

B8: Environmental and Social Analysis

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN SUMMARY

Project Title: Niassa Provincial Towns Water Supply and Sanitation Project **Project Numbers:** P-MZ-E00-006
Country: Mozambique
Department: Water and Sanitation **Division:** OWAS.2

a) Brief description of the project and key environmental and social components

The purpose of this project is to improve in a sustainable manner access to water supply and sanitation services in urban, peri-urban and rural communities within Lichinga and Cuamba towns in Niassa Province, Mozambique. The project components will consist of four dimensions:

- Institutional Development Support,
- Water Supply Rehabilitation and Extension,
- Sanitation Program and
- Project Management and Audit.

The objectives of this ESMP are:

- To ensure compliance with the 2006 Mozambique Environmental Act safeguarding the environmental, social and legal requirements complemented by the African Development Bank's environmental and social safeguard policies, guidelines and procedures.
- To maintain a buffer zone for the intakes according to the Mozambican Regulation of Public Water Supply and Storm-water and Drainage, within a minimum distance of 250 meters from the reservoir (Regulamento dos Sistemas Públicos de Distribuição de Água e de Drenagem de Águas Residuais) up to a maximum 500 meters settlement area of Lichinga and Cuamba communities.
- To outline the mitigation / enhancement measures, monitoring, consultation and institutional measures required to prevent, minimize, mitigate or compensate for adverse environmental and social impacts likely to occur during construction, operation and implementation phases of the project and enhance project beneficial impacts.

b) Major environmental and social impacts

The adverse (negative) impacts can be categorized into: construction related impacts; community related impacts and water use impacts. The project is classified as category 2 due to the fact that it involves simple technologies with minimum environmental impacts. Also, the potential negative impacts are of limited scope and could be easily mitigated. This section outlines some beneficial impacts that need to be enhanced to improve environmental and social performance as well as adverse (negative) impacts that require mitigation or compensation measures to be implemented.

- ◆ Creation of temporary employment to the local communities during construction works
- ◆ Improved sanitation facilities
- ◆ Reduced incidence of water borne diseases like malaria, cholera, gastro-intestinal disorders etc.

- ◆ Increased productivity in particular for women as a result of saving time wasted in fetching water over long distances;
- ◆ Better opportunity for girls to attend schools instead of spending their time fetching water over long distances.
- ◆ Empowerment of communities by giving them responsibility for planning, implementation and management of their water supply systems and improved public sanitation.
- ◆ Reduced risk of exposure to HIV/AIDS and Sexually Transmitted Infections (STIs) during fetching water far from their households, especially women and girls who are more vulnerable.

c) Enhanced and mitigation program

The purpose of this section is to propose feasible and cost effective measures to address the identified minimum negative impacts. The intention is to maximize project benefits (enhancement measures) and to reduce potentially adverse (negative) environmental and social impacts to acceptable levels (mitigation measures). The EA is entirely responsible for the implementation of the ESMP.

POTENTIAL IMPACTS	ENHANCEMENT / MITIGATION MEASURES	IMPLEMENTORS
1. Construction Impacts		
a) Destruction of natural vegetation / crops in farmlands	<ul style="list-style-type: none"> - Confine construction activities on-site - Undertake constructions after crops have been harvested and or at low farming seasons - Compensate the affected people for the damaged crops in accordance with the prevailing regulations. 	Contracting Engineer supervised by Consulting Engineer in collaboration with EA, Water Supply and Sanitation Engineer and Social / Community Mobilization Expert.
b) Destruction of road pavement, building structures and underground service utilities in town areas	<ul style="list-style-type: none"> - Consultation with relevant institutions and individuals to identify location of existing underground infrastructure / social service utilities. - Restore the damaged parts of road pavements, building structures, infrastructure / social service utilities after construction. 	Contracting Engineer supervised by Consulting Engineer in collaboration with EA and Social / Community Mobilization Expert.
c) Creation of noise nuisance	<ul style="list-style-type: none"> - Avoid the use of high pitch noise creating equipment for excavation works and pavement breaking. - Emphasize on labour intensive technologies using manual equipment. This measure will also enhance employment of large number of local people, - Limit the construction activities to day times 	Contracting Engineer supervised by Consulting Engineer
d) Air pollution	<ul style="list-style-type: none"> - Minimize dust emission during construction by applying water on bare areas / stockpiled soils. - Remove stockpiled soils immediately after backfilling the excavated pipeline trenches and restore the road pavement to its original state. 	Contracting Engineer supervised by Consultant.
e) Disruption of traffic flow in town areas	<ul style="list-style-type: none"> - Develop traffic management plan in collaboration with the Traffic Department. - Deploy personnel with flags at appropriate locations and use road signs to guide traffic flow. - Minimize the use of heavy machinery for excavation works, instead emphasize on labour intensive technologies. 	Contracting Engineer supervised by Consultant in collaboration with Traffic Department and Municipal / Town Councils
f) Likely loss of some parts of farmlands and crops in some areas	<ul style="list-style-type: none"> - Make provisions for appropriate compensation or rewards to the affected people based on the prevailing regulations. - Return the temporarily occupied land to the owners after construction. 	EA will ensure that the Contracting Engineer supervised by Consultant address all issues adequately.
g) Loss of aesthetic value / creation of visual impact in urban areas	Immediately remove all drilling mud and excavated soils in urban areas after construction.	Contracting Engineer supervised by the Consultant.
h) Occupational health and safety risk	<ul style="list-style-type: none"> - Restrict operation of equipment to the trained personnel only. - Provide a first aid kit on-site administered by qualified personnel. 	Contracting Engineer supervised by the Consultant.

POTENTIAL IMPACTS	ENHANCEMENT / MITIGATION MEASURES	IMPLEMENTORS
	<ul style="list-style-type: none"> - Provide personal protection equipment such as gloves, boots and dust masks to the construction workers. - Prevent people; especially children from approaching the construction site to minimize risk of accidents. 	
i) Increased incidence of HIV / AIDS and Sexually transmitted infections STIs	<ul style="list-style-type: none"> - Promote awareness and education campaigns among the construction workers and the local communities, especially women and youths. - Limit the number of workforce to technical and skilled labour only. The rest of workforce should come from within the rural communities. - The construction camp should be located far away from the village settlements. 	Contracting Engineer in collaboration with Social / Community Mobilization Expert HIV/AIDS Committee local NGOs and CBOs,
2. Community Impacts		
a) Water source pollution	<ul style="list-style-type: none"> - Promote extensive education and awareness campaigns on hygiene and sanitation. - Provide training and instructional manual to community members and local artisans on proper location and construction of pit latrines. - Prevent encroachment of human settlement towards well sites by demarcating and fencing the boundaries of well sites and enacting of by-laws to prevent trespassing. 	Environmental and Social / Community Mobilization Expert from water company in collaboration with Water Committee Local NGOs and CBOs.
b) Water resource degradation	<ul style="list-style-type: none"> - Restrict cultivation activities to at least 200 meters away from the water sources through enforcement of regulations and enactment of by-laws. - Promote extensive community education and awareness campaigns on environmental conservation and protection of water sources. - 	
3. Water use Impacts		
a) Loss of access by local community to water sources	Provide alternative sources of water to the local people whose traditional water sources have been affected due to construction of water wells.	Contractor in collaboration with Water company.
b) Spontaneous algal growth in storage tanks	<ul style="list-style-type: none"> - Minimize the problem of algal blooms in water storage tanks by properly designing storage tanks or reservoirs (e.g. storage tanks should be able to reflect sunlight and properly covered. - The storage tanks should be cleaned periodically during operation. 	Contractor in collaboration with Water company and Water Committees
c) Creation of breeding sites for water borne disease vectors	<ul style="list-style-type: none"> - Construction of a standard design for concrete pads with drainage channels to carry spilled water into soak-away at least 25 meters from the water stand pipe. - Restrict people from washing and/or bathing near the water stand pipes through enactment of by-laws and enforcement of existing regulations. 	<ul style="list-style-type: none"> - Contracting Engineer supervised by the Consultant - Water company in collaboration with Water Committee

