



Republic of Mozambique

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

INCLUSIVE AGRI-FOOD VALUE CHAIN DEVELOPMENT PROGRAM

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

**VOLUME II – ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
(ESMP)**

FINAL REPORT



Prepared for: Ministry of Agriculture and Rural Development

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**INCLUSIVE AGRI-FOOD VALUE-CHAINS DEVELOPMENT
PROGRAMME (PROCAVA)
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PLAN (ESMP)
FINAL REPORT**

Ministério da Agricultura e Desenvolvimento Rural (MADER)

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LIST OF ACRONYMS

AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
CAE	Child Abuse and Exploitation
C-ESMP	Contractor's Environmental and Social Management Plan
ESO	Environmental Site Officer
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
HSO	Health and Safety Officer
GRM	Grievance Response Mechanism
GBV	Gender Based Violence
ISS	Integrated Safeguards System
MADER	Ministry of Agriculture and Rural Development
MTA	Ministry of Land and Environment
SPA	Provincial Services of Environment

1. INTRODUCTION

1.1 General Considerations

The African Development Bank is financing the Inclusive Agro-Food Value Chain Development Program, which aims to accelerate the transformation of the Agrarian Sector through competitive, inclusive, and sustainable growth, ensuring the integration of family farming and the private sector into productive poultry value chains (including maize and soybean).

The specific objectives of the project include:

- (i) Support the development of an integrated maize-soybean-animal poultry value chain to increase production, processing, and access to market to allow return on investment and maximum profitability;
- (ii) Enhance the country's resilience and response to climate shocks, by improving climate resilient infrastructure and adaptation of the beneficiaries;
- (iii) Support policies and capacity building to create an appropriate environment for MSME development and attracting private sector.

According to the Bank's Integrated Safeguards System (ISS), the project has been categorized as 1, requiring an Environmental and Social Impact Assessment. This assessment aims to:

- Identify the environmental and social impacts and design the minimization or mitigation measures of adverse environmental and social impacts of the project;
- Set an action plan of environmental and social management measures to be implemented; and
- Ensure compliance of the ESIA/ESMP with the governmental regulation and African Development Bank Integrated Safeguards System.

This categorization also requires monthly reports to be submitted to the bank, including at least information on the ESMP implementation, conflict resolution/GRM and HIV reports. The E&S Officer in the PIU will be responsible for the reports on E&S Performance to be submitted to the AfDB.

The Environmental and Social Management Plan (ESMP) is an integral part of the project. The ESMP has a set of general recommendations that, collectively, form the basis of environmental management and control. The main objectives are:

- Facilitate the implementation of relevant environmental mitigation measures;
- Comply with the minimization measures that were presented in the Environmental Impact Assessment Study;
- Combine the procedures that allow the activities to ensure the minimization of relevant associated impacts;
- Emphasize environmental and social management and its implementation requirements during the Project life cycle, and the responsibilities of each of the main actors;
- Identify management programs to achieve environmental and social management requirements during all phases of the project, as defined in the ESIA.

This ESMP applies to the various implementation phases of project activities, including interaction with affected and/or interested parties. It consists of a set of programs under the proponent's responsibility, aimed at controlling the critical aspects of the project's environmental management, establishing actions and measures to be adopted associated with the activity's execution actions, in order to prevent and/or minimize the impacts arising from the interventions.

1.2 ESMP Structure

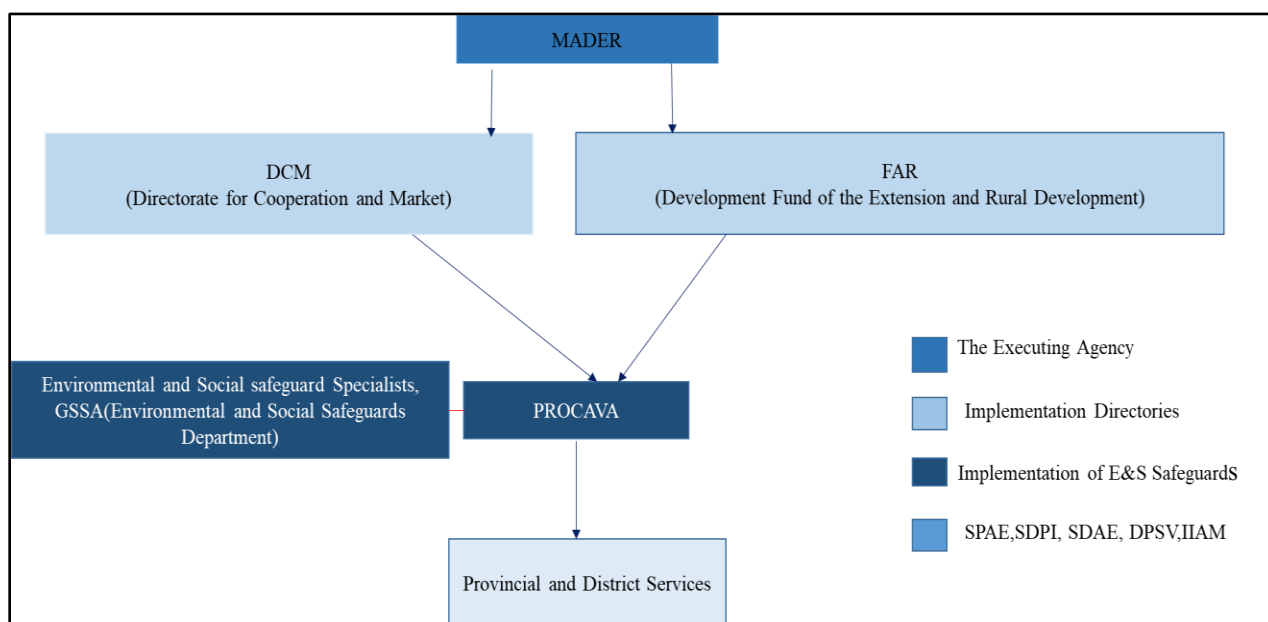
The structure of this EMP is presented in the table below.

Chapter	Content
Chapter 1	Introduction Provides a background to the proposed project and describes the objectives of the EMP.
Chapter 2	Roles and Responsibilities Indicates the management structure for implementing the ESMP and lists the roles and responsibilities of key role payers throughout the project lifecycle.
Chapter 3	Guidelines for Construction Sites, Borrow Pits and Temporary Access Roads

	Indicates the general guidelines for Construction Sites, Borrow Pits and Temporary Access Roads
Chapter 4	Environmental Management Plans and Programs Provides guidelines for specific environmental management programs and plans that will need to be developed and implemented by the Project Proponent or its Contractors.
Chapter 5	Budget Estimate Provides an estimate of the budget required for the different plans and instruments recommended in the ESMP.

2. ROLES AND RESPONSIBILITIES

MADER through the National Directorate for Cooperation and Market (DCM), will be the executing agency and the Development Fund of the Extension and Rural Development (FAR) will be responsible for overseeing the overall implementation of the Programme. MADER will also liaise and work with other Ministries and partners whose mandates have a direct bearing on the achievement of the PROCAVA goal and development objective. At the provincial and district levels, technical coordination of the Programme will be undertaken by MADER's relevant units. Such units include the Provincial Department of Veterinary Services (DPSV) the District Directorates of Economic Services (SDAE) and the National Agriculture Research Institutes (IIAM).



For the implementation of the ESMP is the responsibility of MADER as the proponent of the project. This responsibility will be carried out directly by MADER and through hiring different Contractors, which will be responsible for construction of specific infrastructures. Thus, many of the mitigation and social and environmental management requirements established in this ESMP for the construction phase will be the responsibility of the Contractor, under the supervision of an Engineer (Resident Engineer -RE) who should be hired by the Proponent. Regarding the

operational phase, MADER and different project beneficiaries (including private sector) will be responsible of implementation of the mitigation measures, in accordance with this ESMP.

Implementation of mitigation measures from the Project's impacts will require coordinated commitments and efforts from all entities involved in the project execution. It is crucial to clearly define the roles and responsibilities for all entities to ensure that the environmental management procedures defined in this ESMP are fully implemented. The responsibilities of each of the key entities in the implementation of the ESMP are summarized in the table below.

Institution	Role and Responsibilities
Proponent (MADER)	<ul style="list-style-type: none">✓ Ensure that the rehabilitation/construction works are carried out in accordance with the recommendation's measures of the ESMP.✓ Ensure to carry out E&S screening for all subprojects and submit instruction process to MTA/provincial representative (SPA) for categorization and development of appropriate E&S instruments and licensing.✓ Ensuring that the ESMP requirements are met during the construction phase, as well as for certifying to the regulatory agencies.✓ Establish and ensure that any environmental supervision and other actions required by SPA/MTA are accomplished.✓ Establish and maintain regular and proactive communications with the Contractor, Supervisor/Engineer and Environmental Site Officer.✓ Ensure that the ESMP is an integral part of the contract document for Consulting Engineers, the Contractor and the subcontractors.✓ Ensure that the ESIA/ESMP is provided to the Supervisor/Engineer for reference at the start of the contract.✓ Ensure that the implementation of the ESMP in general and that it complies with all national legislative and contractual requirements.✓ Ensure that environmental and social nonconformities are fully corrected through the implementation of corrective measures.

	<ul style="list-style-type: none"> ✓ Ensure that a strategy to combat HIV / AIDS and prevent GBV and Child Abuse and Exploitation (CAE) is implemented. ✓ MADER shall appoint a suitably qualified Environmental Manager to oversee these responsibilities. ✓ Review and comment on environmental reports produced by the Supervisor/Engineer, Contractor, and Environmental Site Officer. ✓ Prepare and submit periodic reports to the Bank on the state of the environmental and social management of the project. ✓ Ensure that the ESMP is reviewed and updated as necessary.
Resident Engineer (through the Environmental Site Officer)	<p>Hire an Environmental Site Officer to work independently at the site of construction, contract monitoring and restoration and rehabilitation activities.</p> <ul style="list-style-type: none"> ✓ The Environmental Site Officer should participate in independent environmental audits of the project, draw up environmental reports and provide advice on the management of environmental issues. The reports shall be drawn up on a monthly basis and shall include findings and recommendations for corrective actions to be taken by any of the various parties involved in the project. ✓ Ensure that all instruction and communication to the contractor concerning environmental matters are recorded in the site instruction book/ site diary. ✓ Monitor and report on compliance with the requirement of the ESMP. ✓ Ensure and participate in regular reviews of the Environmental and Social Management Plan. ✓ Ensure that nonconformities are reported and are corrected within the time required and that minimization solutions are effectively implemented. ✓ Ensure that the Contractor and Subcontractor meet their environmental and social obligations.

