PROJECT: SUPPORT TO SKILLS DEVELOPMENT FOR AGRICULTURE AND INDUSTRY PROJECT - UNILÚRIO

COUNTRY: MOZAMBIQUE

ENVIRONMENTAL AND SOCIAL MANAGEMENT SUMMARY

Date: November, 2017
ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) SUMMARY

Project Title: Support to Skills Development for Agriculture and Industry Project - Unilúrio
Project Number: P-MZ-I00-002
Country: Mozambique
Department: RDGS
Division: RDGS.2
Project Category: Category 2

1. Introduction
The education sector in Mozambique has been facing noticeable progress with net enrolment rates consistently improving but completion rates and the overall quality of education remain a concern. The country has one of the highest rates of child marriage in the world, affecting almost one in every two girls. The northern provinces have the highest rate: 20% of women aged between twenty and twenty-four married before the age of fifteen (CEPSA/2017). Poor quality of education is leading to children (both boys and girls) dropping out and not completing schooling, hence enhancing the quality of education is a key strategy to keep girls in school. Ultimately, girls and their families need improved economic prospects. Among other measures, this will require giving special attention to women in job creation, technical and vocational training as well as to expand their access to other levels of education. Higher education has expanded rapidly in number and geographically but remains unaffordable for many youth from poor families. The current system does not benefit sufficiently low income families. The quality and relevance of Higher education have reportedly declined. Higher education institutions need to reform their curricula in collaboration with employers while investing in modern learning equipment. Entrepreneurial skills and competencies are also essential to prepare future graduates to play their role which is to support development in key economic sectors (agriculture, mining, energy, etc.). In addition, scaling up student financial aid (for young girls in particular) through student loans and expanding and improving the quality of education in the Northern provinces of Mozambique will contribute to increase the access to youth from poor families and reduce geographic imbalances.

In order to address the challenges faced by the country’s higher education sector, the Republic of Mozambique has approached the African Development Bank (AfDB) for financial assistance. The project aims to contribute to employment enhancement and poverty reduction in Mozambique by increasing productivity and competitiveness through skilled and entrepreneurial labour force in Agriculture, Engineering and Applied Sciences. This objective will be achieved by building a sustainable skills development capacity of University of Lúrio. This objective will be achieved by building a sustainable skills development capacity of UniLúrio through (i) the enhancement of the quality and relevance of training; (ii) the strengthening of employability and entrepreneurship (iii) the improvement of equitable access to higher education at UniLúrio; and (iv) the strengthening of the university’s strategic planning and management capacity. The project is to be implemented over a five-year period from March 2018, with a total project cost of USD 11.1 Million in Cabo Delgado, Nampula and Niassa provinces.

2. Project Location:
The study is designed to be carried out in three study areas where the University Campuses are localized, distributed according to the below table:
Table 1 – List of Campus and faculties

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Campus</th>
<th>Faculties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niassa</td>
<td>Unango</td>
<td>Faculty of Agricultural Sciences (FCA)</td>
</tr>
<tr>
<td>Nampula</td>
<td>Marrere</td>
<td>Faculty of Architecture and Physical Planning (FAPF)</td>
</tr>
<tr>
<td>Cabo Delgado</td>
<td>Pemba</td>
<td>Faculty of Engineering (FE)</td>
</tr>
<tr>
<td>Cabo Delgado</td>
<td>Pemba</td>
<td>Faculty of Natural Sciences (FCN)</td>
</tr>
</tbody>
</table>

Source: Unilúrio

Unango Campus

Localized in Sanga District in Niassa Province. Is a rural area, relatively isolated. Neighbor settlements are not very close. It includes the Agricultural Sciences Faculty (FCA).

Marrere Campus

Localized in Nampula Municipality, in Nampula Province. Although inside the Municipality, is far from the town, assigning rural characteristics to the area. It is also isolated, as neighbor settlements are not very close to the Campus. It includes the Faculties of Health Sciences (FCS) and Arquitecture and Physical Planning (FAPF).

Pemba Campus

Localized in Pemba municipality, in Cabo Delgado Province. Although inside the Municipality, is also far from the town, assigning rural characteristics to the area. However, in this site neighbor settlements are close to the Campus. It includes the Faculties of Engineering (FE) and Natural Sciences (FCN).

3. Objectives of the ESMP

To maximize the benefits to be accrued as a result of the proposed project an Environmental and Social Management Plan (ESMP) has been prepared to identify the environmental and social management and mitigation actions required to address any potential adverse impacts and to implement the project in accordance with the requirements of the AfDB and applicable national legislation and regulations of Republic of Mozambique. The ESMP provides an overview of the environmental and social baseline conditions on the direct impacted areas, summarizes the potential impacts associated with the proposed project and sets out the management measures required to prevent, minimize or mitigate any potential adverse environmental and social impacts, and enhance the Project’s beneficial impacts. The ESMP is to be implemented and monitored by the University of Lúrio as the project’s implementing entity and will form the basis of site-specific management plans that will be prepared by the contractors and sub-contractors as part of their construction methodology prior to works commencing.