d) Monitoring program and complementary initiatives

The Executing Agency will primarily be responsible for the implementation of ESMP. The necessary mitigation measures will be incorporated in the contractual arrangements of the contractor. The executing agency will ensure that the monitoring programme is divided into two parts,

whereby Part I will involve surveillance activities during construction phase and Part II will involve monitoring activities during operation phase. The Surveillance and monitoring activities shall be implemented by the EA through its Water Supply and Sanitation Engineer and Environmental/Social / Community Mobilization Expert. The surveillance and monitoring activities shall be carried out in collaboration with relevant stakeholders, including the local community members through their Water Committees. The water company shall be responsible for verifying implementation of the proposed mitigation measures. Whenever necessary the EA shall be capable of modifying schedules or methods of work in order to ensure protection of natural and human environment.

Environment			
(a) Water	Quality of water based on WHO and National Standards (Bacteriological and Physical chemical Parameters).	Water quality standards achieved.	Water company, contractor in collaboration with Water Committees
	Quantity of water used compared to initial estimates	Increased quantity of water used by the local communities.	
a) Water catchment	Encroachment on water catchment areas by local communities. Incidence of bushfires and vegetation destruction by local people around water catchment areas.	No encroachment by local communities on water catchment areas. Reduced incidence of bushfires and/or vegetation destruction.	Water company, contractor in collaboration with Water Committees.
b) Land	Presence of sink holes near water wells indicating land instability.	No presence of sink holes near water wells	Water company, contractor in collaboration with Water Committees.

e) Institutional arrangements and capacity building requirements

The Executing Agency shall be responsible for implementation of the ESMP through its Water Supply and Sanitation Engineer and Environmental/Social / Community Mobilization Expert. The Executing Agency will develop partnerships with key institutions for the effective implementation of the ESMP.

The development of partnerships will leverage technical assistance to the institutions responsible for water supply and use. The water company will be responsible for monitoring intakes and water wells used for consumption to ensure that safe yields are not violated. The water company will also be responsible for providing assistance in the maintenance of water schemes for use.

f) Public consultations and disclosure requirements

The implementation of the following mitigation measures will require consultation with affected people and/or relevant institutions:

- Some provisions will be made for compensation or rewards for affected farmlands and crops in areas of rehabilitation works of the project. It is estimated that rehabilitation works for 30 Km of water pipes is less than 3 hectares of land likely to be affected. Most rehabilitation works will take place in low farming seasons and impact on crops will be minimal.
- No settlements will be affected since the rehabilitation works is on existing infrastructure
- There will be restoration of damaged parts of building structures, underground social service infrastructures / utilities in areas of project rehabilitation works.
- A formulation of traffic management plan will be in place in areas of project rehabilitation works.

g) Estimated costs

The cost estimates involves implementation of monitoring activities and mitigation measures. Thus, in this ESMP the following activities have been considered:

h) Implementation schedule and reporting

ACTIVITIES	COST ESTIMATES	
	MZM	UA
(A) Water Resource Management		
Provision for compensation of affected land, damaged crops and trees in areas of rehabilitation works.	2,500,000	66 450
Conduct survey to identify natural caves wells and springs that can be developed for water supply	150,000	3 987
Monitoring of water quality and quantity to ensure safe	700,000	18 606

yields		
Regular monitoring of water wells	80,000	2 126
Carry out surveys to determine the status of catchment areas and develop strategy for protection with live fencing	400,000	10 632
Training of staff on water resource management, including study tours	250,000	6 645
(B) Urban water supply management		
Protection of intakes and water wells against contamination from human activities	500,000	13 290
Establish data base on water quality monitoring from source to users	60,000	1 595
TOTAL	5,200,000	123 331

h) Implementation schedule and reporting

The key player in the implementation of the mitigation measures is the Contracting Engineer supervised by Consulting Engineer. The Water Supply and Sanitation Engineer and Environmental/Social / Community Mobilization Expert from the EA shall be responsible for monitoring. However the implementation of mitigation measures associated with community and water use activities shall be the responsibility of Water Company and contractor and Environmental/Social / Community Mobilization Expert in collaboration with relevant stakeholders.