	<ul style="list-style-type: none"> ✓ The ESO will monitor and give recommendations on the execution of the ESMP, and these responsibilities will include: <ul style="list-style-type: none"> ○ Monitoring and ensuring compliance of the workers to the specific contractual regulation. ○ Execution of the environmental monitoring program. ○ Monitoring effectiveness of the implementation of the contractor ESMP. ○ Establish contact with subcontractor. ○ Training and environmental awareness. ○ Ensuring that all the disturbance areas during construction phase are efficiently rehabilitated as soon as possible.
Contractor	<ul style="list-style-type: none"> ✓ Comply with all ESMP requirements and, in accordance with the project and environmental standards, employ techniques, practices and construction methods to ensure compliance with these standards as well as, in general, prevent loss or damage of natural resources and minimize the effects on users and occupiers of surrounding lands and the public. ✓ Prepare and implement a Health and Safety Plan that includes induction and training, and an Emergency Preparedness and Response Plan to Prevent or minimize the occurrence and the effects of accidents that could result in environmental damages and health and safety of workers and surrounding communities. ✓ Prepare and submit to the Engineer for acceptance of the “Contractor’s Environmental and Social Management Plan” (C-ESMP) ✓ Prevent or minimize the occurrence of accidents that could cause damage to the environment, prevent or minimize the effects of such accidents and revert the environmental conditions to a state that is as close as possible to the one existing before the accident. ✓ Be open to the performance of periodic environmental audits by proponents or other relevant government structures and provide the necessary information to do so. On the other hand, the contractor must conduct his own audits to ensure compliance with the ESMP.

	<ul style="list-style-type: none"> ✓ Prepare and submit Method Statements demonstrating the method from which compliance with environmental standards will be ensured. ✓ Prepare environmental reports and give advice on managing environmental issues. The reports shall be prepared monthly and shall include findings and recommendations for corrective actions to be taken by the various parties involved in the project. These reports will be sent to the Resident Engineer, MADER and Local government authorities (SDPI and DPTADER) where applicable. ✓ Capacity building of community members and farmers focusing on resilient agricultural production systems and practices. ✓ Mainstreaming public health and HIV/AIDS in the overall operations of the agricultural sector and other economic activities. ✓ Engagement and support for some local interventions that will ensure good environmental management in agricultural production.
Health and Safety Officer of the Contractor.	<p>The contractor must hire a full-time Health and Safety Officer (HSO), who must be a full-time health worker. Among the various responsibilities will be to:</p> <ul style="list-style-type: none"> ✓ Administer first aid to injured workers on the various fronts of the work, as well as to ensure the functionality of the health post of the contractor. ✓ Ensure efficient and rapid patient transfer to referral health units if applicable. In addition, it should facilitate contact with health authorities in the district. ✓ To assess the possibility of accidents and emergencies (such as road accidents, fire, explosions, spills or releases of hazardous materials, and natural disasters), to avoid incidents, to respond to incidents and to report on incidents. ✓ The contractor's HSO will promote on-site health and safety awareness through lectures and meetings with workers throughout the construction phase.

3. GUIDELINES FOR CONSTRUCTION SITES, BORROW PITS AND TEMPORARY ACCESS ROADS

The implementation of the Project 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.
- 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 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 MADER in order to ensure that no significant environmental or social impact results from the location or day to day management of these infrastructures.

Aspect	Guidelines	Avoided and 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 this ESMP. This plan will abide by the measures, principles and guidelines described below, and will be submitted for MADER's approval, 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	<ul style="list-style-type: none">• Air quality degradation.• Water quality degradation.• Noise impacts.• Loss of habitats.

	<p>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</p> <ul style="list-style-type: none"> • 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 shall 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 shall be located in areas well away from drainage lines and 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; • 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; 	
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	<ul style="list-style-type: none"> • 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"> • 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 	<ul style="list-style-type: none"> • Increased social conflicts. • Community health and safety impacts.

	<p>period and return the land to the owner in the agreed upon conditions; (ii) permanent.</p>	
	<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: 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 this 	<ul style="list-style-type: none"> • Loss of habitats; • Degradation of water quality; • Changes to geomorphology; • Changes to sedimentation regime in nearby water lines.

	<p>ESMP, and submit this plan for MADER'S approval;</p> <ul style="list-style-type: none"> • 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; • If land acquisition or economic displacement or restriction of access occurs, an RAP/A-RAP should be developed in accordance with provisions of national regulation and OS2 of the Bank; • The location of Project borrow pits and quarries (to be defined in the plan named above) will consider the following: 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; 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; 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; 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 	<ul style="list-style-type: none"> • Land acquisition impacts.
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	<p>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; Borrow pits and quarry sites will avoid loss of productive agricultural land, whenever possible, develop an RAP/A-ARAP in accordance with national regulation and SO2 of the Bank.</p>	
	<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, 	<ul style="list-style-type: none"> • Loss of habitats; • Degradation of water quality; • Changes to geomorphology; • Changes to sedimentation regime in

	<p>wildlife safety, pre-disturbance habitats and future beneficial use;</p> <ul style="list-style-type: none"> • 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 preapproved protocols according to international good practices. including a community communication program 	<p>nearby water lines.</p>
Access roads	<ul style="list-style-type: none"> • Whenever possible, new and temporary access roads 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, a RAP/A-RAP should be developed; • If the opening of new accesses is required: 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 this ESMP, and submit it for MADER's approval; Obtain the necessary licenses for all access roads. This may require the undertaking of specific environmental and social assessment processes to obtain the environmental license, and will always include community consultations. • 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; 	<ul style="list-style-type: none"> • Loss of habitats; • Degradation of landscape.

	<p>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;</p> <p>Residential, production or other community areas will be avoided as much as possible and if land acquisition, economic displacement or resource use restriction occurs, develop a RAP/A-RAP in accordance with national legislation and OS2 of the Bank; Avoid impacts on areas adjacent to the access roads; 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;</p> <ul style="list-style-type: none"> • The plan will include road management procedures, in accordance with the requirements of this ESMP; • Any new construction accesses will be decommissioned after construction, and the area rehabilitated according to a plan approved by MADER, 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. • 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. 	
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Environmental and Social Potential Impacts and Mitigation Measures

Construction Phase			
Impact Description	Significance Level		Main Mitigation Measures
	Pre-mitigation	Post mitigation	
Noise from construction activities	Low	Insignificant	<ul style="list-style-type: none"> Speed limit for heavy construction vehicles of 30 km/h near residential areas. Construction activities should be limited to weekdays whenever possible.
Increased erosion and soil compaction	Low	Insignificant	<ul style="list-style-type: none"> Restrict the clearing of vegetation and removal of arable soil from areas strictly necessary for construction. Removal and storage of arable soil before earthmoving activities, for subsequent reuse in replacement interventions.
Loss of vegetation and habitat.	High	Moderate	<ul style="list-style-type: none"> Limit deforestation to strictly necessary areas.
Increased risk of transmission of sexually transmitted diseases due to workforce mobilization and population influx	Moderate	Low	<ul style="list-style-type: none"> Create health and awareness programs for workers.
Increase of conflicts due to influx of workers to project areas	Moderate	Low	<ul style="list-style-type: none"> Implement a Local Recruitment Plan to ensure procurement processes are conducted transparently and fairly, in coordination with local authorities and community leaders. The proponent must develop a Communication Plan to interact with communities, informing them about the nature and timing of activities and establishing communication channels to manage social conflicts that may arise.

Construction Phase			
Impact Description	Significance Level		Main Mitigation Measures
	Pre-mitigation	Post mitigation	
Safety issues due to increase of Road traffic	Low	Insignificant	<ul style="list-style-type: none"> Heavy construction vehicles must respect the 30 km/h speed limit near residential areas. Install temporary official road signs on local roads around job sites before and after execution, in conjunction with local traffic authorities
Increased local economic power	Low	Low	<ul style="list-style-type: none"> The procurement of goods and services by the contractor should prioritize local suppliers whenever possible.

Operation Phase			
Impact Description _	Significance Level		Main Mitigation Measures
	Pre-mitigation	Post mitigation	
Noise emissions	Low	Low	<ul style="list-style-type: none"> Within the project area, place noisy equipment as far away as possible from neighboring residential areas. Perform regular maintenance to minimize noise emissions as much as possible
Water pollution	Low	insignificant	<ul style="list-style-type: none"> Keep work equipment in order, without leaks, excess oil and lubricant. Regularly inspect equipment that may contain contaminants. Develop and implement the Waste Management Plan
Change permanent of Landscape	Low	insignificant	<ul style="list-style-type: none"> Minimize the number of permanent access roads to construction areas

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PROGRAMS

Based on the affected environment and communities, and the E&S 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
- Project Grievance Redress Mechanism
- Community Health and Safety Management Plan
- Cultural Heritage Chance Find Procedures
- Emergency Response Plan

4.1 Air Quality Management Program

4.1.1 Justification and Objectives

The construction phase 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.

4.1.2 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.

Pollutant	Averaging Period	Mozambique (i) (µg/m ³)	WHO (ii) (µg/m ³)
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Total Suspended Particles (TSP)	24 hours	150	-
	1 year	60	-
PM10	24 hours	-	50
	1 year	-	20
PM2.5	24 hours	-	25
	1 year	-	10
SO2	10 minutes	-	500
	1 hour	800	-
	24 hours	100	20
	1 year	40	-
CO	1 hour	30000	-
	8 hours	10000	10000
NO2	1 hour	190	200
	1 year	10	40

4.1.3 Actions 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	ESO
	All internal combustion machinery and equipment will be kept in good maintenance conditions in order to minimize combustion gases exhaust	Construction phase	Contractor	ESO

	emissions. This includes preventive maintenance of machines, equipment and vehicles and operator training, as well as internal monitoring			
	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;			
	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	Daily (in the dry season), during construction		ESO

	frequency during the dry season;			
	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, during dry and windy conditions. This will be done with a daily frequency during the dry season;			

4.1.4. 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.

4.1.5. Monitoring Locations

Monitoring will be undertaken in the human settlements 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.

4.1.5.1. 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.

4.1.5.2 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.

4.1.5.3 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.

4.1.5.4 Result Interpretation

The air quality monitoring results will be compared against the adopted air quality guidelines, to identify any non-compliance with such guidelines. The following table summarizes the follow-up and monitoring actions and the implementation schedule.

Follow-up or Monitoring Action	Description	Implementation
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)
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,	When necessary

	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.	
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4.1.6 Corrective Actions

If 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).