4. Brief project description and key components

The project will support a university, which is serving the poorest region of the country consisting of the three Northern provinces hosting 44% of the country’s population. The project will consist of four main components:
Component 1- Academic infrastructure and equipment: to build capacity at UniLúrio to enable the institution to perform its functions of teaching more effectively, research and services to the communities. Main activities will be the construction and equipping of (i) modern laboratory building complexes (ii) campus libraries including digital content.

Component 2- Strengthening training and employability: this component will improve the quality and scope of academic activities where teaching and research will be supported, update the curricula in line with the evolving needs of the labor market, entrepreneurship skills development and incubation development.

Component 3- Equity and gender: the component will support the Government’s policy regarding equity in access to higher education with special attention to the promotion of higher female participation and increasing scholarships /grants for girls.

Component 4- Strategic planning and management: this component will support overall governance at UniLúrio by strengthening strategic planning and management capacity and ensure sustainability in the context of diminishing resources from the public sources.

5. Major environmental and social impacts and climate change risk

The project has been classified as a Category 2 according to the AfDB’s Environmental and Social Assessment Procedures (ESAP), which means that all known environmental and social risks can be minimised and managed through implementing preventative measures and sound management systems.

Positive Impacts
The main positive impacts anticipated from the project are enhanced access to affordable technical skills; and improvement of quality of life of learners, students and staff alike, due to the provision of adequate and modern education infrastructure (i.e. laboratories, libraries and IT system.). The project is expected to provide job opportunities to the local communities, normally unstilled, and semi-skilled people. The local economy of the project location is expected to benefit from the projects, as the moneys spent in the communities around the project locations would create some flows of revenue. Goods and services procured from local businesses or enterprises will also increase the project’s contribution to the growth of the local economy.

Negative Impacts
Clearing of vegetation during earthworks is expected to take place at some project sites and can make these sites susceptible to soil erosion, especially during rainy seasons. The constant movement of heavy construction vehicles during construction also tend to compact the lane surface, which can reduce infiltration capability, and increase surface water runoff. The use of heavy construction machineries and increased traffic at the project site during the construction can result in soil compaction, which increases run-off capacity of the soil at the site. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during the construction phase. Contamination of soil, groundwater and surface water might occur through petroleum, chemical, harmful and hazardous substances. Contaminants in the form of oil leakages, diesel, lubricants and grease from the construction equipment and machinery during the construction phase may occur. Care must be taken to avoid contamination of soil and groundwater. During the construction phase dust problems are expected to be site specific and will not pose a nuisance to any neighbouring land. Earthmoving equipment will be utilized during the construction phase and noise would be generated. No known heritage artefacts or areas envisaged to be impacted by the development. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during the construction phase. Safety and security issues could arise from the earthmoving equipment and tools that will be used on site during the construction activities. This increases the possibility of injuries. The presence of construction could also encourage criminal activities. Open flames, smoking or any potential sources
of ignition are potential threats to health and safety, especially in areas where highly flammable materials are stored on the premises. No resettlement is expected at this stage. The proposed improvements to be conducted are all to take place within the confines and boundaries of the 3 main campuses were activities are already taking place. The expansions to be conducted are within land earmarked for this purpose. No encroachment on the neighbouring land or properties will occur and no resettlement of individual(s) or communities is required for this project. Cumulative impacts associated with the construction of the library and laboratories are expected to include, noise emissions, land disturbance, traffic and possible accidents involving vehicles frequenting the area. This could collectively impact on the environmental conditions in the area. Cumulative impacts could occur in both the operational and the construction phase. In general, impacts are expected to be low to medium, mostly short lived and site specific. Mitigation options recommended in the Environmental and Social Management Plan (ESMP) will guide and ensure that the impacts of the construction work are minimised. The development of the ESMP has been informed by, and in line with, the AfDB’s Integrated Safeguards System (ISS) (2013).

**Climate Change Risk**

The country is already facing the results of increasing changes in weather patterns in the form of cyclones, dry seasons and frequent floods. While the proposed projects are not particularly vulnerable, attention will be made to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters including sustainable and resilient infrastructure, awareness-raising on climate change mitigation, adaptation and impact reduction. The project will contribute to the development of skills which play a major role in assessing, controlling and managing the environmental aspects by undertaking training activities linked to green and blue industries including assisting local communities to increase the capacity to pursue sustainable livelihood opportunities.

