDM	
<ul style="list-style-type: none"> - Implement corrective measures 	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	

Action	Time	Responsibility	Comments
Biodiversity Management Program:			
- Present TOR prior to effectiveness	Prior to effectiveness	EDM	Require Bank N/O
- Present final BMP to the satisfaction of the Bank	Prior to start of construction	EDM	
- Establish baseline	Upon detailed design completion by EPC contractors	EDM	
- Report on implementation	Quarterly/annually- full report in addition to the routine quarterly reports	EDM	Require Bank N/O
- Implement mitigation or compensation measures	Whenever Bank determines based on monitoring that risk/impact threshold has been reached	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank and EDM identify a non-compliance or significant risk	EDM	
Community Health and Safety Management Plan:			
- Present detailed/updated plan and baseline	Upon design completion	EDM	Bank N/O
- Report on implementation	Quarterly/annually (full report in addition to the routine quarterly reports)	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	
Cultural Heritage Chance Find Procedures:			
- Present detailed/updated procedure and baseline	Upon design completion	EDM	Bank N/O
- Report on implementation (where applicable)	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Notify WB/GOM/ communities of any chance finds	Promptly upon encountering the find	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	

Action	Time	Responsibility	Comments
Emergency Response Plan: - Present detailed/updated plan and baseline upon design completion	Upon design completion	EDM	Bank N/O
- Report on implementation	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Report any incidents and response	Promptly (within 5 days of occurrence)	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	
Communication Plan Framework: - Present detailed/updated plan and baseline	No later than 30 days after effectiveness	EDM	Bank N/O
- Report on implementation	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	
Community Awareness Program: - Present detailed/updated plan and baseline	No later than 30 days after effectiveness	EDM	Bank N/O
- Report on implementation	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Implement corrective measures	Whenever reports indicate and/or Bank or EDM identify a non-compliance or significant risk	EDM	

Action	Time	Responsibility	Comments
Project GRM – Grievance Redress Mechanism: - Present evidence that GRM is fully operational	No later than 30 days after effectiveness	EDM	Bank N/O
- Report on implementation including cases received/closed and typology	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Implement mitigation measures	Whenever reports indicate or the Bank or EDM determine that the GRM is not functioning effectively	EDM	
Stakeholder Engagement Plan: - Present detailed/updated plan and baseline	No later than 30 days after effectiveness	EDM	Bank N/O
- Report on implementation	Quarterly/annually full report in addition to the routine quarterly reports	EDM	
- Implement corrective measures	Whenever reports indicate or the Bank or EDM determine that the GRM is not functioning effectively	EDM	
Environmental and Social and Health and Safety Supervision during Construction Phase: Note: all reports must cover at minimum the requirements, standards and indicators established in the ESMP, RAP, all related management plans and site specific ESMPs and RAPs/ARAPs; for any reported non-compliances the corresponding corrective actions and sanctions applied or to be applied must be stipulated			
- Contractors' ESHS Supervision Reports	Monthly during C-ESMP implementation	Contractor, OE and approved by EDM	Available to WB for information
- Quarterly ESHS Performance Report	Quarterly during construction and one year after commissioning	OE approved by EDM	Submitted and acceptable to the WB
- Annual ESHS Audit	Annually during construction and at the end of first year of operations	EDM and third-party auditor	Submitted and acceptable to the WB
Final ESHS Management Report for each Facility/work front, presenting the ESHS compliance status, results of the monitoring, record of complaints and consultations and any outstanding issues, and adoption of corrective measures, if any.	One year after commissioning/prior to Project Close	EDM, Contractor, OE and third-party auditor	Submitted and acceptable to the WB

Action	Time	Responsibility	Comments
Environmental and Social and Health and Safety Management and Supervision during Operations: <ul style="list-style-type: none"> - Evidence of the issuance of the Operating License of the project units 	Prior to commissioning	EDM	Available to WB for information
Operations Phase ESMS/ESHS management plans defining ESHS monitoring and management during the operation phase, surveillance and provision for adaptive and corrective measures, if necessary, particularly with respect to: <ul style="list-style-type: none"> - Biodiversity Management - Access Control and Population Influx - Stakeholder Engagement, Communication and Community Awareness - Workforce Management 	Quarterly during construction and one year after commissioning	OE approved by EDM	Submitted and acceptable to the WB
<ul style="list-style-type: none"> - Annual ESHS Audit 	Prior to Commissioning and Project Close	EDM	WB N/O

3 Requirements for Detailed Design

Following the Project's impact assessment, the EIS defines a number of requirements for the detailed engineering phase, which will be carried out by each of the EPC Contractors. These include guidelines for the detailed design of some Project components (such as substation equipment, minor transmission line realignment, etc.), which are required in order to avoid or minimize negative impacts.

Table 3.1 summarizes the requirements for the detailed engineering phase. The integration of these requirements into the Project final design will be the responsibility of the EPC Contractors, under the supervision of the OE and ultimate approval of EDM.

Table 3.1 – Requirements for the Detailed Engineering Phase

Project Component	Requirements	Avoided or Mitigated Impacts
Substations	<ul style="list-style-type: none"> - Within the substation projected area, locate noisy equipment away from the identified nearby residential areas, as much as possible; - Implement, as feasible and necessary, low noise equipment according with the Best Available Technology for this sector. 	<ul style="list-style-type: none"> - Increased ambient noise levels.
	<ul style="list-style-type: none"> - Conduct a geotechnical assessment or survey for the detailed design of the towers and substation. Ensure that all power line and substations construction areas have adequate review by geotechnical engineers and geologists for expansive / collapsible soils and for potential areas of slope instability prior to construction. 	<ul style="list-style-type: none"> - Avoid geotechnical risks.
Transmission line towers	<ul style="list-style-type: none"> - Whenever possible, locate the towers outside river banks, wetlands and floodplains; - Whenever possible, avoid locating towers in areas of high irrigation suitability; - In areas with high irrigation suitability (see baseline section), use transmission structures with longer spans to clear fields, as possible; - In areas where the line crosses irrigated fields (Limpopo floodplain), take into consideration the following design guidelines, as possible: <ul style="list-style-type: none"> o Use special transmission designs to span existing irrigation systems; o Locate the line along field lines, or adjacent to roads so as to minimize field impacts; o Orient the structures with the ploughing pattern to make farm equipment less difficult to use. 	<ul style="list-style-type: none"> - Impacts on water resources; - Impacts on aquatic habitats; - Impacts on irrigation farming.

Project Component	Requirements	Avoided or Mitigated Impacts
	<ul style="list-style-type: none"> - Tower design will incorporate measures to minimize bird and bat mortality by preventing electrocutions and minimizing collisions, namely: <ul style="list-style-type: none"> o Preference will be given to tower designs with a minimum number of collision planes, especially in or near natural habitats, rivers, wetlands and water bodies; o All towers in the vicinity of rivers, wetlands, and water bodies shall be self-supporting (not guyed) suspension towers. In general, the use of suspension guyed V-towers shall be avoided or minimized to the maximum feasible extent (because guy wires substantially increase bird collision risks). o Use exclusively towers with horizontal track frames (self-supporting suspension tower, suspension guyed V-tower and self-supporting tension Y-tower); o Use tower configurations that do not have live wires or other electrified elements where a large bird could touch them while perched on the tower structure; o Install anti-landing devices in tower close to wetlands, river and water bodies, to prevent storks or other large birds from nesting there. 	<ul style="list-style-type: none"> - Increased bird and bat mortality.
	<ul style="list-style-type: none"> - The selection of each tower location will strive to minimize impacts on natural habitats, as much as possible. 	<ul style="list-style-type: none"> - Loss of habitats
Overhead line	<ul style="list-style-type: none"> - The line route will be slightly realigned to avoid the patch of miombo forest identified in the EIS, in order to avoid affecting this critical habitat (this is located in the segment Vilanculos – Chibuto, in Massing District, roughly 62 km from the Vilanculos substation – please see section 7.9.1.1 of Volume II for additional information). The detailed design of this realignment will take into consideration the requirements described in the impact assessment section (see section 7.9.1.1 of Volume II), so as to ensure that the full extension of the miombo forest is avoided and a buffer of at least 150 m is provided; 	<ul style="list-style-type: none"> - Loss of critical habitat.
	<ul style="list-style-type: none"> - Optimize the route alignment in order to minimize as much as possible the need to affect built structures, cultural heritage values (such as graves) and agricultural areas and any important community activity sites. Consider community inputs in location and design in proximity of inhabited areas; 	<ul style="list-style-type: none"> - Loss of built structures and crops; - Disturbance of cultural heritage.
	<ul style="list-style-type: none"> - Line design will incorporate measures to minimize bird mortality, due to collisions and electrocution, namely: <ul style="list-style-type: none"> o BFD (Bird Flight Diverters) will be used to signal the line. Red and white BFD with a 35cm diameter will be used. BFD's will be installed in the following line segments: <ul style="list-style-type: none"> ▪ <u>Vilanculos substation – Chibuto substation segment</u> – this segment develops along mostly large unfragmented woodland areas. In this segment, the BFD signalling scheme will be alternating colours in each ground cable with 10 m between each, resulting in a 20 to 20m distance between BFD's in each ground cable; ▪ <u>In the crossings of the Changane, Limpopo and Incomati floodplains</u> (from 1 km before the crossing to 1 km after the crossing) the signalling scheme will be of 1,5m between each alternating BFD resulting in a 3 to 3m distance between BFD's in each ground cable; o Isolation of all conductors, to avoid electrocution; o Ensure the distance between cables, especially in tension towers, is greater than 3 m, to avoid electrocution. 	<ul style="list-style-type: none"> - Increased bird and bat mortality.

4 Mitigation Measures for the Construction Phase

4.1 Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads

4.1.1 Environmental and Social Screening, Assessment and Management Process

The implementation of the STE Project Phase 1 will require a number of ancillary infrastructure and facilities, which are required to support the Project's construction and operation. These ancillary infrastructure and facilities include:

- Access roads, for substation and line construction and maintenance purposes;
- Borrow pits, to provide aggregates and inert materials for construction purposes;
- Construction camps, which could include temporary workers' accommodation and temporary storage sites for equipment and materials.

The location and dimensioning of these ancillary infrastructure is not defined presently. As such, it was not possible to include them in the scope of this ESIA.

Guidance for the selection of the location of these infrastructures, and for their E&S management, is provided in the following section, with the aim of minimizing their E&S impacts.

However, depending on the location and design of these ancillary infrastructure and facilities, they might require additional environmental licensing, if their design triggers the criteria defined in the national ESIA Regulation or the WB OP 4.01 screening criteria.

This section thus provides guidance for the process of E&S screening of these facilities, to ensure that applicable legal requirements are respected and that the E&S risks of these facilities are duly assessed and managed.

This process will follow the following broad steps, which are further detailed in the following sections:

- **Step 1: Definition of location and design** – each EPC Contractor will define the location and characteristics of the ancillary infrastructure and facilities, in compliance with the guidance provided in this ESMP and in the Ancillary Facilities RPF Annex of the RAP, and submit them for EDM approval and WB no-objection. This will be done prior to the start of any construction activities in the field;
- **Step 2: Environmental and social screening** – each EPC Contractor will screen the proposed facilities against national ESIA regulation and WB OP 4.01 and WB OP 4.12 criteria to determine the level of E&S assessment and licensing required, if any. This screening will be submitted to EDM approval and WB no-objection, simultaneously with the location and characteristics of the ancillary infrastructure and facilities;
- **Step 3: Environmental and social assessment and licensing** – each EPC Contractor will develop the E&S assessment documentation that may be required, depending on the outcomes of the screening. This may take the form of a full ESIA, a simplified ESIA or simply an ESMP. All E&S risks will be assessed and adequate mitigation will be defined, in

compliance with national ESIA regulation and WB OP 4.01. Public disclosure and consultation may be required, depending on the level of assessment. All such documentation will be submitted for approval by MITADER (if required) and EDM and for WB no-objection. In case of resettlement or economic displacement impacts, assessment and licencing will include the requirements of national law pertaining to resettlement and WB OP 4.12;

- **Step 4: Environmental and social management** – each EPC Contractor will develop specific ESMPs and RAPs/ARAPs for the ancillary infrastructure and facilities, as may be required, depending on the outcomes of the E&S assessment. These ESMPs and RAPs/ARAPs will be compliant with national law, OP 4.01 and OP 4.12 and with the requirements of this ESMP and the Project's RAP (specifically the RPF annex for ancillary facilities), and will be submitted for EDM approval and WB no-objection, prior to the approval of the site. RAPs/ARAPs must be fully implemented and ESMPs must be fully operational before the start of the construction activities of each of the proposed infrastructures and facilities;
- **Step 5: Monitoring and evaluation** - EDM will monitor and evaluate the EPC Contractors' E&S performance and the compliance with the requirements defined in step 4, through the overall monitoring and evaluation procedures described in this ESMP.

Additional guidance for each of the steps listed above is provided in the following paragraphs.

Step 1: Definition of location and design

For each type of ancillary facility and infrastructure, the EPC Contractors will develop a plan defining the location and design of these facilities. These will include the following plans:

- **Camp and Housing Management Plan** – detailing the proposed location of all construction camps, layout areas and other temporary areas required to support construction activities;
- **Borrow Pit and Quarry Management Plan** – planning the location of borrow pits and quarries;
- **Access Roads Location and Management Plan** – with the proposed route of construction accesses, both temporary and permanent.

The location and the design of these ancillary facility and infrastructure will take into consideration the guidance provided in section 4.1.2 below, in order to minimize their E&S impacts. An appropriate right-of-way and site selection will be one of the most important mitigation measures by avoiding sensitive natural resources, avoiding inhabited or subsistence activity areas, and avoiding sensitive or culturally important areas, etc. Different alternatives right-of-ways and sites need to be screened to minimize E&S impacts. Community consultation will be carried out and documented and community concerns taken into account.

These plans will be submitted for EDM approval and WB no-objection during the planning phase, prior to the start of any construction activities.

These plans will be updated, as required, if the need for additional ancillary facility and infrastructure is identified during the construction phase.

Step 2: Environmental and social screening

Each of the plans listed above will include the E&S screening of the proposed facilities against national ESIA regulation and WB OP 4.01 and OP 4.12, to determine the level of E&S assessment and licensing required, if any. The EPC Contractor will retain a qualified and licensed Environmental and Social Consultant to perform this screening.

National screening requirements, under the ESIA Regulation (Decree No. 54/2015, of 31 December), are extensively described in section 3.2 of Volume I of this EIS. Under national regulation, four categories of environmental assessment exist, namely:

- **Category A+:** developments with very high potential E&S impacts. It is unlikely that any ancillary facility will fall in this category;
- **Category A:** developments with high potential impacts, requiring a full ESIA process;
- **Category B:** developments with low potential impacts, requiring a simplified ESIA process;
- **Category C:** developments with negligible or insignificant negative impacts, requiring simply an ESMP.

Depending on their location and design, ancillary facilities may fall within categories A, B or C, as per the criteria defined in Annexes II, III and IV of the ESIA Regulation.

Under WB OP 4.01, these ancillary facilities may be classified as one of the following categories:

- **Category A:** project likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. A comprehensive ESIA is required;
- **Category B:** project with potential adverse environmental impacts on human populations or environmentally important areas. The scope of environmental assessment for a Category B varies from project to project, but it is narrower than that of Category A;
- **Category C:** project likely to have minimal or no adverse environmental impacts. Beyond screening, no further environmental assessment action is required for a Category C project.

The findings of the E&S screening, included in the plans listed in step 1, will be subject to EDM approval and WB no-objection.

Step 3: Environmental and social assessment and licensing

Following EDM's approval and WB no-objection to the proposed location and screening exercise, the EPC Contractor will develop the E&S assessment licensing processes and documentation that may be required, depending on the outcomes of the screening exercise. The EPC Contractor will retain a qualified and licensed Environmental and Social Consultant to perform this assessment and licensing process on their behalf.

In terms of the national regulation, this may take the form of a full ESIA, a simplified ESIA or simply an ESMP, depending on the categorization, and in compliance with the requirements of the ESIA Regulation (Decree No. 54/2015). In any event, the formal licensing process will always start with the submission to MITADER of a Screening Report, for formal categorization. **Figure 4.1** below summarizes the process that will be followed, depending on project categorization.

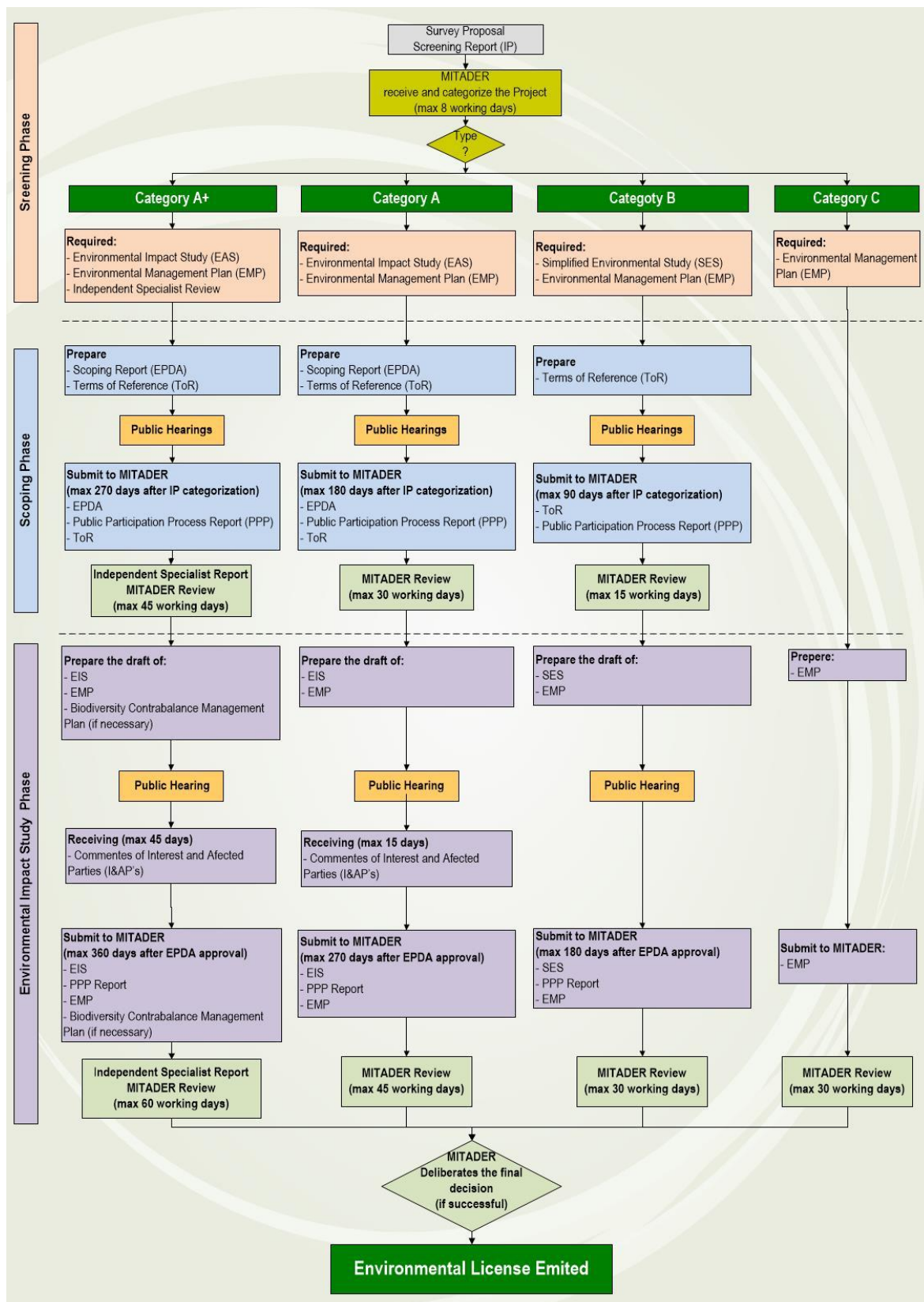


Figure 4.1 – Overview of the national environmental licensing process

All E&S risks will be assessed and adequate mitigation will be defined, in compliance with national ESIA regulation and WB OP 4.01 and 4.12. Public disclosure and consultation may be required,

depending on the level of assessment. All such documentation will be submitted for approval by MITADER (if required) and EDM and for WB no-objection.

Step 4: Environmental and social management

Following the conclusions of the assessment of the E&S risks of the ancillary facilities and infrastructures, the EPC Contractor will develop specific ESMPs and RAPs/ARAPs, as may be required, capturing every mitigation, management and monitoring commitment resulting from the E&S assessment.

These ESMPs and RAPs/ARAPs will be compliant with national law, OP 4.01 and OP 4.12 and with the guidance and requirements included in this ESMP and RAP (Ancillary facilities RPF Annex), including that provided in section 4.1.2, and the Project's overall RAP, and will be submitted for MITADER and EDM approval and WB no-objection, prior to the start of the construction activities of each of the proposed infrastructures and facilities.

The ancillary facilities RPF Annex will be provided in the RAP. A template for an ESMP for an ancillary facility is provided in Annex II of this ESMP.

No construction activities may start on each of the ancillary facilities and infrastructure before the Environmental License is acquired, all E&S assessment and management documentation is approved by EDM and WB, any required site specific RAP or ARAP is fully implemented and any required ESMP is fully operational.

Step 5: Monitoring and evaluation

EDM will monitor and evaluate the EPC Contractor E&S performance and the compliance with the requirements defined in step 4, through the overall monitoring and evaluation procedures described in this ESMP.

4.1.2 Guidance for Location and Environmental and Social Management

The following table provides guidelines for the location and management of construction auxiliary infrastructure, namely construction camps, borrow pits and access roads, both temporary and permanent. These guidelines will be followed by the Contractor and verified by EDM in order to ensure that no significant environmental or social impact results from the location or day to day management of these infrastructures.

Table 4.1 – Guidelines for location and management of construction camps, borrow pits and access roads

Aspect	Guidelines	Avoided or Mitigated Impacts
Construction camps	<ul style="list-style-type: none"> - The Contractor will develop a Camp and Housing Management Plan, detailing the proposed location of the construction camps and their E&S screening, as per the guidance provided in section 4.1.1. This plan will abide by the measures, principles and guidelines described below, and will be submitted for EDM approval and WB no-objection, prior to start of construction; - Consult with communities regarding camp locations and community relations protocols; - When planning the location of the main construction camps, preferentially select major cities for their placement, avoiding locating them in or near rural villages. The more urbanized setting of the major cities will minimize the disturbance effect to local communities, as the mixture of people from different geographical origins and socioeconomic backgrounds is already a feature of these urban communities; - Avoid locating construction camps and borrow pits in natural habitats or in proximity of natural or critical habitats or socially sensitive areas; - Whenever possible, promote the selection of previously intervened areas and areas with less of a need for tree cutting for temporary work and storage areas; - Construction camps will be located as far as possible (minimum distance of 300 m) from any areas of sensitive use (residential areas, schools and health units) and close to more urbanized areas and away from rural villages; - Construction camps and work yards will be located in areas well away from drainage lines and will not be located within the 1:100 year floodline, or within a horizontal distance of 100 m (whichever is greater) of a watercourse, drainage line or identified wetland; - Minimize, as feasible, distance from construction camps to work fronts; - The organization of construction camps will be carefully defined, taking into account the location of sensitive receptors. Noisy facilities or equipment will be located as far as possible from sensitive receptors; - Ensure efficiency in construction and planning including siting of construction camps, laydown and other work areas; - Minimize illumination in construction camps and make it downward-facing (to reduce wildlife disturbance), if close to natural habitats; - Productive units required for the construction (such as cement batch plants) will be located as far as possible from residential areas; 	<ul style="list-style-type: none"> - Air quality degradation; - Water quality degradation; - Noise impacts; - Loss of habitats;
	<ul style="list-style-type: none"> - Establish clear camp rules, including a code of conduct for good environmental practices and community relations; - If there is a need to contract workers from outside the Project region, provide adequate housing for these workers, either in dedicated camps or in urban areas of major cities, to minimize the potential for conflicts with local communities and ensure adequate living conditions for workers; - Establish a no hiring at the gate policy, control any commercial activity around the camps and establish a work rotation and worker transportation plan that avoids the development of socially risky behavior in or around the camps or in nearby villages or communities; - Reinforce protocols through training and community awareness programs; - Include a camps decommissioning plan to restore the site to its pre-project conditions; - In case of land acquisition: (i) temporary, the contractor will enter into a leasing agreement and pay fair price for use of the land during the construction period and return the land to the owner in the agreed upon conditions; (ii) permanent: the contractor will prepare and EDM will approve with WB N/O a site-specific RAP/ARAP, in compliance with the procedures and standards established in the RAP- Ancillary Facility RPF Annex. 	<ul style="list-style-type: none"> - Increased social conflicts. - Community health and safety impacts.

Aspect	Guidelines	Avoided or Mitigated Impacts
Construction camps	<ul style="list-style-type: none"> - Adopt good housekeeping (working sites must be kept clean, neat and tidy at all times) to prevent spillages and contamination; - Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be made in impervious areas, with cover and containment structures; - Machinery must be properly maintained to keep oil leaks in check; - Provide a designated area for refueling, washing and maintenance of equipment and vehicles with impervious floor and containment structures. Place these facilities away from rivers, wetlands and water bodies, manage runoff according to the effluent management plan. 	<ul style="list-style-type: none"> - Contamination of soils and water; - Degradation of habitats.
Borrow pits	<ul style="list-style-type: none"> - If at all possible, use existing licensed borrow pits for all the Project's needs for construction materials making sure that these are not incurring in environmental or social liabilities and are being managed in accordance with the requirements of applicable licenses and reasonably similar to those of this ESMP; - If new borrow pits are required: <ul style="list-style-type: none"> o Develop a Borrow Pit and Quarry Management Plan, planning the location of borrow pits and quarries and their E&S screening, as per the guidance provided in section 4.1.1, and submit this plan for EDM approval and WB no-objection; o Obtain the environmental license for any borrow pit and quarry outside of the construction strip that would be used to source fill materials or to dispose of cut spoil materials. This may require the undertaking of specific ESIA processes and will always include community consultations (please see section 4.1.1 and Annex II for additional guidance on this issue); - If land acquisition or economic displacement or restriction of access occurs, manage and compensate in accordance with the RAP (Ancillary Facility RPF Annex), including the preparation of a site-specific RAP/ARAP where required; - The location of Project borrow pits and quarries (to be defined in the plan named above) will consider the following: <ul style="list-style-type: none"> o Borrow pits and quarry sites will be used only temporarily for short term extraction of soft materials (soil, sand, gravel) required solely for the Project; o Borrow pits and quarry sites will be sited on disturbed land whenever possible, i.e., in areas of modified habitat of low sensitivity only, avoiding natural habitat; o Borrow pits and quarry sites will avoid any locations of importance for cultural heritage (tangible or intangible) including any communal cultural practices; o Borrow pits and quarry sites will be located at least 100 m from the nearest watercourse, and will not exceed 6 m in depth or penetrate the water table whichever is the shallower; o Borrow pits and quarry sites will be equipped where necessary with sediment traps to reduce discharge of sediment into surface waters; o Borrow pits and quarry sites will be located at least 300 m from any existing residential areas unless a shorter or longer distance, and the respective mitigation and safety measures, is agreed during community consultation; o Borrow pits and quarry sites will have an access plan that avoids movement of heavy equipment through populated areas as much as possible and rely on a Traffic Management Plan to minimize safety, noise and dust impact on receptors; o Borrow pits and quarry sites will avoid loss of productive agricultural land, whenever possible, and if not possible will include compensation in accordance with the RAP/ Ancillary Facility RPF Annex. 	<ul style="list-style-type: none"> - Loss of habitats; - Degradation of water quality; - Changes to geomorphology; - Changes to sedimentation regime in nearby water lines. - Land acquisition impacts.

Aspect	Guidelines	Avoided or Mitigated Impacts
Borrow pits	<ul style="list-style-type: none"> - Camp social protocols will apply to borrow pit sites; - Labour audits will apply to borrow pit sites to ensure that there is no forced or child labour, and that working conditions, including health and safety, conform to Project standards; - If the use of explosives is required, a specific method statement will be drafted for this activity, including a community communication program and temporary evacuation if needed; 	<ul style="list-style-type: none"> - Community health and safety; - Working conditions
	<ul style="list-style-type: none"> - Borrow pits and quarry sites will be subject to a photographic record of their development and operation; - As soon as possible after completion of works, borrow pits will be rehabilitated, in accordance with an approved decommissioning and restoration plan; - Final landforms will be free draining, not form dams or ponds, and take into account public safety, wildlife safety, pre-disturbance habitats and future beneficial use; - During the rehabilitation of borrow pits, the slope or the borrow pit shall be graded to blend with the natural terrain and be stabilized to prevent erosion; - Use of explosive will be avoided and where practised will adhere to strict pre-approved protocols according to international good practices. including a community communication program 	<ul style="list-style-type: none"> - Loss of habitats; - Degradation of water quality; - Changes to geomorphology; - Changes to sedimentation regime in nearby water lines.
Access roads	<ul style="list-style-type: none"> - Whenever possible, new and temporary accesses will be created based on existing accesses, ensuring that any environmental or social liabilities are addressed and that the sites will be managed in accordance with the requirements of this ESMP and if land acquisition or economic displacement or restriction of access occurs, in accordance with the RP/RPF; - If the opening of new accesses is required: <ul style="list-style-type: none"> o Develop an Access Roads Location and Management Plan, with the proposed route of construction accesses, and their E&S screening, as per the guidance provided in section 4.1.1, and submit it for EDM approval and WB no-objection; o Obtain the necessary licenses for all access roads. This may require the undertaking of specific ESIA processes to obtain the environmental license (if the new accesses are located outside of the Project RoW) and will always include community consultations (please see section 4.1.1 and Annex II for additional guidance on this issue). - The route design for construction access roads, to be provided in the plan named above, will take the following into consideration: <ul style="list-style-type: none"> o Minimize the number of permanent access roads to and in the RoW; o Critical habitats must be avoided and effort will be made to avoid affecting areas of natural habitats, or their immediate vicinity, as much as possible; o Residential, production or other community areas will be avoided as much as possible and if land acquisition, economic displacement or resource use restriction occurs, it will be managed and compensated in accordance with the RAP (ancillary facilities RPF Annex), including the preparation of the respective RAP/ARAP; o Avoid impacts on areas adjacent to the access roads; o If an existing road or pedestrian access is cut, or circulation is significantly restricted, as a result of Project access routes, alternative routes will be provided, to restore pedestrian and road accessibility; o Consult communities with regard to accesses routes and their location and management; - The plan will include road management procedures, in accordance with the requirements of this ESMP and the RAP (Ancillary Facility RPF Annex), including safety requirements, access control plans, drainage and maintenance, etc., and site-specific RAP/ARAP where required; - Any new construction accesses will be decommissioned after construction, and the area rehabilitated according to a plan approved by EDM, unless critical for Project 	<ul style="list-style-type: none"> - Loss of habitats; - Degradation of landscape.

Aspect	Guidelines	Avoided or Mitigated Impacts
	<p>maintenance. When possible, proceed to early closing and rehabilitation of access roads near sensitive scenic areas. Revegetation of these areas will be accomplished through the Rehabilitation and Revegetation Plan (please see section 4.2 for additional guidance on this).</p> <ul style="list-style-type: none"> - To minimize the risks of induced deforestation or other unauthorized activities, public vehicle use of any new, permanent access or service roads shall be restricted or discouraged through the use of gates, signs, or other feasible means. 	

4.2 General Mitigation Measures for Construction

Table 4.2 lists the general mitigation measures for the construction phase (i.e., not integrated into a specific management program), by type of construction activity. These are mostly good practice environmental and social management procedures that will be applied to minimize impacts on several environmental and social factors.

The table also provides information regarding the impacts that will be mitigated by the defined measures, as well as the key actor which is responsible for their implementation. Note, however, that EDM is ultimately responsible for ensuring the implementation of mitigation, even when other actors (such as the EPC Contractors) are involved, through supervision and auditing. To this end, EDM will implement a monitoring and reporting program and a system to follow up and correct non-compliances.

Table 4.2 – Mitigation measures for the construction phase

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Land clearing, site preparation and earth movements	<ul style="list-style-type: none"> - Before the start of activities, put into effect in the affected communities, in coordination with the district authorities and local community leaders, an awareness and information program concerning the project, so as to avoid the construction of new dwellings and planting of new crops, in the Project's area and right-of-way (with the understanding that eligibility under the RAP will not be affected unless a census is completed and a cut-off date established and disseminated); - Vegetation clearing or removal of any structures, in a specific Project segment will not begin prior to conclusion of compensation for all affected buildings, crops and other socioeconomic assets within the Project's footprint. To this effect, a RAP will be developed and implemented in compliance with Mozambican Legislation and World Bank (WB) Operational Policy on Involuntary Resettlement (O.P 4.12). 	<ul style="list-style-type: none"> - Loss of built structures; - Loss of crops. 	EDM
	<ul style="list-style-type: none"> - Vegetation clearing, topsoil removal and earthmoving activities will be minimized as much as possible and limited to the strictly needed areas (particularly in areas of natural habitats). 	<ul style="list-style-type: none"> - Increased noise emissions; - Loss of habitats. 	Contractor
	<ul style="list-style-type: none"> - When clearing vegetation in the RoW, cut vegetation above the ground, without affecting the roots or stripping the topsoil (except in the tower foundation areas, where it is unavoidable). - The Contractor will develop, and submit for EDM approval, a Soil and Erosion Management Plan, detailing the precautionary methods that will be implemented to prevent erosion during land clearing and earthworks activities. The following mitigation measures will be included in that plan: <ul style="list-style-type: none"> o Strip and store topsoil prior to earth moving activities for later reuse in rehabilitation works; o Soils excavated for pylon foundations will be used for backfilling excavations and not be left exposed to wind or water for long periods; o Protect temporarily stored soils with a waterproof cover and adequate height to ensure stability. 	<ul style="list-style-type: none"> - Increased soil erosion and compaction. 	Contractor
	<ul style="list-style-type: none"> - Avoid vegetation clearance activities in natural habitats and near large water masses between October and March, as much as possible, so as to minimize impacts on breeding birds; 	<ul style="list-style-type: none"> - Disturbance of fauna. 	Contractor
	<ul style="list-style-type: none"> - Whenever possible, perform the vegetation clearing activities during the fallow season, in order to reduce the loss of planted crops; - Provide early warning to farmers, to avoid plantation of new crops on the areas to be disturbed, and compensate for lost income for the corresponding crop cycle; - Support crop reestablishment once construction is completed; - Whenever possible, make the cut trees available for pick-up by the local communities, to be used as construction materials or other uses. 	<ul style="list-style-type: none"> - Loss of crops 	Contractor

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Land clearing, site preparation and earth movements	<ul style="list-style-type: none"> - Vegetation clearance activities in areas with natural habitat will be done after an ecology/biology expert has conducted an inventory/study in order to ensure the following: <ul style="list-style-type: none"> o Identify and signal any patches of endemic flora species that may require additional mitigation: e.g., some shrub or grass endemic species patches may be left uncut, within the RoW, if they present no risk to the infra-structure; o Make an inventory of bird roosting and/or nesting sites close to the clearance areas. If significant areas of bird roosts/nests close to the clearance area are found during construction, implement the following: <ul style="list-style-type: none"> ▪ Reduce machinery movements and noise to minimum in places close by birds roosts or nests; ▪ Whenever possible avoid vegetation removal close to raptors nesting site when there are eggs or chicks/juveniles, delaying vegetation removal in those places to after the birds leave; ▪ Other site-specific measures may be proposed by the ornithologist, depending on the specificities of the inventory. o Minimize as much as possible mortality of tree roosting animals (though active search and removal) minimizing species destruction; o When on areas with natural habitats, employ teams of fauna scarers to go ahead of the clearance teams and scare animals out of the RoW, to minimize mortality. 	<ul style="list-style-type: none"> - Loss of habitats; - Fauna mortality; - Fauna disturbance. 	Contractor
	<ul style="list-style-type: none"> - In areas where the line crosses irrigation systems (Limpopo floodplain), apply the following measures: <ul style="list-style-type: none"> o Avoid, as much as possible, construction activities during times when soils are saturated; o Learn about individual farm field activities, such as planting, tillage, and crop rotations so that construction methods and timing can be adapted to the timing of crop work to minimize interference. Document residual damage for compensation in accordance with the RP/RPF. 	<ul style="list-style-type: none"> - Impacts on irrigation agriculture. 	Contractor
	<ul style="list-style-type: none"> - Demarcate the perimeter of rivers, wetlands and water bodies close to construction areas with construction tape, and forbid activities inside the delimited areas; - Limit access by outsiders (signs, patrolling, fences) to work areas. 	<ul style="list-style-type: none"> - Degradation of habitats adjacent to construction sites 	Contractor

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Movement and operation of vehicles, machinery and equipment	<ul style="list-style-type: none"> - The Contractor will develop, and submit for EDM approval, a Traffic Management Plan, detailing the management procedures and mitigation measures to minimize traffic related impacts. That plan will include the mitigation provided below. The Plan will also include the mitigation related to minimizing community safety hazard, as detailed in the Community Health and Safety Management Program (please see Table 6.28 in section 6.8.3); - Forbid people and vehicle movements outside project accesses; - Avoid movement of heavy machinery in wetlands, river banks, river beds and water bodies, as much as possible. If the crossing of water courses by construction machinery is required, specific method statements will be submitted to EDM, including restoration plan; - Limit disturbance outside site boundaries; - Limit non-Project vehicles entrance in the construction area, to avoid invasive and ruderal species dispersion and entrance of people that can exploit illegally natural resources; - Restrict the use of heavy vehicles to primaries roads and avoid the use of roads not designed for heavy loads; - Set and strictly enforce speed limits for all project-related vehicles; - Install signalization on the construction temporary accesses, informing construction workers on speed limits and possible animal presence; - Adopt measures to minimize fuel consumption such as adopting low velocities and turning off vehicles and equipment while idle 	<ul style="list-style-type: none"> - Increased dust emissions; - Increased noise emissions; - Degradation of habitats adjacent to construction sites. 	Contractor
Handling of hazardous substances and responses to accidental events (leaks or spills)	<ul style="list-style-type: none"> - Adopt good housekeeping of work fronts to prevent spillages and contamination; - Machinery will be properly maintained to keep oil leaks in check; - Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be done in the construction camps, in dedicated impervious areas, with cover and containment structures; - In the event of a spill of pollutant material, respond to it immediately, namely (additional information is provided in the Emergency Response Plan): <ul style="list-style-type: none"> o If a spill occurs on a permeable surface (e.g. soil), a spill kit must be used to immediately reduce the potential spread of the spill. All work fronts will have readily available spill kits; o If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials. 	<ul style="list-style-type: none"> - Contamination of soils and water. 	Contractor

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Workforce	<ul style="list-style-type: none"> - The Contractor will develop and implement a Local Recruitment and Working Conditions Plan, as described in section 6.8.3; - The Contractor will develop and implement a Training and Skill Transfer Program, with the following main goals: <ul style="list-style-type: none"> o Provide technical training programs for unskilled workers, with the objective of improving their job performance and giving them the skills to compete for other positions; o Provide environmental and social awareness training to all workers, based on this ESMP, including matters related to the code of conduct, non-discrimination and sexual harassment, abuse and exploitation; o Provide health and safety training; o During induction sessions inform workers of biodiversity importance and commitment of the project to it, in order to avoid deliberate fauna persecution (either through hunting, or run-over with cars, etc.). 	<ul style="list-style-type: none"> - Transfer of skills to local communities. - Increased fauna mortality; - Increased fauna disturbance. 	Contractor
Workers Health and Safety	<ul style="list-style-type: none"> - The Contractor will develop and implement a Worker's Health and Safety Management Plan to protect every worker involved in construction activities, even temporary workers. This plan will comply with national legislation, international best practices (OHSAS 18001:2007, NEBOSH or similar) and address all aspects of labor standards relevant to the project as specified by WBG health & safety guidelines for electric power transmission projects. Sub-contractors will be contractually required to comply with labor and health and safety legislation. Specific provisions must be included for: <ul style="list-style-type: none"> o Supply drinking water and maintain its quality and ensure sanitation at the construction sites; o Provision of sanitation at camps, substations and tower erection points; o Provision of separate accommodation and sanitation facilities in worker camps, in order to satisfy both gender needs; o Prompt recording and notification of accidents through an accident reporting mechanism; o Handling domestic and specialized waste, as well as dangerous goods; o Procedures in case of injuries and accidents, including appropriate first aid and transport at remote facilities; o Use of personal protective equipment (e.g.: helmets, fall protection equipment, , protection form electrocution); o Secure equipment and demarcate any excavation works areas; o Conduct safety inspections to equipment and machinery; o Sign and fence construction areas, where necessary; o Maintain construction camps in a clean and healthy condition as prescribed by international worker health standards. 	<ul style="list-style-type: none"> - Potential impacts on workers' health and safety. 	Contractor

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Workers Health and Safety	<ul style="list-style-type: none"> - The Worker's Health and Safety Management Plan will include a long-term training program in health and safety issues. Specific training must be provided for: <ul style="list-style-type: none"> o Working around live power lines; o Working at heights; o Natural health risks, including mosquito and snake bites. - Provide medical facilities throughout the construction phase for the use of workers where required; - Ensure reasonable working hours, wages and other benefits; - Provide suitable and safe accommodation and sanitation facilities, including available drinking water and improved latrines; - Provide and ensure the use of personal protective equipment (PPE); - An ambulance and medical staff will be always onsite so that in case of a serious accident immediate action can be taken. 	<ul style="list-style-type: none"> - Potential impacts on workers' health and safety; - Transfer of skills to local communities. 	Contractor
Procurement of goods and services	<ul style="list-style-type: none"> - The procurement of goods and services by the EPC Contractors will give priority to sourcing from the local and provincial markets, whenever possible. To the effect, the Contractor will develop and implement a Local Procurement Plan. The development of this plan will include, at the minimum, the following: <ul style="list-style-type: none"> o Identify the goods and services required by the project that can be supplied locally (e.g. meals and cleaning) and encourage and support local companies in the production and supplying of these goods and services. However, no bushmeat, captured wild birds or other animals, or other wildlife products may be purchased; o Before the start of the activities of the STE project the Contractor will identify and disclose the types of services they will require, to enable local entrepreneurs the possibility of training, improvement of skills and services to offer; o Before the beginning of activities, ask the local authorities and community leaders to get involved in empowering residents interested in developing small businesses; o Control and organize commercial activities around camps to ensure order and quality and avoid conflicts. - Source as much as possible materials from sustainable sources such as environmental certified companies. 	<ul style="list-style-type: none"> - Local and regional economic stimulation 	Contractor

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Clean up and demobilization	<ul style="list-style-type: none"> - To minimize soil compaction in low-lying areas, saturated soils, and/or suitable irrigation soils, the soil in the RoW in fields that were accessed by heavy construction traffic will be checked for compaction with a soil penetrometer and compared to penetrometer readings on soils outside of the RoW, especially in irrigated areas. If compaction within the RoW is detected, appropriate equipment will be used to restore the soil tilth; - Close all construction access roads unless preapproved, built to regular standards and transferred for maintenance to another appropriate entity. - Any damage to roads resulting from the Project construction will be restored as soon as possible, throughout all the construction period. 	<ul style="list-style-type: none"> - Increased soil erosion and compaction; - Degradation of landscape. - Impacts on traffic. 	Contractor
Rehabilitation and Revegetation Plan	<ul style="list-style-type: none"> - The Contractor will develop a Rehabilitation and Revegetation Plan and submit it to EDM for approval, at least three months prior to demobilization of the first temporary construction areas to be abandoned. This plan shall be developed so as to comply with the following guidelines: <ul style="list-style-type: none"> o All temporary access roads and work areas (including construction camps) will be rehabilitated and revegetated as soon as they are vacated; o All temporary construction sites, such as borrow pits and landing areas, will also be revegetated immediately following the completion of the construction activities; o Any other areas of bare and disturbed soils will also be revegetated as soon as possible; o Revegetation will be done with a mix of native species, so as to emulate the composition of the dominant woodlands in the Project areas; o The species chosen for restoration works as well as the timing of the revegetation will need to be validated by a botanical expert; o Erosion control will take into account agricultural areas and where areas are being returned to cultivation the plan will include land preparation. o Revegetated areas will be monitored biannually, for at least two years. Any areas which show signs of degradation or that aren't recuperating after the first revegetation will be reinforced through additional plantings or seedlings; o Restore vegetation in the ROW/PPZ where needed to control erosion. Provide flora and fauna protection; o Support reestablishment of crops in the ROW/PPZ where allowed. 	<ul style="list-style-type: none"> - Loss of habitats; - Degradation of landscape. 	Contractor
Contractor GRM (workers and community)	<ul style="list-style-type: none"> - The Contractor will develop and implement a Community and Workers Grievance Management System. Guidance to develop a GRM compliant with best practices is given in section 6.7 of this ESMP. 	<ul style="list-style-type: none"> - Stakeholders' grievances. 	Contractor

5 Mitigation Measures for the Operational Phase

Table 5.1 lists the general mitigation measures for the operational phase (i.e., not integrated into a specific management program), by Project component. The table also provides information regarding the impacts that will be mitigated by the defined measures, as well as the key actor which is responsible for their implementation.

Table 5.1 – Mitigation measures for the operational phase

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Transmission line	<ul style="list-style-type: none"> - Regular maintenance of the transmission line components; - Regular visual inspection of tower foundations, for erosion detection and control. 	<ul style="list-style-type: none"> - Increased noise levels; - Soil erosion. 	EDM
	<ul style="list-style-type: none"> - Implement the Biodiversity Management Program (BMP) (see section 6.4) 	<ul style="list-style-type: none"> - Increased bird and bat mortality; 	EDM (with Consultant for bird/bat monitoring)
Access roads	<ul style="list-style-type: none"> - Minimizing Access Road Induced Impacts: Besides providing options for compensatory mitigation (through reforestation or targeted protection) of road-induced deforestation or woodland degradation, the BMP should seek to prevent and minimize such impacts in the first place. Effective strategies for doing this should include, as feasible, (i) locked gates at access or service road entry points and/or (ii) maintaining these roads to a relatively low standard (to make them easily passable with a 4X4 vehicle, ATV, or motorbike, but not so easily passable with a truck, bus, or passenger car). To the extent possible, transmission line access and service roads should not be maintained as general-access public roads. 	<ul style="list-style-type: none"> - Indirect loss of habitats along the RoW. 	EDM
Substations	<ul style="list-style-type: none"> - Maintain substation equipment in good running condition, free of leaks, excess oil and grease; - Regularly inspect all equipment at the substations that may contain contaminants, such as transformers; - If noise complaints are received from nearby communities due to the substation operations, and if subsequent investigation confirms the noise impact, consider and implement additional noise control measures, as required. These can take the form of barriers between the noise source and the sensitive receptor (such as a barrier of mature trees, tall soil berms or noise barriers) or the enclosure of the transformers and other noisy equipment with acoustic barriers/panels (screening devices). 	<ul style="list-style-type: none"> - Increased noise levels. 	EDM
	<ul style="list-style-type: none"> - Develop and implement a Waste Management Plan for substation operations; - Develop and implement an Emergency Response Plan for the substation operation. Provide spill kits in all substations. 	<ul style="list-style-type: none"> - Pollution of soils and water; 	EDM
Right-of-way (RoW)	<ul style="list-style-type: none"> - Monitor encroachment of infrastructure into the RoW and strictly enforce the RoW restrictions. 	<ul style="list-style-type: none"> - Risks to community safety. 	EDM
	<ul style="list-style-type: none"> - When implementing vegetation control on the RoW, limit disturbance outside maintenance area boundaries and limit vegetation clearance to the area required. Complete vegetation clearance will be restricted to the 30 m corridor; - Outside of the 30 m full clearance corridor, allow tree and shrub species whose height is limited to 3 m to grow. Apply selective removal of tall-growing tree species only; - Avoid clearing in riparian areas, thus allowing rivers to maintain their function as ecological corridors. 	<ul style="list-style-type: none"> - Suppression of vegetation units; - Habitat fragmentation; - Permanent alteration of the landscape. 	EDM
	-	-	

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
	<ul style="list-style-type: none"> - Implement the measures included in the BMP for monitoring and response to indirect losses of woodland habitat, caused by progressive human expansion along the RoW, namely: <ul style="list-style-type: none"> o Monitor the direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna, 5 km on both sides of the RoW: deforestation and poaching monitoring and development of corrective actions; o Register the presence of people in and near the RoW and the actions taken by local authorities to prevent illegal logging and poaching activities. These impacts should be assessed through ground monitoring, as well as the use of aerial photographs and Google Earth; o In case problems are detected that cause significant negative impacts on natural and critical natural habitat, on flora and fauna, mitigation measures will be developed and implemented, including reforestation or targeted protection and anti-poaching activities, financed by EDM. 	- Loss of woodland habitat	EDM
	<ul style="list-style-type: none"> - If complaints are received, from local communities or other stakeholders, regarding a negative visual impact created by the transmission line, create visual barriers to reduce line visibility in sensitive areas, if feasible. 	- Permanent alteration of the landscape	EDM
	<ul style="list-style-type: none"> - Limit non-Project vehicle entrance and circulation along the RoW, as much as possible, through the placement of signalization; - Incorporate in the normal maintenance procedures of the RoW the monitoring of creation of new settlements or cutting or burning of woodland areas in adjacent areas along the RoW, and report these occurrences to the local authorities 	- Indirect loss of habitats along the RoW.	EDM
	<ul style="list-style-type: none"> - Engage with relevant local and provincial Government Departments to raise their awareness of the need for a coordinated intervention to enforce restrictions on uncontrolled settlement and agricultural expansion, clearance of woodland, and enforcement on controls on hunting, charcoal and timber cutting, along the RoW, in particular in the line segment between Chibuto and Vilanculos substations, where more dense woodlands still exist. The following will be implemented: <ul style="list-style-type: none"> o EDM will approach the Provincial Governments of Gaza and of Inhambane to discuss this issue (note that the critical segment is the one between Chibuto and Vilanculos substations, where more dense woodlands still exist); o With the support of the Provincial governments, the goal is to create an inter-district committee to monitor and control population expansion along the RoW. Relevant districts include Chibuto, Panda, Funhalouro, Massinga and Vilanculos; o EDM will discuss with this inter-district committee the procedure to monitor population expansion along the RoW. The Districts will be consulted in terms of what they wish to be reported. A specific and detailed reporting protocol will then be defined; o This protocol will be implemented by EDM, as part of the normal operational inspection activities of the RoW and line components; o Following reporting of occurrences to the Districts, EDM will engage with district authorities to discuss and coordinate a possible response. EDM will support, as possible, local authorities in their response. 	- Indirect loss of habitats along the RoW.	Local authorities (with support from EDM)

Project Component	Mitigation	Mitigated / Enhanced Impacts	Responsibility
Workforce	<ul style="list-style-type: none"> - Give priority to hire local workers, provided applicants have the necessary skills for the created employment opportunity; - Develop a Training and Skill Transfer Program for the operational phase to maximize local employment including women; - Employment opportunities will be adequately advertised, so as not to limit application opportunities; - The process of contracting staff will be transparent and follow pre-established and accepted criteria; - Implement EDM's existing health and safety policies and procedures for the operation of substations and transmission lines. 	<ul style="list-style-type: none"> - Creation of local employment opportunities; - Potential impacts on workers' health and safety. 	EDM
Communities interaction	<ul style="list-style-type: none"> - Develop and implement a Stakeholder Engagement Plan, in compliance with IFC's PS 1 requirements and the guidelines provided in the Communication Plan Framework (see section 6.5); - Include community health and safety components (continued HIV and SEA prevention and referral programs, security and company personnel Code of Conduct, etc.) 	<ul style="list-style-type: none"> - Social conflicts with local communities. 	EDM

6 Environmental and Social Management Programs

Based on the affected environment and communities, and the impact assessment carried out, the following programs will be implemented in order to address potential impacts during all project phases (construction and operation):

- Air Quality Management Program;
- Water Resources Management Program;
- Waste Management Plan;
- Biodiversity Management Program;
- Communication Plan Framework;
- Community Awareness Program;
- Project Grievance Redress Mechanism;
- Community Health and Safety Management Plan;
- Cultural Heritage Chance Find Procedure;
- Emergency Response Plan;
- Stakeholder Engagement Plan

The following sections provide guidelines for the development and implementation of these programs, as part of the ESMS to be developed and implemented by EDM and the Contractor, as applicable.

Further to the programs listed above, and described in the following sections, the Contractor will also be required to develop and implement a number of management plans for the construction phase, as per the requirements presented in Chapter 4 (mitigation measures for construction). These include:

- Camp and Housing Management Plan;
- Security Management Plan;
- Borrow Pit and Quarry Management Plan;
- Access Roads Location and Management Plan;
- Soil and Erosion Management Plan;
- Traffic Management Plan;
- Local Recruitment and Working Conditions Plan;
- Local Procurement Plan;
- Training and Skill Transfer Program;
- Worker's Health and Safety Management Plan;
- Rehabilitation and Revegetation Plan;
- Environmental and Social Code of Conduct;
- Contractors' GRM for Communities and Workers;
- Method Statements, including, but not limited to: erosion control, water crossing, work in heights, and others that may be required by the ESCMM.

These specific management plans will be drafted by the Contractor, based on the requirements presented in this ESMP, and submitted to EDM (ESCCM) for approval with World Bank N/O prior to the start of activities.

6.1 Air Quality Management Program

6.1.1 Justification and Objectives

The construction phase of the STE Phase 1 Vilanculos-Maputo project may result in localized and temporary changes to ambient air quality due to construction activities, in particular in the residential areas within close proximity to the construction sites. This Air Quality Management Program aims to control the atmospheric emissions of the construction phase, to avoid nuisance effects on the settlements near the construction fronts. Please note that no relevant impacts on air quality were identified for the operational phase, and as such no management actions are proposed for that phase.

6.1.2 Legal Framework

Air quality standards aim to safeguard public health and the protection of ecosystems. Mozambican air quality standards are established through Decree No. 18/2004, of 2 June (Regulation on Environmental Quality Standards and Effluent Emissions), as amended by Decree No. 67/2010, of 31 December. Further to national standards, World Health Organization (WHO) standards were also considered. **Table 6.1** provides a comparison between national standards and WHO guidelines. For each parameter, the stricter guideline was adopted as Project standard.

Table 6.1 – Ambient air quality standards and guidelines

Pollutant	Averaging Period	Mozambique ⁽ⁱ⁾ ($\mu\text{g}/\text{m}^3$)	WHO ⁽ⁱⁱ⁾ ($\mu\text{g}/\text{m}^3$)	Project standard ($\mu\text{g}/\text{m}^3$)
Total Suspended Particles (TSP)	24 hours	150	--	150
	1 year	60	--	60
PM ₁₀	24 hours	--	50	50
	1 year	--	20	20
PM _{2.5}	24 hours	--	25	25
	1 year	--	10	10
SO ₂	10 minute	--	500	500
	1 hour	800	--	800
	24 hours	100	20	20
	1 year	40	--	40
CO	1 hour	30 000	--	--
	8 hours	10 000	10 000	10 000
NO ₂	1 hour	190	200	200
	1 year	10	40	40

Source: (i) Decree No. 18/2004 as amended by Decree No. 67/2010; (ii) World Health Organization (WHO). Air Quality Guidelines Global Update, 2005.

6.1.3 Actions and Implementation Schedule

Table 6.2 lists the control and mitigation measures to be applied during the planning and construction phases, in order to minimize the emissions of particulate matter and other atmospheric pollutants. It should also be noted that the implementation of the general mitigation measures proposed for the construction phase, as listed in Chapter 4 of this ESMP, will help mitigate some air quality impacts.

Table 6.2 – Air quality management program – actions, description and implementation schedule

Control and Mitigation Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Control emissions of dusts and pollutant gases	- The circulation routes of construction vehicles will be adequately planned in order to minimize, as much as possible, crossing through, or passing nearby, residential areas.	Planning phase	Contractor	ESCCM
	- All internal combustion machinery and equipment will be kept in good maintenance conditions in order to minimize combustion gases exhaust emissions. This includes preventive maintenance of machines, equipment and vehicles and operator training, as well as internal monitoring program of proper maintenance of vehicles;	During construction	Contractor	ESCCM
	- Heavy trucks transporting construction materials (such as sand, soils and gravel, etc.) will not be loaded to full capacity. A free edge of approximately 0.2 m will be kept to avoid spills during materials transport;			
	- Trucks carrying dusty materials will have the load adequately covered;			
	- Stockpiles of granular materials will be protected with a waterproof cover, or alternatively regularly sprinkled with water;	Daily (in the dry season), during construction	Contractor	ESCCM
	- Unpaved construction accesses and work fronts located nearby residential areas will be regularly sprinkled with water to avoid mobilization of dust due to vehicle entrainment, in particular during dry and windy conditions. This will be done with a daily frequency during the dry season;		Contractor	ESCCM
	- The construction machinery parking area (in construction camps) will be regularly sprinkled with water, in particular in dry and windy conditions.			

6.1.4 Follow-up and Monitoring

Air quality monitoring actions will be developed during the construction phase nearby the previously identified sensitive receptors. The following paragraphs define the criteria for the selection of the monitoring points and the air quality monitoring procedures. Two types of monitoring actions are

required: periodic air quality monitoring, to verify the effectiveness of the controls and mitigation in place, and monitoring in response to local complaints or grievances.

Monitoring Locations

Monitoring will be undertaken in the human settlements along the alignment where heavy construction activities take place at less than 200 m from residential dwellings, as they might be affected by the emissions generated by those activities.

Monitoring Parameters

At the locations described above, air quality monitoring will be undertaken for the following parameters:

- Total Suspended Particle (TSP) concentrations;
- Visual identification of dust plumes resulting from the movement of construction machinery and equipment.

TSP concentrations must comply with the adopted Project standard (see **Table 6.1** above).

Monitoring Frequency

Monitoring will be undertaken at least quarterly at the human settlements where construction activities are taking place at that time and at less than 200 m from residential dwellings. During intense construction periods, monitoring frequency will be increased to weekly.

Sampling methods

The reference method to be applied in the monitoring campaigns will preferably be the following:

- USEPA 40 CFR part 50, Appendix J – “Sampling of Ambient Air for Total Suspended Particulate Matter” or equivalent method.

Alternative methods, equivalent to the listed above, may be used, as long as they are internationally recognized by recognized by relevant institutions, such as the International Organization for Standardization (ISO), national environmental protection agencies, etc.

Result Interpretation

The air quality monitoring results will be compared against the adopted air quality guidelines, as listed on **Table 6.1** to identify any non-compliance with such guidelines.

The following table summarizes the follow-up and monitoring actions and the implementation schedule.

Table 6.3 – Air quality management program - follow-up and monitoring actions, description and implementation schedule

Follow-up or Monitoring Action	Description	Implementation schedule
Periodic air quality monitoring	- Air quality monitoring actions will be developed during the construction phase nearby the previously identified sensitive receptors. Monitoring will take place at residential areas closer than 250 m to an active construction front.	Quarterly (weekly during intense construction periods)

Follow-up or Monitoring Action	Description	Implementation schedule
Air quality monitoring in response to complaints	- If complaints from the local population regarding air quality are registered, (i) simple immediate measures (such as additional watering for dust control, traffic speed reductions, correct implementation of planned measures, etc. will be implemented; and (ii) air quality monitoring will be undertaken near the affected sensitive receptors, to verify the ambient air quality levels and define additional mitigation, if required.	When necessary

6.1.5 Corrective Actions

If exceedances of the air quality guidelines are recorded (see previous section for the proposed monitoring actions), or if complaints from the local communities are lodged, the causes of such exceedances will be identified and corrected. Exceedances may result from:

- Non-compliance to the set speed limits by the vehicle conductors;
- Presence of unidentified (new) sensitive receptors;
- Lack of adequate maintenance of machinery and equipment;
- Inadequate implementation of the proposed control and mitigation actions.

In the event of non-compliances additional mitigation will be implemented, as required, to eliminate or minimize the negative effects. These additional mitigation measures will be defined case by case, depending on the assessment of the specific issues. The following are examples of possible additional mitigation and control actions that may be adopted:

- Intensify and monitor the maintenance of machinery and equipment, to avoid bad working conditions that may cause an increase of dust and tailpipe emissions;
- Provide additional training to workers, regarding the environmental management requirements set out in this management program.

After the implementation of the corrective actions, a monitoring campaign will be undertaken for the areas where the non-compliances were recorded, to verify the resolution of the issue (see following section for the monitoring).

Table 6.4 presents the main proposed corrective actions.

Table 6.4 – Air quality management program - corrective actions, description and implementation schedule

Corrective Actions	Description	Implementation Schedule
Act on exceedances of air quality standards	- If exceedances of the air quality guidelines are recorded as a result of the proposed air quality monitoring, the causes of such exceedances will be identified and corrected, through the implementation of adequate mitigation and control measures, to be identified based on the nature of the specific conditions that led to the recorded exceedances. Following correction, monitoring will be undertaken to verify resolution.	Whenever necessary
Act on local complaints and grievance claims	- If complaints from the local population regarding air quality are registered, and cannot be addressed by correcting non-conformities, act on them in consultation with local authorities. This may require the adoption of additional mitigation and control measures, as appropriate. Following correction, monitoring will be undertaken to verify resolution.	Whenever necessary

6.1.6 Performance and Reporting

6.1.6.1 Performance Indicators

The following table lists the performance indicators to be monitored for the Air Quality Management Program:

Table 6.5 – Performance indicators for Air Quality Management Program

Indicator	Target	Trend
Number of TSP exceedances during periodic monitoring	<10% of monitored sites with recorded exceedances to TSP standard	% of recorded TSP exceedances decreases quarterly
Number of community complaints regarding air quality	1 complaint per quarter per community near a work front	Number of complaints decreases quarterly
Number of verification monitoring campaigns in response to complaints	Equal to number of complaints	n.a.
Number of additional air quality mitigation measures undertaken in response to complaints	Equal to or greater than number of complains	n.a.

Note: n.a. – not applicable.

The performance indicators results will be determined and compiled in quarterly reports, as indicated in the following section.

6.1.6.2 Reports

Table 6.6 summarizes the documental records that will be kept, to control the execution of this specific environmental management program. These documents will be prepared, archived and maintained by the environmental management team, to document the results of the program implementation. Records of relevant events will be made following the occurrence and a quarterly Performance Report will be prepared, reporting on the recorded events and performance indicators.

Table 6.6 – Record Documents for the Air Quality Management Program

Document Title	Document Type	Frequency of Record or Report
Record of periodic air quality monitoring	Record	Quarterly
Record of air quality associated community complaints	Record	On occurrence
Record of air quality monitoring in response to complaints and mitigation responses	Record	On occurrence
Performance Report	Report	Quarterly

6.2 Water Resources Management Program

6.2.1 Justification and Objectives

The purpose of the Water Resources Management Program is to guarantee the conservation of the water resources present in the Project influence area. The plan includes control and mitigation actions to protect water resources, namely actions to prevent their siltation and their contamination by effluents generated during the proposed activities.

6.2.2 Legal Framework

The present plan takes into consideration both the Mozambican legislation referring to water resources, including the use of water, the land law, water quality standards and effluent emission standards, as well as applicable international guidelines. In what regards sanitary wastewater discharges, the national emission limits are given by Annex IV of Decree 18/2004. **Table 6.7** lists these national limits, and compares these against WBG's General EHS Guidelines emission limits for sanitary wastewater discharges. For each relevant quality parameter, the stricter of these two requirements was adopted as Project standard.

Table 6.7 – Emission limits for sanitary wastewater discharges

Parameter	Units	Emission limits		Adopted Project Standard
		Decree 18/2004 (Annex IV)	WBG General EHS Guidelines	
Color	Presence/absence	Dilution 1:20	-	Dilution 1:20
Odor	Presence/absence	Dilution 1:20	-	Dilution 1:20
pH (25°C)	-	6 – 9	6 – 9	6 – 9
Temperature	°C	35° (i)	-	35° (i)
BOD (biological oxygen demand)	mg/l	-	30	30
COD (chemical oxygen demand)	mg/l	150	125	125
TSS (total suspended solids)	mg/l	60	50	50
Total phosphorus	mg/l	10 (ii)	2	2
Total nitrogen	mg/l	15	10	10
Oil and grease	mg/l	-	10	10
Total coliform bacteria	MPN (iii) / 100 ml	-	400	400

Notes: (i) measured in the receptor body; (ii) 3 mg/l in sensitive areas; (iii) MPN = Most Probable Number.

6.2.3 Actions and Implementation Schedule

Table 6.8 lists the control and mitigation measures to be applied during construction, in order to minimize impacts on surface and groundwater resources.

Table 6.8 – Water Resources Management Program – actions, description and implementation schedule

Control and Mitigation Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Minimize the changes on natural run-off patterns	<ul style="list-style-type: none"> - The Contractor is required to submit a method statement for every river and wetland crossing for EDM approval; - Avoid affecting river beds and floodplain areas by the construction activities (including movement of machinery), as much as possible; - Whenever possible, carry out works on river banks, flood plains and wetland areas, in the dry season, during the months of lower flow; - Do not block or constrain river flow in the construction of access roads, even if temporary. Ensure that suitable transversal drainage (culverts, viaducts, etc.) are in place; - River beds will not be modified beyond the strictly necessary to complete a particular work. The affected areas will be rehabilitated to the original profile; - Temporary stream diversions will be big enough to allow the free flow of water without damming and without inundating riparian vegetation for long periods; - Adequate erosion control structures will be provided in the slopes of any temporary stream diversions that might be required, by using sandbags, reno-mattresses, plastic liners and/or coarse rock rip-rap, where appropriate. This will be further developed in the Soil and Erosion Management Plan; - Minimize the clearance of riparian vegetation. Clearing of riverine vegetation must be done in stages, as working areas progress. Trees, shrubbery and grass species will be retained wherever possible. The affected areas will be rehabilitated, including revegetation when work is completed, where possible. This will be done through the Rehabilitation and Revegetation Plan; - Water channels will be kept free from obstruction at all times. Any erosion damage will be repaired as soon as possible. 	During construction	Contractor	ESCCM
Prevent water quality contamination	<ul style="list-style-type: none"> - No soil, vegetation, waste or construction materials will be discharged on water courses; - Natural water resources, including sources, streams or open water bodies, will not be used for equipment or vehicle washing. This activity will only be conducted in properly dedicated washing areas, inside the construction camps; - Prohibit workers to use natural waterways for recreational purposes, bathing or washing; 	During construction	Contractor	ESCCM

Control and Mitigation Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Prevent water quality contamination	<ul style="list-style-type: none"> - Do not discharge untreated effluents and wastewaters into soil or natural water masses. All residual water and effluent produced (sanitary facilities, kitchens, canteens, baths, etc.) will be collected and treated. For small, isolated sites, soak away/septic field systems can be used, biodegradable solids may be buried, and liquid discharges will be controlled to ensure that local water resources, both surface and groundwater, are not contaminated. Water containing pollutants such as cement, concrete, lime, chemicals and fuel must be discharged into a tank for later removal off site and treatment at a treatment facility; - The treated effluents will ensure compliance with the adopted quality emission Project standards (see Table 6.7 above); - Treated wastewater discharge locations must be approved by district authorities, and other relevant authorities, including MITADER; - Whenever necessary, install portable toilets in the construction fronts with watertight septic tank for storage of residual water produced. 1 toilet for every 15 persons will be considered at each work front (the toilets will not be located more than 200 m from each work front). These must be properly fixed to the ground to avoid tipping over. The facilities require periodic maintenance to empty the tanks and cleaning routines to ensure the hygiene of the facilities. The collected effluent will be taken for treatment at the nearest treatment facility. Site toilets will not be located within the 1:100 year flood line, or within a horizontal distance of 100 m (whichever is greater) of a watercourse, drainage line or identified wetland, and residential and community use areas; - Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be made in impervious areas, with cover and containment structures; - Provide a designated area for maintenance of equipment and vehicles with impervious surface and containment structures. Place these facilities away from water courses and from residential and community use areas (minimum 100 m); - Define parking spaces for machinery and vehicles. Inspect periodically these areas to verify occurrence of spillage and proceed with cleaning of spillages; - Provide a designated area for fuel supply of equipment and vehicles with impervious surface and containment structures (such as drip trays during refueling, bunds around storage tanks, etc.); - Perform maintenance and periodic review of all machinery and vehicles used in the work, in order to maintain the normal operating conditions of work and minimize the leakage of oils and fuels; 	During construction	Contractor	ESCCM

Control and Mitigation Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Prevent water quality contamination	<ul style="list-style-type: none"> - Develop a plan for prevention and containment of spills. Ensure all on site staff are trained in the use of spill prevention measures. Clean up any spills immediately, through containment and removal of free product and appropriate rehabilitation or disposal of contaminated soils; - Do not use natural water resources, including sources, streams or open water bodies, for equipment or vehicle washing. Provide a designated area for washing equipment and vehicles. This area must be drained to an isolated retention basin that is sealed off from the natural drainage network so as to prevent accidental spills of fuels and oils from contaminating the soil and water resources in the environment. Prevent the discharge of produced effluent in the receptive environment through its collection and conducting to oil and grease separation systems (pre-treatment). The resulting waste (supernatant) will be eliminated as hazardous waste. The pre-treated effluent shall be conducted for treatment system of waste water; - Provide a designated area for washing of concrete loading machinery, concrete mixing vehicles and other equipment that contain concrete or cement residues. These areas will have an impermeable surface, containment structures and collecting systems of residual water resulting from washing. Prevent the discharge of produced effluent through collection and conducting to tailing ponds with impermeable bottom. The decanting solid will be dehydrated and treated as solid waste. The decanted water will recirculate for concrete production or for washing of equipment and vehicles above mentioned. 	During construction	Contractor	ESCCM
Prevent the increase of turbidity and sedimentation of water bodies	<ul style="list-style-type: none"> - Storage of soils will be made away from drainage lines. Stocked soils will be covered during the rainy season or during strong wind conditions; - When possible, clearing must be phased, as the working areas progress in order to reduce the areas exposed to wind erosion. 	During construction	Contractor	ESCCM

6.2.4 Follow-up and Monitoring

Table 6.9 summarizes the follow-up and/or systematic and/or periodic verification actions and their implementation schedule.

Table 6.9 – Water Resources Management Program – follow-up and monitoring actions, description and implementation schedule

Follow-up or Monitoring Action	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Inspection of portable toilets	<ul style="list-style-type: none"> - Periodic visual inspection of portable sanitary facilities. Check its correct functioning and hygienic conditions; - Ensure routine maintenance; - Record all maintenance and inspection routines. 	Weekly during construction	ESCO	ESCCM

Follow-up or Monitoring Action	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Monitor quality of effluent treated at wastewater treatment system	<ul style="list-style-type: none"> - Monitoring of effluent quality of the wastewater treatment system (construction camp). The following parameters will be analyzed: color, odor, pH, Temperature, BOD, COD, Total Suspended Solids (TSS), Total Phosphorus, Total Nitrogen, Oil and grease, Total Coliforms and fecal Coliforms; - Ensure routine maintenance of the wastewater treatment system; - Record all maintenance routines. 	Monthly during construction	ESCO	ESCCM
Monitor increase of sedimentation of water bodies	<ul style="list-style-type: none"> - Undertake periodic visual inspection of rivers and streams to identify significant sedimentation, indicative of high sediment load inputs to local water courses. 	Monthly during construction (when working near water bodies)	ESCO	ESCCM
Monitor erosion damage or risks to river banks	<ul style="list-style-type: none"> - All construction activities in river and streams shall be closely monitored. Undertake periodic visual inspection of rivers and streams to identify any undue erosion damage or risks to river banks. 	Monthly during construction (when working near water bodies)	ESCO	ESCCM
Monitor occurrence of spillages in water resources	<ul style="list-style-type: none"> - Periodic inspect parking spaces, fuel supply areas, and vehicles maintenance and washing areas to verify occurrence of spillage; and proceed with cleaning of observed spillages; - Record all inspection routines and cleaning procedures; 	Construction Phase, weekly.	ESCO	ESCCM
	<ul style="list-style-type: none"> - Record all accidental spillages occurring in water resources. Record the date, location, approximate volume of each spillage and implemented corrective measures. 	When applicable		

6.2.5 Corrective Actions

If non-conformities are detected through the follow-up and monitor actions, corrective actions will be implemented, as required, to address them. The nature of the corrective actions or additional mitigation measures will be defined case by case, depending on the assessment of the specific issues. **Table 6.10** presents the main proposed corrective actions.

Table 6.10 – Water Resources Management Program – corrective actions, description and implementation schedule

Corrective Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Act on exceedances of wastewater emission quality standards	<ul style="list-style-type: none"> - If exceedances of the applicable water quality emission Project standards (see Table 6.7 above) are identified during monitoring of wastewater emission, implement corrective measures, as required. This could include the increase of the installation treatment capacity. 	Whenever necessary	ESCO	ESCCM

Corrective Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Rectify erosion damage to stream banks and beds, and blockage of water flow	<ul style="list-style-type: none"> - Any undue erosion damage or risks to river banks shall be rectified using stabilizing materials or other appropriate methods; - Any interference to natural stream flow shall be limited to bridge/culvert construction works only and repaired immediately after completion. Downstream flows shall be maintained to support river functioning and human needs. - Excessive sedimentation to water courses shall be remediated where blockage of flow is caused. 	Whenever necessary	ESCO	ESCCM
Act on significant increases of water bodies sedimentation	<ul style="list-style-type: none"> - If situations of high sediment loads inputs to local water courses are detected, resulting from storm water flow, corrective measures will be locally applied, such as: - Silt fences can be placed around disturbed areas to filter sediment from un-concentrated surface-water runoff; - Check dams can be placed in paths of concentrated runoff to reduce erosion; - Temporary ditches, berms, and sedimentation ponds could be constructed to collect runoff so that entrained sediment could settle out of the water prior to being released from the site into drainages, streams, or wetlands. 	Whenever necessary	ESCO	ESCCM
Act on accidental spillages	<ul style="list-style-type: none"> - If any accidental spill is detected, act immediately by cleaning the affected area (including removal of contaminated soil); - Investigate the causes for the spill, and implement preventive measures to avoid future events. 	Whenever necessary	ESCO	ESCCM

6.2.6 Performance and Reporting

6.2.6.1 Performance Indicators

The following table lists the performance indicators to be monitored for the Water Resources Management Program:

Table 6.11 – Performance indicators for Water Resources Management Program

Indicator	Target	Trend
Number of exceedances of wastewater emission quality guidelines, during periodic monitoring	Maximum of one parameter exceedance, per monthly monitoring campaign, with exception of fecal coliforms (target is zero exceedance)	No single parameter shows repeated exceedances over two monitoring campaigns.
Number of rivers and streams where significant sedimentation increases or erosion damage were detected	< 2 per quarter	Number of events decreases quarterly
Number of corrective actions implemented in response to river sedimentation increase or erosion damage	Equal to number of events detected	n.a.
Number of accidental spills	< 1 per quarter	Number of events decreases quarterly
Number of corrective measures implemented in response to accidental spills	Equal to number of spills	n.a.

Note: n.a. – not applicable.

The performance indicators results will be determined and compiled in quarterly reports, as indicated in the following section.

6.2.6.2 Reports

Table 6.12 summarizes the documental records that will be kept to control the execution of this environmental management program. These documents will be prepared, archived and maintained by the ESCO, in order to document the results of the program implementation. Records of relevant events will be made following the occurrence and a quarterly Performance Report will be prepared and submitted to the ESCCM, reporting on the recorded events and performance indicators.

Table 6.12 – Record documents for the Water Resources Management Program

Document Title	Document Type	Frequency of Record or Report
Record of inspection of portable toilets	Record	Weekly
Record of periodic effluent water quality monitoring	Record	Monthly
Record of periodic visual inspection of rivers and stream sedimentation	Record	Monthly
Record of periodic spill inspections	Record	Weekly
Record of accidental spill	Record	On occurrence
Performance Report	Report	Quarterly

6.3 Waste Management Plan

6.3.1 Objectives

The objective of the Waste Management Plan is to ensure adequate management of hazardous and non-hazardous waste. Waste management comprises the collection, conditioning, transportation and deposition at an appropriate final destination.

Adequate waste management is fundamental to prevent the contamination of soils and water resources (surface and groundwater). It is also important so as to prevent jeopardizing the public health of the local communities and workers, and prevent the proliferation of pests.

The present program takes into consideration the Mozambican legislation referring to waste management, as well as international best practices on the issue, namely the recommendations of the WBG EHS General Guidelines.

6.3.2 Scope and Responsibilities

The Waste Management Plan is applicable to all construction activities. The operational phase is not expected to generate relevant amounts of waste, but waste management procedures will also be applied, after the type and amount of generated waste in the substation sites can be estimated.

The responsibility for implementing the proposed waste management actions and procedures falls with the various Contractors involved in the Project's construction phase, which will need to use the guidelines provided in this plan to develop specific waste management procedures applicable to their activities. EDM is responsible for auditing the Contractors' activities, to ensure that best practice waste management procedures are being followed.

6.3.3 Availability of Waste Disposal Facilities

When planning its waste management activities, the Contractor will take into consideration the availability, or lack thereof, of adequate waste disposal facilities in Mozambique, namely:

- In what regards urban solid wastes (non-hazardous), no adequate waste disposal facilities exist in Mozambique. Waste management is the responsibility of municipalities, or district authorities where no municipalities exist. No public landfills exist in the Project region, or in Mozambique as a whole. Municipalities use open air dump sites, without adequate environmental controls or monitoring;
- As for hazardous waste, there is one licensed facility in Boane District, Maputo Province – the Mavoco Industrial Landfill. This facility is an adequate final destination for the small volumes of hazardous waste likely produced by the Project.

6.3.4 Waste Management Actions

Table 6.13 below summarizes the proposed waste management actions.

Table 6.13 – Waste management actions

Waste management actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Prepare waste inventory	<ul style="list-style-type: none"> - Prepare inventory of any hazardous and non-hazardous waste; - Classify the waste according to Decree No. 94/2014 and Decree No. 83/2014; - Define sources, volumes and indicate appropriate final destination for each type of waste, taking into consideration the specifications of the region in question in what concerns the availability of waste treatment and disposal facilities. 	Planning phase	Contractor	ESCCM
Reduce waste production	<ul style="list-style-type: none"> - Working sites must be kept clean, neat and tidy at all times; - Avoid leaving garbage unattended, in order to avoid attracting pests and nocturnal carnivores; - Implement daily cleaning routines to minimize waste; - Promote the recycling and recovery of waste in coordination with municipal authorities or private entities; - Use materials which can be reused easily; - List and estimate the volume of waste that can be reused, recycled or re-process (example, wood scraps, soils, none used materials); - Ensure that the quantities of construction materials on site are as accurate as possible, to avoid surpluses that could result in construction waste. 	During construction	ESCO	ESCCM
Non-hazardous waste segregation	<ul style="list-style-type: none"> - Provide containers of appropriate size (according to the expected quantity of waste) for the placement of waste in different working areas. The segregation will be carried out as close as possible to the place of production. These shall ensure adequate hygiene and sealing conditions; - Strictly prohibit littering with plastic or other wastes by all project personnel; - Provide different containers for each type of waste that can be reused, recycled or re-processed. Containers will be clearly identified according to their categorization and classification, allowing to clearly identifying its contents; - Waste segregation must be carried out accordingly, ensuring that waste does not exceed the top of containers; - Maintain containers clean and always closed; - All produced waste will be sorted according to its type. Waste segregation will be initially done by workers; - Produced waste will be removed daily and temporary stored in Temporary Store Facilities until transported to final destination. 	During construction	ESCO	ESCCM

Waste management actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Temporary storage facilities for non-hazardous waste	<ul style="list-style-type: none"> - Non-hazardous waste must be temporarily stored, prior to final destination, at only one designated area. This area must be duly delimited and signed ("Waste Storage Area"). The area must be roofed, properly ventilated and have impermeable surface floor. Waste temporary storage areas need to be secured, so that they do not create health and safety hazards to people; - Inert waste may be stored in the open without the need for a waterproofing floor in a designated and delimited area; - Location of waste Temporary Storage Facilities must be away (50 m) from water courses and ground depressions; - Maintain a good organization of space and cleaning of waste storage areas; - Waste materials that can be reused by the community, such as removed soil and stones, cut wood and other building materials could be made available for pick up in an orderly fashion and with proper safety arrangements. 	During construction	Contractor	ESCCM
Non-hazardous waste final destination	<ul style="list-style-type: none"> - The transport of waste must be carried out in an appropriate vehicle, capable of containing the waste, and in good operating condition. These vehicles must be easily washable; - Transfer operations of waste containers must be carried out safely: without compromising its segregation, not damaging containers, without causing leaks or spills and originating dust; - The final destination and transport of waste are the responsibility of the producing entity; - The final destination and transport of waste must be agreed and authorized by the municipal/district authorities. The necessary licenses must be obtained; - Prohibit the burial or dump of any type waste in soil, water resources (lakes, rivers, etc.) or sea; - Prohibit the burn of waste (including vegetation); - Non-hazardous waste will be removed on a weekly basis; - EDM and the Contractor will agree on and document the final disposal site for the waste ensuring that it meets national and WB requirements, and will keep records of the delivery of the waste at such facilities. 	During construction	ESCO	ESCCM

Waste management actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Hazardous waste segregation	<ul style="list-style-type: none"> - Provide containers for segregation of hazardous waste. These must be hermetically sealed (ensuring that waste does not exceed the top of containers) and have an appropriate size. Containers will be made of appropriate material so that they are not damaged by their content and that damaging or dangerous substances are formed. They shall ensure adequate hygiene and sealing; - Provide different containers for each type of hazardous waste to be produced. The containers will be clearly identified and include the symbols defined in Decree no. 83/2014; - Hazardous waste will not be mixed with other types of waste; - Containers will be placed on wooden pallets or plastic pails; - Maintain containers clean and always closed; - All produced waste will be sorted according to type (defined in the list of characteristics of Annex III of Decree no. 83/2014) and placed in the corresponding container. 	During construction	ESCO	ESCCM
Temporary Storage Facilities for Hazardous waste	<ul style="list-style-type: none"> - Hazardous waste will not be stored at the work fronts, and must be transported daily to Temporary Storage Facilities built by the Contractor for this purpose or hired through a certified service provider; - Hazardous waste must be temporarily stored, prior to final destination, at only one designated area. This area must be duly delimited and signed ("Hazardous Waste Storage Area") and with restricted access. The area must be roofed, properly ventilated and have impermeable surface floor; - Location of the Waste Temporary Store Facilities must be away (100 m) from water courses and ground depressions; - No smoking will be allowed in the vicinity of hazardous waste storage area. Place appropriate symbolic signage (No smoking, No naked light and danger); - Provide extinguishers near the waste storage areas; - Maintain a good organization of space and cleaning of waste storage areas. 	During construction	ESCO	ESCCM

Waste management actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Transport of Hazardous Waste	<ul style="list-style-type: none"> - The transport of hazardous waste, within the facilities of the producing entity up to the storage location, will be made resorting to appropriate equipment or vehicles capable of containing the waste and in good operating conditions. These vehicles must be easily washable. The transport vehicle will be duly identified with signs for the transportation of hazard material; - Hazardous waste must be transported (internal transportation) in containers. The transport must have steel clamps for securing the containers and guarantee safe transport; - Any holder of hazardous waste that does not personally carry out the elimination operations, shall give this work to a private collecting service that will carry out the operations, provided it is duly licensed by MITADER to carry out these activities; - The transportation of hazardous waste transport outside the facilities of the producing entity can only be made by an entity licensed by MITADER and will comply with the basic rules and procedures defined in Decree No. 83/2014; - When the hazardous waste is collected, a manifest, in four copies, will be completed, indicating the quantities, quality and destination of the collected waste (according to Decree No. 83/2014, appendix VI); one copy is kept by the waste generating entity, another copy is kept by the waste transporting entity, the third copy is kept by the entity receiving the product and the fourth copy is sent to MITADER; - The crossing of borders with hazardous waste shall comply with the provisions of the Basel Convention and with the instructions of MITADER; - Provide the workers responsible for the handling of hazardous waste with adequate PPE (work wear, gloves, boots and masks). 	During construction	ESCO	ESCCM
Hazardous Waste Final Destination	<ul style="list-style-type: none"> - The final disposal of hazardous waste will be made at an infrastructure licensed by MITADER for storage, treatment and/or final disposal of hazardous waste. The nearest such infrastructure is the Mavoco Industrial Landfill, located in Boane District, Maputo Province; - Whenever possible, batteries and tires will be returned to the supplier. 	During construction	ESCO	ESCCM
Workers training	<ul style="list-style-type: none"> - Workers must be briefed on the need to reduce the production of waste as much as possible. The use of disposable products (such as plates or plastic or paper cups, products with excessive packaging) will be limited as much as possible, and the use of reusable products will be promoted; - Workers must be trained on the classification, correct sorting and handling of waste; - Workers responsible for hazardous waste handling must be trained on the classification, correct sorting, handling and transport of 	During construction	ESCO	ESCCM

Waste management actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
	hazardous waste. Workers must be briefed on the use of individual protection equipment.			

6.3.5 Follow-up Actions

Table 6.14 summarizes the follow-up and/or systematic and/or periodic verification actions proposed for waste management.

Table 6.14 – Waste management follow-up and/or systematic and/or periodic verification actions

Follow-up and/or verification action	Description
Inspection of the waste storage areas	<ul style="list-style-type: none"> - Perform daily visual inspections of the hazardous and non-hazardous waste storage areas, to verify if the existing containers are adequate to the volume of waste produced, the correct waste sorting and conditioning is being carried out, that there are no spills and contamination and that the waste has been properly removed; - Verify the integrity of the containers and other environmental control systems/equipment.
Inspection of working areas	<ul style="list-style-type: none"> - Perform daily visual inspections of work areas to verify the organization and cleanliness of the site.
Verification of final disposal sites	<ul style="list-style-type: none"> - Undertake biannual due diligence visits to the final disposal sites (when managed by a third party service provider) to confirm that final elimination is compliant with applicable national standards and WB EHS guidelines.

6.3.6 Corrective Actions

Table 6.15 summarizes the corrective actions and their implementation schedule.

Table 6.15 – Waste Management Plan - corrective actions, description and implementation schedule

Corrective Actions	Description	Implementation Schedule
Spill mitigation actions	<ul style="list-style-type: none"> - Removal of substances accumulated in the spill containment trays or basins; - Repair or change the damaged container that leaks. 	When applicable
Response to complaints	<ul style="list-style-type: none"> - In response to workers or community complaints about odors or pests proliferation, increase the frequency of waste collection. 	When applicable
Corrective action for improper waste storage	<ul style="list-style-type: none"> - Provide or increase the quantities of proper containers in the storage areas where the increase of wastes being produced are evident; - Increase the frequency of waste collection. 	When applicable
Corrective action for littering and illegal dumping	<ul style="list-style-type: none"> - Increase awareness about waste management. 	When applicable

6.3.7 Performance and Reporting

6.3.7.1 Performance Indicators

The following table lists the performance indicators to be monitored for the Waste Management Plan.

Table 6.16 – Performance indicators for Waste Management Plan

Indicator	Target	Trend
Weekly volume of waste produced, by type (hazardous and non-hazardous)	Volumes will be recorded. No target is applicable (as volumes will depend on activity).	Volume of waste per workday decreases quarterly (showing efforts to reduce waste production)
Weekly volume of waste transported to final deposition	Equal to weekly volume of waste produced.	n.a.
Number of improper waste management procedures detected	< 5 per quarter	Number of events decreases quarterly
Number of adopted corrective actions in response to detection of improper waste management procedures	Equal to number of improper waste management procedures detected	n.a.

Note: n.a. – not applicable.

The performance indicators results will be determined weekly and compiled in quarterly reports, as indicated in the following section.

6.3.7.2 Reports

The following table summarizes the documental records that will be kept to control the execution of the waste management plan. These documents will be prepared, archived and maintained by the ESCO, in order to document the results of the plan's implementation. Records of relevant events and performance indicators shall be kept as appropriate and a quarterly Performance Report will be prepared and submitted to the ESCCM, reporting on the recorded events and performance indicators.

Table 6.17 – Record documents for the Waste Management Plan

Document Title	Document Type	Frequency of Record or Report
Weekly volume of waste produced, by type	Record	Weekly
Weekly volume of waste by category transported to final deposition	Record	Weekly
Weekly volume of waste recycled or reused	Record	Monthly
Record improper waste management procedures detected and remediation actions undertaken	Record	Weekly
Performance Report	Report	Quarterly

6.4 Biodiversity Management Program

6.4.1 Justification and Objectives

The construction and operation of the STE Project will result in some biodiversity impacts, on vegetation (natural habitat and potential impacts on critical natural habitat) and wildlife, particularly birds. Monitoring and management actions for these biodiversity components are required, so as to continuously evaluate the Project's impacts and the efficacy of the proposed mitigation. EDM will prepare a Biodiversity Management Program (BMP) and obtain WB no-objection before the onset of construction activities, under Terms of Reference for which EDM will also need to obtain WB no-objection prior to initiating the preparation of the BMP. The BMP will establish baseline values for the managed/monitored activities, implementation schedule, and responsibility for carrying out the monitoring and corrective actions, supervision responsibilities, budget estimates, and source of funding.

6.4.2 Monitoring and Management Actions and Implementation Schedule

Table 6.18 lists:

- The scope of the BMP, which includes: (a) invasive species; (b) deforestation rate and wildlife poaching activities, the biodiversity monitoring and management actions; and (c) birds and bats fatality monitoring;
- Brief description of the actions to be implemented;
- Implementation schedule;
- Responsibilities for implementation of management and monitoring program; and
- Supervising agency(ies)

For each activity in **Table 6.18**, the BMP will identify:

- Baseline values (including direct and indirect/induced impacts);
- Monitoring indicators (including direct impact of the transmission infrastructure constructed, as well as indirect/induced impacts of the right of way, access roads, and other ancillary infrastructure);
- List of potential corrective actions and their triggers;
- Estimated costs / indicative budget; and
- Source of funding.

Details on the monitoring methodology are provided in the following sections.

Table 6.18 – Biodiversity monitoring and management actions, description and implementation schedule

Monitoring and Management Actions	Description	Implementation Schedule	Responsibility for Implementation	Supervision
Invasive flora species monitoring and management	<ul style="list-style-type: none"> - Monitor the presence and expansion of invasive flora species along the RoW, access road, and borrow pit areas. - In case of detection of invasive species they will be removed. 	Biannually during construction and annually during the first five years of operation	Contractor (construction) EDM (operation) to be carried out by Independent Invasive flora species Monitoring and Management Consultant financed by EDM	ESCCM
Deforestation rate and the extent of wildlife poaching monitoring and management – including corrective actions of impacts on natural and critical natural habitat, on both flora and fauna	<ul style="list-style-type: none"> - Establish the baseline for present deforestation rates and wildlife poaching activities prior to the start of clearing the Right-of-Way; - Monitor the direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna, 5 km on both sides of the RoW: deforestation and poaching monitoring and development of corrective actions; - Register the presence of people in and near the RoW and the actions taken by local authorities to prevent illegal logging and poaching activities. These impacts should be assessed through ground monitoring, as well as the use of aerial photographs and Google Earth; - In case problems are detected that cause significant negative impacts on natural and critical natural habitat, on flora and fauna, mitigation measures will be developed and implemented, including reforestation or targeted protection and anti-poaching activities, financed by EDM. 	<p>Biannually during construction and during the first five years of operation.</p> <p>Annually during the next 5 years of operation.</p>	Contractor (construction) EDM (operation) to be carried out by Independent Biodiversity Monitoring and Management Consultant financed by EDM	ESCCM
Birds and bats fatality monitoring	<ul style="list-style-type: none"> - Monitor bird and fruit bat fatalities due to power line collisions and (if any) electrocutions. 	Operation (quarterly during the first five years of operation)	EDM (operation) to be carried out by Independent Birds and Bat Monitoring and Management Consultant financed by EDM	ESCCM

Code of Conduct. In addition to all other issues included in the Code of Conduct, the BMP should specify or cross-reference all the biodiversity-related environmental rules that all contractors and project workers will be expected to follow, along with the required induction training prior to beginning work and the penalties for non-compliance.

Implementation Arrangements. For each planned activity, the BMP will indicate the (i) expected implementation schedule (during construction and operation); (ii) institutional responsibilities for implementation (EDM, ESCCM, Contractor, and/or collaborating governmental entity or NGO); and (iii) indicative budget and expected source of funds for each key BMP activity during construction and operation (funding could be from some combination of IDA or other project funds, EDM's internal resources, partner organizations, etc.).

6.4.3 Monitoring Methodology

6.4.3.1 Invasive Species

The invasive flora species monitoring plan, especially noxious and non-native plants, will start with the construction phase and at that time patches or individuals of invasive flora species will be identified and referenced via GPS. The identified patches/individuals will be removed and their potential regrowth will be monitored biannually during construction and annually during operation phases (at least during the first 5 years), or until no patches are detected.

If new locations of flora invasive species are detected along the corridor, access roads or borrow pit areas during maintenance, those will be monitored, and removed or controlled as well.

The expansion of the monitored invasive species will be evaluated and if needed new measures to control them will be proposed.

6.4.3.2 Induced Impacts

The following actions will be developed as part of the BMP:

- Establishment of a baseline for present deforestation rates and wildlife poaching activities 5km on both sides of the Right-of-Way via ground-truthing, aerial photographs and Google Earth;
- In case the monitoring of the BMP finds problems, EDM will manage, solve or reduce these problems, rather than only continue to watch them. The problems areas will be referenced via GPS;
- Minimizing Right-of-Way and Access Road Induced Impacts. Besides providing options for compensatory mitigation (through reforestation or targeted protection) of right-of-way and road-induced deforestation or woodland degradation and increased poaching, the BMP shall seek to prevent and minimize such impacts in the first place. Effective strategies for doing this should include, as feasible, (i) locked gates at access or service road entry points and/or (ii) maintaining these roads to a relatively low standard (to make them easily passable with a 4X4 vehicle, ATV, or motorbike, but not so easily passable with a truck, bus, or passenger

car). To the extent possible, transmission line access and service roads should not be maintained as general-access public roads.

6.4.3.3 Birds and Bats Mortality

Biodiversity monitoring and adaptive management shall cover bird and fruit bat collisions with transmission lines and tower guy wires (although use of the latter should be avoided or minimized); also any bird electrocutions (although these should be avoided through appropriate tower design selection). Bird and fruit bat fatality monitoring should follow scientific protocols (small echo-locating bat species tend not to collide with wires, but large fruit bats do).

Birds and bat fatalities due to collision and possibly electrocution will be monitored during the operation phase (at least during the first 5 years and then re-evaluated as to the need to continue the program). This monitoring will be carried out by a qualified Consultant team to be contracted by EDM and led by an experienced specialist.

Wetlands, areas around rivers and water bodies, and selected woodland areas will be inspected for bird and bat mortality. Inspection will be done under the line cable and towers on foot by trained observers. This task will be done regularly, according to a schedule to be specified by the monitoring team, covering all seasons of the year as accessibility conditions permit. Any birds or bats found dead will be removed and collected for further identification and mortality cause determination (as needed), with the specific locality referenced with GPS. The Consultant team shall define and follow a scientifically valid monitoring protocol that will define specific search dates, localities, and procedures. Analysis of data and findings will take into account and, as needed correct for, factors such as limited searcher efficiency (not all bird carcasses that may be present will be found) and the removal by scavengers or decomposition of some carcasses.

6.4.4 Corrective Actions

The following table presents the main corrective actions.

Table 6.19 – Corrective actions, description and implementation schedule

Corrective Actions	Description	Implementation Schedule
Act on expansion of invasive flora species	- If new patches of invasive species are detected, or if an expansion of the known patches is observed, threatening to invade natural or critical habitats, actions to control and remove these patches will be implemented after being properly evaluated.	Whenever necessary
Act on high levels of impacts on natural and critical natural habitat, flora and fauna	- If the monitoring of impacts on natural and critical natural habitats and on flora and fauna indicate that they are becoming high (double the deforestation and poaching rates prior to opening up the corridor and construction of the access roads) control measures will need to be taken to mitigate these impacts, such as reforestation or targeted protection and anti-poaching measures.	Whenever necessary
Act on high levels of bird and bat mortality	- If the monitoring of birds and bats fatalities detect problem areas (with any fatalities of vultures or other threatened species, or relatively high mortality of more common species, the monitoring Consultant shall propose to EDM additional measures (such as increased or adjusted BFD use) to further reduce collisions and/or electrocutions.	Whenever necessary

6.4.5 Performance and Reporting

6.4.5.1 Performance Indicators

The following table lists the performance indicators to be monitored:

Table 6.20 – Performance indicators for Biodiversity Management Program

Indicator	Target	Trend
Number and extent of invasive flora species patches	Zero increase from pre-project conditions.	Both number of patches and area occupied by invasive species decreases between successive monitoring periods.
Deforestation of natural and critical natural habitat areas and wildlife poaching activities	Deforestation and impacts on natural and critical natural habitat and wildlife poaching activities should not significantly exceed (by double or more) the pre-project levels.	Deforestation impacts on natural and critical natural habitat and wildlife poaching stabilized after the application of additional mitigation measures.
Bird and fruit bat collision (or electrocution) fatalities	For threatened species such as vultures or Wattled Cranes, the target for fatalities should be zero. For more common species, the target should be minimally low (to be specified by the Consultant for particular species groups).	Fatality rate decreases in monitored segments, after application of additional corrective measures.

The performance indicators results will be determined and compiled in quarterly reports, as indicated in the following section.

6.4.5.2 Reports

The following table summarizes the documental records that will be kept, to control the execution of this monitoring and management program.

Table 6.21 – Record Documents for the Biodiversity Management Program

Document Title	Document Type	Frequency of Report
Invasive species monitoring report	Report	Semi-annually (twice per year)
Baseline Report. Monitoring Report and Management Report of impacts on natural and critical natural habitat, on both flora and fauna (deforestation rates and wildlife poaching activities)	Report	Semi-annually
Bird and bat mortality monitoring report	Report	Quarterly

6.5 Communication Plan Framework

6.5.1 Objectives

The construction of the STE Project could induce nuisances and impacts to surrounding communities, due to influx of workers, noise and dust emissions, increased traffic, disturbance of daily patterns of life, etc. These factors can be effectively controlled through the required mitigation measures and the establishment of effective communication channels between the Contractor / EDM and the local populations, to ensure that they are aware of the work to be undertaken, to consult them on how to manage relevant Project – community interactions and to timely flag and address any source of community discontent.

The aim of the Communication Plan is to ensure that the local communities are well informed of the planned and ongoing activities, including mitigation measures, and to prevent any social conflicts that may disturb the social dynamics of the local populations and hinder or prevent the execution of the planned work. The Plan can also enhance the benefits the project can bring to the community.

This Communication Plan Framework applies to both the construction and operation phases, but is more intense during the construction phase and provides the main guidance for EDM to achieve the goals named above. Based on this framework, EDM will develop a full **Stakeholder Engagement Plan**, including annual engagement plans, in compliance with IFC's PS1 requirements.

6.5.2 Scope and Responsibilities

The Communication Plan is applicable to all construction activities, and will also include the relevant information for the operational phase, including which activities will be allowed or restricted by EDM in the Project's right-of-way. EDM will extend the communication with local communities to the operational phase, through the Stakeholder Engagement Plan referred above.

Both EDM and the Contractors will have responsibilities in terms of communication. The Communication Plan will be developed by EDM, and most of the communication efforts will be developed by EDM. The Contractors, however, will also have dedicated technicians responsible for daily communication with local communities, throughout the construction phase, including preparation and decommissioning periods.

6.5.3 Actions and Implementation Schedule

Table 6.22 presents the main required actions for the implementation of the Communication Plan.

Table 6.22 – Communication actions, description and implementation schedule

Actions	Description	Implementation Schedule	Responsibility
Engage with provincial and district authorities and stakeholders	<ul style="list-style-type: none"> - The provincial governments will be informed of the planned activities prior to starting the works; - Before the start of the activities on a specific District, meetings with the District Administration, as well as other relevant stakeholders, will be scheduled to advise of the proposed activities and to identify the local authorities (Administrative Post or neighborhood chiefs) of the areas where construction activities will be carried out; 	Planning phase	EDM
Engage with local authorities	<ul style="list-style-type: none"> - Before starting work on a specific administrative unit (administrative post, locality), initial meetings will be held with the local authority in order to present the program of the construction activities, identify any potential social conflict and identify potential strategies to engage the community in the project. One of the issues that will be discussed in these initial meetings is the Local Recruitment and Working Conditions Plan developed by the Contractor; 	Planning phase	EDM / Contractor
	<ul style="list-style-type: none"> - The Contractor will appoint a field technician to be the focal point of contact with the local authorities, during the construction phase (this will preferably be a qualified CLO, but can also be the ESCO or his field representative); 	Planning phase	Contractor
	<ul style="list-style-type: none"> - During the execution of works, the Contractor will establish and maintain daily contact with the local authorities. This will help identify any population grievance or complaint and timely flag any potential social disturbance or conflict; - Any specific complaints and conflicts and their resolution will be reported to EDM and recorded as part of the Contractor GRM, and if unresolved referred to EDM for resolution, in accordance with the Project GRM (see section 6.7); - Interact with the local administration and the police to implement control mechanisms in public places to prevent crime in accordance with the Security Management Plan. 	During construction	EDM / Contractor
Inform and engage with local communities	<ul style="list-style-type: none"> - The Contractor will appoint a liaison officer to be the focal point of contact with the local communities, during the construction phase (this will preferably be a qualified CLO, but can also be the ESCO or his field representative); - Inhabitants of local communities nearby the construction fronts will be previously informed by the Contractor regarding the upcoming construction activities, including information on the planned start of activities, their nature, location and duration; - This communication will also include information regarding the project nature and goals, jobs available and hiring procedures (Local Recruitment and Working Conditions Plan), skills transfer programs, adopted code of conduct for workers, and non-discrimination policies and opportunities for women; - The communication will also include information regarding the Emergency Response Plan, namely the potential emergency scenarios that may occur and what to do if a community member detects an emergency, including emergency communication protocols and contact number; - The Contractor will ensure constant communication with the local population, clarifying and keeping the public informed about the various actions and potential impacts related to construction; 	Before starting construction work in any given area	Contractor

Actions	Description	Implementation Schedule	Responsibility
Inform and engage with local communities	<ul style="list-style-type: none"> - Develop a policy of interaction between the local community, employees, local and regional suppliers, and migrants to reduce the differences between the different groups. - Support implementation of the community awareness campaigns on community health and safety including the workers' code of conduct and Project's and Contractor's GRM. 	Before starting construction work in any given area	Contractor
Consult local communities	<ul style="list-style-type: none"> - Use the same information meetings named above to consult local communities on how to avoid affecting sensitive areas and receptors and to harmonize construction and community activities, to the extent possible. This can include, for example, the community's views and preferences in what regards access road routes, traffic management procedures, location of any support infrastructure, communication channels, interactions with workforce, or any other issue of relevance in terms of community / Project interaction. Integrate community insights and requests into construction management procedures. - Discuss access to employment and any other potential benefits that EDM might provide as part of its overall plans for the community or other corporate social programs. 	Before starting construction work in any given area	EDM / Contractor
Establish and implement Project GRM	<ul style="list-style-type: none"> - A grievance redress mechanism (GRM) will be established by EDM whereby individuals or groups can submit complaints or concerns related to any Project impact or activity and receive a response. This includes any claim of any uncompensated loss of built structures, crops or other socioeconomic asset. This mechanism will be communicated to the local authorities and local communities prior to commencement of construction. Additional details on this are provided in section 6.7 of this ESMP. 	Before starting construction work	EDM
Establish Contractor community GRM	<ul style="list-style-type: none"> - The contractor will also establish its own GRM to receive and address matters related to its activities and to refer other matter to EDM as appropriate. All grievances received by the contractor will be reported to EDM for monitoring. 	Before starting construction work	Contractor

6.5.4 Performance and Reporting

6.5.4.1 Performance Indicators

The following table lists the performance indicators to be monitored:

Table 6.23 – Performance indicators for the Communication Plan

Indicator	Target	Trend
Events planned / held	100 %	n.a.
Number of participants	n.a. ⁽¹⁾	Number of participants does not decrease between successive engagement actions with the same target audience
Complaints received / resolved within 30 days	100 %	n.a.
Incident reports (number)	n.a.	Number of incident reports per quarter decreases over time
Incident reports (follow-up)	100%	n.a.

Notes: (1) – the number of participants will vary too greatly, depending on type and location of engagement, to establish a target number.

6.5.4.2 Reporting

Records will be kept of all communication actions undertaken, and any grievance or complaint received, namely:

- Meetings held with district / municipal authorities;
- Meetings held with local authorities;
- Meetings held with communities;
- Complaints or grievances from local populations, and grievance resolution (see additional details on this matter in section 6.7 of this ESMP);
- Incident reports (any incident involving communities).

These reports will be prepared, archived and maintained by the ESCO/CLO, the ESCCM and EDM, in order to document the results of the plan's implementation. Records of relevant events will be made following the occurrence and periodic Performance Reports will be prepared, quarterly during construction and commissioning and annually after the first year of operations, reporting on the recorded events and communication results.

Any work stoppage, or incident involving security forces will be reported with a full explanation of the reasons and how it was resolved and any follow up actions.

6.6 Community Awareness Program

6.6.1 Objectives

The construction of the STE Project could result in the increase of community hazard, due to increased traffic, influx of workers, etc. This increased risk can be managed through the required mitigation measures and the development and implementation of a Community Awareness Program which will inform the local communities close to Project areas of the risks associated with construction activities (and to a lesser extent operations), and the preventive measures and behaviors that will be adopted in daily interactions, and the mechanisms available to make improvements where needed, including the Local Recruitment and Working Conditions Plan, the Code of Conduct, Project and contractor's GRMs among others.

6.6.2 Scope and Responsibilities

The Community Awareness Program will include awareness actions associated with all construction activities, but it will also include the relevant information for the operational phase, including safe ways of interacting / not-interacting with Project infrastructure and personnel. EDM is responsible for development and implementation of the Community Awareness Program, but could ask support from the Contractor for specific tasks and issues.

6.6.3 Actions and Implementation Schedule

Table 6.24 presents the required actions for implementation of the Community Awareness Program.

Table 6.24 – Communication Awareness Program actions, description and implementation schedule

Actions	Description	Implementation Schedule	Responsibility
Identify target local communities	<ul style="list-style-type: none"> - Identify which local communities will be the target for the awareness campaigns. This will be done based on the updated design and construction planning documentation provided by Contractor, especially with respect to ancillary facilities; - Prepare the materials for the community awareness campaigns, including simple pamphlets and materials, posters, videos and radio spots, etc.; - Map the stakeholders and include specific communications activities directed at women, youth, and other groups who may have differentiated interests or tend to be excluded in larger meetings. 	Planning phase	EDM

Actions	Description	Implementation Schedule	Responsibility
Undertake community awareness campaigns	<ul style="list-style-type: none"> - Before start working on a specific administrative unit (administrative post, locality), undertake community awareness campaigns in the communities identified, as per the previous action. These campaigns will, at minimum, include the following: <ul style="list-style-type: none"> o Community opportunities: jobs, training, opportunities for women, EDM corporate social responsibility programs; o Community risks associated with Project road traffic and the adequate preventative behaviors and cautions that should be adopted by the community members when near Project accesses; o Community risks associated with the influx of workers, informing them on the Code of Conduct that Project workers have signed and on the grievance mechanism available to them; o Community risks and resources associated with sexual abuse and exploitation and gender based violence; o Health risks associated with sex, e.g., transmission of STDs and HIV/AIDS, and safe sexual practices; o The existence and points of access of the project Grievance redress mechanisms. - Include focus groups for women, youth and vulnerable or excluded groups. 	Planning phase / During construction / During operation	EDM

6.6.4 Performance and Reporting

6.6.4.1 Performance Indicators

The following table lists the performance indicators to be monitored.

Table 6.25 – Performance indicators for the Communication Awareness Program

Indicator	Target	Trend
Events planned / held	100 %	n.a.
Number of participants	n.a. ⁽¹⁾	Number of participants does not decrease between successive awareness meetings with the same target audience
Complaints received / resolved within 30 days	100 %	n.a.
Incident reports (number)	n.a.	Number of incident reports per quarter decreases over time
Incident reports (follow-up)	100%	n.a.

Notes: (1) – the number of participants will vary too greatly, depending on type and location of engagement, to establish a target number.

6.6.4.2 Reporting

Records will be kept of all awareness actions undertaken. Quarterly reports, with documentary evidence of the undertaken awareness actions, will be prepared, archived and maintained by the ESCCM, in order to document the results of the program's implementation, including the information shared (location, format, language), location and group composition and outreach to specific

subgroups (women, youth, etc.); comments and concerns raised, and feedback provided to communities; also document dissemination of the hiring and skills transfer programs, codes of conduct and SEA issues, and GRM scope and access.

6.7 Project Grievance Redress Mechanism

6.7.1 Background

Interactions with the communities will occur frequently during the different phases of the Project, and this includes several types of interactions, including construction annoyance effects, resettlement activities, inspection of the RoW during operations, etc. Interactions between EDM, or the Contractors acting in their behalf, and the communities and other stakeholders may generate grievances. A grievance is an issue, concern, problem, or claim (perceived or actual) that an individual or group or representative wants the company, or their contractors, to address and resolve (Ombudsman, 2008). Sometimes a simple complaint, if not addressed in a timely and proper manner, can escalate to a dispute.

Understanding and managing community and stakeholder issues and concerns is vital to the long term successful relationship between EDM and the communities. Unresolved community issues can affect the Project adversely. Therefore, is important that a simple and effective grievance management process is established and implemented.

This section provides guidelines for the development of a Project specific Grievance Redress Mechanism (GRM), the scope of which includes all possible Project grievances, including resettlement related grievances.

Please note that similar guidelines are given in the RAP, to address resettlement related grievances. EDM will develop an encompassing GRM, based on the guidelines provided in this ESMP, the scope of which will include all Project activities, including resettlement. The Project GRM will be a stand-alone protocol, integrated into EDM's ESMS, with links to the both the ESMP and to the RAP.

6.7.2 Objective

The GRM will provide guidance to EDM for the management of suggestions and complaints of the community and stakeholders throughout all Project phases. This protocol will allow EDM to:

- Understand the stakeholder's perception of Project risks and impacts so as to adjust its measures and actions to address their concerns;
- Inform affected stakeholders about the process which will be followed in response to grievances;
- Address and redress stakeholder complaints;
- Make available to the affected stakeholders an effective complaints mechanism; and
- Map stakeholder suggestions as an opportunity for continuous improvement; creating or changing an existing system and learning process.

6.7.3 Target Group

This protocol applies to any stakeholder (individuals, groups of individuals, communities, companies, institutions, NGOs, among others) affected by the activities of the STE Project or by the activities of contractors retained by EDM to undertake any work in the STE Project. The GRM is thus a tool aimed at addressing grievances of stakeholders associated with the STE Project for the entire duration of the project.

6.7.4 Principles

This protocol is governed by the following principles:

- **Safety:** Any interested or affected stakeholder will feel safe and confident to raise a grievance or suggestion without fear of reprisal;
- **Accessibility:** The protocol will be readily available and easily accessed by any stakeholder. EDM will take all practicable steps to disseminate the mechanism and to remove potential constraints to access such as language, illiteracy and distance through, among other things, the utilization of local media and local languages to disseminate the mechanism;
- **Timely:** All grievances will be managed in a timely manner to avoid escalation to a dispute and cause major risks to the Project;
- **Respect:** The grievance resolution process will be in compliance with internationally recognized human rights standards, such as the Covenants on Economic, Social and Cultural Rights, Civil and Political Rights, Convention on the Elimination of All forms of Discrimination against Women (CEDAW), Convention of the Rights of Persons with Disabilities (CRPD), Committee on the Elimination of Racial Discrimination (CERD), and Convention on the Rights of the Child (CRC), all of which Mozambique has ratified;
- **Transparency and Accountability:** The grievance redress process and outcomes will be sufficiently transparent to meet public interest concerns without compromising the privacy or identity of individuals. They will likewise be and be perceived to be fair, independent and legitimate;
- **Predictability:** The process will be consistently applied with clear timeframes for each stage and provide clarity on the types of process and outcomes that can, and cannot be offered.

6.7.5 Types of Complaints and Suggestion

There are three main types of complaints and suggestions, namely:

- **Individual:** refers to a grievance or suggestion raised by an individual community member or stakeholder;
- **Group:** refers to grievance or suggestion raised by a specific group of people or stakeholders such as gender group, disability, professional association, etc.; and

- **Community:** refers to grievance or suggestion involving a whole community. These complaints may be made in a community meeting or by the community leader on behalf of the community explaining in this case the reason why this is a community complaint.

6.7.6 Receipt and Registration

Consistent with the principle of accessibility, EDM will provide for complaints to be made through multiple communication channels, as follows:

- Face-to-face verbal complaint: refers to an informal or formal conversation with a representative of EDM;
- Written complaint: refers to a registration in a complaint book, formal letter, fax or email;
- Voice call complaint: refers to a phone call conversation to a dedicated (free of charge) number including message left on a voice message box;
- Confidential channels (such as dedicated phone line or designated community liaisons) as agreed as part of the GBV/SEA prevention and response framework and action plan.

EDM will make available a Complaint and Suggestion Book at certain locations, in communities and any EDM premises. Any affected person can register a written complaint in this book. Assistance services to be available as stakeholders may need. As stated above, written complaints can also be submitted by formal letter, fax or e-mail.

In all cases of verbal complaint (face-to-face or voice call complaint), the receptor will fill the appropriate form at the Complaint and Suggestion Book to allow initial investigation. In these cases, the receptor will clearly state that they acknowledge the complaint or suggestion and record preliminary information regarding the affected person (e.g.: name, community/institutions, issue, contacts).

Language is often a communication constraint (especially dealing with communities with low level of literacy). Thus, EDM will ensure that complaints and suggestions can also be made and responded to in the local languages. In this way, this protocol will adopt both Portuguese and local languages as the main communication languages.

6.7.7 Suggestions and Complaints Management Procedure

6.7.7.1 Suggestions Management Procedure

Suggestions are normally easier to deal with than complaints. The management of suggestions shall follow the actions described in the following table.

Table 6.26 – Suggestion management methods

Stage	Action	Responsible Person / Entity
Presentation	- Presentation of the suggestion using one of the communication channels (face-to-face interaction, complaints and suggestion book, email or voice call).	Affected person or stakeholder

Stage	Action	Responsible Person / Entity
Receipt and acknowledgement	<ul style="list-style-type: none"> - Receipt of the suggestion; - Suggestion record into complaints and suggestion book; - Delivery of an acknowledgement letter to the affected person, within 5 days. 	EDM
Answer	<ul style="list-style-type: none"> - After due consideration of the suggestion, prepare a letter indicating result/outcome and deliver it to the affected person. 	EDM
Closing	<ul style="list-style-type: none"> - After delivery of the answer letter, the matter will be considered closed. The EDM Community Relations Department or environment department will be responsible for any further action, if required. 	EDM

6.7.7.2 Complaints Management Procedure

The management of a complaint is more complex than dealing with a suggestion, and will follow the steps summarized in the following table.

Table 6.27 – Complain management methods

Stage	Action	Responsible Person / Entity	Timing
Presentation	<ul style="list-style-type: none"> - Presentation of the complaint using one of the communication channels (face-to-face interaction, complaints book, email or voice call). 	Affected person or stakeholder	Day 1
Receipt and acknowledgment	<ul style="list-style-type: none"> - Receipt of the complaint; - Complaint recorded into complaints and suggestion book; - Delivery of an acknowledgement letter to the affected person or stakeholder, identifying the contact person in the company who will be responsible for the matter. 	EDM	Day 5
Confirmation	<ul style="list-style-type: none"> - Confirmation of the issues of the complaint at a meeting with the affected person; - Preliminary agreement (if applicable). 	EDM Affected person or stakeholder	Day 7
Investigation and resolution	<ul style="list-style-type: none"> - Complaint investigation and confirmation of alleged facts; - Resolution proposal; - Record of the resolution proposal on complaints and suggestion book. 	EDM Affected person or stakeholder Others as needed	Day 7 -14
Agreement	<ul style="list-style-type: none"> - Meeting with affected person to communicate the resolution proposal, get mutual agreement and sign-off. 	EDM Affected person or stakeholder	Day 15
Closing	<ul style="list-style-type: none"> - Delivery of a closing letter to the affected person or stakeholder; - Record of the closure on complaints and suggestion book. 	EDM	Day 16 - 17
Follow up	<ul style="list-style-type: none"> - Implementation of agreed upon corrective or compensatory measures that require a time schedule 	EDM/responsible party	According to agreed schedule

EDM will manage a grievance within a 17 days period of the receipt of a complaint. Where an investigation takes longer than 17 days, EDM will notify (in writing) the stakeholder in advance, indicating the reasons for the delay.

If the complainant does not agree with the resolution proposal, and it isn't possible to reach an agreement on the issue resolution, the complainant may request that the complaint be escalated to

EDM Directors, who will review the process and communicate their decision to the complainant within 7 days.

Where the complainant is not satisfied with the proposed resolution, he has the right to appeal to a third party, here proposed to be the Arbitration Committee. The Arbitration Committee will be composed of senior representatives of:

- EDM;
- District Government authorities or community leader (as may be applicable);
- Community representatives (minimum of two, man and woman);
- Representative of the affected stakeholder;
- Experts as needed and agreed.

The Arbitration Committee will analyze the case and arrive at a decision. Decisions made by this forum will be considered final, in what regards the scope of this grievance management protocol. If the complainant does not agree with the decision of the Arbitration Committee, they can escalate the issue to the judicial system. Information about their right of escalation, and the appropriate judicial channel, or to available World Bank grievance redress mechanisms, to direct their complaint will be provided to the complainant. This level of escalation, however, is outside of the scope of this management protocol.

6.8 Community Health and Safety Management Plan

6.8.1 Objectives

The construction of the STE Project could result in the increase of community health and safety hazards, due to increased light, noise and dust emissions, increased traffic, workforce mobilization, population influx and security personnel. Management of these risks will require implementation of the mitigation measures proposed in the EIS regarding these issues, which are compiled in this **Community Health and Safety Management Plan**.

Note that management of community health risks will also be supported by the implementation of other plans detailed in this ESMP, such as the **Communication Plan Framework**, **Community Awareness Program**, the Project **GRM** and the **Emergency Response Plan**, among others.

6.8.2 Scope and Responsibilities

EDM is the ultimate responsible for the implementation of all mitigation and management measures in order to minimize community health and safety risks and impacts to acceptable levels. Note that much of the mitigation will involve a strong participation of the Contractor, through the development of additional management plans and the management of day to day activities in the field, as detailed here. However, EDM will continuously guide and supervise the Contractor, in all issues that are related to engagement with communities and minimization of impacts on their health and safety.

6.8.3 Proposed Actions and Implementation Schedule

Table 6.28 presents the main actions for the implementation of the **Community Health and Safety Management Plan**.

Table 6.28 – Community Health and Safety Management Plan actions, description and implementation schedule

Actions	Description	Implementation Schedule	Responsibility	Supervision
Minimize hazard risk to communities from Project traffic	<ul style="list-style-type: none"> - The Contractor will develop, and submit for EDM approval, a Traffic Management Plan, detailing the management procedures and mitigation measures to minimize traffic related hazard risks to communities. The Plan will include the mitigation provided below: - Circulation of construction heavy vehicles will be limited to pre-approved construction routes. These will be defined in order to avoid crossing residential areas, whenever feasible; - Speed limits will be set for construction heavy vehicles, for all construction circuits. This speed limit will not exceed 30 km/h in critical segments, such as when near residential areas, and never more than 80 km/h on paved roads; - Inform drivers of the set speed limits and enforce them as appropriate; 	Planning Phase	Contractor	EDM

Actions	Description	Implementation Schedule	Responsibility	Supervision
Minimize hazard risk to communities from Project traffic	<ul style="list-style-type: none"> - Install temporary official traffic signs on local roads around the work fronts before and during the execution of the works together with local transit authorities; - Consult with community on traffic restrictions and schedule, provide alternative connectivity where needed, and conduct regular driver and community traffic safety awareness programs; - Use manned traffic control in key sensitive areas and crossings especially near any places where people in general and children in particular congregate; - Manage traffic and machinery to avoid accidents involving domestic animals and cattle. Provide for animal crossings and access to watering sites, if needed. - Reroute traffic or limit access if needed, in coordination with communities and local authorities. 	Planning Phase	Contractor	EDM
Minimize noise nuisance on communities	<ul style="list-style-type: none"> - Construction activities, in particular the noisier ones, will be limited to the daytime period (between 07:00 and 22:00) and to working week days, avoiding working during the night-time and on weekends, whenever near residential areas; - The contractor will avoid placing fixed equipment (such as cranes or compressors) in proximity to sensitive receptors; - Use of portable screens during substations construction if situated near inhabited places, where possible; - If noise complaints are received from local communities in the morning or evening periods, despite compliance with the previous measures, and if the following investigation confirms the noise impact, then further reduce the work schedule in those periods. In such cases, the work schedule will be defined in a participatory manner, through consultation with affected communities; - Any noise complaint will be addressed and resolved through the Project's GRM. Any noise complaint will be investigated and resolved through adequate mitigation, to be defined case by case, but following best practices in terms of noise mitigation, i.e., first acting on noise source (by stopping the activity or using less noisy technologies or methods), then on the noise propagation path (by installing temporary noise screens or similar action) and then, and only if no other option is available, on the noise receptor (such as noise insulation of buildings or temporary lodging, in extreme cases). 	During Construction	Contractor	EDM
Ensure good practices in labor management and minimize risks of social conflicts with workforce	<ul style="list-style-type: none"> - The Contractor will develop and implement a Local Recruitment and Working Conditions Plan, which will include the following principles: <ul style="list-style-type: none"> o Create mechanisms to ensure that the recruitment and hiring procedures are conducted in a transparent and just manner, are coordinated with the community leaders and District Administration, maximize local employment including women and young workers and transfer technical skills to the local labor force; o Forbid workers from hunting, fishing or buying bush meat. Inform workers of these restrictions in the induction sessions and enforce and monitor them appropriately, including through the Code of Conduct; o Give priority to hire local workers, provided applicants have the necessary skills; o Employment opportunities will be adequately advertised, so as not to limit application opportunities; 	Planning and During Construction	Contractor	EDM

Actions	Description	Implementation Schedule	Responsibility	Supervision
Ensure good practices in labor management and minimize risks of social conflicts with workforce	<ul style="list-style-type: none"> ○ The process of contracting staff will be transparent and follow pre-established and accepted criteria and a process coordinated with local leaders that aims to maximize opportunities for the local workforce; ○ Avoid hiring at the gate – establish local and regional recruitment centers and provide pick up points for applicants from communities; ○ Ensure respect for local labor laws and worker rights, and together with the labor policy, Health and Safety Management Plan, Camp and Housing Management Plan, Code of Conduct and Worker's GRM, ensure safe and fair working conditions; ○ Develop and implement a worker's grievance management system. 	Planning and During Construction	Contractor	EDM

Actions	Description	Implementation Schedule	Responsibility	Supervision
Minimize risks of social conflicts with workforce	<ul style="list-style-type: none"> - The Contractor will have a contractually binding policy and Code of Conduct for all workers that includes, among other things, zero tolerance to child and forced labor, non-discrimination provisions regarding women and other minorities, and environmental good practice requirements. The Code of Conduct (to be explained to and signed by each worker and reinforced through training) will include a statement that workers are expected to keep and promote good standards of social interaction with the local communities and avoid any gender based violence or sexual abuse and exploitation, particularly sexual interaction with minors, as well as follow good environmental practices in all project areas. - Elements to cover in the Code of Conduct (CoC) include, without limitations <ul style="list-style-type: none"> o Respect for local residents and customs; o Non-Discrimination (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, birth, age, disability, or political conviction); o Compliance with applicable laws, rules, and regulations of the jurisdiction; o Zero tolerance of bribery or corruption; o Zero tolerance of illegal activities by Contractor personnel, including prostitution, illegal sale or purchase of alcohol, sale, purchase or consumption of drugs, illegal gambling or fighting; o Policy and sanctions against drunkenness and a no alcohol and drugs policy during working time or at times that will affect the ability to work or within accommodation camps, or acquired from outside the camp while accommodated in the camp; o A program for drug and alcohol abuse prevention and random testing that is equivalent in scope and objectives to the policies prescribed in the code of conduct; o Policy including sanctions against sexual harassment (for example to prohibit use of language or behavior, in particular towards women or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate); o Compliance with applicable health and safety requirements (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment); o Following good environmental practices, including strict avoidance within project areas of any hunting or fishing, bushmeat purchase, wildlife capture, unauthorized vegetation cutting or burning, free-roaming pets (which could conflict with wildlife), and littering with plastic or other non-food wastes. 	Planning and During Construction	Contractor	EDM

Actions	Description	Implementation Schedule	Responsibility	Supervision
Minimize risks of social conflicts with workforce	<ul style="list-style-type: none"> ○ Policy and sanctions against violence or exploitation, including of a sexual nature (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading or exploitative behavior); ○ Protection of children (including prohibitions against abuse, defilement, or otherwise unacceptable behavior with children, limiting interactions with children, and ensuring their safety in project areas); ○ Policy and sanctions against sexual relations with anyone under the age of 18 (except if married prior to employment); ○ Description of disciplinary measures for infringement of the code and company rules. If workers are found to be in contravention of the CoC, which Contractor will explain to them and require them to sign at the commencement of their contract, workers must face proportionate disciplinary procedures; <p>- Failure to keep by these standards will be stated in the contracts as grounds for contract termination. Inform all hired workers of these restrictions and the possible consequences of breaking them.</p> <p>- The Contractor will further be expected to:</p> <ul style="list-style-type: none"> ○ Publicize the CoC in settlements potentially affected by the construction camps, as part of the community relations plan. This will help ensure that the local residents are aware of the expected behavior of the construction staff; ○ Provide entertainment facilities for workers at the construction accommodation camp as well as for operational workers, and establish clear rules for conduct during leisure time as well as the need to remain within the camp boundaries during leisure time; ○ Provide appropriate sporting facilities, including organized sporting activities for workers at the permanent accommodation camp; ○ Provide schedule and transportation that allows workers to visit their families or to have leisure time in urban centers at reasonable intervals. <p>- The Contractor will require its subcontractors to subscribe and adhere to this code and will diligently supervise its implementation at all levels, including engaging the community in confidentially and actively identifying any inappropriate behavior.</p>	Planning and During Construction	Contractor	EDM
GBV/SEA prevention and response framework	<p>- EDM and the Contractor will work together to continuously assess risks and identify and implement prevention, response and referral processes with respect to any cases involving Sexual Exploitation and Abuse / Gender Based Violence (SEA/GBV). This will focus on: (i) training of EDM and Contractor personnel, (ii) community and worker awareness, (iii) making available safe and confidential channels of communication and complaints, and (iv) a referral system and mechanism for survivors of GBV/SEA;</p> <p>- EDM will develop and implement a GBV/SEA prevention and response framework that will address the following elements:</p> <ul style="list-style-type: none"> ○ How the project will put in place the necessary protocols and mechanisms to address the SEA/GBV risks; ○ How to address any GBV incidents that may arise; 	Planning and During Construction	EDM / Contractor	EDM

Actions	Description	Implementation Schedule	Responsibility	Supervision
GBV/SEA prevention and response framework	<ul style="list-style-type: none"> ○ A policy against GBV/SEA including a CoC and agreed sanctions. These will be provided by the contractor and consultants as part of the Contractor ESMP. Have all employees of contractors (including sub-contractors), supervision consultants and other consultants with a footprint on the ground in the project area sign CoCs; ○ For purposes of the construction and operational phases of the project, develop an induction program, including a CoC, for all workers directly related to the project. - Specific arrangements for the project by which GBV risks will be addressed, including: <ul style="list-style-type: none"> ○ Awareness Raising Strategy, which describes how workers, local communities and Project personnel will be sensitized to SEA/GBV risks, and the worker's responsibilities under the CoC; ○ Referral Pathway: Identification of qualified GBV service providers and setting up a referral pathway so GBV survivors will be referred, and the services will be available (health, legal, psychosocial, safety planning, etc.); ○ Establish a SEA/GBV Accountability and Response Framework, to be finalized with input from the contractor, which will include at minimum: <ul style="list-style-type: none"> ▪ Allegation Procedures: How the project will provide information to employees and the community on how to report cases of SEA/GBV, CoC breaches to the GRM; ▪ SEA/GBV Allegation Procedures to report SEA/GBV issues to service providers, and internally for case accountability procedures which will clearly lay out confidentiality requirements for dealing with cases; ▪ Mechanisms to hold accountable alleged perpetrators associated to the Project; ▪ The GRM process for capturing disclosure of SEA/GBV; and, a referral pathway to refer survivors to appropriate support services; ▪ Disciplinary action for violation of the CoC by workers. It is essential that such actions be determined and carried out in a manner that is consistent with local labor legislation and applicable industrial agreements; - The supervision consultant TOR and the training plan will include provisions to promote monitoring and reporting on the implementation and effectiveness of the SEA/GBV Action Plan to prevent and mitigate SEA/GBV risks associated with the project; - Reporting on the Framework implementation will be done on a monthly basis. 	Prior to mobilization of construction	EDM	EDM / Third party auditor per Action Plan

Actions	Description	Implementation Schedule	Responsibility	Supervision
Minimize community security hazards due to interaction with security personnel	<ul style="list-style-type: none"> - Contractor will develop a Security Management Plan, detailing the security arrangements to be deployed at camps, material storage and construction sites, or any location with Project presence. This plan will be compliant with IFC's PS 4, and with the Voluntary Principles on Security and Human Rights, and will be submitted for EDM approval, prior to start of construction; - This plan will include mandatory training for all security personnel, in what regards human rights, proportionate force use and adherence Co contractor's code of conduct; - It will be noted that the use of police or military security personnel is not expected. Given the Project nature, security will almost certainly be supplied by duly licensed security firms using civil personnel only. In any event, will the Project have the need to engage with police security personnel, at any stage, EDM will make an effort to engage with the authorities, so that the any engagement with the communities is in compliance with the Voluntary Principles on Security and Human Rights. 	Planning / During Construction	Contractor	EDM
Minimize workforce and community health risks	<ul style="list-style-type: none"> - The Contractor will develop a policy and management plan to reduce the transmission of STIs, including HIV / AIDS. This strategy will: <ul style="list-style-type: none"> o Make provision for awareness, counselling and testing for all Project personnel, including voluntary testing for STDs and HIV/AIDS as part of any health screening program (workers will not be denied employment or discriminated against in any way based on their HIV status); o Provide guidance and counselling to workers with HIV/AIDS to access treatment through existing health facilities or NGO campaigns or programs; o Ensure there is access to free condoms at all worker sites and accommodation; o Ensure that all Project personnel are given specific HIV and STD prevention training; o Undertake information, education and communication campaigns around safe sexual practices and transmission of STDs and HIV/AIDS as well as condom distribution at stopping locations on key transport routes targeting commercial sex workers and truck drivers; o Support public health or NGO initiatives to reduce STD transmission including working through schools, women's and youth groups; o The Contractor will encourage and allow specialized expatriate labor, or specialized labor mobilized from other provinces, to move with their families; o The Contractor will provide non-local workers with a schedule and transportation that avoids limiting off-time activities at nearby communities; o Conduct community awareness campaigns in communities crossed by the line and especially in proximity of camps and work fronts (see section 6.6 for additional details). 	During Construction	Contractor	EDM

6.9 Cultural Heritage Chance Finds Procedure

6.9.1 Justification and Objectives

The Project's construction will require vegetation clearance of the RoW and earthmoving activities in the tower sites and substations. These activities have the potential to impact on archaeological sites or elements occurring in the construction areas. Even though no archaeological sites have been identified within the Project RoW, these surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during construction work.

The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained archaeologist or other appropriately qualified person, so as to avoid and/or reduce project risks on cultural heritage, whilst considering international best practice.

6.9.2 Legal Framework

The "chance finds" procedure is intended to ensure compliance with relevant provisions of the Cultural Heritage Law (Law No. 10/88), that defines places or locations with archaeological or anthropologic interest as material cultural assets.

The procedure also aims to achieve compliance with best practice international guidelines, in particular WB OP 4.04 (Physical Cultural Resources), which requires the implementation of a chance finds procedure, to outline what will happen if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation.

6.9.3 Chance Find Procedure

Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, the actions detailed in **Table 6.29** will be applied.

Table 6.29 – Chance finds procedure actions and implementation schedule

Action	Responsibility
- If a heritage site or archaeological site is uncovered or discovered during the construction, work will be stopped immediately and ESCO or his field representative must be notified of the discovery;	Person identifying archaeological or heritage material
- Identify the site with flag tape and determine GPS position if possible; - Determine whether work can proceed without damage to findings; - Determine and mark exclusion boundary. - Assign qualified specialist (archaeologist) for site assessment of the chance find.	ESCO

Action	Responsibility
<ul style="list-style-type: none"> - Inspect site and assess scientific and cultural importance of the findings; - If findings are of scientific or cultural importance report findings to the National Directorate Cultural Heritage; - Define appropriate mitigation measures, depending on relevance of findings. These can include protection in site, excavation and them removal or simple removal from site, as may be relevant; - Request written permission from National Directorate Cultural Heritage to remove findings from work area, or to implement other relevant mitigation measures; - Recovery, packaging and labelling of findings for transfer to museum, if relevant. 	<p>Qualified Specialist (Archaeologist)</p>

6.10 Emergency Response Plan

6.10.1 Objectives

The main objective of the **Emergency Response Plan (ERP)** is the systemization of the procedures to be adopted, so as to minimize the effects of possible accidents or incidents that could occur, thus managing available resources in the best manner. This document is considered an essential prevention tool, having in mind:

- The identification of potential emergency situations that may arise from the Project's construction and operation activities;
- The communication process of the emergency in case of occurrence;
- The creation of Risk Scenarios; and
- Action procedures in case of accidents or emergencies;
- Reporting on emergencies: causal analysis, actions taken and lessons and preventive measures taken as follow up including dissemination.

This section provides guidelines, to guide the Contractor to further develop a detailed **Emergency Response Plan (ERP)** for the construction phase, to identify and account for all Project related risks. The Contractor will submit this ERP for EDM approval. In what regards the operational phase, further to the procedures listed below, EDM will also apply the already existing emergency response protocols and procedures for high voltage transmission lines and substations.

6.10.2 Emergency Communication Process

An emergency can be detected by any Project worker or community member. After the emergency has been detected, the ESCO will be immediately notified, either by emergency telephone or radio. Following response, the ESCO will register any detected emergency in a register and report it to project management, for further analysis and follow-up.

6.10.2.1 Emergency Detection by Workers

Workers will receive basic and mandatory training in the inspection and supervision of the systems they operate, in order to be able to detect any anomalies, such as possible spills, traces of fire, emergency prevention procedures, etc. The immediate notification of an emergency will be made by telephone and emergency radio of the enterprise.

6.10.2.2 Emergency Detection by Community Members

Further to workers, the ERP will also allow for the detection of emergency by community members. To the effect, communities will be informed, through the **Communication Plan**, of potential emergency risks and of what to do and how to communicate to contractor and EDM. Emergency contact numbers will be disclosed to the communities, in particular to the local leaderships.

6.10.2.3 Communication Systems

The efficient management of an incident depends on good communications. Thus, the Project will ensure the following systems:

- VHF digital radios;
- Cell phones.

A list of cell phone numbers must be prepared, including relevant emergency contacts. These lists will be kept next to all telephones on the Project facilities, in order to assist in case of need and be shared with community leaders.

6.10.3 Emergency Scenarios

This chapter considers the response procedures to the more common emergency scenarios, in order to identify the intervening persons and define the respective specific action patterns in case an emergency occurs. These actions enable an efficient combat of the accident and minimize the respective consequences, to ensure the physical integrity of all persons working in the site, environmental protection, safety of goods and the functioning of equipment, and avoidance or minimization of any injury or damage to communities and their assets.

Thus, the following response procedures are presented:

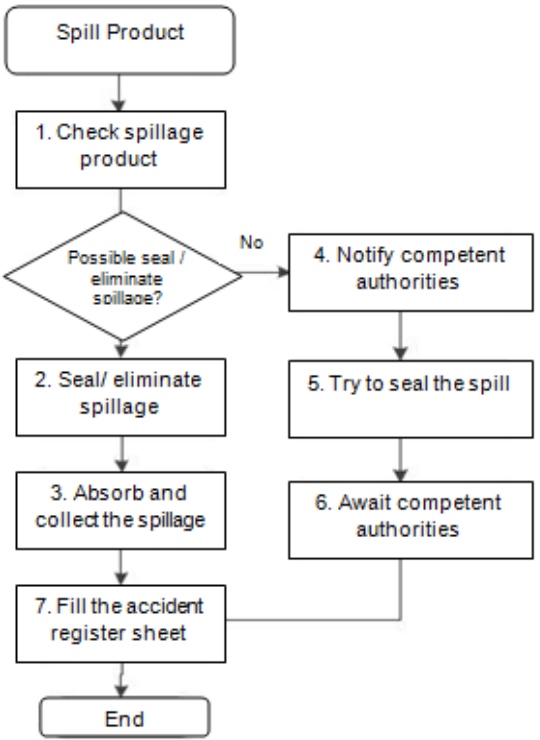
- Procedure for the spillage of hazardous products;
- Procedure to Fight Fires;
- Procedure to Assist Victims.

The Contractor will identify any additional emergency scenarios that might apply to their activities, and include them in the ERP, as needed.

6.10.3.1 Procedure for the Spillage of Hazardous Products

Various hazardous products, such as oils and lubricants, will be used during the construction and operational activities. The following emergency procedure will be followed in the event of spillage of hazardous products and substances. The application of the following procedures requires the ready availability of spill kits in the construction camps and fronts, during construction, and in the substations, during operation.

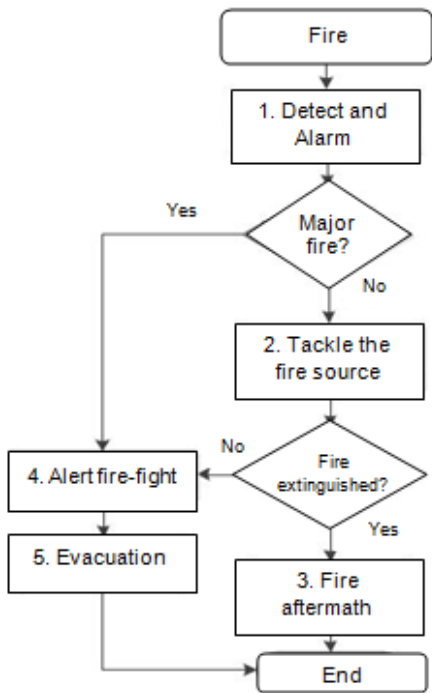
Table 6.30 – Procedure for spillages

Flow diagram	Description	Responsibilities
 <pre> graph TD A[Spill Product] --> B[1. Check spillage product] B --> C{Possible seal / eliminate spillage?} C -- Yes --> D[2. Seal/ eliminate spillage] D --> E[3. Absorb and collect the spillage] E --> F[7. Fill the accident register sheet] F --> G[End] C -- No --> H[4. Notify competent authorities] H --> I[5. Try to seal the spill] I --> J[6. Await competent authorities] J --> F </pre>	1. Check and confirm which product is spilling If necessary, remove ignition sources, inflammable and oxidizing materials	Any employee
	2. Seal or eliminate the spill, always applying the necessary safety measures If necessary, isolate and sign location and prohibit access	Any employee
	3. Absorb and collect the spilled product to an appropriate container in order to eliminate it: - If a spill occurs on a permeable surface (e.g. soil), a spill kit must be used to immediately reduce the potential spread of the spill; - If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials. Proceed according to the product's safety data sheet and intervention card, and use the measures recommended for cleaning the spill (even in the case of small spills)	Any employee
	4. Notify the competent authorities, informing on the exact location of the accident and which product was spilled	ESCO or Site Director / Team leader
	5. Try to seal the spill using the available means	Any employee
	6. Await competent authorities' actions, don't abandon the location and adopt a preventive attitude regarding the possible effects from the spill	ESCO or Site Director / Team leader
	7. Fill out the accident register sheet.	ESCO

6.10.3.2 Firefighting procedures

This procedure applies to all situations in which a fire is detected in the site, as well as to accidents and incidents that could lead to the breakout of fire, taking into consideration the nature of the constructive conditions or maintenance work, or even the actions of external agent.

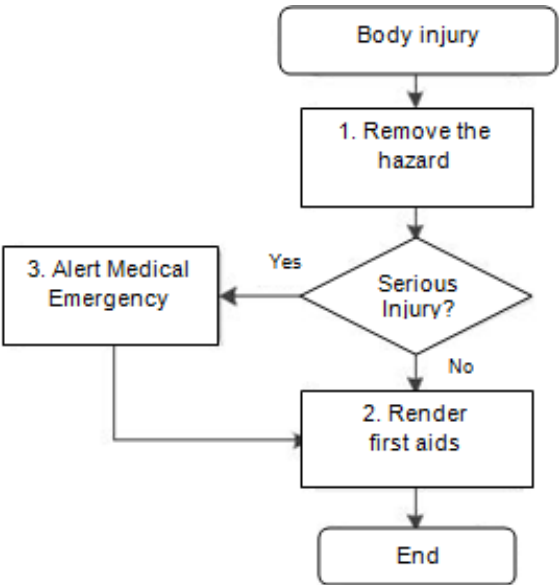
Table 6.31 – Firefighting procedures

Flow diagram	Description	Responsibilities
 <pre> graph TD Fire([Fire]) --> Detect[1. Detect and Alarm] Detect --> Major{Major fire?} Major -- Yes --> Alert[4. Alert fire-fight] Major -- No --> Tackle[2. Tackle the fire source] Tackle --> Extinguished{Fire extinguished?} Extinguished -- No --> Alert Extinguished -- Yes --> Aftermath[3. Fire aftermath] Alert --> Evacuation[5. Evacuation] Aftermath --> End([End]) Evacuation --> End </pre>	1. Once fire is detected disseminate alarm system Suspend activities	Any employee
	2. Tackle the fire source immediately with an adequate fire extinguisher	Any employee
	3. Take care of the aftermath of the fire	Any employee
	4. Alert the fire-fighters, informing them of the fire's location	ESCO or Site Director / Team leader
	5. Evacuate the workers, in safety, to meeting point.	Site Director / Team leader

6.10.3.3 Procedure for assisting victims

This procedure applies to any situation involving victims during the construction activities, be they workers or other people. Thus, it applies to various risk situations, such as confined explosions, fires, falling over equipment, traffic accidents, etc.

Table 6.32 – Procedure to assist victims

Flow diagram	Description	Responsibilities
 <pre> graph TD A[Body injury] --> B[1. Remove the hazard] B --> C{Serious Injury?} C -- Yes --> D[3. Alert Medical Emergency] C -- No --> E[2. Render first aids] D --> E E --> F[End] </pre>	<p>1. Immediately suspend the operation Remove the hazardous element away from the victim or vice-versa, to avoid a new accident or aggravation of victim's condition</p>	Any employee
	<p>2. Render first aid, checking if there is:</p> <ul style="list-style-type: none"> - Asphyxia - Shock - Haemorrhage - Poisoning <p>Calm the victim by talking with him/her; Control breathing and constantly verify the pulse;</p>	First aider
	<p>3. Alert Medical Emergency, informing them calmly about the location of the accident, number and condition of the victims</p>	Site Director / Team leader

7 Budget Estimate

The majority of the costs associated with the development of specific environmental and social management plans and implementation of mitigation measures cannot be specified at this stage of the Project. Many of these measures are to be under the responsibility of the EPC Contractor(s) who will build the project, so those costs will be integrated with other construction costs.

This ESMP will be appended to the construction tender documents to be published in order to ensure the activities are placed under the responsibility of the EPC Contractor(s) and costed as part of their proposals. The C-ESMP for each contractor will include a budget to be approved by EDM with World Bank N/O.

In addition, since the implementation of operational measures will be under EDM's responsibility, part of the operational budget required for the application of measures is not known at this point. The budget provided below for the operational phase is restricted to the first five years of operation.

The following table provides a preliminary ESMP budget estimate, based on main costs. Please note that resettlement costs are not included in the following table. A resettlement budget estimate is provided in the Resettlement Plan.

Table 7.1 – Preliminary ESMP budget estimate based on main costs

Phase	Item	Cost (USD)
Pre-Construction	Capacity building and training program	\$250,000
Pre-Construction Subtotal		\$250,000
Construction	Develop and implement Project Stakeholder Engagement Plan (On-going communication program with Stakeholders during construction)	\$100,000
	Community awareness campaigns during construction	\$60,000
	Establish and implement Project GRM	\$53,000
	Develop and implement GBV/SEA Framework and Action Plan	\$120,000
	Develop Biodiversity Management Plan	\$50,000
	EDM's Environmental and Social Management unit operating budget for management, auditing and environmental and social surveillance ⁵ activities	\$360,000
Construction Subtotal		\$743,000
Operation (first 5 years)	Monitor indirect losses of woodland habitat and implement mitigation measures (reforestation, targeted protection, anti-poaching activities, or others).	\$500,000
	Monitoring and control of invasive alien flora species	\$100,000
	Monitoring of bird and bat fatalities	\$200,000
	Installation of bird flight diverters in areas where needed	\$75,000
	Development of an Emergency Response Plan including the purchase of spill kits	\$120,000
	Development and implementation of waste management procedures for the operational phase	\$20,000
	Development and implementation of a Stakeholder Management Plan for the operational phase	\$60,000
	Monitoring of waste production in substations	\$30,000
	Monitoring of population expansion along the RoW and engagement with local authorities for a coordination intervention	\$100,000
	Monitoring of environmental and social performance, including the development of adaptive mitigation measures (if necessary)	\$80,000
Operation Sub-total		\$1,285,000
Contingency fund (~20% of construction and operation budget)		\$400,000
Preliminary Grand Total		\$2,678,000

⁵ Including preparatory activities.

References

USEPA (2009). *AP-42. Compilation of Air Pollutant Emission Factors PA AP 42*. 2009 Fifth Edition, Volume I, Chapter 1 and 3.

Annex I – ESMP Summary

A. Introduction

The following tables provide a summary of all mitigation, management and monitoring requirements included in the ESMP, divided by Project phase and activity. For each mitigation measure, the tables indicate the responsibility for implementation and supervision. The table also indicates the estimated cost of those requirements that EDM is responsible for direct implementation. Please note that no cost estimate is provided for actions that are the Contractor's responsibility, as these will be quoted by the Contractor, as part of the overall construction budget. In what regards the operational phase, cost is only provided for those items that would fall outside of the normal EDM's operational management budget (such as monitoring of birds).

B. Mitigation Framework

Table AI.1 – Requirements for Detailed Engineering

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Detailed Engineering Phase					
Substations	Increased ambient noise levels.	<ul style="list-style-type: none"> - Within the substation projected area, locate noisy equipment away, as much as possible, from the identified nearby residential areas; - Implement, as feasible and necessary, low noise equipment according with the Best Available Technology for this sector. 	EPC Contractor	EDM	-
	Increase in geotechnical risks.	<ul style="list-style-type: none"> - Conduct a geotechnical assessment or survey for the detailed design of the towers and substation. Ensure that all power line and substations construction areas have adequate review by geotechnical engineers and geologists for expansive/collapsible soils and for potential areas of slope instability prior to construction. 	EPC Contractor	EDM	-
Transport line towers	Impacts on water resources and aquatic habitats;	<ul style="list-style-type: none"> - Whenever possible, locate the towers outside river banks, wetlands and floodplains; 	EPC Contractor	EDM	-
	Impacts on agriculture.	<ul style="list-style-type: none"> - Whenever possible, avoid locating towers in areas of high irrigation suitability; - In areas with high irrigation suitability (see baseline section), use transmission structures with longer spans to clear fields, as possible; - In areas where the line crosses irrigated fields (Limpopo floodplain), take into consideration the following design guidelines, as possible: <ul style="list-style-type: none"> o Use special transmission designs to span existing irrigation systems; o Locate the line along field lines, or adjacent to roads so as to minimize field impacts; o Orient the structures with the ploughing pattern to make farm equipment less difficult to use. 	EPC Contractor	EDM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Detailed Engineering Phase					
	Increased bird and bat mortality.	<ul style="list-style-type: none"> - Tower design will incorporate measures to minimize bird and fruit bat mortality by preventing electrocutions and minimizing collisions, namely: <ul style="list-style-type: none"> o Preference will be given to tower designs with a minimum number of collision planes, especially in or near natural habitats, rivers, wetlands and water bodies; o All towers in the vicinity of rivers, wetlands, and water bodies shall be self-supporting (not guyed) suspension towers. In general, the use of suspension guyed V-towers shall be avoided or minimized to the maximum feasible extent (because guy wires substantially increase bird collision risks); o Use exclusively towers with horizontal track frames (self-supporting suspension tower, suspension guyed V-tower and self-supporting tension Y-tower); o Use tower configurations that do not have live wires or other electrified elements where a large bird could touch them while perched on the tower structure; o Install anti-landing devices in towers close to wetlands, river and water bodies, to prevent storks or other large birds from nesting there. 	EPC Contractor	EDM	-
	Loss of habitats.	<ul style="list-style-type: none"> - The selection of each tower location will strive to minimize impacts on natural habitats, as much as possible, in general and in relation to breeding, roosting and nesting grounds. 	EPC Contractor	EDM	-
Overhead line	Loss of critical habitat.	<ul style="list-style-type: none"> - The line route will be slightly realigned to avoid the patch of miombo forest identified in the EIS, in order to avoid affecting this critical habitat (this is located in the segment Vilanculos – Chibuto, in Massing District, roughly 62 km from the Vilanculos substation – please see section 7.9.1.1 of Volume II for additional information). The detailed design of this realignment will take into consideration the requirements set forth in the impact assessment section (see section 7.9.1.1 of Volume II), so as to ensure that the full extension of the miombo forest is avoided and a buffer of at least 150 m is provided; 	EPC Contractor	EDM	-
Overhead line	Loss of built structures and crops. Disturbance of cultural heritage.	<ul style="list-style-type: none"> - Optimize the route alignment in order to minimize as much as possible the need to affect built structures and agricultural areas, cultural heritage values (such as graves) and any activity sites. Consider community inputs in location and design in proximity of inhabited areas; 	EPC Contractor	EDM	-
Overhead line	Increased bird and bat mortality.	<ul style="list-style-type: none"> - Line design will incorporate measures to minimize bird mortality, due to collisions and electrocution, namely: <ul style="list-style-type: none"> o BFD (Bird Flight Diverters) will be used to signal the line. Red and white BFD with a 35cm diameter will be used. BFD's will be installed in the following line segments: <ul style="list-style-type: none"> ▪ <u>Vilanculos substation – Chibuto substation segment</u> – this segment develops along mostly large unfragmented woodland areas. In this segment, the BFD signalling scheme will be alternating colours in each ground cable with 10 m between each, resulting in a 20 to 20m distance between BFD's in each ground cable; 	EPC Contractor	EDM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Detailed Engineering Phase					
		<ul style="list-style-type: none"> ▪ <u>In the crossings of the Changane, Limpopo and Incomati floodplains</u> (from 1 km before the crossing to 1 km after the crossing) the signalling scheme will be of 1,5m between each alternating BFD resulting in a 3 to 3m distance between BFD's in each ground cable; ○ Isolation of all conductors, to avoid electrocution; ○ Ensure the distance between cables, especially in tension towers, is greater than 3 m, to avoid electrocution. 			

Table AI.2 – General Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads					
Construction Camps	<ul style="list-style-type: none"> - Air quality degradation; - Water quality degradation; - Noise impacts; - Loss of habitats; - Increased social conflicts. - Community health and safety impacts 	<ul style="list-style-type: none"> - The Contractor will develop a Camp and Housing Management Plan, detailing the proposed location of the construction camps and the management procedures for the camps. This plan will abide by the measures, principles and guidelines described below, and will be submitted for EDM approval, prior to start of construction; - When planning the location of the main construction camps, preferentially select major cities for their placement, avoiding locating them in or near rural villages. The more urbanized setting of the major cities will minimize the disturbance effect to local communities, as the mixture of people from different geographical origins and socioeconomic backgrounds is already a feature of these urban communities; - If there is a need to contract workers from outside the Project region, provide adequate housing for these workers, either in dedicated camps or in urban areas of major cities, to minimize the potential for conflicts with local communities and ensure adequate living conditions for workers; - Avoid locating construction camps and borrow pits in natural habitats or in proximity of natural or critical habitats or socially sensitive areas; - Whenever possible, promote the selection of previously intervened areas and areas with less of a need for tree cutting for temporary work and storage areas; - Construction camps will be located as far as possible (minimum distance of 300 m) from any areas of sensitive use (residential areas, schools and health units); - Construction camps and work yards will be located in areas well away from drainage lines and will not be located within the 1:100 year floodline, or within a horizontal distance of 100 m (whichever is greater) of a watercourse, drainage line or identified wetland; 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads					
		<ul style="list-style-type: none"> - Minimize, as feasible, distance from construction camps to work fronts; - The organization of construction camps will be carefully defined, taking into account the location of sensitive receptors. Noisy facilities or equipment will be located as far as possible from sensitive receptors; - Ensure efficiency in construction and planning including siting of construction camps, laydown and other work areas; - Minimize illumination in construction camps, if close to natural habitats; - Productive units required for the construction (such as cement batch plants) will be located as far as possible from residential areas; - Establish clear camp rules, including a code of conduct and protocol for community relations; - Establish a no hiring at the gate policy, control any commercial activity around the camps and establish a work rotation and worker transportation plan that avoids the development of socially risky behaviour in or around the camps or in nearby villages or communities; - Consult with communities regarding camp locations and community relations protocols; - Reinforce protocols through training and community awareness programs; - Include a camps decommissioning plan to restore the site to its pre-project conditions. 			
Construction Camps	Impacts on land users	<ul style="list-style-type: none"> - In case of land acquisition: (i) temporary the contractor will enter into a leasing agreement and pay fair price for use of the land during the construction period and return the land to the owner in the agreed upon conditions; (ii) permanent: the contractor will prepare and EDM will approve with WB N/O a site-specific RAP/ARAP, in compliance with the procedures and standards established in the RAP- Ancillary Facility RPF Annex.. 	Contractor	ESCCM	-
Construction camps	Contamination of soils and water; Degradation of habitats.	<ul style="list-style-type: none"> - Adopt good housekeeping (working sites must be kept clean, neat and tidy at all times) to prevent spillages and contamination; - Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be made in impervious areas, with cover and containment structures; - Machinery must be properly maintained to keep oil leaks in check; - Provide a designated area for refuelling, washing and maintenance of equipment and vehicles with impervious floor and containment structures. Place these facilities away from rivers, wetlands and water bodies, manage runoff according to the effluent management plan. 	Contractor	ESCCM	-
Borrow pits	Loss of habitats; Degradation of water quality;	<ul style="list-style-type: none"> - If at all possible, use existing licensed borrow pits for all the Project's needs for construction materials making sure that these are not incurring environmental or social liabilities and are being managed in accordance with the requirements of applicable licences and reasonably similar to those of this ESMP; - If new borrow pits are required: 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads					
	<p>Changes to geomorphology;</p> <p>Changes to sedimentation regime in nearby water lines.</p> <p>Land acquisition impacts</p> <p>Community health and safety</p> <p>Working conditions</p>	<ul style="list-style-type: none"> ○ Develop a Borrow Pit and Quarry Management Plan, planning the location of borrow pits and quarries and their E&S screening, as per the guidance provided in section 4.1.1, and submit this plan for EDM approval and WB no-objection ○ Obtain the environmental license for any borrow pit and quarry outside of the construction strip that would be used to source fill materials or to dispose of cut spoil materials. This may require the undertaking of specific ESIA processes and will always include community consultations (please see section 4.1.1 and Annex II for additional guidance on this issue ○ If land acquisition or economic displacement or restriction of access occurs, compensate it in accordance with the RAP (Ancillary Facility RPF Annex), including the preparation of a site-specific RAP/ARAP where required; - The location of borrow pits and quarries (to be defined in the plan named above), to source material for construction and disposal of surplus spoil, will consider the following : <ul style="list-style-type: none"> ○ Borrow pits and quarry sites will be used only temporarily for short term extraction of soft materials (soil, sand, gravel, etc.) required solely for the purposes of the Project; ○ Borrow pits and quarry sites will be sited on disturbed land whenever possible, i.e., in areas of modified habitat of low sensitivity only, avoiding areas of natural habitat; ○ Borrow pits and quarry sites will avoid any specific locations of importance for cultural heritage (tangible or intangible) including any communal cultural practices; ○ Borrow pits and quarry sites will be located at least 100 m for the nearest watercourse; ○ Borrow pits and quarry sites will not exceed 6 m in depth or penetrate the water table whichever is the shallower; ○ Borrow pits and quarry sites will be equipped where necessary with sediment traps to reduce discharge of sediment into surface waters; ○ Borrow pits and quarry sites will be located at least 300 m away from any existing residential areas unless a shorter or longer distance and the respective mitigation and safety measures and/or compensation for nuisance is agreed during community consultation; ○ Borrow pits and quarry sites will be located and will have an access plan that avoids movement of heavy equipment through populated areas as much as possible and rely on a Traffic Management Plan to minimize safety, noise and dust impact on sensitive receptors; ○ Borrow pits and quarry sites will avoid loss of productive agricultural land, whenever possible, and if not possible will include compensation in accordance with the RAP/ Ancillary Facility RPF Annex; ○ If the use of explosives is required, a specific method statement will be drafted for this activity, including a community communication program and temporary evacuation if needed; ○ Borrow pits and quarry sites will be subject to a photographic record of their development and operation; 			

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads					
		<ul style="list-style-type: none"> ○ As soon as possible after completion of works, borrow pits will be rehabilitated, in accordance with an approved decommissioning and restoration plan; ○ Final landforms will be free draining, not form dams or ponds, and take into account public safety, wildlife safety, pre-disturbance habitats and future beneficial use; ○ During the rehabilitation of borrow pits, the slope or the borrow pit shall be graded to blend with the natural terrain and be stabilized to prevent erosion; ○ Camp social protocols will apply to borrow pit sites; ○ Labor audits will apply to borrow pit sites to ensure that there is no forced or child labor, and that working conditions, including health and safety, conform to Project standards; ○ If the use of explosives is required, a specific method statement will be drafted for this activity, including a community communication program and temporary evacuation if needed 			
Access roads	Loss of habitats; Degradation of landscape.	<ul style="list-style-type: none"> - Whenever possible, new and temporary accesses will be created based in existing accesses, ensuring that any environmental or social liabilities are addressed and that the sites will be managed in accordance with the requirements of this ESMP and if land acquisition or economic displacement or restriction of access occurs, in accordance with the ancillary facilities RPF annex of the RAP; - If the opening of new accesses is required: <ul style="list-style-type: none"> ○ Develop an Access Roads Location and Management Plan, with the proposed route of construction accesses, and their E&S screening, as per the guidance provided in section 4.1.1, and submit it for EDM approval and WB no-objection; ○ Obtain the necessary licenses for all access roads. This may require the undertaking of specific ESIA processes to obtain the environmental license (if the new accesses are located outside of the Project RoW) and will always include community consultations (please see section 4.1.1 and Annex II for additional guidance on this issue). - The route design for construction access roads, to be provided in the plan named above, will take the following into consideration: <ul style="list-style-type: none"> ○ Minimize the number of permanent access roads to and in the RoW; ○ Critical natural habitats must be avoided and effort will be made to avoid affecting areas of natural habitats, or their immediate vicinity, as much as possible; ○ Residential, production or other community areas will be avoided as much as possible and if land acquisition, economic displacement or resource use restriction occurs, it will be managed and compensated in accordance with the RAP (ancillary facilities RPF Annex) including the preparation of the respective RAP/ARAP; ○ Avoid impacts on adjacent areas; 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Guidelines for Construction Camps, Borrow Pits and Temporary Access Roads					
		<ul style="list-style-type: none"> ○ If an existing road or pedestrian access is cut, or circulation is significantly restricted, as a result of Project access routes, alternative routes will be provided, to restore pedestrian and road accessibility; ○ Consult communities with regard to accesses routes and their location and management; - The plan will include road management procedures, in accordance with the requirements of this ESMP and the RAP (Ancillary Facilities RPF Annex), including safety requirements, access control plans, drainage and maintenance, etc., and site-specific RAP/ARAP where required; - Any new construction accesses will be decommissioned after construction, and the area rehabilitated according to a plan approved by EDM, unless critical for Project maintenance. When possible, proceed to early closing and rehabilitation of access roads near sensitive scenic areas. Revegetation of these areas will be accomplished through the Rehabilitation and Revegetation Plan (please see section 4.2 for additional guidance on this). 			

Table AI.3 – General Mitigation Measures for the Construction phase

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
Land clearing, site preparation and earth movements	Loss of built structures; Loss of crops	- Before the start of activities, put into effect in the affected communities, in coordination with the district authorities and local community leaders, an awareness and information program concerning the project, so as to avoid the construction of new dwellings and planting of new crops, in the Project's area and right-of-way (with the understanding that eligibility under the RAP will not be affected unless a census is completed and a cut-off date established and disseminated).	ESSCM	EDM	60,000
	Loss of built structures; Loss of crops.	- Vegetation clearing, or removal of any structures, in a specific Project segment will not begin prior to conclusion of compensation for all affected buildings, crops and other socioeconomic assets within the Project's footprint. To this effect, an encompassing RAP will be developed and implemented in compliance with Mozambican Legislation and World Bank (WB) Operational Policy on Involuntary Resettlement (O.P 4.12).	ESSCM	EDM	14,144,000
	Increased noise emissions; Loss of habitats.	- Vegetation clearing, topsoil removal and earthmoving activities will be minimized as much as possible and limited to the strictly needed areas (particularly in areas of natural habitats); - When clearing vegetation in the RoW, cut vegetation above the ground, without affecting the roots or stripping the topsoil (except in the tower foundation areas, where it is unavoidable).	Contractor	ESSCM	-
	Increased soil erosion and compaction.	- Develop, and submit for EDM approval, a Soil and Erosion Management Plan , detailing the precautionary methods that will be implemented to prevent erosion during land clearing and earthworks activities. The following mitigation measures will be included in that plan: o Strip and store topsoil prior to earth moving activities for later reuse in rehabilitation works; o Soils excavated for pylon foundations will be used for backfilling excavations and not be left exposed to wind or water for long periods; o Protect temporarily stored soils with a waterproof cover and adequate height to ensure stability.	Contractor	ESSCM	-
	Disturbance of fauna.	- Avoid vegetation clearance activities in natural habitats and near large water masses between October and March, as much as possible, so as to minimize impacts on breeding birds;	Contractor	ESSCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
	Loss of crops	<ul style="list-style-type: none"> - Whenever possible, perform the vegetation clearing activities during the fallow season, in order to reduce the loss of planted crops; - Provide early warning to farmers, to avoid plantation of new crops on the areas to be disturbed, and compensate for lost income for the corresponding crop cycle; - Support crop reestablishment once construction is completed; - Whenever possible, make the cut trees available for pick-up by the local communities, to be used as construction materials or other uses. 	Contractor	ESCCM	-
Land clearing, site preparation and earth movements	Loss of habitats; Fauna mortality; Fauna disturbance.	<ul style="list-style-type: none"> - Vegetation clearance activities in areas with natural habitat will be accompanied by an ecology/biology expert in order to ensure the following: <ul style="list-style-type: none"> o Identify and signal any patches of endemic flora species that may require additional mitigation: e.g., some shrub or grass endemic species patches may be left uncut, within the RoW, if they present no risk to the infra-structure; o Make an inventory of bird roosting and/or nesting sites close to the clearance areas. If significant areas of bird roosts/nests close to the clearance area are found during construction, implement the following: <ul style="list-style-type: none"> ▪ Reduce machinery movements and noise to minimum in places close by birds roosts or nests; ▪ Whenever possible avoid vegetation removal close to raptors nesting site when there are eggs or chicks/juveniles, delaying vegetation removal in those places to after the birds leave; ▪ Other site-specific measures may be proposed by the ornithologist, depending on the specificities of the inventory. o Minimize as much as possible mortality of tree roosting animals (though active search and removal) minimizing species destruction; o When on areas with natural habitats, employ teams of fauna scarers to go ahead of the clearance teams and scare animals out of the RoW, to minimize mortality; 	Contractor	ESCCM	-
	Impacts on irrigation agriculture.	<ul style="list-style-type: none"> - In areas where the line crosses irrigation systems (Limpopo floodplain), apply the following measures: <ul style="list-style-type: none"> o Avoid, as much as possible, construction activities during times when soils are saturated; o Learn about individual farm field activities, such as planting, tillage, and crop rotations so that construction methods and timing can be adapted to the timing of crop work to minimize interference. Document residual damage for compensation in accordance with the RP/RPF. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
	Degradation of habitats adjacent to construction sites	<ul style="list-style-type: none"> - Demarcate the perimeter of rivers, wetlands and water bodies close to construction areas with construction tape, and forbid activities inside the delimited areas; - Limit access by outsiders (signs, patrolling, fences) to work areas. 	Contractor	ESCCM	-
Movement and operation of vehicles, machinery and equipment	<p>Increased dust emissions;</p> <p>Increased noise emissions;</p> <p>Degradation of habitats adjacent to construction sites;</p> <p>Increased community hazard;</p> <p>Nuisance factor on surrounding communities.</p>	<ul style="list-style-type: none"> - The Contractor will develop, and submit for EDM approval, a Traffic Management Plan, detailing the management procedures and mitigation measures to minimize traffic related impacts. That plan will include the mitigation provided below; - Circulation of construction heavy vehicles will be limited to pre-approved construction routes. These will be defined in order to avoid crossing residential areas, whenever feasible; - Forbid people and vehicle movements outside project accesses; - Avoid movement of heavy machinery in wetlands, river banks, river beds and water bodies, as much as possible. If the crossing of water courses by construction machinery is required, specific method statements will be delivered to EDM, including restoration plan; - Speed limits will be set for construction heavy vehicles, for all construction circuits. This speed limit will not exceed 30 km/h in critical segments, such as when near residential areas, and never more than 80 km/h; - Inform drivers of the set speed limits and strictly enforce them; - Limit disturbance outside site boundaries; - Limit non-Project vehicles entrance in the construction area, to avoid invasive and ruderal species dispersion and entrance of people that can exploit illegally natural resources; - Restrict the use of heavy vehicles to primaries roads and avoid the use of roads not designed for heavy loads; - Install temporary official traffic signs on local roads around the work fronts before and during the execution of the works together with local transit authorities; - Install signalization on the construction temporary accesses, informing construction workers on speed limits and possible animal presence; - Consult with community on traffic restrictions and schedule, provide alternative connectivity where needed, and conduct regular driver and community traffic safety awareness programs; - Use manned traffic control in key sensitive areas and crossings especially near any places where people in general and children in particular congregate. - Manage traffic and machinery to avoid accidents involving domestic animals and cattle. Provide for animal crossings and access to watering sites 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
Handling of hazardous substances and responses to accidental events (leaks or spills)	Contamination of soils and water;	<ul style="list-style-type: none"> - Adopt good housekeeping of work fronts to prevent spillages and contamination; - Machinery will be properly maintained to keep oil leaks in check; - Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be done in the construction camps, in dedicated impervious areas, with cover and containment structures; - In the event of a spill of pollutant material, respond to it immediately, namely (additional information is provided in the Emergency Response Plan): <ul style="list-style-type: none"> o If a spill occurs on a permeable surface (e.g. soil), a spill kit must be used to immediately reduce the potential spread of the spill. All work fronts will have readily available spill kits; o If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials. 	Contractor	ESCCM	-
Workforce	<p>Transfer of skills to local communities.</p> <p>Increased fauna mortality;</p> <p>Increased fauna disturbance.</p>	<ul style="list-style-type: none"> - The Contractor will develop and implement a Training and Skill Transfer Program, with the following main goals: <ul style="list-style-type: none"> o Provide technical training programs for unskilled workers, with the objective of improving their job performance and giving them the skills to compete for other positions; o Provide environmental and social awareness training to all workers, based on this ESMP including matters related to the code of conduct, non-discrimination and sexual harassment, abuse and exploitation; o Provide health and safety training; o During induction sessions inform workers of biodiversity importance and commitment of the project to it, in order to avoid deliberate fauna persecution (either through hunting, or run-over with cars, etc.). 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
Workers Health and Safety	Potential impacts on workers' health and safety.	<ul style="list-style-type: none"> - The Contractor will develop and implement a Worker's Health and Safety Management Plan to protect every worker involved in construction activities, even temporary workers. This plan will comply with national legislation, international best practices (OHSAS 18001:2007, NEBOSH or similar) and address all aspects of labor standards relevant to the project as specified by WBG health & safety guidelines for electric power transmission projects. Sub-contractors will be contractually required to comply with labor and health and safety legislation. Specific provisions must be included for: <ul style="list-style-type: none"> o Supply drinking water and maintain its quality and ensure sanitation at the construction sites; o Provision of sanitation at camps, substations and tower erection points; o Provision of separate accommodation and sanitation facilities in worker camps, in order to satisfy both gender needs; o Prompt recording and notification of accidents through an accident reporting mechanism; o Handling domestic and specialized waste, as well as dangerous goods; o Procedures in case of injuries and accidents; including appropriate first aid and transport at remote facilities o Use of personal protective equipment (e.g.: helmets, fall protection equipment, protection form electrocution) o Secure equipment and demarcate and block any excavation works areas; o Conduct safety inspections to equipment and machinery; o Sign and fence construction areas, where necessary; o Maintain construction camps in a clean and healthy condition as prescribed by international worker health standards. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
Workers Health and Safety	Potential impacts on workers' health and safety.	<ul style="list-style-type: none"> - The Worker's Health and Safety Management Plan will include a long-term training program in health and safety issues. Specific training must be provided for: <ul style="list-style-type: none"> o Working around live power lines; o Working at heights; o Natural health risks, including mosquito and snake bites. - Provide medical facilities throughout the construction phase for the use of workers where required; - Ensure reasonable working hours, wages and other benefits; - Provide suitable and safe accommodation and sanitation facilities, including available drinking water and improved latrines; - Provide and ensure the use of personal protective equipment (PPE); - An ambulance and medical staff will be always onsite so that in case of a serious accident immediate action can be taken. 	Contractor	ESCCM	-
Procurement of goods and services	Local and regional economic stimulation	<ul style="list-style-type: none"> - The procurement of goods and services by the EPC contractors will give priority to sourcing from the local and provincial markets, whenever possible. To the effect, the Contractor will develop and implement a Local Procurement Plan. The development of this plan will include, at the minimum, the following: <ul style="list-style-type: none"> o Identify the goods and services required by the project that can be supplied locally (e.g. meals and cleaning) and encourage and support local companies in the production and supplying of these goods and services - however, no bushmeat, captured wild birds, or other wildlife products may be purchased; o Before the start of the activities of the STE project the Contractor will identify and disclose the types of services they will require, to enable local entrepreneurs the possibility of training, improvement of skills and services to offer; o Before the beginning of activities, ask the local authorities and community leaders to get involved in empowering residents interested in developing small businesses; o Control and organize commercial activities around camps to ensure order and quality and avoid conflicts. - Source as much as possible materials from sustainable sources such as environmental certified companies. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
General Mitigation Measures for the Construction phase					
Clean up and demobilization	<ul style="list-style-type: none"> - Increased soil erosion and compaction; - Degradation of landscape. - Impacts on traffic. 	<ul style="list-style-type: none"> - To minimize soil compaction in low-lying areas, saturated soils, and/or suitable irrigation soils, the soil in the RoW in fields that were accessed by heavy construction traffic will be checked for compaction with a soil penetrometer and compared to penetrometer readings on soils outside of the RoW, especially in irrigated areas. If compaction within the RoW is detected, appropriate equipment will be used to restore the soil tilth; - Close all construction access roads unless preapproved, built to regular standards and transferred for maintenance to another appropriate entity. - Any damage to roads resulting from the Project construction will be restored as soon as possible, throughout all the construction period. 	Contractor	ESCCM	n.a.-
Clean up and demobilization	<ul style="list-style-type: none"> - Loss of habitats; - Degradation of landscape. 	<ul style="list-style-type: none"> - The Contractor will develop a Rehabilitation and Revegetation Plan and submit it to EDM for approval, at least three months prior to demobilization of the first temporary construction areas to be abandoned. This plan shall be developed so as to comply with the following guidelines: <ul style="list-style-type: none"> o All temporary access roads and work areas (including construction camps and borrow pits) will be rehabilitated and revegetated as soon as they are vacated; o All temporary construction sites, such as borrow pits and landing areas, will also be revegetated immediately following the completion of the construction activities; o Any other areas of bare and disturbed soils will also be revegetated as soon as possible; o Revegetation will be done with a mix of native species, so as to emulate the composition of the dominant woodlands in the Project areas; o The species chosen for restoration works as well as the timing of the revegetation will need to be validated by a botanical expert; o Revegetated areas will be monitored biannually, for at least two years. Any areas which show signs of degradation or that aren't recuperating after the first revegetation will be reinforced through additional plantings or seedlings; o Restore vegetation in the ROW/PPZ where needed to control erosion. Provide flora and fauna protection; o Support reestablishment of crops in the ROW/PPZ where allowed. 	Contractor	ESCCM	-
Workforce	<ul style="list-style-type: none"> - Increased community hazard; 	<ul style="list-style-type: none"> - The Contractor will develop and implement a Community and Workers Grievance Management System. Guidance to develop a GRM compliant with best practices is given in section 6.7 of this ESMP. 	Contractor	ESCCM	-

Table AI.4 – Specific Mitigation Measures for the Construction phase

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
All construction Activities	Air Quality degradation due to Increased dust emissions;	- The circulation routes of construction vehicles will be adequately planned in order to minimize, as much as possible, crossing through, or passing nearby, residential areas;	Contractor	ESCCM	-
		- All internal combustion machinery and equipment will be kept in good maintenance conditions in order to minimize combustion gases exhaust emissions. This will include preventive maintenance of machines, equipment and vehicles and operator training, as well as internal monitoring program of proper maintenance of vehicles;	Contractor	ESCCM	-
		- Heavy trucks transporting construction materials (such as sand, soils and gravel, etc.) will not be loaded to full capacity. A free edge of approximately 0.2m will be kept to avoid spills during materials transport;	Contractor	ESCCM	-
		- Trucks carrying dusty materials will have the load adequately covered;	Contractor	ESCCM	-
		- Stockpiles of granular materials will be protected with a waterproof cover, or alternatively regularly sprinkled with water;	Contractor	ESCCM	-
		- Unpaved construction accesses and work fronts located nearby residential areas will be regularly sprinkled with water to avoid mobilization of dust due to vehicle entrainment, in particular during dry and windy conditions. This will be done with a daily frequency during the dry season;	Contractor	ESCCM	-
All construction fronts	Changes to natural run-off patterns	- The construction machinery parking area (in construction camps) will be regularly sprinkled with water, in particular in dry and windy conditions.	Contractor	ESCCM	-
		- The Contractor is required to submit a method statement for every river and wetland crossing for EDM approval.	Contractor	ESCCM	-
		- Avoid affecting movement of machinery on river beds and floodplain areas by the construction activities (including movement of machinery), as much as possible;	Contractor	ESCCM	-
		- Whenever possible, carry out works on river banks, flood plains and wetland areas, in the dry season, during the months of lower flow;	Contractor	ESCCM	-
		- Do not block or constrain river flow in the construction of access roads, even if temporary. Ensure that suitable transversal drainage (culverts, viaducts, etc.) are in place;	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
		- River beds will not be modified beyond the strictly necessary to complete a particular work. The affected areas will be rehabilitated to the original profile;	Contractor	ESCCM	-
All construction fronts	Changes to natural run-off patterns	- Temporary stream diversions will be big enough to allow the free flow of water without damming and without inundating riparian vegetation for long periods;	Contractor	ESCCM	-
		- Adequate erosion control structures will be provided in the slopes of any temporary stream diversions that might be required, by using sandbags, reno-mattresses, plastic liners and/or coarse rock rip-rap, where appropriate. This will be further developed in the Soil and Erosion Management Plan ;	Contractor	ESCCM	-
		- Minimize the clearance of riparian vegetation. Clearing of riverine vegetation must be done in stages, as working areas progress. Trees, shrubbery and grass species will be retained wherever possible. The affected areas will be rehabilitated, including revegetation when work is completed, where possible. This will be done through the Rehabilitation and Vegetation Plan ;	Contractor	ESCCM	-
		- Water channels will be kept free from obstruction at all times. Any erosion damage will be repaired as soon as possible.	Contractor	ESCCM	-
All construction fronts and camps	Contamination of surface water	- No soil, vegetation, waste or construction materials will be discharged on water courses;	Contractor	ESCCM	-
		- Natural water resources, including sources, streams or open water bodies, will not be used for equipment or vehicle washing. This activity will only be conducted in properly dedicated washing areas, inside the construction camps;	Contractor	ESCCM	-
		- Prohibit workers to use natural water ways for recreational purposes, bathing or washing;	Contractor	ESCCM	-
		- Do not discharge untreated effluents and wastewaters into soil or natural water masses. All residual water and effluent produced (sanitary facilities, kitchens, canteens, baths, etc.) will be collected and treated. For small, isolated sites, soak away/septic field systems can be used, biodegradable solids may be buried, and liquid discharges will be controlled to ensure that local water resources, both surface and groundwater, are not contaminated. Water containing pollutants such as cement, concrete, lime, chemicals and fuel must be discharged into a tank for later removal off site and treatment at a treatment facility;	Contractor	ESCCM	-
		- The treated effluents will ensure compliance with the adopted quality emission Project standards (see Table 6.7 above);	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
		- Treated wastewater discharge locations must be approved by district authorities, and other relevant authorities, including MITADER;	Contractor	ESCCM	-
All construction fronts and camps	Contamination of surface water	- Whenever necessary, install portable toilets in the construction fronts with watertight septic tank for storage of residual water produced. 1 toilet for every 15 persons will be considered at each work front (the toilets will not be located more than 200 m from each work front). These must be properly fixed to the ground to avoid tipping over. The facilities require periodic maintenance to empty the tanks and cleaning routines to ensure the hygiene of the facilities. The collected effluent will be taken for treatment at the nearest treatment facility. Site toilets will not be located within the 1:100 year flood line, or within a horizontal distance of 100 m (whichever is greater) of a watercourse, drainage line or identified wetland, and residential and community use areas;	Contractor	ESCCM	-
		- Store oils, fuels and other hazardous and potentially pollutant products safely in order to prevent its spillage in soil and/or water resources. The storage of these materials will be made in impervious areas, with cover and containment structures;	Contractor	ESCCM	-
		- Provide a designated area for maintenance of equipment and vehicles with impervious surface and containment structures. Place these facilities away from water courses and from residential and community use areas (minimum 100 m);	Contractor	ESCCM	-
		- Define parking spaces for machinery and vehicles. Inspect periodically these areas to verify occurrence of spillage and proceed with cleaning of spillages;	Contractor	ESCCM	-
		- Provide a designated area for fuel supply of equipment and vehicles with impervious surface and containment structures (such as drip trays during refueling, bunds around storage tanks, etc.);	Contractor	ESCCM	-
		- Perform maintenance and periodic review of all machinery and vehicles used in the work, in order to maintain the normal operating conditions of work and minimize the leakage of oils and fuels;	Contractor	ESCCM	-
		- Develop a plan for prevention and containment of spills. Ensure all on site staff are trained in the use of spill prevention measures. Clean up any spills immediately, through containment and removal of free product and appropriate rehabilitation or disposal of contaminated soils;	Contractor	ESCCM	-
		- Do not use natural water resources, including sources, streams or open water bodies, for equipment or vehicle washing. Provide a designated area for washing equipment and vehicles. This area must be drained to an isolated retention basin that is sealed off from the natural drainage network so as to prevent accidental spills of fuels and oils from contaminating the soil and water resources in the environment. Prevent the discharge of produced effluent in the receptive environment through its collection and conducting to oil and grease separation systems (pre-treatment). The resulting waste (supernatant) will	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
		be eliminated as hazardous waste. The pre-treated effluent shall be conducted for treatment system of waste water;			
		<ul style="list-style-type: none"> - Provide a designated area for washing of concrete loading machinery, concrete mixing vehicles and other equipment that contain concrete or cement residues. These areas will have an impermeable surface, containment structures and collecting systems of residual water resulting from washing. Prevent the discharge of produced effluent through collection and conducting to tailing ponds with impermeable bottom. The decanting solid will be dehydrated and treated as solid waste. The decanted water will recirculate for concrete production or for washing of equipment and vehicles above mentioned. 	Contractor	ESCCM	-
Construction Activities near water bodies	Increase of turbidity and sedimentation of water bodies	<ul style="list-style-type: none"> - Storage of soils will be made away from drainage lines. Stocked soils will be covered during the rainy season or during strong wind conditions; - When possible, clearing must be phased, as the working areas progress in order to reduce the areas exposed to wind erosion. 	Contractor	ESCCM	-
Construction fronts and camps	Waste production	Prepare a waste inventory : <ul style="list-style-type: none"> - Prepare inventory of any hazardous and non-hazardous waste; - Classify the waste according to Decree no. 94/2014 and Decree no. 83/2014; - Define sources, volumes and indicate appropriate final destination for each type of waste, taking into consideration the specifications of the region in question in what concerns the availability of waste treatment and disposal facilities. 	Contractor	ESCCM	-
		Reduce waste production by: <ul style="list-style-type: none"> - Working sites must be kept clean, neat and tidy at all times; - Avoid leaving garbage unattended, in order to avoid attracting pests and nocturnal carnivores; - Implement daily cleaning routines to minimize waste; - Promote the recycling and recovery of waste in coordination with municipal authorities or private entities; - List and estimate the volume of waste that can be reused, recycled or re-process (example, wood scraps, soils, none used materials); - Ensure that the quantities of construction materials on site are as accurate as possible, to avoid surpluses that could result in construction waste. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction fronts and camps	Non-hazardous waste production	Segregate non-hazardous waste: <ul style="list-style-type: none"> - Provide containers of appropriate size (according to the expected quantity of waste) for the placement of waste in different working areas. The segregation will be carried out as close as possible to the place of production. These shall ensure adequate hygiene and sealing conditions; - Provide different containers for each type of waste that can be reused, recycled or re-processed. Containers will be clearly identified according to their categorization and classification, allowing to clearly identify its contents; - Strictly enforce prohibitions against littering, especially with plastic wastes; - Waste segregation must be carried out accordingly, ensuring that waste does not exceed the top of containers; - Maintain containers clean and always closed; - All produced waste will be sorted according to its type. Waste segregation will be initially done by workers; - Produced waste will be removed daily and temporary stored in Temporary Store Facilities until transported to final destination. 	Contractor	ESCCM	
		Implement temporary storage facilities for non-hazardous waste: <ul style="list-style-type: none"> - Non-hazardous waste must be temporarily stored, prior to final destination, at only one designated area. This area must be duly delimited and signed ("Waste Storage Area"). The area must be roofed, properly ventilated and have impermeable surface floor. Waste temporary storage areas need to be secured, so that they do not create health and safety hazards to people; - Inert waste may be stored in the open without the need for a waterproofing floor in a designated and delimited area; - Location of waste Temporary Storage Facilities must be away (50 m) from water courses and ground depressions; - Maintain a good organization of space and cleaning of waste storage areas; - Waste materials that can be recycled to the community, such as removed soil and stones, cut wood and other building materials could be made available for pick up in an orderly fashion and with proper safety arrangements. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction fronts and camps	Non-hazardous waste production	Ensure a Final Destination for Non Hazardous Waste <ul style="list-style-type: none"> - The transport of waste must be carried out in an appropriate vehicle, capable of containing the waste, and in good operating condition. These vehicles must be easily washable; - Transfer operations of waste containers must be carried out safely: without compromising its segregation, not damaging containers, without causing leaks or spills and originating dust; - The final destination and transport of waste are the responsibility of the producing entity; - The final destination and transport of waste must be agreed and authorized by the municipal/district authorities. The necessary licences must be obtained; - Prohibit the burial or dump of any type waste in soil, water resources (lakes, rivers, etc) or sea; - Prohibit the burn of waste (including vegetation); - Non-hazardous waste will be removed on a weekly basis; - EDM and the Contractor will agree on and document the final disposal site for the waste ensuring that it meets national and WB requirements, and will keep records of the delivery of the waste at such facilities. 	Contractor	ESCCM	-
Construction fronts and camps	Hazardous waste production	Segregate hazardous waste: <ul style="list-style-type: none"> - Provide containers for segregation of hazardous waste. These must be hermetically sealed (ensuring that waste does not exceed the top of containers) and have an appropriate size. Containers will be made of appropriate material so that they are not damaged by their content and that damaging or dangerous substances are formed. They shall ensure adequate hygiene and sealing; - Provide different containers for each type of hazardous waste to be produced. The containers will be clearly identified and include the symbols defined in Decree no. 83/2014; - Hazardous waste will not be mixed with other types of waste; - Containers will be placed on wooden pallets or plastic pails; - Maintain containers clean and always closed; - All produced waste will be sorted according to type (defined in the list of characteristics of Annex III of Decree no. 83/2014) and placed in the corresponding container; - Hazardous waste will not be stored at the work fronts, and will be transported daily to Temporary Storage Facilities built by the Contractor for this purpose or hired through a certified service provider. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction fronts and camps	Hazardous waste production	Temporary Storage Facilities for Hazardous waste: <ul style="list-style-type: none"> - Hazardous waste must be temporarily stored, prior to final destination, at only one designated area. This area must be duly delimited and signed ("Hazardous Waste Storage Area") and with restricted access. The area must be roofed, properly ventilated and have impermeable surface floor; - Location of the Waste Temporary Store Facilities must be away (100 m) from water courses and ground depressions; - No smoking will be allowed in the vicinity of hazardous waste storage area. Place appropriate symbolic signage (No smoking, No naked light and danger); - Provide extinguishers near the waste storage areas; - Maintain a good organization of space and cleaning of waste storage areas. 	Contractor	ESCCM	-
		Transport of Hazardous Waste <ul style="list-style-type: none"> - The transport of hazardous waste, within the facilities of the producing entity up to the storage location, will be made resorting to appropriate equipment or vehicles capable of containing the waste and in good operating conditions. These vehicles will be easily washable. The transport vehicle will be duly identified with signs for the transportation of hazard material; - Hazardous waste must be transported (internal transportation) in containers. The transport must have steel clamps for securing the containers and guarantee safe transport; - Any holder of hazardous waste that does not personally carry out the elimination operations, shall give this work to a private collecting service that will carry out the operations, provided it is duly licensed by MITADER to carry out these activities; - The transportation of hazardous waste transport outside the facilities of the producing entity can only be made by an entity licensed by MITADER and will comply with the basic rules and procedures defined in Decree No. 83/2014; - When the hazardous waste is collected, a manifest, in four copies, will be completed, indicating the quantities, quality and destination of the collected waste (according to Decree No. 83/2014, appendix VI); one copy is kept by the waste generating entity, another copy is kept by the waste transporting entity, the third copy is kept by the entity receiving the product and the fourth copy is sent to MITADER; - The crossing of borders with hazardous waste shall comply with the provisions of the Basle Convention and with the instructions of MITADER; - Provide the workers responsible for the handling of hazardous waste with adequate PPE. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction fronts and camps	Hazardous waste production	Hazardous Waste Final Destination <ul style="list-style-type: none"> - The final disposal of hazardous waste will be made at an infrastructure licensed by MITADER for storage, treatment and/or final disposal of hazardous waste. The nearest such infrastructure is the Mavoco Industrial Landfill, located in Boane District, Maputo Province; - Whenever possible, batteries and tires will be returned to the supplier. 	Contractor	ESCCM	-
	Waste production	Workers training on waste management: <ul style="list-style-type: none"> - Workers must be briefed on the need to reduce the production of waste as much as possible. The use of disposable products (such as plates or plastic or paper cups, products with excessive packaging) will be limited as much as possible, and the use of reusable products will be promoted; - Workers must be trained on the classification, correct sorting, and handling of waste and of the strict prohibitions against littering with plastic or other non-food wastes; - Workers responsible for hazardous waste handling must be trained on the classification, correct sorting, handling and transport of hazardous waste. Workers must be briefed on the use of individual protection equipment. 	Contractor	ESCCM	-
RoW clearance	Expansion of Invasive flora species	<ul style="list-style-type: none"> - Monitor the presence and expansion of invasive flora species along the RoW, access road, and borrow pit areas; - In case of detection of invasive species they will be removed. 	Contractor	ESCCM	-
	Loss of woodland habitats	<ul style="list-style-type: none"> - Establish the baseline for present deforestation rates and wildlife poaching activities prior to the start of clearing the Right-of-Way; - Monitor the direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna, 5 km on both sides of the RoW: deforestation and poaching monitoring and development of corrective actions; - Register the presence of people in and near the RoW and the actions taken by local authorities to prevent illegal logging and poaching activities. These impacts should be assessed through ground monitoring, as well as the use of aerial photographs and Google Earth; - In case problems are detected that cause significant negative impacts on natural and critical natural habitat, on flora and fauna, mitigation measures will be developed and implemented, including reforestation or targeted protection and anti-poaching activities, financed by EDM. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction Activity's Planning	Induced nuisances to surrounding communities	Engage with provincial, district authorities and stakeholders <ul style="list-style-type: none"> - The provincial governments will be informed of the planned activities prior to starting the works; - Before the start of the activities on a specific District, meetings with the District Administration, as well as other relevant stakeholders, will be scheduled to advise of the proposed activities and to identify the local authorities (Administrative Post or neighbourhood chiefs) of the areas where construction activities will be carried out; 	ESCCM	EDM	32,500
	Induced nuisances to surrounding communities	Engage with local authorities <ul style="list-style-type: none"> - Before starting work on a specific administrative unit (administrative post, locality), initial meetings will be held with the local authority in order to present the program of the construction activities, identify any potential social conflict and identify potential strategies to engage the community in the project. One of the issues that will be discussed in these initial meetings is the Local Recruitment and Working Conditions Plan developed by the Contractor; 	ESCCM	EDM	22,500
Construction Activity's Planning	Induced nuisances to surrounding communities	<ul style="list-style-type: none"> - The Contractor will appoint a field technician to be the focal point of contact with the local authorities, during the construction phase (this will preferably be a CLO, but can also be the ESCO or his field representative); - During the execution of works, the Contractor will establish and maintain daily contact with the local authorities. This will help identify any population grievance or complaint and timely flag any potential social disturbance or conflict; - Any specific complaints and conflicts and their resolution will be reported to EDM and recorded as part of the Contractor GRM, and if unresolved referred to EDM for resolution or channeled in accordance with the Project GRM; - Interact with the local administration and the police to implement control mechanisms in public places to prevent crime in accordance with the Security Management Plan. 	Contractor	ESCCM	-
All construction activities	Induced nuisances to surrounding communities	Inform and engage with local communities <ul style="list-style-type: none"> - The Contractor will appoint a liaison officer to be the focal point of contact with the local communities, during the construction phase (this can be the ESCO or another technician (preferably a qualified Community Liaison Officer), under his supervision); - Inhabitants of local communities nearby the construction fronts will be previously informed by the Contractor regarding the upcoming construction activities, including information on the planned start of activities, their nature, location and duration. This communication will also include information regarding 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
		<p>the project nature and goals, jobs available and hiring procedures (Local Recruitment and Working Conditions Plan), skills transfer programs, and non-discrimination policies and opportunities for women;</p> <ul style="list-style-type: none"> - The communication will also include information regarding the Emergency Response Plan, namely the potential emergency scenarios that may occur and what to do if a community member detects an emergency, including emergency communication protocols and contact number; - The Contractor will ensure constant communication with the local population, clarifying and keeping the public informed about the various actions and potential impacts related to construction; - Develop a policy of interaction between the local community, employees, suppliers, local, regional and migrants to reduce the differences between the different groups. - Support implementation of the community awareness campaigns on community health and safety including the workers' code of conduct and the Project and Contractors' GRM 			
All construction activities	Induced nuisances to surrounding communities	<p>Consult local communities</p> <ul style="list-style-type: none"> - Use the same information meetings named above to consult local communities on how to avoid affecting sensitive areas and receptors and to harmonize construction and community activities, to the extent possible. This can include, for example, the community's views and preferences in what regards access road routes, traffic management procedures, location of any support infrastructure, communication channels, interactions with workforce, or any other issue of relevance in terms of community / Project interaction. Integrate community insights and requests into construction management procedures. - Discuss access to employment and any other potential benefits that EDM might provide as part of its overall plans for the community or other corporate social programs. 	Contractor / ESCCM	EDM	45,000
	Induced nuisances to surrounding communities	<p>Establish Project Grievance Redress Mechanism</p> <ul style="list-style-type: none"> - A grievance redress mechanism (GRM) will be established by EDM whereby individuals or groups can submit complaints or concerns related to any Project impact or activity and receive a response. This includes any claim of any uncompensated loss of built structures, crops or other socioeconomic asset. This mechanism will be communicated to the local authorities and local communities prior to commencement of construction. Additional details on this are provided in section 6.7 of this ESMP. 	ESCCM	EDM	53,000
	Induced nuisances to surrounding communities	<ul style="list-style-type: none"> - The contractor will also establish its own grievance management mechanism to receive and address matters related to its activities and to refer other matter to EDM as appropriate. All grievances received by the contractor will be reported to EDM for monitoring. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Construction Planning	Increase Community Awareness	Identify target local communities <ul style="list-style-type: none"> - Identify which local communities will be the target for the awareness campaigns. This will be done based on the updated design and construction planning documentation provided by Contractor, especially with respect to ancillary facilities; - Prepare the materials for the community awareness campaigns, including simple pamphlets and materials in local languages, posters, videos and radio spots, etc. - Map the stakeholders and include specific communications activities directed at women, youth, and other groups who may have differentiated interests or tend to be excluded in larger meetings. 	ESCCM	EDM	10,000
All Construction Activities	Increase Community Awareness	Undertake community awareness campaigns <ul style="list-style-type: none"> - Before start working on a specific administrative unit (administrative post, locality), undertake community awareness campaigns in the communities identified, as per the previous action. These campaigns will, at minimum, include the following: <ul style="list-style-type: none"> o Community opportunities: jobs, training, opportunities for women, EDM CSR programs; o Community risks associated with Project road traffic and the adequate preventative behaviors and cautions that will be adopted when near Project accesses; o Community risks associated with the influx of workers, informing them on the Code of Conduct that Project workers have signed and on the grievance mechanism available to them; o Community risks and resources associated with sexual abuse and exploitation and gender based violence o Health risks associated with sex, e.g., transmission of STDs and HIV/AIDS, and safe sexual practices. o The existence and points of access of the project Grievance redress mechanisms. - Include focus groups for women, youth and vulnerable or excluded groups. 	ESCCM	EDM	50,000

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Project related traffic	Increased hazard risk to communities from Project traffic	<ul style="list-style-type: none"> - The Contractor will develop, and submit for EDM approval, a Traffic Management Plan, detailing the management procedures and mitigation measures to minimize traffic related hazard risks to communities. The Plan will include the mitigation provided below: - Circulation of construction heavy vehicles will be limited to pre-approved construction routes. These will be defined in order to avoid crossing residential areas, whenever feasible; - Speed limits will be set for construction heavy vehicles, for all construction circuits. This speed limit will not exceed 30 km/h in critical segments, such as when near residential areas, and never exceeding 80 km/h on paved roads; - Inform drivers of the set speed limits and strictly enforce them; - Install temporary official traffic signs on local roads around the work fronts before and during the execution of the works together with local transit authorities; - Consult with community on traffic restrictions and schedule, provide alternative connectivity where needed, and conduct regular driver and community traffic safety awareness programs; - Use manned traffic control in key sensitive areas and crossings especially near any places where people in general and children in particular congregate; 	Contractor	ESCCM	-
Community Health and Safety - Project related traffic	Increased hazard risk to communities from Project traffic	<ul style="list-style-type: none"> - Manage traffic and machinery to avoid accidents involving domestic animals and cattle. Provide for animal crossings and access to watering sites, if needed. - Reroute traffic or limit access if needed, in coordination with communities and local authorities. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety – Noise	Noise nuisance on communities	<ul style="list-style-type: none"> - Construction activities, in particular the noisier ones, will be limited to the daytime period (between 07:00 and 22:00) and to working week days, avoiding working during the night-time and on weekends, whenever near residential areas; - The contractor will avoid placing fixed equipment (such as cranes or compressors) in proximity to sensitive receptors; - Use of portable screens during substations construction if situated near inhabited places, where possible; - If noise complaints are received from local communities in the morning or evening periods, despite compliance with the previous measures, and if the following investigation confirms the noise impact, then further reduce the work schedule in those periods. In such cases, the work schedule will be defined in a participatory manner, through consultation with affected communities; - Any noise complaint will be addressed and resolved through the Project's GRM. Any noise complaint will be investigated and resolved through adequate mitigation, to be defined case by case, but following best practices in terms of noise mitigation, i.e., first acting on noise source (by stopping the activity or using less noisy technologies or methods), then on the noise propagation path (by installing temporary noise screens or similar action) and then, and only if no other option is available, on the noise receptor (such as noise insulation of buildings or temporary lodging, in extreme cases). 	Contractor	ESCCM	-
Community Health and Safety - Workforce mobilization	Risks of social conflicts with workforce	<ul style="list-style-type: none"> - The Contractor will develop and implement a Local Recruitment and Working Conditions Plan, which will include the following principles: <ul style="list-style-type: none"> o Create mechanisms to ensure that the recruitment and hiring procedures are conducted in a transparent and just manner, are coordinated with the community leaders and District Administration, maximize local employment including women and young workers and transfer technical skills to the local labor force; o Forbid workers from hunting, fishing or buying bush meat. Inform workers of these restrictions in the induction sessions and enforce and monitor them appropriately, including through the Code of Conduct; o Give priority to hire local workers, provided applicants have the necessary skills; o Employment opportunities will be adequately advertised, so as not to limit application opportunities; 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	Risks of social conflicts with workforce	<ul style="list-style-type: none"> ○ The process of contracting staff will be transparent and follow pre-established and accepted criteria and a process coordinated with local leaders that aims to maximize opportunities for the local workforce; ○ Avoid hiring at the gate – establish local and regional recruitment centers and provide pick up points for applicants from communities; ○ Ensure respect for local labor laws and worker rights, and together with the labor policy, Health and Safety Management Plan, Camp and Housing Management Plan, Code of Conduct and Worker's GRM, ensure safe and fair working conditions; ○ Develop and implement a worker's grievance management system. 	Contractor	ESCCM	-
Community Health and Safety - Workforce mobilization	Risks of social conflicts with workforce	<ul style="list-style-type: none"> - The Contractor will have a contractually binding policy and Code of Conduct for all workers that includes, among other things, zero tolerance to child and forced labor, non-discrimination provisions regarding women and other minorities, and environmental good practice requirements. The Code of Conduct (to be explained to and signed by each worker and reinforced through training) will include a statement that workers are expected to keep and promote good standards of social interaction with the local communities and avoid any gender based violence or sexual abuse and exploitation, particularly sexual interaction with minors, as well as follow good environmental practices in all project areas. - Elements to cover in the Code of Conduct (CoC) include, without limitations <ul style="list-style-type: none"> ○ Respect for local residents and customs; ○ Non-Discrimination (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, birth, age, disability, or political conviction); ○ Compliance with applicable laws, rules, and regulations of the jurisdiction; ○ Zero tolerance of bribery or corruption; ○ Zero tolerance of illegal activities by Contractor personnel, including prostitution, illegal sale or purchase of alcohol, sale, purchase or consumption of drugs, illegal gambling or fighting; ○ Policy and sanctions against drunkenness and a no alcohol and drugs policy during working time or at times that will affect the ability to work or within accommodation camps, or acquired from outside the camp while accommodated in the camp; ○ A program for drug and alcohol abuse prevention and random testing that is equivalent in scope and objectives to the policies prescribed in the code of conduct; 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	Risks of social conflicts with workforce	<ul style="list-style-type: none"> o Policy including sanctions against sexual harassment (for example to prohibit use of language or behavior, in particular towards women or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate); o Compliance with applicable health and safety requirements (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment); o Following good environmental practices, including strict avoidance within project areas of any hunting or fishing, bushmeat purchase, wildlife capture, unauthorized vegetation cutting or burning, free-roaming pets (which could conflict with wildlife), and littering with plastic or other non-food wastes; o Policy and sanctions against violence or exploitation, including of a sexual nature (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading or exploitative behavior); o Protection of children (including prohibitions against abuse, defilement, or otherwise unacceptable behavior with children, limiting interactions with children, and ensuring their safety in project areas); o Policy and sanctions against sexual relations with anyone under the age of 18 (except if married prior to employment); o Description of disciplinary measures for infringement of the code and company rules. If workers are found to be in contravention of the CoC, which Contractor will explain to them and require them to sign at the commencement of their contract, workers must face proportionate disciplinary procedures; <p>- Failure to keep by these standards will be stated in the contracts as grounds for contract termination. Inform all hired workers of these restrictions and the possible consequences of breaking them.</p> <p>- The Contractor will further be expected to:</p> <ul style="list-style-type: none"> o Publicize the CoC in settlements potentially affected by the construction camps, as part of the community relations plan. This will help ensure that the local residents are aware of the expected behavior of the construction staff; o Provide entertainment facilities for workers at the construction accommodation camp as well as for operational workers, and establish clear rules for conduct during leisure time as well as the need to remain within the camp boundaries during leisure time; o Provide appropriate sporting facilities, including organized sporting activities for workers at the permanent accommodation camp; 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	Risks of social conflicts with workforce	<ul style="list-style-type: none"> ○ Provide schedule and transportation that allows workers to visit their families or to have leisure time in urban centers at reasonable intervals. - The Contractor will require its subcontractors to subscribe and adhere to this code and will diligently supervise its implementation at all levels, including engaging the community in confidentially and actively identifying any inappropriate behavior. 	Contractor	ESCCM	-
Community Health and Safety - Workforce mobilization	GBV/SEA prevention and response framework	- EDM and the Contractor will work together to continuously assess risks and identify and implement prevention, response and referral processes with respect to any cases involving Sexual Exploitation and Abuse / Gender Based Violence (SEA/GBV). This will focus on: (i) training of EDM and Contractor personnel, (ii) community and worker awareness, (iii) making available safe and confidential channels of communication and complaints, and (iv) a referral system and mechanism for survivors of GBV/SEA;	EDM / Contractor	EDM	120,000

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	GBV/SEA prevention and response framework	<ul style="list-style-type: none"> - EDM will develop and implement a GBV/SEA prevention and response framework that will address the following elements: <ul style="list-style-type: none"> o How the project will put in place the necessary protocols and mechanisms to address the SEA/GBV risks; o How to address any GBV incidents that may arise; o A policy against GBV/SEA including a CoC and agreed sanctions. These will be provided by the contractor and consultants as part of the Contractor ESMP. Have all employees of contractors (including sub-contractors), supervision consultants and other consultants with a footprint on the ground in the project area sign CoCs; o For purposes of the construction and operational phases of the project, develop an induction program, including a CoC, for all workers directly related to the project. - Specific arrangements for the project by which GBV risks will be addressed, including: <ul style="list-style-type: none"> o Awareness Raising Strategy, which describes how workers, local communities and Project personnel will be sensitized to SEA/GBV risks, and the worker's responsibilities under the CoC; o Referral Pathway: Identification of qualified GBV service providers and setting up a referral pathway so GBV survivors will be referred, and the services will be available (health, legal, psychosocial, safety planning, etc.); o Establish a SEA/GBV Accountability and Response Framework, to be finalized with input from the contractor, which will include at minimum: <ul style="list-style-type: none"> ▪ Allegation Procedures: How the project will provide information to employees and the community on how to report cases of SEA/GBV, CoC breaches to the GRM; ▪ SEA/GBV Allegation Procedures to report SEA/GBV issues to service providers, and internally for case accountability procedures which will clearly lay out confidentiality requirements for dealing with cases; ▪ Mechanisms to hold accountable alleged perpetrators associated to the Project; ▪ The GRM process for capturing disclosure of SEA/GBV; and, a referral pathway to refer survivors to appropriate support services; 	EDM / Contractor	EDM	120,000

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	GBV/SEA prevention and response framework	<ul style="list-style-type: none"> Disciplinary action for violation of the CoC by workers. It is essential that such actions be determined and carried out in a manner that is consistent with local labor legislation and applicable industrial agreements; The supervision consultant TOR and the training plan will include provisions to promote monitoring and reporting on the implementation and effectiveness of the SEA/GBV Action Plan to prevent and mitigate SEA/GBV risks associated with the project; Reporting on the Framework implementation will be done on a monthly basis. 	EDM / Contractor	EDM	120,000
Community Health and Safety – Security forces	Potential social conflicts with security forces	<p>Security Management Plan</p> <ul style="list-style-type: none"> Contractor will develop a Security Management Plan, detailing the security arrangements to be deployed at camps, material storage and construction sites, or any location with Project presence. This plan will be compliant with IFC's PS 4, and with the Voluntary Principles on Security and Human Rights, and will be submitted for EDM approval, prior to start of construction; This plan will include mandatory training for all security personnel, in what regards human rights, proportionate force use and adherence Co contractor's code of conduct; It will be noted that the use of police or military security personnel is not expected. Given the Project nature, security will almost certainly be supplied by duly licensed security firms using civil personnel only. In any event, will the Project have the need to engage with police security personnel, at any stage, EDM will make an effort to engage with the authorities, so that the any engagement with the communities is in compliance with the Voluntary Principles on Security and Human Rights. 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Community Health and Safety - Workforce mobilization	Increased risks of STIs	<ul style="list-style-type: none"> - The Contractor will develop a policy and management plan to reduce the transmission of STIs, including HIV / AIDS. This strategy will: <ul style="list-style-type: none"> o Make provision for awareness, counselling and testing for all Project personnel, including voluntary testing for STDs and HIV/AIDS as part of any health screening program (workers will not be denied employment or discriminated against in any way based on their HIV status); o Provide guidance and counselling to workers with HIV/AIDS to access treatment through existing health facilities or NGO campaigns or programs; o Ensure there is access to free condoms at all worker sites and accommodation; o Ensure that all Project personnel are given specific HIV and STD prevention training; o Undertake information, education and communication campaigns around safe sexual practices and transmission of STDs and HIV/AIDS as well as condom distribution at stopping locations on key transport routes targeting commercial sex workers and truck drivers; 	Contractor	ESCCM	-
Community Health and Safety - Workforce mobilization	Increased risks of STIs	<ul style="list-style-type: none"> o Support public health or NGO initiatives to reduce STD transmission including working through schools, women's and youth groups; o The Contractor will encourage and allow specialized expatriate labor, or specialized labor mobilized from other provinces, to move with their families; o The Contractor will provide non-local workers with a schedule and transportation that avoids limiting off-time activities at nearby communities; - Conduct community awareness campaigns in communities crossed by the line and especially in proximity of camps and work fronts (see section 6.6 for additional details). 	Contractor	ESCCM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Construction Phase					
Construction phase – Specific Mitigation Measures					
Vegetation clearance and all soil disturbing activities	Disturbance of undiscovered cultural heritage sites	<p>Develop and implement a chance finds procedure:</p> <ul style="list-style-type: none"> - If a heritage site or archaeological site be uncovered or discovered during the construction, work will be stopped immediately and ESCO or his field representative must be notified of the discovery; - Identify the site with flag tape and determine GPS position if possible; - Determine whether work can proceed without damage to findings; - Determine and mark exclusion boundary. - Assign qualified specialist (archaeologist) for site assessment of the chance find; - Inspect site and assess scientific and cultural importance of the findings; - If findings are of scientific or cultural importance report findings to the National Directorate Cultural Heritage; - Define appropriate mitigation measures, depending on relevance of findings. These can include protection in site, excavation and them removal or simple removal from site, as may be relevant; - Request written permission from National Directorate Cultural Heritage to remove findings from work area, or to implement other relevant mitigation measures; - Recovery, packaging and labelling of findings for transfer to museum, if relevant. 	Contractor	ESCCM	-
All construction activities	Increased risk of accidents	- Develop and implement an Emergency Response Plan, in accordance with the requirements described in section 6.10 of the ESMP.	Contractor	ESCCM	-

Table AI.5 – Mitigation Measures for the Operational phase

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Operational Phase					
Transmission line	Increased noise levels.	<ul style="list-style-type: none"> - Regular maintenance of the transmission line components; - Regular visual inspection of tower foundations, for erosion detection and control. 	Operational manager	EDM	-
Access roads	Indirect loss of habitats along the RoW	<ul style="list-style-type: none"> - Minimizing Access Road Induced Impacts: Besides providing options for compensatory mitigation (through reforestation or targeted protection) of road-induced deforestation or woodland degradation, the BMP should seek to prevent and minimize such impacts in the first place. Effective strategies for doing this should include, as feasible, (i) locked gates at access or service road entry points and/or (ii) maintaining these roads to a relatively low standard (to make them easily passable with a 4X4 vehicle, ATV, or motorbike, but not so easily passable with a truck, bus, or passenger car). To the extent possible, transmission line access and service roads should not be maintained as general-access public roads. 	Operational manager	EDM	-
Substations	Increased noise levels.	<ul style="list-style-type: none"> - Maintain substation equipment in good running condition, free of leaks, excess oil and grease; - Regularly inspect all equipment at the substations that may contain contaminants, such as transformers; - If noise complaints are received from nearby communities due to the substation operations, and if subsequent investigation confirms the noise impact, consider and implement additional noise control measures, as required. These can take the form of barriers between the noise source and the sensitive receptor (such as a barrier of mature trees, tall soil berms or noise barriers) or the enclosure of the transformers and other noisy equipment with acoustic barriers/panels (screening devices). 	Operational manager	EDM	-
	Waste production	<ul style="list-style-type: none"> - Develop and implement a Waste Management Plan for substation operations. This will be based on the guidance provided for the construction phase waste management procedures. 	Operational manager	EDM	5,000 / year
	Risk of soil and surface water contamination	<ul style="list-style-type: none"> - Develop and implement an Emergency Response Plan for the substation operation. Provide spill kits in all substations. 	Operational manager	EDM	120,000
		○			
Right-of-way (RoW)	Suppression of vegetation units; Habitat fragmentation	<ul style="list-style-type: none"> - When implementing vegetation control on the RoW, limit disturbance outside maintenance area boundaries and limit vegetation clearance to the area required. Complete vegetation clearance should be restricted to the 30 m corridor; - Outside of the 30 m full clearance corridor, allow tree and shrub species whose height is limited to 3 m to grow. Apply selective removal of tall-growing tree species only; 	Operational manager	EDM	-

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Operational Phase					
	Permanent alteration of the landscape.	- Avoid clearing in riparian areas, thus allowing rivers to maintain their function as ecological corridors.			
	Loss of woodland habitat	<ul style="list-style-type: none"> - Implement the measures included in the BMP for monitoring and response to indirect losses of woodland habitat, caused by progressive human expansion along the RoW, namely: <ul style="list-style-type: none"> o Monitor the direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna, 5 km on both sides of the RoW: deforestation and poaching monitoring and development of corrective actions; o Register the presence of people in and near the RoW and the actions taken by local authorities to prevent illegal logging and poaching activities. These impacts should be assessed through ground monitoring, as well as the use of aerial photographs and Google Earth; o In case problems are detected that cause significant negative impacts on natural and critical natural habitat, on flora and fauna, mitigation measures will be developed and implemented, including reforestation or targeted protection and anti-poaching activities, financed by EDM. 	Operational manager	EDM	80,000 / year
	Permanent alteration of the landscape	- If complaints are received, from local communities or other stakeholders, regarding a negative visual impact created by the transmission line, create visual barriers to reduce line visibility in sensitive areas, if feasible.	Operational manager	EDM	-
	Indirect loss of habitats along the RoW.	<ul style="list-style-type: none"> - Limit non-Project vehicle entrance and circulation along the RoW, as much as possible, through the placement of signalization and entry gates; - Incorporate in the normal maintenance procedures of the RoW the monitoring of creation of new settlements or cutting or burning of woodland areas in adjacent areas along the RoW, and report these occurrences to the local authorities 	Operational manager	EDM	-
	Indirect loss of habitats along the RoW.	<ul style="list-style-type: none"> - Engage with relevant local and provincial Government Departments to raise their awareness of the need for a coordinated intervention to enforce restrictions on uncontrolled settlement and agricultural expansion, clearance of woodland, and enforcement on controls on hunting, charcoal and timber cutting, along the RoW, in particular in the line segment between Chibuto and Vilanculos substations, where more dense woodlands still exist. The following will be implemented: <ul style="list-style-type: none"> o EDM will approach the Provincial Governments of Gaza of Inhambane to discuss this issue (note that the critical segment is the one between Chibuto and Vilanculos substations, where more dense woodlands still exist); 	Operational manager	EDM	25,000 / year

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility of mitigation	Responsibility of direct supervision	Estimated cost supported by EDM (USD)
Operational Phase					
		<ul style="list-style-type: none"> With the support of the Provincial governments, the goal is to create an inter-district committee to monitor and control population expansion or unauthorized activities along the RoW. Relevant districts include Chibuto, Panda, Funhalouro, Massinga and Vilanculos; EDM will discuss with this inter-district committee the procedure to monitor population expansion along the RoW. The Districts will be consulted in terms of what they wish to be reported. A specific and detailed reporting protocol will then be defined; This protocol will be implemented by EDM, as part of the normal operational inspection activities of the RoW and line components; Following reporting of occurrences to the Districts, EDM will engage with district authorities to discuss and coordinate a possible response. EDM will support, as possible, local authorities in their response. 			
Workforce	Creation of local employment opportunities; Potential impacts on workers' health and safety.	<ul style="list-style-type: none"> - Give priority to hire local workers, provided applicants have the necessary skills for the created employment opportunity; - Develop a Training and Skill Transfer Program for the operational phase to maximize local employment including women; - Employment opportunities will be adequately advertised, so as not to limit application opportunities; and - The process of contracting staff will be transparent and follow pre-established and accepted criteria; - Implement EDM's existing health and safety policies and procedures for the operation of substations and transmission lines. 	Operational manager	EDM	-
Communities interaction	Social conflicts with local communities.	<ul style="list-style-type: none"> - Develop and implement a Stakeholder Engagement Plan, in compliance with IFC's PS 1 requirements and the guidelines provided in the Communication Plan Framework (see section 6.5). - Include community health and safety components (continued HIV and SEA prevention and referral programs, security and company personnel Code of Conduct, etc.) 	Operational manager	EDM	12,000 / year

B. Monitoring Framework

Table AI.6 – Monitoring during construction phase

Project Activity	Impact	Monitoring indicators	Responsibility	Frequency/ Duration	Location	Methods	Estimated cost supported by EDM (USD)
Construction phase							
Construction activities near residential areas	Air pollution	Particulate matter (TSP concentration) and Dust plumes resulting from the movement of construction machinery and equipment.	Contractor	Quarterly and; Weekly during intense construction periods.	Construction locations located less than 200 meters from residential dwellings	USEPA 40 CFR part 50, Appendix J or equivalent method.	-
Wastewater Treatment Systems	Water Contamination	Effluent quality parameters: Colour, odour, pH, Temperature, BOD, COD, Total Suspended Solids (TSS), Total Phosphorus, Total Nitrogen, Oil and grease, total Coliforms and faecal Coliforms	Contractor	Monthly during Construction	Wastewater treatment system effluent (construction camps)	Standard Methods for the Examination of Water and Wastewater or equivalent methods	-
Construction activities near water bodies	Increase of sedimentation of water bodies	Evident increased sedimentation of water bodies	Contractor	Monthly during Construction	Rivers and other water body's located in the vicinity of the construction sites	Visual inspections	-
River crossings	Increased erosion of water bodies	Evident undue erosion or other damage to river banks	Contractor	Monthly during Construction	Rivers or drainage lines crossed by the Project	Visual inspections	-
Construction fronts and camps	Waste production	Volume of Non-Hazardous Waste produced. Volume of Hazardous Waste produced	Contractors	Weekly	Construction fronts and camps	Visual inspections as established in the Waste Management Plan	-

Project Activity	Impact	Monitoring indicators	Responsibility	Frequency/ Duration	Location	Methods	Estimated cost supported by EDM (USD)
Construction phase							
RoW	Increase in invasive flora species	Expansion of invasive flora species	Contractor	Annually	Along the RoW pathway	Visual inspection as per the Biodiversity Management Program	-
ROW	Indirect deforestation and wildlife poaching	Direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna	Contractor	Semi-annually (twice per year)	Along the RoW pathway	Visual inspection as per the Biodiversity Management Program	-

Table AI.7 – Monitoring during operational phase

Project Activity	Impact	Monitoring indicators	Responsibility	Frequency/ Duration	Location	Methods	Estimated cost supported by EDM (USD)
Operational Phase							
Substations	Waste production	Volume of Non-Hazardous Waste produced Volume of Hazardous Waste produced	EDM	Monthly	Substations	Visual inspection	6 000 USD / year
RoW	Increase in invasive flora species	Expansion of invasive flora species	EDM	Annually	Along the RoW pathway	Visual inspection as per the Biodiversity Management Program	20 000 USD / year
	Indirect deforestation and wildlife poaching	Direct and indirect / induced impacts on natural and critical natural habitat, on both flora and fauna	EDM	Biannually during the first five years of operation. Annually during the next 5 years of operation.	Along the RoW pathway	Visual inspection as per the Biodiversity Management Program	20 000 USD / year

Project Activity	Impact	Monitoring indicators	Responsibility	Frequency/ Duration	Location	Methods	Estimated cost supported by EDM (USD)
	Increase in Bird and Bats Mortality	Bird and Bat Mortality	EDM	Quarterly during the first five years of operation	Along the RoW pathway	Visual inspection as per the Biodiversity Management Program	40 000 USD / year

Annex II – Template ESMP for Ancillary Facilities

Template ESMP for Ancillary Facilities

1. Background

The implementation of the STE Project Phase 1 will require a number of ancillary infrastructure and facilities, which are required to support the Project's construction and operation. These ancillary infrastructure and facilities include:

- Access roads, for line construction and maintenance purposes;
- Borrow pits, to provide aggregates and inert materials for construction purposes;
- Construction camps, which could include temporary workers' accommodation and temporary storage sites for equipment and materials.

The location and dimensioning of these ancillary infrastructure is not defined presently. As such, it was not possible to include them in the scope of this ESIA.

Guidance for the selection of the location of these infrastructures, and for their environmental and social management, is provided in the overall Project ESMP, with the aim of minimizing their environmental and social impacts.

However, specific ESMPs will need to be developed for each ancillary facility, adapting and specifying the requirements to be site-specific. This Template ESMP provides some guidance to the minimum contents of site-specific ESMPs for ancillary facilities.

2. Application

This template ESMP will be used as a basis to develop ESMPs for all ancillary facilities of the STE Project Phase 1. This template ESMP provides the minimum contents that needs to be included in the ESMPs. However, the EPC Contractors will ensure that each specific ESMP complies with all mitigation, management and monitoring requirements defined in the overall Project ESMP. Each ESMP will be subject to approval by EDM and no-objection by the WB.

3. Table of Contents

The minimum contents for an ESMP for ancillary facilities is given in the box below.

- | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">a) Description of Ancillary Facilitiesb) Potential Environment and Social Impacts;c) Mitigation and Management Measuresd) Monitoringe) Institutional Arrangements and Capacity Building |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4. Minimum Requirements for ESMP Contents

The following sections provide some guidance regarding the minimum requirements for the contents of an ESMP for ancillary facilities, considering the table of contents provided above.

4.1. Description of Ancillary Facilities

This section will describe the Ancillary Facilities that are the object of the ESMP. As listed above, this might include widening and improving of existing roads; construction of new permanent or temporary access roads, opening, management and rehabilitation of borrow pits; establishment, management and rehabilitation of workers camps, etc.

The description must provide information regarding the background of alternatives considered, that led to the selection of the alignment or site, as developed in the Camp and Housing Management Plan, Borrow Pit and Quarry Management Plan or Access Roads Location and Management Plan, depending on the type of ancillary facility that is the object of the ESMP.

4.2. Potential Environmental and Social Issues

The major potential environmental and social impacts for Ancillary Facilities will be described. At the minimum, the following categories of impacts will be addressed:

During construction:

- Land acquisition and potential resettlement – potential resettlement impacts will be identified and assessed. Management of land acquisition impacts will be done in accordance with a site-specific RAP/ARAP developed for each ancillary facility, in accordance with the RAP (ancillary facilities RPF Annex). Although management of these impacts are outside of the scope of the ESMP, they will be referenced and a link to the RAP/ARAP will be included. No construction or activity can start before any required site-specific RAP/ARAP is duly approved and fully implemented;
- Site clearance impacts, for right-of-way and establishing Contractor's work camps, staging areas, borrow pits, concrete and asphalt plants. These include impacts associated with loss of vegetation, top-soil clearance, earth movements, movement of heavy machinery and equipment, etc.;
- Sourcing of construction materials will involve creating borrow pits for earthworks materials; transport, stockpiling and use of such materials; disposal of unsuitable materials, recycling reuse or disposal of pavement materials, etc. This has the potential to cause loss of farmlands or encroachment on forest land or wetland to extract suitable materials and also cause traffic and safety issues resulting from materials transport, storage and handling;
- Asphalt plants, stone crushers, cement mix plants used in the manufacture of asphalt concrete or cement concrete could involve a stone crusher as part of the asphalt or concrete mix plants. For large operations, the activities will involve crushing of stones using large and noisy equipment, conveyors to transport aggregates and sand, oil fired aggregate heaters and dryers and batch mixers or it could simply involve the heating of bitumen and hand mixing asphalt and stone chips. Potential environmental problems involve bitumen spills or improper handling of bitumen, surface water contamination, noise from crushers and air pollution, particularly dust and smell;
- Access roads to borrow and disposal areas, quarry sites, construction / labour camps and other ancillary facilities are necessary to facilitate access to these sites. Apart from direct impacts

(dust, drainage, safety, etc.) resulting from the construction of the access roads, the alignment of the road could result in increased exploitation of the natural resources in some areas, as well as land acquisition requirements and/or resettlement;

- Social risk management, including labor hiring, ongoing interaction with local communities, nuisance effects related to air emissions, noise emissions and increased traffic, increased community risks associated with increased traffic, use of security personnel, etc..

During operations:

- The creation and improvement of roads would likely lead to improved traffic flow and communications, and it will also result in increased air pollution, traffic noise, accidents and increased access to sensitive natural resources;
- Social risk management: the actions implemented during construction will be redimensioned and continued until the site is decommissioned and restored.

4.3. Mitigation and Management Measures

Adequate mitigation and management measures will be defined for each of the identified impacts. Mitigation and management measures will be in line with the mitigation requirements included in the overall Project ESMP. Summary tables are provided below, for each type of ancillary facility, linking to the mitigation requirements included in the overall project ESMP.

The ESMP will include as detailed an implementation schedule as possible. This schedule will be updated as detail design progresses. The budget to implement the ESMP will be estimated and included in the total project cost. Some aspects of the ESMP (such as top soil stripping and stockpiling, regular watering to control dust, etc.) will be part of good engineering design and will not require supplementary budget. Others will require additional budget, which will be estimated and included in the cost of implementing the ESMP.

Table All.1 – Summary of ESMP Mitigation Requirements for Construction Camps

Impact / Aspect	Links to Mitigation Requirements
Camp location and design	- Construction camp location and design will respect the guidelines provided in Table 4.2 (Section 4.1.2) of the overall Project ESMP.
Community consultation and communication	- Site-specific communication and consultation procedures with local communities will be developed, in compliance with the guidelines provided in the Communication Plan of the overall Project ESMP (Section 6.5).
Land clearing, site preparation and earth movements	- Site-specific mitigation for land clearing, site preparation and earth movements will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) of the overall Project ESMP; - A chance finds procedure will be included, in compliance with the requirements listed in section 6.9 of the overall Project ESMP.
Movement and operation of vehicles, machinery and equipment	- Site-specific mitigation for movement, maintenance and operation of vehicles, machinery and equipment will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) and Section 6.1 (Air Quality Management Program) of the overall Project ESMP; - Site-specific traffic management procedures will be provided, in compliance with the requirements given in the ESMP for the Traffic Management Plan, as per Table 6.28 (section 6.8.3) of the overall ESMP.

Impact / Aspect	Links to Mitigation Requirements
Handling of hazardous substances and responses to accidental events (leaks or spills)	- Handling of hazardous substances and responses to accidental events (leaks or spills) in the construction camps will abide by the requirements set out in Table 4.3 (Section 4.2) and Table 6.8 (section 6.2 – Water Resources Management Program) of the overall Project ESMP.
Management of liquid effluents	- Treatment and management of camp liquid effluents will comply with the requirements set out in Table 6.8 (section 6.2 – Water Resources Management Program) of the overall Project ESMP.
Management of solid wastes	- Site-specific waste management procedures will be developed in each camp ESMP, in compliance with the Waste Management Plan provided in the overall Project ESMP (Section 6.3).
Mobilization of Workforce	<ul style="list-style-type: none"> - Site-specific recruitment procedures for each camp will be provided, based on the general requirements provided for the Local Recruitment and Working Conditions Plan, as per Table 6.28 (section 6.8.3) of the overall Project ESMP. - Construction camps workers will be included in the Training and Skill Transfer Program, as required in Table 4.3 (Section 4.2) of the overall Project ESMP; - Each construction camp will have a Health and Safety Management Plan, in compliance with the requirements included in Table 4.3 (Section 4.2) of the overall Project ESMP; - Contractor will implement the Code of Conduct, as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP, in all construction camps; - Construction camps will be included in the GBV/SEA prevention and response framework, as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP; - Site specific policy and management measures to reduce the transmission of STIs, including HIV / AIDS will be included, in compliance with requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP;
Security Personnel	- Security arrangements for each camp will be defined, in compliance with the requirements given for the Security Management Plan , in Table 6.28 (section 6.8.3) of the overall Project ESMP.
Procurement of goods and services	- Procurement of goods and services for the camps will abide by the requirements set out in the Local Procurement Plan , as per Table 4.3 (Section 4.2) of the overall Project ESMP;
Management of emergencies	- A site-specific Emergency Response Plan will be developed for each construction camp, taking into consideration the guidance provided in section 6.10 of the overall Project ESMP.
Clean up and demobilization	- Each construction camp will have a Rehabilitation and Revegetation Plan , in compliance with the requirements set out in Table 4.3 (Section 4.2) of the overall Project ESMP.
Contractor GRM (workers and community)	- The construction camps will be included in the scope of the Community and Workers Grievance Management System to be developed by the Contractor, as per the requirements set out in Table 4.3 (Section 4.2) and Section 6.7 of the overall Project ESMP;

Table AII.2 – Summary of ESMP Mitigation Requirements for Borrow Pits and Quarries

Impact / Aspect	Links to Mitigation Requirements
Borrow pit location and design	- Borrow pit and quarries location will respect the guidelines provided in Table 4.2 (Section 4.1.2) of the overall Project ESMP.
Community consultation and communication	- Site-specific communication and consultation procedures with local communities will be developed, in compliance with the guidelines provided in the Communication Plan of the overall Project ESMP (Section 6.5).

Impact / Aspect	Links to Mitigation Requirements
Land clearing, site preparation and earth movements	<ul style="list-style-type: none"> - Site-specific mitigation for land clearing, site preparation and earth movements will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) of the overall Project ESMP; - A chance finds procedure will be included, in compliance with the requirements listed in section 6.9 of the overall Project ESMP.
Movement and operation of vehicles, machinery and equipment	<ul style="list-style-type: none"> - Site-specific mitigation for movement, maintenance and operation of vehicles, machinery and equipment will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) and Section 6.1 (Air Quality Management Program) of the overall Project ESMP; - Site-specific traffic management procedures will be provided, in compliance with the requirements given in the ESMP for the Traffic Management Plan, as per Table 6.28 (section 6.8.3) of the overall ESMP.
Handling of hazardous substances and responses to accidental events (leaks or spills)	<ul style="list-style-type: none"> - Handling of hazardous substances and responses to accidental events (leaks or spills) in borrow pit sites will abide by the requirements set out in Table 4.3 (Section 4.2) and Table 6.8 (section 6.2 – Water Resources Management Program) of the overall Project ESMP.
Management of solid wastes	<ul style="list-style-type: none"> - Site-specific waste management procedures will be developed in each borrow pit ESMP, in compliance with the Waste Management Plan provided in the overall Project ESMP (Section 6.3).
Mobilization of Workforce	<ul style="list-style-type: none"> - Borrow pit workers will be included in the Training and Skill Transfer Program, as required in Table 4.3 (Section 4.2) of the overall Project ESMP; - Each borrow pit and quarry will have a Health and Safety Management Plan, in compliance with the requirements included in Table 4.3 (Section 4.2) of the overall Project ESMP; - Contractor will implement the Code of Conduct, as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP, in all borrow pits and quarries; - Borrow pits and quarries will be included in the GBV/SEA prevention and response framework, as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP; - Site specific policy and management measures to reduce the transmission of STIs, including HIV / AIDS will be included, in compliance with requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP;
Security Personnel	<ul style="list-style-type: none"> - Security arrangements for each borrow pit and quarry site will be defined, in compliance with the requirements given for the Security Management Plan, in Table 6.28 (section 6.8.3) of the overall Project ESMP.
Procurement of goods and services	<ul style="list-style-type: none"> - Procurement of goods and services for borrow pits and quarries will abide by the requirements set out in the Local Procurement Plan, as per Table 4.3 (Section 4.2) of the overall Project ESMP;
Management of emergencies	<ul style="list-style-type: none"> - A site-specific Emergency Response Plan will be developed for each construction camp, taking into consideration the guidance provided in section 6.10 of the overall Project ESMP.
Clean up and demobilization	<ul style="list-style-type: none"> - Borrow pits will have a Rehabilitation and Revegetation Plan, in compliance with the requirements set out in Table 4.3 (Section 4.2) of the overall Project ESMP.
Contractor GRM (workers and community)	<ul style="list-style-type: none"> - Borrow pit and quarries will be included in the scope of the Community and Workers Grievance Management System to be developed by the Contractor, as per the requirements set out in Table 4.3 (Section 4.2) and Section 6.7 of the overall Project ESMP;

Table AII.1 – Summary of ESMP Mitigation Requirements for Access Roads

Impact / Aspect	Links to Mitigation Requirements
Access roads location and design	- Access roads location and design will respect the guidelines provided in Table 4.2 (Section 4.1.2) of the overall Project ESMP.
Community consultation and communication	- Site-specific communication and consultation procedures with local communities will be developed, in compliance with the guidelines provided in the Communication Plan of the overall Project ESMP (Section 6.5).
Land clearing, site preparation and earth movements	- Site-specific mitigation for land clearing, site preparation and earth movements will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) of the overall Project ESMP; - A chance finds procedure will be included, in compliance with the requirements listed in section 6.9 of the overall Project ESMP.
Movement and operation of vehicles, machinery and equipment	- Site-specific mitigation for movement, maintenance and operation of vehicles, machinery and equipment will be developed, in compliance with the requirements provided in Table 4.3 (Section 4.2) and Section 6.1 (Air Quality Management Program) of the overall Project ESMP; - Site-specific traffic management procedures will be provided, in compliance with the requirements given in the ESMP for the Traffic Management Plan, as per Table 6.28 (section 6.8.3) of the overall ESMP.
Handling of hazardous substances and responses to accidental events (leaks or spills)	- Responses to accidental events (leaks or spills) in access road construction sites will abide by the requirements set out in Table 4.3 (Section 4.2) and Table 6.8 (section 6.2 – Water Resources Management Program) of the overall Project ESMP.
Management of solid wastes	- Site-specific waste management procedures for access roads construction sites will be developed, in compliance with the Waste Management Plan provided in the overall Project ESMP (Section 6.3).
Mobilization of Workforce	- Site-specific recruitment procedures for access road construction will be provided in each ESMP, based on the general requirements provided for the Local Recruitment and Working Conditions Plan , as per Table 6.28 (section 6.8.3) of the overall Project ESMP. - Access road construction workers will be included in the Training and Skill Transfer Program , as required in Table 4.3 (Section 4.2) of the overall Project ESMP; - Each access road construction will have a Health and Safety Management Plan , in compliance with the requirements included in Table 4.3 (Section 4.2) of the overall Project ESMP; - Contractor will implement the Code of Conduct , as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP, for all workers involved in access road construction; - Access road construction workers will be included in the GBV/SEA prevention and response framework , as per the requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP; - Site specific policy and management measures to reduce the transmission of STIs, including HIV / AIDS will be included, in compliance with requirements given in Table 6.28 (section 6.8.3) of the overall Project ESMP;
Security Personnel	- Security arrangements for each access road construction site will be defined, in compliance with the requirements given for the Security Management Plan , in Table 6.28 (section 6.8.3) of the overall Project ESMP.
Procurement of goods and services	- Procurement of goods and services for access road construction works will abide by the requirements set out in the Local Procurement Plan , as per Table 4.3 (Section 4.2) of the overall Project ESMP;
Management of emergencies	- A site-specific Emergency Response Plan will be developed for each access road construction site, taking into consideration the guidance provided in section 6.10 of the overall Project ESMP.
Clean up and demobilization	- Each temporary access road will be decommissioned and rehabilitated, in accordance with a specific a Rehabilitation and Revegetation Plan , in compliance with the requirements set out in Table 4.3 (Section 4.2) of the overall Project ESMP.

Impact / Aspect	Links to Mitigation Requirements
Contractor GRM (workers and community)	- Access road construction sites will be included in the scope of the Community and Workers Grievance Management System to be developed by the Contractor, as per the requirements set out in Table 4.3 (Section 4.2) and Section 6.7 of the overall Project ESMP;

4.4. Monitoring

Each ancillary facility ESMP will include monitoring actions, as appropriate. Monitoring requirements will be defined from the outcomes of the environmental and social assessment, and will take into consideration the monitoring requirements defined in the overall Project ESMP. Monitoring requirements might include:

- Dust monitoring. As a principle, only those parameters which are pertinent to the project will be monitored. For example, where dust is a major source of impact, especially near schools, hospitals and residential areas, visual assessment/monitoring will be used to trigger watering of the site generating dust;
- Noise will be measured by a hand held noise meter while discharge of sediments will be visually observed to ascertain the effectiveness of sediment traps. In all cases, as soon as the monitoring results are available, the Contractor will be expected to remediate the problem immediately;
- Community relations will be evaluated through an engagement program including participatory monitoring of any areas of concern (worker behavior, access to resources, nuisance factors 9traffic, noise, dust, etc.)

Each ancillary facility ESMP will develop project specific construction and operational monitoring plans including parameters to be monitored, procurement of portable and hand held equipment such as noise meters, water quality measuring kits, air quality measuring meters, etc. The cost of construction and operational monitoring, equipment, reporting, and training will be included in the project budget.

4.5. Institutional Arrangements and Capacity Development

This section will describe the institutional arrangement, safeguard staffing, and level of responsibility for implementing, supervising and monitoring of the ESMP during the construction and operational phases.

For contracts executed by local contractors there will likely be a need to train the contractor's staff.

The section will also describe the capacity building program built into the project with budget allocation and schedule.