Corrective Actions	Description	Implementation
Act on exceedances of air quality standards	- If exceedances of the air quality guidelines are recorded because of the proposed air quality monitoring, the causes of such exceedances will be identified and corrected, through the implementation of adequate mitigation and	Whenever necessary

	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.	
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

4.1.7 Performance and Reporting

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	-
Number of additional air quality mitigation measures undertaken in response to complaints	Equal to number of complaints	-

4.1.8 Reports

The table below 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.

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

4.2 Water Resources Management Program

4.2.1 Justification and Objectives

The objective of the Water Resources Management Program is to guarantee the conservation of water resources in the area of influence of the Project .The program includes the development of monitoring plans for treated effluents and surface and underground waters in the surroundings of the installations, to guarantee the protection and preservation of the existing water resources, by systematically determining the effectiveness of the minimization measures implemented, allowing, if justified, the suggestion or adaptation of other measures that may correct possible impacts. The results obtained should allow the Project's effects to be monitored over time and anticipate the eventual need to introduce adjustments and improvements, becoming a tool for adequate water management, with the data and values being able to be used by national governments and local authorities, national water authorities and research institutions.

In this chapter, monitoring plans are proposed for the construction and operation phases.

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.

4.2.2 Legal Framework

The present program 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.

Drainage of rainwater and wastewater

Articles 172 and 173 of Decree No. 30/2003 refer to the conditions for the destination of:

- Rainwater, where discharges compatible with the characteristics of the receiving water lines must be ensured, mitigating overflow or flooding, erosion of banks and riverbeds, and silting due to the deposit of solid matter.
- Residual water, which must undergo proper treatment, complying with specified standards, respecting the protection of public health, the environment, and the economy.

Within the scope of pollution control, the Regulation on Environmental Quality and Pollutant Emission Standards was created (Decree No. 18/2004, of 2 June), which establishes environmental quality and effluent emission standards, control, and maintenance of admissible concentration levels of pollutants in environmental components. This Decree has as its main objective the protection of the country's environment and resources, through the establishment of quality standards associated with the collection, treatment, and discharge of domestic and industrial wastewater into the receiving environment. Demanding that, in specific cases, a more demanding level of treatment can be used (for example, disinfection).

Parameter	Units	Emission limits	
		Decree 18/2004	WBG General EHS Guidelines
Color	Presence/absence	Dilution 1:20	-
Odor	Presence/absence	Dilution 1:20	-
pH (25°C)	-	6-9	6-9
Temperature	°C	35	-

BOD (biological oxygen demand)	mg/l	-	30
COD (chemical oxygen demand)	mg/l	150	125
TSS (total suspended solids)	mg/l	60	50
Total phosphorus	mg/l	10	2
Total nitrogen	mg/l	15	10
Oil and grease	mg/l	-	10
Total coliform bacteria	MPN (iii) / 100 m	-	400

4.2.3 Actions 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 MADER approval; - Avoid affecting riverbeds and floodplain areas by the construction activities (including movement of machinery), as much as possible; Whenever possible, carry out works on riverbanks, flood plains and wetland areas, in the dry season, during the months of lower flow; Do not block or constrain river flow in the 	During construction	Contractor	ESO

	<p>construction of access roads, even if temporary. Ensure that suitable transversal drainage (culverts, viaducts, etc.) are in place;</p> <ul style="list-style-type: none"> • Riverbeds 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, renomattresses, plastic liners and/or coarse rock rip-rap, where appropriate. This will be further developed in the 			
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	<p>Soil and Erosion Management Plan;</p> <ul style="list-style-type: none"> 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 			
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 	During construction	Contractor	ESO

	<p>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;</p> <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 			
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	<p>and treatment at a treatment facility;</p> <ul style="list-style-type: none"> • 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 MTA; • 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 			
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	<p>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;</p> <ul style="list-style-type: none"> • 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 			
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	<p>community use areas (minimum 100 m);</p> <ul style="list-style-type: none"> • 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; • 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 			
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	<p>containment and removal of free product and appropriate rehabilitation or disposal of contaminated soils;</p> <ul style="list-style-type: none"> • 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 			
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	<p>conducted for treatment system of wastewater;</p> <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. 			
Prevent the increase of turbidity and sedimentation of water bodies	<p>- 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,</p>	Construction	Contractor	ESO

	clearing must be phased, as the working areas progress in order to reduce the areas exposed to wind erosion			
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4.2.4 Follow-up and Monitoring

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	Contractor	ESO
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 	Monthly during construction	Contractor	ESO

	<p>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;</p> <ul style="list-style-type: none"> • Ensure routine maintenance of the wastewater treatment system; • Record all maintenance routines 			
Monitor increase of sedimentation of water bodies	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)	Contractor	ESO
Monitor erosion damage or risks to river banks	All construction activities in river and streams shall be	Monthly during construction (when working	Contractor	ESO

	<p>closely monitored. Undertake periodic visual inspection of rivers and streams to identify any undue erosion damage or risks to riverbanks.</p>	<p>near water bodies)</p>		
<p>Monitor occurrence of spillages in water resources</p>	<p>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;</p>	<p>Construction Phase, weekly.</p>	<p>Contractor</p>	<p>ESO</p>
	<p>Record all accidental spillages occurring in water resources. Record the date, location, approximate volume of each spillage and implemented corrective measures.</p>	<p>When applicable</p>		

4.2.5 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.

Corrective Actions	Description	Implementation	Responsibility for Implementation	Supervision
Act on exceedances of wastewater emission quality standards	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	Contractor	ESO
Rectify erosion damage to stream banks and beds, and blockage of water flow	Any undue erosion damage or risks to riverbanks shall be rectified using stabilizing materials or other appropriate methods; - Any interference to natural stream flow shall be	Whenever necessary	Contractor	ESO

	<p>limited to bridge/culvert construction works only and repaired immediately after completion.</p> <p>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.</p>			
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 	Whenever necessary	Contractor	ESO

	<p>surface-water runoff; - Check dams can be placed in paths of concentrated runoff to reduce erosion;</p> <ul style="list-style-type: none"> • 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. 			
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 	Whenever necessary	Contractor	ESO

	preventive measures to avoid future events.			
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4.2.6 Performance and Reporting

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	NA
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	NA

4.2.6.1. Reports

Document Title	Document Type	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

4.3 Noise Environmental Management Plan

4.3.1 Justification and Objectives

The construction and operational phase may result in localized and temporary changes to the noise environment, particularly in the residential areas closest to the project sites. This Management Plan defines measures to control noise emissions from the construction and operation phase, to avoid, as feasible possible, the nuisance effects over the identified noise sensitive areas.

4.3.2 Legal Framework

The World Health Organization (WHO) noise guidelines are widely accepted guidelines and have been adopted as project standards. WHO's recommended noise guidelines were determined considering noise's potentially negative effects on health and specific environments. Under WHO's noise policy residential areas, schools and hospitals are sensitive receptors / land uses. WHO's ambient noise guidelines for such sensitive receptors.

Land use / Specific Environment	Guideline (LAeq in dB (A))	Reference Period	Effect on Health
Outdoor of residential areas (day-time)	55 dB(A)	16 hours (06h00 – 22h00)	Serious annoyance
Outdoor of residential areas (night-time)	45 dB(A)	8 hours (22h00 – 06h00)	Sleep disturbance

Proposed Actions and Implementation Schedule

The table below presents control and mitigation measures to be applied during the planning and construction phases, to minimize noise emissions.

Control and Mitigation Actions	Description	Implementation Schedule
Noise emissions control	Construction activities, especially the noisiest ones, should be limited, whenever possible, to the daytime period (between 07h00 and 22h00) on working days, thus avoiding other periods. - Operate earth moving equipment within specification and capacity (e.g., ensure machines are not overloaded). Use noise abatement accessories such as sound hood and mufflers where feasible. - Use Intake and exhaust silencers to all internal combustion powered equipment, ensure that these equipment's have good quality mufflers installed. - The noisiest construction operations (including earthworks and the transport of materials by heavy duty Vehicles), should only take place on working days, during daytime hours. This measure will reduce the period of occurrence of potential negative impacts, thus limiting the nuisance generated. - Maintain all mechanical equipment's on a regular basis, replace worn parts and lubricate as required. - All equipment fitted with combustion engines should be regularly inspected to check their operating conditions (periodic maintenance), to minimize acoustic emissions resulting from poor operating conditions. -	During construction

	Residents living near the area where the construction work is being carried out must be informed of the occurrence of construction operations by the contractor and site supervisors.	
Inform local communities	<p>- Temporary access roads should be chosen for the transport of materials and equipment to avoid passing through inhabited areas. - Inhabitants of local communities nearby the construction fronts should be previously informed by the contractor regarding the upcoming construction activities. The information must include the start of the construction work, its operating regime, its duration, and must also include information about the project and its objectives.;</p> <p>- Inform the local communities on any upcoming noise monitoring campaign, to avoid misunderstandings.</p>	<p>Before starting construction work in the proximity of a given community</p> <p>Before noise monitoring actions</p>

Table below lists the control and mitigation measures to be applied during the operation phase.

Control and Mitigation Actions	Description	Implementation Schedule
Noise emissions control	<p>- If possible, pumps and other noise generating equipment should be localized as further away as possible from the south boundary of the WWTP. - If possible, Sludge collection and transportation activities, should be limited to the daytime period (between 07:00 and 22:00). the adoption of these procedures will limit any potential annoyance affect generated by the sludge transportation. -</p>	Operation phase

	Select equipment with rated lower sound power levels as much as possible. - Implement regular maintenance to all noise generation equipment to minimize noise and vibrations. Maintenance procedures must be monitored. - Establish a procedure to receive and treat and deal with complains from the nearby communities.	
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4.3.3. Follow-up and Monitoring Actions

Noise monitoring actions should be developed during the construction phase of the project and yearly during the Landfill operation phase, at the nearby relevant sensitive receptors. The following paragraphs define the criteria for the selection of the monitoring points and the noise monitoring procedures.

Two types of monitoring actions are required:

Periodic noise monitoring, to verify the effectiveness of the control and mitigation in place and **monitoring in response** to local complaints or grievances.

Monitoring Locations

During construction monitoring should be undertaken in the human settlements located within a 300 meters radius from both the construction sites, as they might be the most affected by the construction induced noise.