**6. Enhancement/mitigation measures and complementary initiatives**

Where negative impacts arise, mitigation will include measures enumerated in Tables 1 below. In terms of enhancement measures proposed under the project, the design will be informed by the innovative designs that strive to address environmental, social and climate issues. Solar water heating systems are already installed in Unango campus and will be pursued. Therefore, some sections of the new buildings will incorporate renewable energy as a source of power. This will save the institutions cost of power but in particular avoid the consequences of frequent power shortages (disruptions) where energy should be present on a permanent basis (laboratory experiments & researches).
<table>
<thead>
<tr>
<th>Anticipated Environmental &amp; Social Impact</th>
<th>Proposed Mitigation Measures</th>
<th>Monitoring &amp; Reporting Indicators</th>
<th>Implementation Plan &amp; Institutional Responsibilities</th>
<th>(Us$) Cost Estimates</th>
<th>Timing</th>
</tr>
</thead>
</table>
| Compliance with Legal Environmental & Social Requirements | ▪ In line with the Degree nº 54/2015: Regulamento sobre o Processo de Avaliação do Impacto Ambiental, conduct an environmental and social management Plan by identifying & addressing all environmental and social issues.  
▪ No resettlement of people or communities is required including land acquisition as constructions will be made within the existing campuses | ▪ Develop site-specific ESMP for the campuses of Marere, Pemba and Unango. | EM/Other relevant stakeholders | 15.000 | Once               |
| Public Consultation | ▪ Inform Interested and affected parties and key stakeholders about the proposed development.  
▪ Identify issues and concerns of key stakeholders and Interested and affected parties with regards to the proposed development.  
▪ Develop a communication structure with stakeholder and Interested and affected parties | ▪ Number of interested and affected parties, stakeholders engaged. | EM / Other relevant stakeholders |                 | Before construction |
| Environmental Awareness Training | ▪ Ensure that all persons involved in the project are aware of, and are familiar with the environmental requirements for the project.  
▪ Develop and implement environmental emergency preparedness procedures. | ▪ Record of awareness training.  
▪ Record of attendance register of training. | EM, ECO |                 | Before construction/ Ongoing |
| Health and Safety Aspects | ▪ Establish personnel protection standards and mandatory safety practices and procedures for the field activities related to Corrective Actions at the site.  
▪ Establish the lines of communication among contractors & subcontractors involved in work operations for safety and health matters.  
▪ Ensure that key health concerns are properly addressed namely malaria, HIV/Aids as well as sexual awareness Programme on sites for of workers including direct and indirect costs. | ▪ Record of health and safety plan. | EM, ECO, ESO |                 | Before construction/ Ongoing |
| Project Design | ▪ Ensure new building are planned to incorporate renewable energy as a source of power including water storage mechanisms,  
▪ Ensure that laboratories incorporate facilities to properly deal with chemical & reagents disposals  
▪ Ensure that infrastructures particularly in Pemba and Nampula are cyclones’ resilient | ▪ Record of designs. EM / appointed Project Engineers | Included in the TOR’s |                 | Before construction |
| Construction Phase | ▪ Ensure measures are in place to minimise dust generated by construction activities, to the satisfaction of the EM and ECO.  
▪ Avoid excavation, handling and transport of materials which may generate dust under high wind conditions.  
▪ Locate stockpiles of construction materials in sheltered areas where they are not exposed to erosive effects of the wind.  
▪ Use appropriate dust suppression measures when dust generation is unavoidable,  
▪ Control dust on site roads through wet suppression.  
▪ Ensure all vehicle, plant and equipment are in good condition. | ▪ Regular visual inspections by EM and ESO.  
▪ Number of disturbances outside designated area;  
▪ Evidence of disturbances to vegetation or property outside designated area. | ECO/ESO/Contractor | 1.000 | Construction phase |
| Noise Impact                                                                 | ▪ Ensure the use of construction vehicles and equipment that emit reduced noise levels.  
|▪ Ensure proper maintenance is conducted on vehicles to ensure the reduction of noise emission.  
|▪ The construction staff should be equipped with ear protection equipment.  
|▪ Audio equipment (if any) should not be played at levels considered intrusive by others.  
|▪ Construction activities will be limited to a period between 07h00 and 17.30h00. | ▪ Regular visual inspections  
|▪ Evidence of no excessive noise. | ECO/ESO/Contractor 3.000 | Construction phase |
| Contamination of Groundwater                                               | ▪ Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel).  
|▪ Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles or equipment.  
|▪ No major servicing and maintenance of vehicles and/or equipment should be conducted at the site.  
|▪ All fuelling, storage and chemical handling should be conducted on surfaces provided for this purpose.  
|▪ Spillage control procedures must be in place and waste should properly be contained to avoid any leakages and/or spillages, and should regularly be disposed off at a suitable sewage disposal site.  
|▪ Proper environmental awareness and remedial response training of operators must be conducted on a regular basis. | ▪ Daily and weekly, records of remediation.  
|▪ Visible contaminants from trucks and equipment  
|▪ Evidence that leaking equipment decommissioned;  
|▪ Evidence of soil and water contamination. | ECO/ESO/Contractor 5.000 | Construction phase |
| Soil and Surface Water Contamination                                        | ▪ Prevent contamination of soil and surface water through oil leakages, hydrocarbon fuel, lubricants and grease from the construction vehicles and equipment during construction phase.  