At least 4 monitoring sites are required at each location near existing sensitive locations. During the operation phase:

- At all the monitoring points the continuous A-weighted equivalent sound pressure level (LAeq) will be recorded. The statistical noise level indicators L95, L90, L50, L10, Lmax, and Lmin will also be determined. Measurements are to be performed during the daytime reference period, and during the night-time period, if construction activities occur after 18h00.
- For the operation phase, measurements should be performed during the daytime reference period, and during the night-time period. Monitoring Frequency During construction, monitoring should be made quarterly. During the operation phase of the Landfill a

monitoring campaign is to be performed yearly at noise sensitive receptors located up to 500 meters from the Landfill boundaries (fenceline). Sampling methods The reference methods to be applied in the monitoring campaigns should preferably be the following:

- SANS 10103: 2008 - The measurement and rating of environmental noise with respect to annoyance and to speech communication.
- ISO EN 1996-1: 2016 – Acoustics – Description, measurement, and assessment of environmental noise – Part 1: Basic Quantities and assessment procedures.
- ISO EN 1996-2: 2016 – Acoustics – Description, measurement, and assessment of environmental noise - Part 2: Determination of environmental noise levels.

Follow-up and monitoring actions and the implementation schedule.

Follow-up or Monitoring Action	Description	Implementation schedule
Periodic Noise monitoring	- Monitoring actions should be developed during the construction and operation phase nearby the previously identified sensitive receptors. Monitoring should take place at residential areas closer than 300 m to an active construction front.	Whenever work fronts are active near residential areas (at least quarterly)
Noise monitoring in response to complaints	- If complaints from the local population regarding noise emissions are registered, noise monitoring should be undertaken near the affected sensitive receptors, to verify the noise levels and define additional mitigation, if required.	When necessary

Corrective Actions

If exceedances of the noise project standards are recorded, or if complaints from the local communities are lodged, the causes of such exceedances should be identified and corrected. Exceedances may result from:

- Non-compliance to the set vehicle speed limits during the construction phase of the project.
- 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-conformities, additional mitigation should be implemented, as required, to eliminate or minimize the negative effects. These additional mitigation measures should 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 increased noise emissions.
- During the construction phase, install noise barriers between the noise source and the affected receptors.
- Provide additional training to workers, regarding the environmental management requirements set out in this management program.

Corrective Actions	Description	Implementation Schedule
Act on exceedances of Noise project standards	- If exceedances of the noise project standards are recorded, the causes of such exceedances should 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 should be undertaken to verify resolution.	Whenever necessary
Act on local complaints and grievance claims	- If complaints from the local population regarding noise emissions are registered, act on them in consultation with local authorities. This may require the adoption of additional mitigation	Whenever necessary

	and control measures, as appropriate. Following correction, monitoring should be undertaken to verify resolution	
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4.3.4. Performance and Reporting

4.3.4.1 Performance Indicators

The following performance indicators should be monitored for the Noise Management Program:

- Number of exceedances during periodic monitoring.
- Number of community complaints regarding noise and subsequent verification monitoring.
- Number and type of noise mitigation measures undertaken in response to complaints.

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

4.3.4.2 Reports

Record Documents for the Noise Management Program

Document Title	Document Type	Frequency of Record or Report
Record of periodic noise monitoring	Record	Whenever necessary
Record of noise associated community complaints	Record	Whenever necessary
Record of noise monitoring in response to complaints and mitigation responses	Record	Whenever necessary
Progress Report	Report	Monthly
Performance Report	Report	Quarterly

4.4 Waste Management Program

4.4.1 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 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.

4.4.2 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. MADER is responsible for auditing the Contractors' activities, to ensure that best practice waste management procedures are being followed.

4.4.3 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 destination for the small volumes of hazardous waste likely produced by the Project.

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	ESO
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; 	Construction	Contractor	ESO

	<ul style="list-style-type: none"> • 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. 			
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, 	Construction	Contractor	ESO

	<p>recycled or re-processed. Containers will be clearly identified according to their categorization and classification, allowing to clearly identify its contents;</p> <ul style="list-style-type: none"> • 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 			
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 	Construction	Contractor	ESO

	<p>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;</p> <ul style="list-style-type: none"> • 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 			
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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 of waste in soil, water resources (lakes, rivers, etc.) or sea; • Prohibit the burn of waste (including vegetation); 	Construction	Contractor	ESO
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	<ul style="list-style-type: none"> • Non-hazardous waste will be removed on a weekly basis; • MADER and the Contractor will agree on and document the final disposal site for the waste ensuring that it meets national requirements and will keep records of the delivery of the waste at such facilities. 			
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 	Construction	Contractor	ESO

	<p>and include the symbols defined in Decree no. 83/2014;</p> <ul style="list-style-type: none"> • 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. 			
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 	Construction	Contractor	ESO

	<p>Storage Area”) and with restricted access. The area must be roofed, properly ventilated and have impermeable surface floor;</p> <ul style="list-style-type: none"> • 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. 			
Transport of Hazardous Wast	<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 	Construction	Contractor	ESO

	<p>conditions. These vehicles must be easily washable. The transport vehicle will be dully identified with signs for the transportation of hazard material;</p> <ul style="list-style-type: none"> • 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 MTA 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 MTA and will comply with the basic rules and procedures 			
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	<p>defined in Decree No. 83/2014;</p> <ul style="list-style-type: none"> • 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 MTA; • The crossing of borders with hazardous waste shall comply with the provisions of the Basel Convention and with the instructions of MTA; • Provide the workers responsible for the handling of hazardous waste with adequate PPE (work wear, gloves, boots and masks). 			
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Hazardous Waste Final Destination	<ul style="list-style-type: none"> • The final disposal of hazardous waste will be made at an infrastructure licensed by MTA 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. 	Construction	Contractor	ESO
Worker's 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 	Construction	Contractor	ESO

	classification, correct sorting, handling and transport of hazardous waste. Workers must be briefed on the use of individual protection equipment			
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Follow-up and/or systematic and/or periodic verification actions

Follow up/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 area	<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 site	<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.

4.4.4 Corrective Actions

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	Increase awareness about waste management.	When applicable

4.4.5 Performance and Reporting

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

The following table summarizes the documental records that will be kept controlling the execution of the waste management plan. These documents will be prepared, archived and maintained by Contractor, 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 MADER.

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

4.5 Stakeholder Engagement Plan

The project targets to increase the net income of 50,800 smallholder producers (50% women and 30% youth) in selected districts of the seven (7) Provinces. Out of the 50,800 farmers, 10,000 will be smallholder poultry producers and the other 40,800 will be producers supported with interventions aimed at strengthening their climate resilience in the soya and maize value chains. The project will further pay particular attention to women headed households and the youth while ensuring that women in men headed households are not left out. The target area is of considerable vulnerability to climate change effects. Special attention will be paid on nutrition-mainstreaming and economic recovery of vulnerable groups.

Affected parties

Local communities

Local communities will be directly affected by the project through the implementation of agriculture activities and poultry. This group includes local farmers and potential aggregates for poultry. They will be direct the beneficiaries.

Local government

Provincial, district and local government offices are important and affected by the project. It includes, the District Services for Economic Activities (SDAE), Planning and Infrastructure (SDPI) and Provincial Department of Veterinary Services (DPSV).

Engagement and dissemination techniques

Correspondence (telephone, Email, letters / letters)

- Distribute information to government officials including central, local government and NGOs;
- Invite interested parties to meetings and follow up on the project.

Individual meetings

- Collect points of view and opinions;
- Provide information on how to access the benefits of the project;
- How to make suggestions and make complaints about the implementation of the project;
- Give stakeholders a voice to speak freely on sensitive issues, including gender-based violence.

It is important to have records/reports with participants list of each of these meetings.

Formal meetings

- Present the project information to a group of stakeholders;
- Allow the group to comment, give their views;
- Build an impartial relationship with stakeholders, in particular with a technical team;
- Disseminate technical information about the project;
- Provide information on how to access the benefits, how to make suggestions and submit questions and complaints about the implementation of the project.

Public meetings

- Present project information to a larger number and group of stakeholders, especially communities in general;
- Allow the group to provide their views and opinions;
- Build relationships with communities, especially those affected by the project;
- Share information especially on GBV related measures and GRM;
- Provide information on how to access the benefits of the project;
- How to make suggestions and submit questions and complaints about the implementation of the project.

Project website

Present project information and progress updates;

Disclose the instruments of environmental and social safeguards, and other relevant project documentation;

Provide information on how to access the benefits of the project, how to make suggestions and make complaints about project implementation.

Proposed information disclosure strategy

The environmental and social safeguards specialists, community development focal points and community facilitators will ensure that all relevant project information (including but not limited to public tenders, calls for proposals, Grievance Channels etc.) are made available to all interested parties, including primary beneficiaries.

The dissemination of information will be based on techniques and methods that are culturally appropriate for each group, including I, women, youth, and host communities, in the different phases of project implementation.

The information will be disclosed on the websites of MADER and African development Bank.

In addition, information before and during the implementation of the project will be made available through reports and minutes of meetings. The information will also be transmitted and disseminated through newspapers, community radio stations in local languages and other

community meetings. To ensure greater participation and inclusion of all stakeholders in the meetings in particular local authorities will be previously involved in mobilizing the community. The dissemination of information throughout the implementation of the project aims to safeguard the following objectives:

- (i) To improve the understanding of the needs of the affected populations;
- (ii) Disseminate information on how to access the benefits and mechanisms for implementing the project;
- (iii) Help to promote coordination among all implementers, including government structures and community authority;
- (iv) Receive feedback and comments, as well as complaints from all interested parties since the design and implementation of the project; and
- (v) Ensure transparency and accountable communication mechanisms in all aspects at all stages of the project's implementation.

4.5.3 Measures and Implementation Schedule

Measures, description, and implementation.

Actions	Description	Implementation Schedule	Responsibility
Engage with municipality authorities	<ul style="list-style-type: none">CMC should be informed of the planned activities prior to starting the works; - Before the start of the activities meetings with the CMC should 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	Planning phase	MADER

	be carried out, as well as other relevant stakeholders;		
Engage with local authorities	<ul style="list-style-type: none"> Before start working, initial meetings should be held with the local authority, to present the program of the construction activities, identify any potential social conflict and identify potential strategies to engage the community in the project. Ensure the active participation of local/community leaders and where necessary traditional authorities, in all impact related processes. It is of particular importance that these entities participate in the resettlement process, land attribution, livelihoods restoration and the grievance mechanism. Ensure that the principles of openness, transparency and accountability are at the forefront of all participation. 	Planning phase	MADER / Contractor
	<ul style="list-style-type: none"> The Contractors should appoint a field technician to be the focal point of contact with the local authorities, during the construction phase (this can be the ECO or his field representative). 	Planning phase	Contractor
	<ul style="list-style-type: none"> During the execution of works, the Contractor should establish and 	During construction	Contractor

	<p>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;</p> <ul style="list-style-type: none"> • Interact with the local administration and the police to implement control mechanisms in public places to prevent crime; • Communicate with affected authorities prior to any road or access closure. Ensure coordination with traffic police. 		
Engage with local communities	<ul style="list-style-type: none"> • MADER will nominate a community liaison officer (CLO), to communicate and coordinate with communities; • MADER should engage with local communities along the project alignment before the start of any construction activity. This engagement should strive to: <ul style="list-style-type: none"> o Ensure adequate community participation in the processes; o Ensure transparency and that accurate information is transmitted to local communities in a means that is both understandable and accessible; o Where possible, avoid generating unnecessary and 	Planning phase	MADER

	unrealistic expectations and clearly explain benefits and impacts;		
Inform local communities	<ul style="list-style-type: none"> • Inhabitants of local communities nearby the construction fronts should 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 should also include information regarding the project nature and goals; • Should any event/action be required for tower installation or any other project component, which will impact of inconvenience the local population, it is essential that they be timeously informed in order to minimise nuisance and inconvenience; • Communicate with affected communities prior to any road or access closure; • The Contractor will maintain 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

Communication about the existence of a GRM	<ul style="list-style-type: none"> An GRM is defined through which individuals or groups of individuals can submit complaints, grievances or concerns and receive a response. This includes any claim for any uncompensated loss of built structures, crops or other socioeconomic assets. This mechanism should be communicated to local authorities (affected and interested) and local communities before construction begins. 	Before starting construction work	MADER / Contractor
Establish grievance mechanism	<ul style="list-style-type: none"> A grievance mechanism will be established whereby individuals or groups can submit complaints or concerns 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. 	Before starting construction work	MADER / Contractor

4.5.4. Reporting

Records should 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.

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- Complaints or grievances from local populations and the resolutions. These reports should be prepared, archived, and maintained by the ESO, to document the results of the plan's implementation.

Records of relevant events should be made following the occurrence, and monthly progress reports and a quarterly Performance Report should be prepared, reporting on the recorded events and communication results.

4.5.5. Grievance Redress Mechanism

Conflicts or grievances may arise when the construction process occur without a pre negotiation process or contractor does not respect the concerns of the PAP's. Conflicts generally arise from poor communication, inadequate or lack of consultation, inadequate flow of accurate information, or restrictions that may be imposed on people through the implementation of Project activities. Grievances Redress Mechanism will be available for the sub-project affected persons to be able to address their issues and to solve prior to use formal legal grievance system. Through this mechanism, AP's will be able to react on any damages occurred during the construction works or ESIA/ESMP implementation. Communication strategy may prevent or reduce misunderstanding and grievances, therefore awareness-raising about Project activities will be one of strategy that MADER will adopt.

Consultations and negotiations will be carried out with PAPs where there are indications of potential conflicts. Contractors and engineer have to be aware of managing conflicts and communities to know their rights and obligations, how to obtain legal advice and representation, and how to seek redress against what they regard as unfair practices by contractor or its workers. The Project Authority in terms of grievances will be the project implementation unity at MADER.

At district level

Project Communication Plans should prioritise awareness-raising about the structures that are available to redress more serious grievances that cannot be addressed satisfactorily locally. At local level community leaders will be trained in communication and initial grievances reception. Grievances response at community level will also be linked to the community court system where these have been duly constituted, so that they can be used for resolving as many grievances as possible at local community level. It expected that the community members at local or village

community level submit their grievances to be given a solution initial for the local authorities. They may also exact penalties such as compensation for damages caused by the offense and / or, public criticism, community service, small fines, refraining from carrying out the activity that caused the case. Unresolved cases may be turned over to the District Courts. For all grievances related with non-fulfilment of community related contracts, levels of compensation, unauthorised taking of assets without compensation Project affected people must first try to resolve these conflicts through presentation to the local influence leaders or authorities, or to the EO of the contractor for attention and immediate redress action of channelling to the appropriate higher authority.

General principles and procedures must be established by the Projects and publicised including:

- ✓ Verbal communication should be in locally relevant languages, but all records of communications must be in Portuguese.
- ✓ Grievance forms should be prepared by SPAE/PIU and be available PAPs may also lodge their own documented grievances as they wish.
- ✓ An initial response must be provided to the communities in a recommended period of 10 days. Detailed procedures to redress grievances and the appeal process should be disseminated among PAPs who should be empowered to use them.

The participatory processes should, among other aspects, focus on these procedures.

- ✓ Measures must thus be put in place to ensure that solutions are reached by consensus based on negotiation and agreement.
- ✓ As appropriate per sub-Project area, specific people should be chosen to represent their local communities during the implementation of the project especially for grievance presentation and to accompany the redress process. These men and women will provide a first level of listening and informal resolution.

The SPAE, through the PIU should create awareness among the project beneficiaries for grievances informal resolution. Efforts will be made to ensure that be include representatives of women and youth with whom leaders will consult to offer tangible solutions. Formal grievances redress and conflict resolution processes should follow the general steps outlined below:

Step One

If issues of concern with relationships with the contractors or sub-contractors, neighbouring communities, or external stakeholders they should be presented to PIU at local level to try and resolve immediately or as appropriate, to transmit directly to the site meeting for resolution. The PIU should screen grievances presented to the contractor to initially decide if a grievance is to be accepted or not. If so, the PIU should pass them on to the appropriate level for resolution. Grievances may be resolved directly by the EO of the contractor, but where they require redress via other agencies, they should be passed to the PIU at provincial level for recommending solutions accordingly. Grievance redress may require shorter (max 3 days) or longer (10 days) periods depending on the complaint.

Step Two

If the aggrieved person is not satisfied with the Step One decision, he/she shall forward the case to the PLC attention with a preliminary report prepared by the engineer. The report should contain the details of the grievance and hearing date PLC may engage with relevant Government and local authorities to help resolve these problems in such a way that the interests of communities. It may be necessary for operational reasons at sub-district level to have a multi-sector channel to fairly hear grievances and respond to issues that may involve more than one sector. The period for informing the aggrieved person of the redress steps must be followed, and the periods expected for redress communicated to them.

Step Three

If the PAP is still dissatisfied with the decision taken after Step Two, he/she shall forward the case to SPAE/MADER for attention of the PIU. The grievance shall be forwarded with all the documented details of the case to date. Communication with the PIU may also be carried out via community representation of the decision.

Step Four

If no amicable solution is reached up to Step Three, as an ultimate recourse the aggrieved person may submit the case to the Provincial / District court system to seek reparation. This final step is an option that must always be available, but it should be discouraged by all positive means

possible. Timely communication and open negotiation are the main deterrents. The institutional arrangement and the principles of community consultation and participation that are intrinsic to the Process Framework are designed to allow the process to detect and deal with problems in a timely and satisfactory manner for all parties concerned.

If affected communities' interests are superseded or rendered ineffective by any other government actions in agreements entered by them provisions exist in most legislation to appeal with sectoral grievances to higher levels of government such as MADER.

Ultimately, though not usually practiced systematically by many people, all citizens have the right to address complaints to the Public Prosecutor, the institution responsible for ensuring the law is correctly applied, particularly in the elaboration of territorial management instruments and their implementation.

Grievance Register Forms to be provided by SPAE to the District Service of Infra Structure and extension service officers for making available at local level at publicised sites and via publicly recognised community representatives. Community representatives should be encouraged to explain this entitlement whenever needed and at no time should filing a grievance be discouraged by community representatives, local authorities, or Project officers. Each grievance will be captured in the Grievance/Issues Register that must be maintained at SPAE/MADER/PIU.

Reports on grievances will be regularly reported and at monthly site meeting, if any.

Grievance reports should track complaints, responses, redress action and close-out of all community grievances with dates and responsible parties clearly indicated.

MADER and SPAE will periodically verify response management and redress through to closeout of each grievance. Each of the following steps should be limited to a maximum of 15 days from receiving a grievance to communicating a decision. Resolution should be sought at the lowest level possible in all cases.

4.6 Cultural Heritage Program

4.6.1 Justification and Objectives

Construction of the slaughterhouses and auxiliary infrastructures might involve deforestation and earth movements. These activities have the potential to generate impacts on archaeological sites or elements that may exist in these areas. The “chance findings” procedure describes the actions that must be taken after the discovery of an archaeological site or element, including its investigation and evaluation by an archaeologist or other duly qualified technician, to avoid and/or reduce the risks of the project on cultural heritage, in line with international best practices.

4.6.2 Legal Framework

The “chance finds” procedure aims to ensure compliance with the relevant provisions of the Cultural Heritage Law (Law No. 10/88), which defines sites or places of archaeological or anthropological interest as material cultural assets.

4.6.3. Chance findings procedure – actions and implementation schedule

Action	Responsibility
<ul style="list-style-type: none"> • If a heritage or archaeological site is found or discovered during construction, work must stop immediately and MADER or its representative at the site must be notified of the discovery. 	Person who finds archaeological or heritage material
<ul style="list-style-type: none"> • Mark the site with a red tape and determine the GPS position, if possible; • Determine whether the work can proceed without damaging the find; • Determine and mark an exclusion area; • Appoint a qualified specialist (archaeologist) for field evaluation of the fortuitous find. 	Contractor
<ul style="list-style-type: none"> • Inspect the site and assess the scientific or cultural importance of the findings; • If the findings are of scientific or cultural importance, they must be reported to the National Directorate of Cultural Heritage; • Define appropriate mitigation measures, depending on the relevance of the findings. These may include in situ protection, excavation and subsequent removal or simple removal from the site, as applicable; 	Qualified Specialist (Archaeologist)

<ul style="list-style-type: none"> • Request written authorization from the National Directorate of Cultural Heritage to remove finds from the work area, or to implement other relevant mitigation measures. • Collection, packaging and labelling of finds for transfer to the museum, if relevant. 	
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4.7. Health and Safety Management Program

4.7.1 Justification

The construction of the Project's infrastructure will include several activities with the potential to injury or illness to workers and visitors, therefore it is important to establish guidelines for contractors to ensure compliance with legal requirements for occupational health and safety.

4.7.2 Objectives

The overall objective of this Health and Safety Management Plan (HSMP) is to achieve “Zero Harm” through the prevention of incidents that could lead to occupational injury and illness by anticipating, recognising, evaluating, and controlling safety and health hazards in the workplace. For accidents not to occur, or to be avoided, it is necessary that all work is designed, planned, and executed correctly and that, at the same time, there is a conscious commitment by every worker to health and safety best practices, regardless of the areas they work in or the functions they perform.

4.7.3. Scope

The HSMP applies to construction works, covering:

- All those intervening in the construction area, such as workers, subcontractors, and visitors.
- All machines, vehicles and equipment used in construction works.
- All events arising from the construction work, such as accidents, emergencies, inspections, audits, etc.; and
- All Project activities to be carried out in the perimeter of the construction area and its surroundings.