|▪ Any spillage of hazardous substances including fuel, oil, and paint or cleaning solvent must be cleaned up immediately and disposed at a designated disposal facility.  
|▪ Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into nearby water courses.  
|▪ Prevent illegal washing out of containers in water courses.  
|▪ Properly secure all temporary / portable toilets (if any) to the ground to prevent them toppling due to wind or any other cause.  
|▪ Maintain toilets in a hygienic state and remove waste to a licensed disposal facility.  
|▪ Ensure that no spillages occur when the toilets are cleaned or emptied.  
|▪ Prohibit urination on site, other than at designated facilities.  
|▪ Stabilize cleared areas as soon as possible to prevent and control surface erosion.  
|▪ Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.  
|▪ An emergency plan should be in place on how to deal with spillages and leakages during this phase. | ▪ Daily and weekly, records of remediation.  
|▪ Visible contaminants from trucks and equipment  
|▪ Evidence that leaking equipment decommissioned;  
|▪ Evidence of soil and water contamination. | ECO/ESO/Contractor 10.000 | Construction phase |
| Generation of Waste                                                          | ▪ Ensure that sufficient weather- and vermin- proof bins / containers are present on site for the disposal of solid waste. Waste and litter generated during this phase must be placed in these disposal bins.  
|▪ The Contractor shall institute a waste control and removal system for the site.  
|▪ No disposal of /or burying of waste on site should be conducted. No waste should be burned on site. | ▪ Evidence of littering.  
|▪ Evidence of adequate waste disposal containers;  
|▪ Amount of recyclable material;  
<p>|▪ Number of incidents of unauthorized entry. | ECO/ESO/Contractor 7.000 | Construction phase |</p>
<table>
<thead>
<tr>
<th>Traffic</th>
<th>Fires and Explosions</th>
<th>Safety and Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Empty bins regularly as required. Separate hazardous wastes from general waste, clearly marked, and stored in appropriate containers. Solid and liquid hazardous waste shall be stored in separate containers. The hazardous waste storage is to be clearly marked to indicate the presence of hazardous substances, and the protocols associated with handling of such hazardous wastes shall be known by all relevant staff members. Where no formal hazardous waste disposal facility exists, any contaminated soil produced should be contained, transported and disposed of at the nearest approved Hazardous waste site; or a controlled bioremediation facility should be developed. ▪ Awareness of the hazardous nature of various types of waste should be enforced.</td>
<td>▪ Install and maintain official traffic signalling (where necessary) on local roads / intersections surrounding the project location in conjunction with local or national traffic regulations. ▪ Speed limit warning signs must be erected to minimise accidents. Construction vehicles and machinery must be tagged with reflective signs or tapes to maximise visibility and avoid accidents. Where feasible, Construction vehicles should not travel to and from the site during peak times (06h00 to 08h00 and 15.30h00 to 17h00), to minimize impacts on traffic. Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside.</td>
<td>▪ Ensure availability of sufficient water for firefighting purposes. Ensure that all fire-fighting devices are in good working order and they are serviced. ▪ All personnel must be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. ▪ Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.</td>
</tr>
<tr>
<td>▪ Adequate traffic signage. ▪ Evidence of traffic congestion.</td>
<td>▪ Record of fitness and service of firefighting equipment. ▪ Record of awareness training of firefighting equipment. ▪ Adequate and appropriate signage in place. ▪ Fire-fighting equipment in place.</td>
<td>▪ Evidence of signage in place. ▪ Evidence of personnel using construction machinery or equipment possessing appropriate PPE.</td>
</tr>
<tr>
<td>▪ Adequate traffic signage. ▪ Evidence of traffic congestion.</td>
<td>▪ ECO/ESO/Contractor 5.000</td>
<td>▪ ECO/ESO/Contractor 5.000</td>
</tr>
<tr>
<td>▪ Display telephone numbers of emergency services, in the at project location. ▪ Provide suitable emergency and safety signage on site (manufactured of durable, weatherproof material). ▪ Demarcate and barricade any areas which may pose a safety risk (including hazardous substances, deep excavations etc). ▪ Enforce the use of appropriate Personal Protective Equipment (PPE) for the right task or duties at all times. ▪ Prevent illegal access to the construction sites by implementing appropriate security measures. These security measures must not pose a threat to surrounding communities. Should a construction camp be necessary, it should be located in such a way that it does not pose a risk to the public. ▪ Equipment housed on site must be placed in a way that does not encourage criminal activities. ▪ For safety and security reasons it is recommended that the entire site (construction site and camp) be fenced-off and security personnel be employed to safeguard the premises and to avert criminal activities.</td>
<td>▪ Evidence of signage in place. ▪ Evidence of personnel using construction machinery or equipment possessing appropriate PPE.</td>
<td>▪ ECO/ESO/Contractor 10.000</td>
</tr>
<tr>
<td>▪ Adequate traffic signage. ▪ Evidence of traffic congestion.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Sensitize operators of earthmoving equipment and tools to switch off engines of vehicles or machinery not being used.
- The contractor is advised to ensure that the team is equipped with first aid kits and that they are available on site, at all times.
- Proper barricading and/or fencing around the work sites should be erected to avoid entrance of animals and/or unauthorized persons.
- Safety regulatory signs should be placed at strategic locations to ensure awareness.
- Adequate lighting within and around the construction locations should be erected, when visibility becomes an issue.