All site personnel and visitors must comply with this plan. This plan is based on the following principles:

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- “Zero harm”.
 - Training, learning, and continuous improvement; and
 - Adherence to international standards and best practices.

All stakeholders, who directly or indirectly perform tasks or activities in construction areas are obliged to comply with all applicable legal provisions and the requirements of this HSMP, as well as to ensure compliance by others under their dependence. This HSMP provides guidelines for health and safety best practices. Based on these guidelines, the Contractor(s) will develop their own organization specific and site-specific Health and Safety Plan. The Contractor’s Health and Safety Plan will be a dynamic document that should be revised periodically and whenever its content is found to be out of line with current legislation, company policy, the reality of the construction area, work, equipment, workers and facilities, or any other situation that directly interferes with safety and health and compromises its practical application.

4.7.4. National Legal Framework

The ESIA main report (Volume I;) presents a detailed analysis of the Project's national legal framework. Relevant national occupational health and safety (OHS) regulations include the Labour Law (Law 23/2007) and associated legislation, namely Decree 45/2009.

4.7.4.1 International HSE Standards

The International Finance Corporation (IFC) has developed several Environmental, Health, and Safety (EHS) Guidelines to provide guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. In this way preventive and protective measures should be introduced according to the following order of priority:

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.;
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
- Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.;

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- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

The application of prevention and control measures to occupational hazards should be based on comprehensive job safety or job hazard analyses. The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards.

There are General EHS Guidelines to Occupational Health and Safety, Community Health and Safety and Construction and Decommissioning. In addition to these guidelines, there are also guidelines for different industry sectors.

E&S Performance Standards (PS)

- **Assessment and Management of Environmental and Social Risks and Impacts:** An environmental and social management system (ESMS) helps companies integrate plans and standards into their core operations, so they can anticipate environmental and social risks posed by their business activities and avoid, minimize, and compensate for such impacts as necessary.
- **Labour and Working Conditions:** For any business, its workforce is its most valuable asset. A sound worker-management relationship is key to the success of any enterprise

4.7.5 Health and Safety Risks Identification

The construction activities required for the construction and installation of the overhead line (including towers and conductor cables) are associated to several types of hazards that can potentially originate a set of risks for the safety of workers, visitors, and even for the Project's auxiliary infrastructure. The main occupational risks capable of generating incidents, accidents at work, or occupational diseases may be grouped according to their origin.

Risks	Description
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Mechanical	Related to the movement of machinery, equipment, materials, and other tools; falling people, either at height or at the same level; as well as entrapments or crushing caused by moving parts of machinery.
Noise	Essentially generated by the operation of the mobile equipment assigned to the worksite
Dust	Mainly the result of loading and unloading operations and the movement of machinery or equipment
Vibrations	Result from the uneven paths on which the equipment circulates. It should be noted that workers are subject to vibrations that affect the whole-body system, although the propagation of these vibrations occurs through the seat of the machines or the work surfaces.
Thermal	Essentially related to the fact that workers perform their duties outdoors and are subject to bad weather (workers are subject to rain, wind, and low temperatures in winter, and high temperatures in summer).
Electrical	Originate from the use of electrical energy, namely in the electrical connections of small appliances and equipment.
Biological	Associated with the existence of dangerous, venomous, and/or large animals.
Social	Associated with the presence of personnel from outside the local communities, with different immune systems and without knowledge of existing social conventions and traditions.

4.7.6. Management Measures

The health and safety management measures contained in this HSMP apply over the life of the Project to all site personnel and visitors. This HSMP is interactive in line with the continuous improvement principle.

4.7.6.1 Policy

The Proponent must have a “Zero Harm” goal, i.e., the non-occurrence of incidents or accidents that may cause harm to site personnel and visitors. Therefore, high standards of occupational health and safety management will be established and maintained throughout all phases of project implementation. The achievement of this principle requires a range of policies, procedures, and

systems to ensure the protection of people, property, and equipment, from incidents which can affect employee health, result in injury, damage, or other loss.

4.7.6.2 Planning

To comply with Occupational Health and Safety (OHS) requirements, adequate and objective planning is necessary, taking into consideration the activities of the Project and how they may affect the physical and psychological well-being of all those involved. Therefore, it is important to manage risk, always in a preventive and not corrective way, and for this to be a reality, comprehensive Prevention Plans related to the nature of the Project and associated activities (i.e., project specific and site specific) will be developed by the Contractor during the planning phase, based on the requirements stated in this HSMP and all applicable legal requirements and international best practices.

4.7.6.3 General Site Rules

The following general site rules apply to all site personnel, as a minimum, to prevent and minimise occupational health and safety related impacts and achieve a target or “Zero Harm”:

“DO’S”

- Wear PPE as required. A hard hat, safety boots and high visibility clothing must be worn at all times.
- Observe vehicle movement restrictions both on-site and on public roads.
- Only use proper means of access and egress. Ensure site security is maintained.
- Comply with permit arrangements.
- Keep the site tidy.
- Eat and drink only in designated areas.
- Maintain high standards of hygiene; and
- Familiarize with emergency procedures including accident reporting arrangements.

“DON’TS”

- Expose to risk.
- If you have doubts about the safety of a task – ask.
- Don’t undertake any task you are not authorised or competent to do.
- Don’t misuse tools or other equipment – you may introduce a risk to others.

-
- Don't leave hazards unprotected – cover excavations, fence unsafe areas; and]
 - Don't leave vehicles unattended unless secured.

4.7.7 Prevention Plans

The adaptation and application of the various prevention plans will be the responsibility of the Contractor/Operator. MADER S shall verify, evaluate, and authorize them. Any subcontractor or visitor must comply with the rules and standards set out in the respective plans.

MADER shall appoint the person responsible for the implementation and verification of compliance with each prevention plan: Environmental Control Officer (ECO) and several qualified technicians for the different areas of action (health, safety, environment, emergency, training, etc.). These technicians are also responsible for the daily, weekly, and monthly inspections, surveys and investigations, and respective reporting and auditing.

4.7.8. Circulation Plans

To be able to enter the worksite or the construction site (when it is distant from the worksite), all site personnel and visitors will be required to sign in upon arrival and sign out upon departure (except in an emergency and in frequent situations of entry and exit several times a day, e.g., work front inspectors). This is important because in an emergency it must be known how many people are on site and need to be evacuated, and therefore surveillance checks will be conducted to ensure that this procedure is adhered to.

No person shall be permitted access to the site without the correct Personal Protective Equipment (PPE). For example, safety glasses and earmuffs must be worn if access to areas where noisy activities and dust generating activities take place.

4.7.9. Visitors Plan

The Visitors' Plan aims to prevent possible risks arising from the entrance of authorised persons into the work areas who do not intervene in the construction process. The entry of unauthorised persons is forbidden, and notices prohibiting the entry of unauthorised persons will be posted in adequate locations. All visitors to site must identify themselves to Security immediately upon arriving at the access point/designated control point.

The SHE must ensure that such visitors are in possession of the relevant certification and safety equipment (where appropriate, visitors will be provided with appropriate PPE).

All visitors to the site shall undergo a site induction upon arrival, prior to allowing them access to the site. A shorter site induction course will be provided for short term visitors. For longer term visitors a detailed site induction will need to be conducted. Short term visitors will be escorted, at all times, by a representative of the Contractor, with good knowledge of the site and its internal regulations.

The person accompanying visitors should make a prior check of the safety conditions of the places to be visited.

4.7.10. Traffic Management

The traffic on the project site has potential to cause health and safety hazards. In order to manage traffic, the following measures will be adhered to:






- Design and implement all traffic safety management arrangements within the site and any affected areas outside such as access points.

The traffic management plan shall be complied with by all site personnel and visitors. It shall cover all expected work activities, delivery, and storage areas, and it shall be expanded and/or amended to cover new or altered activities as they arise.

A traffic management plan shall also provide for the requirement that the entrances and roads are kept clean and clear of obstructions, and prevent the spillage or deposit of clay, rubble, or other debris. Also include specific details about locations for unloading, layout and storage areas, traffic routes, site map detailing pedestrian and vehicle routes, emergency egress routes, location of buildings – offices and welfare facilities, etc.

Safety signs are intended to draw the attention of workers and others, quickly and effectively, to objects and situations that may cause certain hazards. It also serves to indicate the position of devices that are important from a safety point of view, as well as to recommend courses of action. The signs to be placed in the places where activities are carried out (workplaces) and on the construction site must comply with the requirements of the applicable legislation and should

comprise warning, prohibition, obligation, indication, rescue or emergency, obstacles, dangerous places and firefighting material signs.

Type of Signal	Examples
Warning	
Prohibition	
Obligation	
Indication	
Rescue and Emergency	

Collective Protection Plan

The implementation of collective protection measures is a priority over individual protection measures. Collective protection measures and equipment should be site-specific, in order to provide safety for all employees, as well as all people from outside the activity who may collaborate or act in their proximity. Some rules must be applied, such as:

-
- Maintain construction camps in a clean and healthy condition as prescribed by international worker health standards.
 - Sign and fence construction areas, where necessary.
 - Secure equipment and demarcate any excavation work areas.
 - Placing safety signs at easily visible locations.
 - unobstructed circulation routes to facilitate the movement of people and machinery.
 - Evenly paved roadways to minimise vibration.
 - Watered roads to minimise the occurrence of dust.
 - Excavation sites are protected with barriers.

Individual Protection Plan

Personal Protective Equipment (PPE) is a complementary protection for specific risks that cannot be eliminated. Workers should be issued with personal protective equipment appropriate for their job, such as earphones, boots, helmets, and masks to protect the respiratory tract. When PPE is distributed to employees, a PPE distribution record will be filled in. PPE is distributed to each worker according to their function and responsibility. The personal protective equipment supplied must meet the following requirements:

- Comply with the safety and health standards applicable to their design and manufacture, in particular be certified, and comply with the manufacturer's recommendations.
- Comply with the conditions of use, particularly with regard to the duration of use, which are determined by the severity and duration of the risk, the frequency of exposure and the characteristics of the workplace.
- Be appropriate to the risks to which the worker is exposed and to the conditions prevailing at the workplace, without itself leading to any increased risk.
- Comply with ergonomic and health requirements of each worker (be appropriate for the individual worker - PPE cannot be interchanged between workers).
- PPE used simultaneously must be compatible with each other to maintain their individual efficiency.
- The equipment is checked periodically, stored in appropriate cabinets, away from heat sources, in appropriate conditions of conservation and hygiene, and identified with the name, function and code of the worker.

Equipment Maintenance Plan

The contractor must ensure health and safety conditions for employees in the use of work machinery and equipment, through:

- Ensure that the work equipment is adequate or suitably adapted to the work to be carried out.
- When choosing work equipment, take into account the specific conditions and characteristics of the work, the existing risks to the safety and health of workers, as well as the new risks resulting from its use.
- Ensure that the equipment is only used by qualified workers who have been adequately trained in the risks and preventive measures to be complied with during the intervention.
- Encourage equipment operators to ensure the proper functioning of the equipment they operate and to report any anomaly.
- Ensure proper preventive maintenance of work equipment during its period of use.
- Conduct safety inspections to equipment and machinery.
- Preventing noise through proper maintenance and timely lubrication of equipment.
- Promptly carry out corrections of detected anomalies.

An Equipment Use and Control Plan must be prepared, detailing the equipment and machinery that will be simultaneously operating in construction sites and establishing the required actions to ensure that it functions appropriately. This plan should include appropriate measures to prevent risks arising from simultaneous use and/or possible operation of equipment whose condition is not advisable.

To ensure that machinery and equipment are in good working order, monthly general inspections of all machinery and equipment should be performed. Whenever anomalies are found, they will be immediately registered, and the necessary corrective action will be taken. All equipment must have the following documentation:

- Technical characteristics.
- Copy of the Civil Liability Insurance Policy.
- Manufacturer's Maintenance Plan.
- Maintenance Records.

-
- Registration and Title Deed (if applicable);
 - Equipment User Manual, in Portuguese language.
 - Driver's License Declaration (if applicable).

Drivers may only operate the equipment if they have proof of qualification to operate vehicles/machinery, or a declaration from their employer that qualifies them to do so. The Maintenance Plan shall state the frequency and responsibility for periodic reviews and maintenance, considering the indications of the manufacturers of the machinery and equipment.

A person responsible for the general inspection of machinery and equipment shall be appointed, who shall ensure that the general inspection of all machinery and equipment which may present risks to workers is carried out, including inspections and their validation if carried out by others.

The equipment must be periodically checked by:

- Preventive check.
- Performing planned maintenance.
- Corrective maintenance whenever necessary in the event of equipment anomalies.
- General inspection of equipment. Periodic maintenance inspections should preferably be carried out by the manufacturer of the equipment (or his representative), using individual maintenance control forms drawn up based on the Maintenance Manual that accompanies each piece of equipment and listing all the checks, tests and replacements recommended by the manufacturer.

All maintenance, checks and other interventions are recorded on a special form in the individual register of the machine/equipment.

Employee Information and Training Plan

The purpose of this Program is to establish criteria and actions for the training of workers in matters of environment, health, and safety. It is necessary to have a Training and Information Plan, adapted for workers and visitors, in which issues related to safety, health and emergency situations are identified and the respective actions to be taken for each situation detected. A record must be kept of training sessions held (from simple inductions for visitors to more specific training for workers with certain functions), who attended them, the day, duration, subjects covered, trainer and

signatures of the trainees. Awareness-raising actions should take place whenever a new employee joins, with the aim of informing all those involved of the risks associated with their activity and the preventive measures to be implemented.

Awareness raising action	Description	Implementation schedule
Basic Training	<ul style="list-style-type: none"> • Disclosure of a code of conduct; - Disclosure of internal procedures, dissemination of the location of the different departments and their functions. • Do not dump or dispose of waste (hazardous and non-hazardous) into soil; • Do not bury or burn waste (hazardous or non-hazardous); • Raising awareness of the proper use of personal protective equipment necessary in the implementation of its activities; • Specific training for driving and parking vehicles; • Emergency procedures in case of contact with waste at individual level, • Emergency procedures in case of waste spillage and contamination 	During hiring process and when justified
Waste management	<ul style="list-style-type: none"> • Information on the characteristics and risks inherent in handling each type of waste; • Specific training for the safe and correct execution of the different tasks related to collection, handling, sorting, transport and/or storage of hazardous and non-hazardous wastes. 	
Health and safety	<ul style="list-style-type: none"> • Develop a clear STI and HIV and AIDS policy and implement a worker awareness campaign. 	

	<ul style="list-style-type: none"> • Carry out awareness-raising actions to ensure that all workers know the Emergency Response Plan and their commitment to their actions; • Promote simulations for different emergency scenarios; • Training on the use of emergency equipment for firefighting, spills and leaks from vehicles and machinery (fire extinguishers, oil spill absorbing material, etc.). 	
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Materials and Storage

A management and storage plan should be developed for hazardous and non-hazardous materials. Materials will be stored in a manner that minimise the potential for them to cause health and safety impacts following the indications below:

- The materials, plant, equipment and debris associated with this project will be actively managed on a day-to-day basis.
- Continual monitoring of the project storage facilities must be conducted to ensure that materials are stored in an orderly fashion, for example, that stacked materials are stable and not liable to fall, or cause a trip hazard or to spill any substance; and
- The storage of combustible materials and use of the materials will comply with the requirements in the material safety data sheet.

The removal and handling (disposal) of waste will be conducted in accordance with the Waste Management Plan to be developed by the Contractor (and for which guidelines are provided in this ESMP). For hazardous substances, the contractor must follow the following indicative measures:

- Substances hazardous to health will be identified, along with the appropriate control measures.

-
- Material Safety Data Sheets (MSDS) will be compiled for all substances in use.
 - The methods of work, storage and disposal for these materials will be compatible with the requirements stated in the data sheets, and industrial best practice.
 - A method statement shall be prepared, used, and kept for the hazardous materials/substances in use.

Emergency Response Plan

The Contractor is responsible for the safety of workers and as such should adopt the measures deemed necessary to prevent accidents at work. To this end, the contractor should draw up an emergency response plan (ERP), which should include at least the following points:

- Description of the accesses to the places where the work is being carried out, to enable fast assistance to casualties.
- Location of the First Aid Office. Signage to the First Aid Office should be clearly posted in the work sites.
- Emergency numbers, that should also be posted at the entrance of the First Aid Office and on the access points to work sites.
- Identification of the persons responsible for the evacuation process, in the event of an emergency.

Fire extinguishers should be provided at adequate places in work sites, in vehicles and mobile equipment, to prevent spreading of fires. The extinguishers should be periodically checked and should be always maintained in good working conditions. Workers should be trained on the handling and use of fire extinguishers and should be aware of the telephone / contact number of the first aid office. Workers should be informed that if a serious accident takes place, only qualified first response personnel should handle or move the injured.

Documentation

The Health and Safety Plan which the contractor must prepare and implement during the development phase of the Project's activities:

- Will be issued as a controlled document to all relevant managers and will be available at the site office.

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- Will be issued on a controlled basis to contractors; and
 - Will be brought to the attention of all site personnel as part of their induction.

The ECO will maintain a filing cabinet with safety information applicable to the site work.

Method Statements and Work Plans

Method statements will be prepared to supplement this plan, including statements for the:

- Identification of hazards and risks that are/may be present.
- Identification of precautions to be taken.
- Identification of the person responsible to implement those precautions.
- Identification of the work plans, materials and equipment that must be used; and
- Identification of emergency actions available.

In line with the principle of continuous improvement, all unplanned situations or activities that have not been previously assessed, but that may give rise to risk, must be assessed before work is started/continued and relevant method statements prepared.

Display of Notices

The following notices shall be displayed prominently in site offices and on the safety notice board, and shall include but not be limited to:

- Statutory Notices (Health & Safety Law poster, Insurance Certificate).
- The major accident/emergency plan.
- Emergency procedures and contact numbers.
- Site rules; • Access restriction/pedestrian and traffic routings.
- Map of evacuation routes and assembly points.
- Names and photos of appointed Fire Wardens, First Aiders etc.; and
- Safety Notices – Circulars and posters.

Records

Records will be kept by the contractor and all contractors working on the Project. Data shall include, but is not limited to:

-
- Contractor health and safety files.
 - Hazard operability file.
 - Monitoring and audit reports.
 - Current Health and Safety Plan.
 - Incident and Accident Investigation reports.
 - Training, Awareness and Competence records; and
 - As built drawings and updates.

Contractor Health and Safety Files

All Contractors will develop health and safety files, related to their scope of work. These files will include:

- An Engagement Safety File (completed by the contractor before work commences); and
- A Working Safety File (managed by the contractor).

All daily safety activities working documents will be kept in the Working Safety File. The contractor will compile the safety files in accordance with the following index for each file: Index to the Contractor Engagement Safety File:

Registration of Accidents and Accident Rates

Accident Book The accident books should be made available at work sites and in site offices. All accidents and incidents, regardless of severity, must be recorded in the relevant section of the accident book and reporting forms are to be forwarded to MADER. All accidents or injuries shall be recorded in the accident book.

4.7.11 Reporting

Health and Safety on the site will be monitored by a combination of:

- Site inspection.
- Statistical Review; and
- Audit.

It is important that health and safety performance be evaluated to form the basis of continual improvement. If measurement of safety performance is not carried out, the effectiveness of the

health and safety management system is undermined and there is no reliable information to inform managers how well the health and safety risks are controlled.

The health and safety management report will include monthly and annual internal reports on any management actions carried out under this plan, which must be submitted to MADER and will include an analysis of performance indicators.

4.7.11.1 Performance Indicators

Some of the performance indicators for Health and Safety are as follows:

- Total Recordable Injury Frequency Rates (TRIFR)
- Number of Classified Injuries
- % completed safety act observations
- Environmental – reporting all spills over time.
- Environmental – reportable incidents
- No major audit finding related to safety and health.
- Legal compliance.
- Compliance with this Plan and associated procedures.

The performance indicators results should be determined and compiled in quarterly reports, as indicated in the following section. The Project’s health and safety goal is “Zero Harm”.

Performance indicators will have three benchmarks:

- **‘Threshold’**: benchmark is the outer limit of safety performance;
- **‘Target’**: is the safety target for the Project and
- **‘Stretch’**: is the optimum performance for the Project.

4.7.11.2 Incident Reporting and Investigation

An accident is an unplanned, uncontrolled event giving rise to injury (including assaults), occupational ill health, death or other loss or damage (for example, fires and explosions, train accidents, infrastructure failures, property damage or environmental loss). An incident is an unplanned, uncontrolled event, which under different circumstances could result in an accident.

Regular workplace inspections are intended to catch unsafe conditions before they lead to an incident. However, when an incident occurs, it is vital to investigate it so that similar future incidents can be prevented.

Workplace injuries are preventable but if an incident occurs, an investigation should be conducted to find the root cause(s). Finding the root cause will help the contractor to recommend action to prevent it from happening again.