### Nuisance Impact
- Maintain tidiness on site at all times.
- Take cognition when parking vehicles and placing equipment.
- Evidence of tidiness and housekeeping.

### Erosion and Sedimentation
- Avoid unnecessary removal of topsoil cover during construction.
- Ensure stockpiles are located within the boundary of the site and are protected from erosion.
- Stabilize cleared areas as soon as possible to prevent and control surface erosion.
- Limit clearing of vegetation to those areas within the footprint of construction.
- Minimise open areas and reduce the frequency of disturbance.
- Evidence of proper stockpiling and management.
- Evidence of surface erosion.
- Number of disturbances outside designated.

### Ecological
- Limit clearing of vegetation to those areas within the footprint of construction, minimise open areas and reduce the frequency of disturbance.
- Disturbance of areas outside the designated working zone is not allowed.
- Evidence of conservation.
- Number of disturbances outside designated.

### Socio Economic Aspects
- Construction contractors should be sourced from the local community, or region at large (where feasible).
- Construction workers should be sourced from the local community (where feasible).
- Suppliers of construction materials should be sourced from or region at large (where feasible).
- Locally source services required during the construction process, such as securities, rental of portable toilets, plant hire, etc.
- Evidence of local contractors.
- Evidence of local construction workers.
- Evidence of local suppliers and service providers.

### Operation and Maintenance Phase

#### Dust Pollution and Air Quality
- Acquire all reasonable measures to minimise dust generated by operational activities.
- Ensure all vehicle, plant and equipment are in good condition.
- Avoid handling and transporting of materials which may generate dust when the conditions are not adequate (e.g. winds).
- Appropriate dust suppression measures should be deployed when dust generation is unavoidable, e.g. dampening with water (wet suppression).
- Regular visual inspections of air quality at site.
- Evidence of vehicles idling too long.

#### Noise Impact
- Ensure the vehicles, equipment and machines are compatible with the environmental standards.
- Ensure proper maintenance of vehicles is in place to ensure the reduction of noise emission.
- Workers should be equipped with ear protection equipment when necessary.
- Daily maintenance activities should be limited business working hours (07H00 - 17H30 (where feasible).
- Record of noise complaints.
- Evidence of no excessive noise.
- Records of grievance procedure.
| **Contamination of Groundwater** | ▪ Ensure compliance to the maintenance and service plans of project sites’ vehicles and equipment.  
▪ All leaks should be properly contained and repaired immediately.  
▪ Leaking equipment should be removed from the work area to a designated containment area, which should be equipped with a waste water collection system.  
▪ Equipment and materials to deal with spill clean-up must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures. | ▪ Records of vehicle maintenance.  
▪ Record visible contaminants from vehicles and equipment. | MITADER/ Campuses Management | Operational phase |
| **Contamination of Surface water** | ▪ Ensure compliance to the maintenance and service plans of project sites’ vehicles and equipment.  
▪ All leaks should be properly contained and repaired immediately. Leaking equipment should be removed from the work area to a designated containment area, which should be equipped with a waste water collection system.  
▪ Equipment and materials to deal with spill clean-up must be readily available on site and staff must be trained as to how to use the equipment and briefed about reporting procedures. | ▪ Regular visual inspections  
▪ Evidence of no leakages or pollution | MITADER/ Campuses Management | Operational phase |
| **Generation of Waste** | ▪ All campuses develop & implement a waste management plan in their operations  
▪ Ensure sufficient weather- and vermin-proof bins / containers are present along campus corridors, at sports grounds, lecture halls, and residences.  
▪ Ensure waste removal from site is done timely and in correct way (e.g recyclable and non-recyclable waste)  
▪ Implement measures to manage litter from the project site. (e.g. cover conditions).  
▪ Regularly clear windblown litter that gathers along project site or beyond. Dispose of any hazardous waste generated at an approved hazardous waste site.  
▪ Awareness of the hazardous nature of various types of waste should be enforced. | ▪ Evidence of waste management plan.  
▪ Evidence of no litter in and around the site. | MITADER/ Campuses Management | Operational phase |
| **Biophysical Environment (pollution)** | ▪ Awareness of the hazardous and handling of chemical & reagents should be enforced  
▪ management of the laboratories stock inventory | ▪ visual inspections of stored reagents & materials  
▪ visual observation in the environment and trash bins  
▪ reporting on incidents | . Campuses Management lecturers & students | Operational phase |
| **Traffic** | ▪ Speed limits and road signs as set out by national traffic regulations should be adhered to in order to minimise accidents. | ▪ Evidence of no congestion or traffic accidents. | MITADER/ Campuses Management | Operational phase |
| **Safety and Security** | ▪ Display contact details of emergency services in the area at strategic locations of the project site.  
▪ Demarcate and place signage on any areas which may pose a safety risk  
▪ The project personnel are advised to ensure that proper personal protective gear and first aid kits are available, at all times.  
▪ Project personnel should be properly trained in first aid and safety awareness. | ▪ Evidence of signage in place.  
▪ Evidence of use of appropriate PPE for specific tasks. | MITADER/ Campuses Management | Operational phase |
7. Environmental and social monitoring program

Monitoring includes monitoring implementation of the proposed mitigation measures to assess their efficiencies and development alternative or supplementary mitigations measures if the expected results are not reached. Although the executing agency, UniLúrio has already some experience and technical capacity in developing and monitoring ESMP. Therefore, environmental monitoring will be undertaken by an internally appointed focal point to act as the PMT Gender Responsive M & Expert together with UniLúrio’s Center for Investigation and Environmental Conservation in the Faculty of Natural Sciences. This Center plays an important role in developing and monitoring ESMP for locally based companies and projects. During the construction phase, contractors will be responsible for implementing the mitigation and improvement measures contained in the ESMP. During the operational phase, direct responsibility for environmental conformity and the implementation of the mitigation, management and monitoring measures described in the ESMP report, will continue to be with the management level of the respective Campuses and Faculties. Regular periodic reporting to the Environment Manager will mainly be responsibility of the Contractors. The Ministry of Land and Rural Development (MITADER) will audit project compliance or lack of. The Compliance Reports will also be made available for public consultation.
The detailed E&S monitoring programme is as follows:

<table>
<thead>
<tr>
<th>Project phase</th>
<th>Category</th>
<th>Indicators</th>
<th>Location</th>
<th>Method</th>
<th>Duration</th>
<th>Frequency</th>
<th>Purpose</th>
<th>Expertise required</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Site inspections</td>
<td>Site clearance</td>
<td>At designated areas along pipeline route</td>
<td>Visual and descriptive, against a checklist</td>
<td>For the duration of site clearances</td>
<td>Daily</td>
<td>To ensure compliance with the premises of the ESMP, including health &amp; safety.</td>
<td>Experienced site supervision staff with knowledge of ESMP and H&amp;S</td>
<td>Resident Engineer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Materials storage; disposal of spoil; health and safety</td>
<td>All construction sites</td>
<td>Visual and descriptive, against a checklist</td>
<td>Throughout project period</td>
<td>Daily when sites are active</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wastewater disposal; solid waste disposal; materials storage; health &amp; safety</td>
<td>Contractors camp</td>
<td>Visual and descriptive, against a checklist</td>
<td>Throughout project period</td>
<td>Monthly</td>
<td>To ensure compliance with the premises of the ESMP, including health &amp; safety.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traffic management; wastewater disposal; solid waste disposal; materials storage; health &amp; safety</td>
<td>Other sites</td>
<td>Visual and descriptive, against a checklist</td>
<td>Throughout project period</td>
<td>Quarterly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air and dust</td>
<td>PM_{10} and ambient noise</td>
<td>All construction sites, including the camp</td>
<td>Portable air quality monitoring equipment</td>
<td>Over 24 hours, at time to be determined by the RE</td>
<td>As deemed necessary by the RE</td>
<td>To quantify project impacts</td>
<td>Person trained in the use of equipment required</td>
<td>RE and constructor</td>
<td></td>
</tr>
<tr>
<td>Socio-economic issues</td>
<td>Social conflicts, due to influx of migrant and disruption of social cohesion</td>
<td>Vicinity of all construction sites</td>
<td>Review of Employment Contracts Documents and other Human Resource Documentations/ Grievance Registers</td>
<td>Construction phase</td>
<td>As necessary</td>
<td>To ensure compliance with the premises of the ESMP</td>
<td>Experienced site supervision staff</td>
<td>Contractor and RE/ECO</td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td>Vicinity of all construction sites</td>
<td>Visual observation</td>
<td>Construction phase</td>
<td>As necessary</td>
<td>To ensure compliance with</td>
<td>Experienced site supervision staff</td>
<td>Contractor and RE/ECO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and safety</td>
<td>Workers Education about risks and use of emergency measures</td>
<td>All construction sites</td>
<td>Visual inspections</td>
<td>As appropriate for the parameter monitored</td>
<td>Construction phase</td>
<td>As necessary</td>
<td>Experienced site supervision staff</td>
<td>Resident Engineer/Contractor/Health and safety Officer</td>
<td></td>
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</tr>
<tr>
<td>Complaint investigati ons</td>
<td>Any of the parameters listed above, depending upon the nature of the complaint</td>
<td>At or in the vicinity of all sites for which a specific compliant has been received</td>
<td>As appropriate for the parameter monitored</td>
<td>As necessary</td>
<td>As necessary</td>
<td>As necessary (complaint investigations)</td>
<td>Unilurio and RE ECO/RE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESMP compliance</td>
<td>Contractor’s compliance to standards and EMP requirements. Low numbers of injured workers. Minimum public disturbance.</td>
<td>Site inspection and interrogation of site records</td>
<td>Throughout project period</td>
<td>Every 6 months</td>
<td>To ensure that contractor complies with the ESMP and monitoring standards</td>
<td>M&amp;E experience</td>
<td>ECO/RE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decommissioning</td>
<td>Site reinstatement</td>
<td>All construction sites</td>
<td>Visual inspection</td>
<td>After construction</td>
<td>Once every sub-project construction is finished</td>
<td>To ensure the constructed areas are in equal or better condition than existing condition</td>
<td>Knowledge of Existing environmental conditions</td>
<td>RE</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic issues</td>
<td>Sustainable projects in the communities</td>
<td>Vicinity of all construction sites</td>
<td>Visual inspections</td>
<td>After construction</td>
<td>Monthly</td>
<td>To ensure compliance with the premises of the ESMP</td>
<td>Experienced site supervision staff</td>
<td>Unilúrio or a subcontracted institution</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Pollution prevention</td>
<td>All laboratory</td>
<td>Storage inventory, procurement, inductions</td>
<td>During operation</td>
<td>Biannual (planning), weekly</td>
<td>To avoid any form of pollutions by reagents used in the laboratory</td>
<td>Knowledge of the reagents characteristics</td>
<td>Head of laboratory</td>
<td></td>
</tr>
<tr>
<td>Waste management</td>
<td>Clean environment</td>
<td>All campus</td>
<td>Visual inspections</td>
<td>During operation</td>
<td>Daily</td>
<td>To provide health environment for student, staff and teachers; to avoid diseases and pollution</td>
<td>Knowledge of waste separation, management and composting</td>
<td>Local staff or hired company (preferable)</td>
<td></td>
</tr>
<tr>
<td>Socio-economic issues</td>
<td>Women from communities working in the project</td>
<td>All construction sites</td>
<td>Visual inspections</td>
<td>During operation</td>
<td>Monthly</td>
<td>To ensure compliance with the premises of the ESMP</td>
<td>Experienced site supervision staff</td>
<td>Contractor</td>
<td></td>
</tr>
</tbody>
</table>
8. Public consultations and disclosure requirements

The Ministry of Land and Rural Development (MITADER) is the National Environmental Authority and the Provincial Directorate of Land and Rural Development fulfils this role at provincial level. While the law in Mozambique demands public consultation public review of Environmental Assessment Reports is not mandatory for projects of this kind. In this regard, ESMP summary will be disclosed by the Bank on its website for 30 days to allow public review and comment. Extensive consultations were conducted as part of preparation of the ESIA process. Meetings with key stakeholders including project affected communities and relevant parties active like Province Governments, Public Works and Housing Provincial Directorates, Science and Technology Provincial Directorates, Municipalities in the project areas were conducted. Stakeholders were involved through interviews and group discussions to give their views and opinions as stakeholders. Most of the interested and affected parties welcomed the projects, with a few concerned about local involvement during the construction phase, use of local workers for non-skilled and even for skilled and semi-skilled wage labor when possible, a traditional ceremony to be made before the constructions.

Stakeholder engagement is a continuous process and it is expected that engagement with surrounding communities would continue during the operations phase including mechanisms for community complaints to prevent, mitigate, or resolve tensions and conflicts between companies and local communities. The regular communication and interaction with the University already in place will be utilised. All interested and affected parties will be eligible to submit a grievance to the Project if they believe any project practice is having an adverse impact on the community, the environment, or on their quality of life. They may also submit comments and suggestions to the project implementation unit through the Environmental Control Officer assigned by the developer.

9. Institutional arrangements and capacity building requirements

The overall responsibility of ensuring that environmental mitigation actions and the overall ESMP are implemented will rest with the Executing Agency, which is the UniLúrio. UniLúrio has appointed a Project Manager to assume overall responsibility for the project’s management and the PMT Gender Responsive & Expert to monitor the implementation of ESMP together with UniLúrio’s Center for Investigation and Environmental Conservation in the Faculty of Natural Sciences. The institutional arrangements for the implementation of the EMSP are highlighted in the following Responsibility Matrix table:

In addition the permit conditions of the environmental clearance will be monitored by MITADER’s Provincial Directorates. In general, terms the institutional capacity to effectively manage social and environmental matters is considered appropriate and adequate. In addition, institutional capacity to effectively manage environment and social matters is considered sufficient to ensure project is implemented accordingly. Regular periodic reporting to the Environment Manager will mainly be responsibility of the Contractors and ECO. During the operational phase, direct responsibility for environmental conformity and the implementation of the mitigation, management and monitoring measures described in the ESMP report, will continue to be with the management level of the respective Campuses and reported to Central level Management.
<table>
<thead>
<tr>
<th>Function</th>
<th>Name</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| **Environmental Manager**        | University of Lúrio  
Sonia Maria Ataide Maciel, Vice-Chancellor for Academic Area  
Bairro de Marrere, Rua nr. 4250, Km 2,3  
Nampula, Mozambique  
Email: smaciel@unilurio.ac.mz  
Tel: +258 26 218 250  
João José Sotto Maior Salavessa,  
Director of Faculty of Social and Human Sciences  
Campus de Muitipiti, Bairro do Museu,  
Ilha de Moçambique  
Nampula, Mozambique  
Email: jsalavessa@unilurio.ac.mz  
Tel: +258 87 482 22 06  | • Overall Management of project and ESMP implementation  
• Oversees site work and liaison with contractor ESO and ECO |
| **Environmental Control Officer**| Ana Amelia Jamisse António  
Gender Responsive M & Expert  
Bairro de Marrere, Rua nr. 4250, Km 2,3  
Nampula, Mozambique  
Cellphone Contact: 84-4690328  
E-mail: ajamisse@gmail.com  | • Implementation of ESMP and liaison between UniLúrio, contractor and relevant stakeholders |
| **Environmental Site Officer** (ESO) | Will be appointed by contractors  | • Interaction with ECO, communities and labourers.  
Must understand the ESMP. |
| **Contractor**                   | Will be appointed by EM.                                                | • Implementation and compliance with recommendations and conditions of the ESMP,  
• Appoints dedicated person (ESO) to work with ECO. |
8. ESMP Estimated costs

<table>
<thead>
<tr>
<th>N.º/Item</th>
<th>Amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Phase</td>
<td>138,00</td>
</tr>
<tr>
<td>Decommissioning Phase</td>
<td>29,000</td>
</tr>
<tr>
<td>Operation Phase</td>
<td>35,000</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATE:</strong></td>
<td><strong>202,035</strong></td>
</tr>
</tbody>
</table>

9. Implementation schedule and reporting

The project is envisaged to commence in March 2018 and be completed by middle of 2023. The contractor will have an Environmental Site Officer who will report to the Project Manager. The latter will then report to UniLúrio through the Project Implementation Unit. This will be streamlined in the procurement documents. The Environmental Control Officer (ECO) will monitor the implementation of the ESMP of the project on a monthly basis. It will produce Monthly reports and compile a bi-annual report to be submitted to the Project Implementation Unit) who will review and send it to the Bank for review and follow-up. The AfDB will schedule supervision visits whose composition will include an environmental and social specialist who will offer additional support on matters of environmental monitoring and reporting.

10. Conclusion

The planned construction might result into positive impacts on the social and economic conditions of people in the region and in particular the academic performance of the students and all Unilurio’s staff. Nevertheless, the construction, rehabilitation and maintenance of the social infrastructure can result in direct and indirect environmental and social impacts, including soil, water, air and noise pollution, waste generation and disposal, community health, safety and security and labour and working conditions. These impacts are expected to be site-specific and can be minimized by applying appropriate management and mitigation measures including to the possible climate change impacts.

The Environmental and Social Management Plan should be used as an on-site tool during all phases of the proposed development. UniLúrio (the Implementing Agency) with overall responsibility for ESMP implementation— is to continuously monitor and audit all activities during the construction and operational activities of infrastructure development, to ensure that the ESMP is fully implemented and complied with in accordance with national regulations and AfDB safeguards requirements. Parties responsible for non-conformances of the ESMP will be held responsible for any rehabilitation that may need to be undertaken. This ESMP caters for all upgrade, operational and possible decommissioning phases, but will need to be reviewed from time to time, especially when revisions are made to the project development plans. It is recommended that this information be made available to the community on a regular basis.
11. References and contacts

1. African Development Bank

**Yolanda Arcelina**, Senior Social Development Officer, Mozambique Country Officer
Av. Marginal/Rua Tenente General Osvaldo Tazama – Rani Towers – 4th Floor, Maputo, Mozambique
Email: y.arcelina@afdb.org; Tel: (258) 21 32 64 09 / 31 52 71 / Cel: (258) 82 30 13 268 Fax: (258) 21 31 56 00

**Annah M. Rutebuka**, Social Development Officer, Southern Africa Regional Development and Business Delivery Office, African Development Bank, Centurion, South Africa;
Email: a.rutebuka@afdb.org; Tel: +27 12 003 6900 Ext. 8411

2. University of Lúrio

**Sonia Maria Ataide Maciel**, Vice-Chancellor for Academic Area
Bairro de Marrere, Rua nr. 4250, Km 2,3
Nampula, Mozambique
Email: smaciel@unilurio.ac.mz Tel: +258 26 218 250

**João José Sotto Maior Salavessa**, Director of Faculty of Social and Human Sciences
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