There will be several causes contributing for the same incident. Serious injuries must be reported to MADER. In the case of a critical injury, it is an offence to disturb the scene of the incident before the officers arrives except to prevent further injury or damage. There is great benefit in conducting near-miss investigations. Near misses often result in an injury at some point. Recording near misses can be as simple as a keeping a notebook for workers to record.

Minor incidents or near misses. The Committee can then review the notebook and make recommendations for change. Remember that incidents and near misses are warning signs that something is wrong in the workplace. The purpose of an investigation is to determine the root cause of incidents and to make necessary changes. An investigation form should be completed by the contractor SHE officer (or other person doing the investigating), and recommendations should come out of the investigation.

After the implementation of the corrective actions, a survey/audit should be carried out to confirm that the situation which caused the accident or incident does not recur.

4.7.12 Auditing

An audit will be used to assess the compliance with the environmental licence and the Health and Safety Plan. An independent auditor should conduct annual audits unless otherwise indicated within the approval conditions issued by the relevant government department. The audit programme should, however, include the following:

- A checklist of items to be audited.
- A report on the findings of the audit; and
- A record of performance.

The audit results must be made available to the relevant persons, so that any problems identified can be discussed and addressed.

4.7.12.1 Site Inspections

Site inspections will be used to check all aspects of the working methods and the working environment. If appropriate, this shall include brief interviews of the work teams to determine the effectiveness of communication on site. It will be checked by observation that PPE is being worn and is in good condition. The “three-strike” rule will apply to the use of PPE as follows - if an individual repeatedly abuses, misuses, or does not use PPE as required, they will be removed from site by the SHE officer and shall not work on the site again.

When undertaking site inspections, spot checks will be made on certification of personnel on site to confirm their certification is adequate and valid. The SHE officer will walk round site every day and will conduct formal inspections once per week and additionally during high-risk work. Additionally, contractors should undertake their own safety tours.

4.8 Emergency Response Program

4.8.1 Objectives

The overall objective of Emergency Response Program (ERP) is the systematization of the procedures to be adopted, to minimize the effects of possible accidents and incidents that may occur, thus managing the available resources in the best possible way. This document is considered an essential prevention tool, considering:

- The identification of potential emergency situations that may be caused by the Project's construction and exploration activities.
- The emergency communication process in case of its occurrence.
- The creation of risk scenarios.
- Action procedures in case of accidents or emergencies.
- The emergency report: causal analysis, actions taken and lessons learned and preventive measures adopted following the event, including its dissemination.

This section provides guidelines to the Contractor/Operator in the further development of a more detailed Emergency Response Program (ERP) to identify and respond to all risks associated with the Project. The Contractor/Operator shall submit this ERP for MADER approval.

4.8.2 Emergency Communication Process

An emergency can be detected by any Project worker or community member. After the emergency has been detected, the ECO will be immediately notified, either by emergency telephone or radio or other means.

4.8.2.1 Emergency Detection by Workers

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

4.8.2.2 Emergency Detection by Community Members

Further to workers, the ERP should also allow for the detection of emergency by community members. To the effect, communities should be informed, through the Communication Plan, of potential emergency risks and of what to do and how to communicate to contractor/operator and MADER PIU. Emergency contact numbers should be disclosed to the communities, to the local leaderships.

4.8.2.3 Communication Systems

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

- Warning alarm.
- VHF digital radios.
- Cell phones.

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

4.8.2.4 Emergency Scenarios

This chapter considers the response procedures to the more common emergency scenarios, 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.

Both the contractor and the operator should identify any additional emergency scenarios that may apply to their activities and include them in the ERP as necessary.

Spillage procedures

Flow diagram	Description	Responsibilities
<pre> graph TD Start([Spill Product]) --> Step1[1. Check spillage product] Step1 --> Decision{Possible seal / eliminate spillage?} Decision -- No --> Step4[4. Notify competent authorities] Decision -- Yes --> Step2[2. Seal / eliminate spillage] Step2 --> Step3[3. Absorb and collect the spillage] Step3 --> Step7[7. Fill the accident register sheet] Step4 --> Step5[5. Try to seal the spill] Step5 --> Step6[6. Await competent authorities] Step6 --> Step7 Step7 --> End([End]) </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 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	Any employee

	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)	
	4. Notify the competent authorities, informing on the exact location of the accident and which product was spilled	ESO or Site Director / Team leader
	5. Try to seal the spill using the available means	Any employee
	6. Await competent authorities' actions, do not abandon the location, and adopt a preventive attitude regarding the possible effects from the spill	ESO or Site Director / Team leader
	7. Fill out the accident register sheet.	ESO

4.8.2.5 Firefighting procedures

This procedure applies to all situations where a fire/fire is detected in a workplace, as well as to accidents and incidents that could lead to fire/fire, considering the nature of the specific construction conditions, maintenance work or even the actions of external agent.

Flow diagram	Description	Responsibilities
	1. Once fire is detected disseminate alarm system Suspend activities	Any employee

<pre> graph TD Fire([Fire]) --> 1[1. Detect and Alarm] 1 --> Major{Major fire?} Major -- Yes --> 4[4. Alert fire-fight] Major -- No --> 2[2. Tackle the fire source] 2 --> Extinguished{Fire extinguished?} Extinguished -- No --> 4 Extinguished -- Yes --> 3[3. Fire aftermath] 4 --> 5[5. Evacuation] 3 --> End([End]) 5 --> End </pre>	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	ECO or Site Director / Team leader
	5. Evacuate the workers, in safety, to meeting point.	Site Director / Team leader

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.

Flow diagram	Description	Description Responsibilities
<pre> graph TD Injury([Body injury]) --> 1[1. Remove the hazard] 1 --> Serious{Serious Injury?} Serious -- Yes --> 3[3. Alert Medical Emergency] Serious -- No --> 2[2. Render first aids] 3 --> 2 2 --> End([End]) </pre>	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	Any employee
	2. Render first aid, checking if there is: - Asphyxia - Shock - Haemorrhage - Poisoning Calm the victim by talking with them; Control breathing	First aider

	and constantly verify the pulse;	
	3. Alert Medical Emergency, informing them calmly about the location of the accident, number, and condition of the victims	Site Director / Team leader

5. 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 Contractor(s) who will be responsible of construction activities of the subprojects, 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 Contractor(s) and costed as part of their proposals. The C-ESMP for each contractor will include a budget to be approved by MADER. Nevertheless, an overall cost is presented in the ESIA, covering costs related to the implementation of the ESMP.,

Preliminary budget estimate for the ESMP implementation

#	Activity	Cost (USD)
1	Training and capacity building of the PIU	\$120.000,00
2	Implementation of the E&E management programs	\$80.000,00
3	Monitoring and evaluation	\$50.000,00
4	E&S annual compliance audit	\$70.000,00
5	Grievance Response Mechanism Implementation	\$40.000,00
Total		\$360.000,00

6. ESMP Implementation schedule

The key elements of the implementation schedule include the following:

- Review and approval of Contractor's management plans;
- Implementation of mitigation and enhancement measures;
- Training;
- Environmental and Social Auditing; and
- Monitoring and reporting of ESMP implementation

Activity	Responsibility	Pre-Construction	Construction	Operation
Environmental and Social Training	Environmental and Social Consultant	X		
Review and Approval of Contractor's Plans	PIU	X		
Implementation of Environmental and Social Mitigation Measures	Contractor/Operator		X	X
Supervising ESMP Implementation	PIU		X	X
Monitoring & Reporting on ESMP Implementation	PIU		X	X
Environmental and Social Auditing	PIU		X	X

The implementation schedule must also include environmental and social requirements in bid documents and contracts in the preparation/pre-construction phase.

ANNEXES

ANNEX 1 - COMPLAINT REGISTRATION FORM

Name (Complainant): _____

Contact: _Telephone_____ community_____ District _____

Description of complaint or complaint :

Plaintiff's signature _____ Date: _____

Representative of the company or association: _____ Date: _____

Representative of local authorities: _____ Date: _____

ANNEX 2 - COMPLAINT RESOLUTION FORM

Name (plaintiff): _____

Contact: _____ (community, district, telephone contact)

Description of complaint or dispute:

witnesses

Date: ____/____/____

Summary of discussions

Signature _____ Date: _____

Person's number: _____

Position: _____

Resolution

Resolution meeting date:

People present at the meeting (list attached)

Was a field visit made? Yes No_____

Result of field investigations:

Summary of the conclusions of the meeting:

Key aspects:

Was there agreement on the aforementioned aspects? Yes No_____

If agreement was reached, describe what was agreed:

If agreement has not been reached, please describe the points of disagreement and the following actions:

Signature -): _____ Complainant's signature: _____

Signature (Observer): _____

Date: _____

ANNEX 3 - CODE OF CONDUCT FOR THE PROTECTION OF CHILDREN AND VIOLENCE AGAINST WOMEN

To be signed by all workers, contractor and subcontractor

I, _____ agree that during my contract, I must:

- Treat all children and women from neighboring communities, or who enter property, with respect, regardless of race, color, gender, tribe, religion, party affiliation or other opinion, national or other social or ethnic group, rich or poor, disabled or other status;
- Not using culturally inappropriate (abusive, sexually provocative) language or attitudes towards children or women;
- Do not offend psychologically through threats, insults, defamation, or slander any woman, whether in your romantic relationships or not;
- Not imputing an offensive fact to the honor and character of the woman, through the use of drawings, messages or in conversations;
- Not practice non-consensual copulation with any woman with or without transmission of infectious diseases (ITS and AIDS);
- Do not attack the physical integrity of the woman using an instrument;
- Not sexually engage, whether paid or otherwise, with any child under the age of 18;
- Whenever possible, ensure that work in areas close to children is witnessed by an adult;
- Do not invite any child to my house, only in a clear situation of risk or help;
- Do not sleep next to an unaccompanied child unless absolutely necessary, in these cases, you must request authorization from supervisors and ensure that another adult is present;
- Use computer, cell phone, cameras or other media appropriately and never to sexually exploit or abuse children;
- Do not physically abuse children ;
- Not hire minors to do housework or other work that is inappropriate for their age and development, interfering with their educational and recreational activities or in places with a risk of injury;
- Comply with all national legislation relevant to the protection of children, including labor legislation prohibiting child employment;

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- Promptly report concerns and allegations of exploitation and abuse of minors and women, policy of non-compliance with appropriate procedures;
 - When photographing or filming a minor or using images of a child for service purposes, you must:

I understand that I have a responsibility to the employer's employee to use common sense to avoid actions or attitudes that could be perceived as exploiting and abusing minors and women.

The practice of one or more attitudes defined in this code of conduct may result in dismissal and criminal prosecution in the light of law 27/2009 and other labor legislation.

Signature:

Date: