TANZANIA - RURAL WATER SUPPLY AND SANITATION PROGRAM (RWSSP) II

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

FINAL REPORT

JUNE 2010

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ABBREVIATIONS AND ACCRONYMS

ADF	African Development Fund
AfDB	African Development Bank
BWO	Basin Water Office
DEMO	District Environmental Management Officer
DEMC	District Environmental Management Committee
DWST	District Water and Sanitation Team
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESA	Environmental and Social Assessment
ESAP	Environmental and Social Assessment Procedure
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GoT	The Government of Tanzania
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
IDA	International Development Association
IWRM	Institute of Water Resources Management
LGA	Local Government Authority
MDGs	Millennium Development Goals
MIS	Management Information System
MoHSW	Ministry of Health and Social Welfare
MoLHHSD	Ministry of Land, Housing and Human Settlement Development
MoWI	Ministry of Water and Irrigation
MTR	Mid Term Review
NEMC	National Environmental Management Council
NGOs	Non Governmental Organizations
NRWSSP	National Rural Water Supply and Sanitation Program
NSGRP	National Strategy for Growth and Reduction of Poverty
PMO- RALG	Prime Minister's Office- Regional Administration and Local Government
PRSP	Poverty Reduction Strategy Paper
PS	Permanent Secretary
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
RWSS	Rural Water Supply and Sanitation
RWSSP	Rural Water Supply and Sanitation Programme
WB	World Bank
WSDP	Water Sector Development Programme

ACKNOWLEDGEMENT

The Consultant would like to transmit heartfelt thanks and appreciation to the African Development Bank for procuring his services to provide consultancy services for preparation of this Environmental and Social Management Plan (ESMP) and Environmental and Social Impact Assessment (ESIA), submitted as a separate report, for the proposed Phase II of Tanzania- Rural Water Supply and Sanitation Program (RWSSP) II.

The Consultant extends genuine thanks and appreciation to all stakeholders who in one way or another supported the completion of this work. Special thanks are due to the staff at the Ministry of Water and Irrigation (MoWI), the World Bank and NEMC for providing valuable information and support which enabled the Consultant to conduct the study slickly.

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

Environmental and Social Management Plan (ESMP) is an instrument that outlines the mitigation/enhancement, monitoring, consultative and institutional strengthening measures to prevent, minimize, mitigate or compensate for adverse environmental and social impacts and to enhance beneficial impacts. Typically, an ESMP specifies how, when and by whom such measures shall be implemented. This report presents an ESMP for Phase II of Rural Water Supply and Sanitation Program (RWSSP) to be implemented by the Government of Tanzania (GoT) through the Ministry of Water and Irrigation (MoWI) and the Ministry of Health and Social Welfare (MoHSW) as the Executing Agencies. This ESMP has been prepared in accordance with the African Development Bank's (AfDB) Environmental and Social Assessment Procedures (ESAP).

The report delineates the following (i) project description and justification; (ii) potential major environmental and social impacts; (iii) possible enhancement and mitigation measures; (iv) cost estimates for ESMP implementation; (v) monitoring program and complementary initiatives (vi) institutional arrangements and capacity building requirements; (vii) public consultations and disclosure requirements; and (viii) implementation schedule and reporting.

1.2 Program Description and Justification

The Government of Tanzania is currently finalizing Phase II of its second generation Poverty Reduction Strategy Paper (PRSP), the National Strategy for Growth and Reduction of Poverty (NSGRP II) that will be implemented for five years (2010/11 – 2014/15). Like its predecessor – NSGRP I that covered the period 2005-2010, the strategy puts emphasis on role of governance and growth for poverty reduction high on the country's development agenda. Likewise, NSGRP II will focus on the same three main clusters of outcomes and actions related to poverty reduction of NSGRP I, namely (i) Growth and reduction of income poverty; (ii) Improvement of quality of life and social well-being and (iii) Good governance and accountability. It will also continue to put emphasis on mainstreaming cross cutting issues in sector strategies and Local Government Authorities (LGAs) development plans.

Within the context of the PRSP the GoT has made considerable efforts in developing the water sector. The policies and strategies of the sector are clearly linked with the first PRSP and NSGRP (2005) which is the current Tanzania PRSP. NSGRP II will also recognize the integral of the water sector[1]. The National Water Policy (NAWAPO), introduced in 2002, incorporates the principles of the Government's Development Vision 2025, PRSP and phase II of the Local

[1] MoWI has already prepared Draft Sections of Water Sector in NSGRP II for Submission to the NSGRP II Drafting Team as Part of Mainstreaming the Stakeholder Comments to the Circulated Draft of NSGRP II.

Government Reform Program (LGRP) (2005-2009), in recognition of the need to ensure the sustainability of facilities provided and to make those facilities more equitable.

Currently, the population of Tanzania is estimated at about 37 million of which 20 % live in urban areas and 80 % in rural areas. The water supply coverage is estimated at 73 % for urban areas and 53 % for rural areas and sustained sanitation coverage is estimated at around 50 %. The Infant Mortality Rate (IMR) was reported to be 99.8 per 1000 in 2003.

In 2005 the GoT finalised the National Rural Water Supply and Sanitation Program (NRWSSP) as part of a Water Sector Development Program (WSDP). The main objective of the NRWSSP is to improve access to safe water and adequate sanitation in the rural areas. The NRWSSP is to increase access to water supply to 79 % and adequate qualitative acceptable sanitation facilities to 90 % by 2015.

The African Development Bank's (AfDB) Rural Water Supply and Sanitation Initiative (RWSSI) have strongly influenced the development of the Program. The RWSSI addresses the challenge of increasing water supply and sanitation services to the continent's population living in the rural areas and is a major contribution to achievement of the Millennium Development Goals (MDGs) for water supply and sanitation within the context of the African Water Vision (AWV). RWSSI's promotion and strong support for the program approach, use of national procedures for procurement and disbursement, use of demand responsive approach, and decentralised implementation by communities and local government structures have been important in developing the NRWSSP.

In November 2005 and April/May 2006, upon the request of the GoT, the Bank undertook joint missions with the World Bank (WB) to Tanzania to prepare and appraise the WSDP respectively. The Board of AfDB approved a support program for the Phase I of the RWSSP component of the WSDP in November 2006 which became effective in March 2007, followed by support for all components of the program by the International Development Association (IDA) which was approved by the IDA Board in March, 2007 and became effective in July 2007. The WSDP became effective in July 2007. Other Development Partners who contributed to the financing of the program include German Development Cooperation, Royal Netherlands Embassy, World Bank, DFID, SNV, Belgium Cooperation, UNICEF, USAID and Water Aid.

With good results from the implementation of the phasing out RWSSP I, AfDB and GoT are preparing a 4 years (2011 – 2014) Phase II of the Program, which will be in line with the NSGRP II (2010/11 – 2014/15).

1.3 Program Objectives

The sector goal is improved health and quality of life and reduced poverty of rural Tanzanians by providing adequate, sustainable safe water supply and sanitation facilities. The objectives of the proposed RWSSP II are: (a) improved district level capacity to implement demand based RWSS projects, (b) improved access of rural communities to water and sanitation services operated and

maintained by capable women and men and improved health and hygiene practices, and (c) to improve health and hygiene practices

The RWSSP II will focus on improvement of water supply and better sanitary services. In this regard, the program will enhance provision of clean, safe drinking water, better hygiene for people of Tanzania, safeguard water storage and improved health and livelihood of Tanzania's community.

During the period from 2011 to 2014, the Program is estimated to cost about UA 200 million and provide water to an additional 4.5m people and rehabilitate water supply schemes covering 1.0 m people. The number of villages (Table 1 below) which will actually benefit will depend on the available funding envelope.

Expected program outputs are the following:

- Districts and Regional staff have access to information and data for MIS program and information
- District Rural Water & Sanitation Plans developed and implemented
- Up to date operational field information available to all stakeholders
- Based upon the DWSP and using agreed criteria, Communities, with the support of District Councils, identify suitable sub-projects for implementation
- Water points constructed
- Capacity to repair and spare parts available near/in the village
- Demand created for household & school facilities
- Capacity developed in MOWI to mainstreaming gender issues

1.4 Program Components

The program will consist of three components:

a). Construction of Rural Water Supply & Sanitation facilities;
b). National Sanitation Campaign and School WASH; and
c). Sector Management Support

Table 1: Earmarked LGAs/Villages for RWSSP II subprojects

S/No	Region		Number of LGAs[2]	Total Number of Villages/Hamlets/Streets	Total Design Population
1	Mwanza	1	Sengerema DC	12	40,674
		2	Geita DC	17	87,036
		3	Kwimba DC	12	37,740
		4	Magu DC	13	67,809
		5	Ukerewe DC	13	50,056
		6	Misungwi DC	13	45,192
		7	Mwanza CC	10	45,478
				90	**373,985**
2	Mara	1	Bunda DC	13	33,227
		2	Serengeti DC	13	30,744
		3	Tarime DC	11	69,759
		4	Rorya DC	11	29,366
		5	Musoma DC	10	29,980
				58	**196,344**
3	Shinyanga	1	Shinyanga MC	10	29,555
		2	Shinyanga DC	16	68,168
		3	Maswa DC	10	40,877
		4	Kahama DC	10	42,910
		5	Bariadi DC	11	55,520
		6	Meatu DC	10	38,145
		7	Kishapu DC	13	39,275
		8	Bukombe DC	12	55,309
				92	**369,759**
4	Kagera	1	Bukoba DC	10	24,532
		2	Bukoba MC	16	24,056
		3	Misenyi DC	10	16,243
		4	Ngara DC	12	37,625
		5	Karagwe DC	10	54,784
		6	Biharamulo DC	10	53,695
		7	Chato DC	10	58,828
		8	Muleba DC	10	25,903
				88	**295,666**
5	Kigoma	1	Kasulu DC	10	52,623
		2	Kibondo DC	10	42,083
		3	Kigoma Ujiji MC	11	44,097
		4	Kigoma DC	10	76,208
				41	**215,011**
6	Arusha	1	Monduli DC	10	28,820
		2	Longido DC	11	30,670
		3	Arusha DC	10	34,076
		4	Arusha MC	10	175,760
		5	Meru DC	10	47,389
		6	Karatu DC	10	30,028
		7	Ngorongoro DC	11	111,284
				72	**458,027**
7	Manyara	1	Babati TC	10	23,008

[2] District, Municipal, Town, and City Councils

		2	Babati DC	13	60,809
		3	Kiteto DC	9	15,489
		4	Simanjiro DC	12	27,866
		5	Hanang DC	10	30,141
		6	Mbulu DC	10	35,162
				64	**192,475**
8	Tanga	1	Handeni DC	17	58,110
		2	Kilindi DC	15	57,260
		3	Korogwe TC	10	23,936
		4	Korogwe DC	10	59,698
		5	Muheza DC	10	15,069
		6	Mkinga DC	10	15,763
		7	Tanga CC	10	16,362
		8	Lushoto DC	14	60,104
		9	Pangani DC	10	15,873
				106	**322,175**
9	Kilimanjaro	1	Same DC	10	51,729
		2	Mwanga DC	10	32,410
		3	Hai DC	9	38,742
		4	Moshi DC	12	36,798
		5	Moshi MC	10	95,734
		6	Siha DC	10	43,398
		7	Rombo DC	10	39,197
				71	**338,008**
10	Mbeya	1	Mbarali DC	16	60,769
		2	Ileje DC	10	20,956
		3	Mbeya DC	17	37,507
		4	Mbozi DC	10	64,887
		5	Chunya DC	17	41,660
		6	Kyela DC	15	29,336
		7	Mbeya CC	7	9,883
		8	Rungwe DC	18	41,360
				110	**306,358**
11	Ruvuma	1	Tunduru DC	11	77,593
		2	Songea MC	10	19,675
		3	Songea DC	10	31,720
		4	Mbinga DC	13	28,988
		5	Namtumbo DC	13	67,509
				57	**225,485**
12	Rukwa	1	Sumbawanga MC	17	43,511
		2	Sumbawanga DC	10	34,879
		3	Nkasi DC	10	18,056
		4	Mpanda DC	12	63,350
		5	Mpanda TC	10	15,601
				59	**175,397**
13	Iringa	1	Iringa DC	10	27,885
		2	Iringa MC	10	8,468
		3	Ludewa DC	12	23,025
		4	Mufindi DC	10	28,412
		5	Kilolo DC	10	58,025
		6	Makete DC	10	27,700
		7	Njombe DC	10	21,625
		8	Njombe TC	10	22,516

				82	**217,656**
14	Lindi	1	Kilwa DC	10	30,303
		2	Nachingwea DC	10	15,275
		3	Liwale DC	10	24,056
		4	Lindi TC	10	11,794
		5	Lindi DC	13	47,056
		6	Ruangwa DC	11	47,141
				64	**175,625**
15	Mtwara	1	Masasi DC	10	20,603
		2	Mtwara DC	10	31,267
		3	Mtwara/Mikindani MC	10	21,896
		4	Nanyumbu DC	10	16,468
		5	Newala DC	10	24,437
		6	Tandahimba DC	11	26,828
				62	**141,499**
16	Tabora	?	*Missing data*	*Missing data*	**241,135**
17	Singida	1	Singida MC	10	29,432
		2	Singida DC	10	34,591
		3	Iramba DC	13	47,370
		4	Manyoni DC	12	54,116
				45	**165,509**
18	Dodoma	1	Bahi DC	10	35,634
		2	Chamwino DC	10	44,688
		3	Kondoa DC	27	74,072
		4	Mpwapwa DC	10	31,486
		5	Dodoma MC	10	34,555
		6	Kongwa DC	14	84,632
				81	**305,067**
19	Coast	1	Bagamoyo DC	10	17,360
		2	Kibaha TC	14	16,400
		3	Kibaha DC	10	22,845
		4	Mafia DC	10	21,024
		5	Mkuranga DC	10	18,055
		6	Kisarawe DC	11	19,419
		7	Rufiji DC	10	22,093
				75	**137,196**
20	Morogoro	1	Kilosa DC	13	56,073
		2	Morogoro DC	10	28,504
		3	Morogoro MC	10	7,632
		4	Mvomero DC	11	35,661
		5	Kilombero DC	13	58,396
		6	Ulanga DC	10	18,112
				72	**204,378**
21	Dar es Salaam	1	Kinondoni MC	21	111,136
		2	Temeke MC	10	182,297
		3	Ilala MC	10	61,656
				41	**355,089**
	GRAND TOTAL	**125**		**1,430**	**5,411,844**

Source: MoWI, 2010

1.5 Implementation Arrangement

The program will be implemented using existing organizational structures of the MoWI, MoHSW and of PMO-RALG. The GoT is the borrower of the ADF loan while MoWI and MoHSW will be the Executing Agencies (EAs). The LGAs, within the decentralized structures of PMO-RALG will facilitate communities to play a leading role in the identification, planning and implementation of the water supply and sanitation services delivery. The District Councils are responsible for all water supply and sanitation related activities. DWSTs help communities prioritize subprojects and prepare annual district plans and budgets, mobilizing funds as contribution to the construction costs of facilities, ensure recovery of O&M costs, and monitor and report on RWSS facilities. At district level there will be support from Service Providers (SP) covering technical aspects as well as facilitation. Further, the Regional Secretariats (RSs) have a supporting as well as a monitoring role through the Regional Water and Sanitation Teams (RWSTs). All construction works will be done by the private sector following public tendering.

1.6 Rationale, purpose and scope of the assessments

The Bank's environmental and social safeguards require precautionary measures to be undertaken while implementing the program co-financed by the Bank and other Partners. The program is categorized as Category 2 according to the Bank's ESAP. The categorization is justified on the basis of possible environmental and social impacts, both positive and negative, of the construction and rehabilitation of rural water supply and sanitation facilities in 132 LGAs in Tanzania.

The RWSSP II will focus on improvement of water supply and better sanitary services. In this regard, the program will enhance provision of clean, safe drinking water, better hygiene for people of Tanzania, safeguard water storage and improved health and livelihood of Tanzania's community. The main works during implementation of the program will include: a) access to water supply and sanitation in all districts; b) increased water supply coverage and reduced distance between home and water points; c) reduced water borne and hygiene related diseases; d) community mobilization with gender equality; and e) appropriate water supply technologies whose maintenance can be done locally.

Therefore, successful implementation of this ESMP will enhance the quality of services by continuously supply clean, safe water and better sanitation over a long time period on sustainable basis. The recommendations will also draw lessons and good practices for policy formulation, strengthening local institutions and building capacity required to improve management of the environment and human capabilities.

2. METHODOLOGY

This ESMP emanates from the findings of the ESIA study, submitted as a stand-alone report, for the RWSSP II. Data collection for the preparation of the ESIA was through desk-top studies/ literature review, analysis of current data and documentation, consultations with key departments in Tanzania, Health, Agriculture, Environment, Local Governmental Authorities, Labour, Youth, Women and Gender focal persons.

Literature Review: This was done through a through review of the WSDP and RWSSP I documents, joint Supervision mission Aide Memoires, Mid Term Reports etc. The review covered Tanzania's policy, legal, regulatory and administrative frameworks relevant to the proposed RWSSP. For comprehensive impacts prediction and preparation of mitigation measures, AfDB and WB environmental and social safeguard policies and guidelines were also reviewed to create synergies with relevant national policies and laws.

More importantly, inception, scoping, and rapid EIA reports submitted for provision of technical and facilitation services for rural water supply and sanitation subprojects were thoroughly reviewed.The review focused on the following typical features in EIA studies:

- Impacts assessment methodology (impacts identification and prediction; impacts consequence and significance rating; and overall impact significance rating);
- Identified and predicted impacts during different phases of subproject implementation (mobilization, construction, operation, and decommissioning);
- Level of stakeholder consultations
- Proposed mitigation and enhancement measures (or ESMP);
- Consideration for alternatives
- Reference to the ESMF and RPF for WSDP; and (to some extent)
- Consulting Firm's level of expertise for carrying out rapid EIA.

Stakeholder Consultations: Consultations with key stakeholders were undertaken to ensure that the implementation of the proposed RWSSP II, particularly with regard to environmental and social issues, takes on board views and concerns across different people and institutions including local and central government agencies, NGOs etc.

3. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

3.1 Major Environmental and Social Impacts

Implementation of Phase II of the RWSSP will have a wide range of environmental and social implications. In general, successful implementation of the Program will have high socio-economic benefits to the people in the benefiting LGAs in Tanzania. The environmental and social impacts identified during the ESIA study include:

3.1.1 Potential Positive or Beneficial Impacts

Successful implementation of the Program's investment subprojects will have numerous socio-economic benefits including:

- Better access to safe drinking water and sanitation facilities leading to improved standard of living; and changes in exposure to both communicable and non communicable diseases;
- The program will contribute to increase in local development and employment as the local population are likely to be employed during the construction phase and after construction due to water related investments;
- Improved financial, managerial and administrative skills to the community leaders and village water committees due to training package;
- Sanitation will also be promoted with its attendant improvement in the health of the people such as reduced incidence of water borne diseases like malaria, cholera, gastro-intestinal disorders etc.;
- From a gender viewpoint, the program will lead into reduced time allocated to water supply for women and children due to closer drinking water sources, and reduced efforts associated with water transportation. This would lead to (i) increased productivity in particular for women as a result of saving time wasted in fetching water; (ii) better opportunity for girls to attend schools instead of spending their time fetching water; (iii) increased representation and participation of women in water committees and holding responsible decision making positions; and (iv) 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;
- The program is expected to contribute to rural communities well-being associated with improved services, stability, work opportunities, settlements, health, empowerment, education and training. Such benefits would serve as catalyst to sustainable management of water resources; and
- Empowerment of communities by giving them responsibility for planning, implementation and management of their water supply systems and improved public sanitation;
- The program will enhance measures to maximise the use of groundwater and rainwater for climate adaptation and development, to deal with the increased extremes, highs and lows, which are expected as result of climate change; and
- No resettlement or land acquisition is foreseen.

3.1.2 Potential Negative Impacts

- Disturbance of quality of life due to nuisances such as noise during construction;
- Dust and traffic related to construction works;
- Occupational health and safety of workers during construction;
- Disturbance of land and water uses, which can lead to social conflicts; and
- Possibility of rivalry associated with incompatible uses upstream and downstream of the water supply source/system.
- Water resources (reduced water quality at the construction sites of intakes; interruption of surface water flows during construction; variations in the level of groundwater table resulting from changes in the drainage; over-pumping of groundwater etc);
- Soil resources (soil compaction, mixing of soil horizons, soil erosion may also result from inadequacies in backfilling construction works and improper drainage of storm water);
- Ecosystems (encroachment into ecologically sensitive and protected areas, drainage of wetlands etc); and
- Flora and fauna (limited removal of the vegetation cover and disturbance of wildlife habitats).

3.2 Possible Sources of Environmental and Social Impacts

The ESIA study revealed that Program subproject activities will chiefly generate environmental and social impacts during implementation and operation because of the following reasons:

- The civil works for new structures will sometimes involve construction on virgin land thereby affecting the forests, animals and other natural resources;
- the rehabilitation works will require demolition of existing infrastructure and will generate rubble and waste that will need to be disposed of properly;
- both the new civil works and the rehabilitation works may require new land;
- civil works for new structures as well as rehabilitation works will affect the communities both physically (air and water pollution, nuisance and contamination etc.); and socio-economically (land use, income generation, mobility and community association);
- the water supply services will require additional water abstraction, resulting in changes in ground and surface water regimes, both inside and outside the project impact areas;
- additional use of water will result in increases in waste water generation;
- water supply activities and other civil works may cause water stagnation and sanitation problems;
- The increase in numbers of people within the project location/areas will result in depletion of natural resources, pollution of public waters and degradation of soils. Consequently, several environmental components may be affected in one way on another by such activities; and
- The increase in interaction of different types of people will result in social and health problems caused by various diseases transmitted among these people and arising from high pressure on social and health services such as medical services.

3.3 Enhancement and Mitigation Measures

By design, the potential positive impacts of the Program can readily be optimized while the potential negative environmental and social impacts are largely restricted to the construction period. The ESIA assessed them and considered them to be of minor significance, being reversible and short-term and can be managed through a well defined mitigation and monitoring measures.

3.3.1 Possible Enhancement Measures

Possible enhancement measures of beneficial impacts would include the following:

- Subproject construction should adhere to recommendable best construction practices that make effective and economical use of locally available resources including materials, expertise and labour.
- Highly reduce productions of solid, liquid and hazardous wastes.
- Give preference to local employment (youth, men and women) and local inputs (food, basic material) to the extent possible.
- Ensure that the poor and other vulnerable groups can continue to safely satisfy their basic water needs.
- Ensure that social services provide education to men and women on appropriate hygienic conditions and water conservation, taking into consideration gender particular roles and responsibilities.
- Establish management committees involving women and men in the management of water resources and supply facilities.
- Ensure that women are involved in user fee collection and allocation decisions.
- Consistently and appropriately provide HIV/AIDS awareness information and protection gears to discourage new infections.
- Carrying out periodic checks of different components of the water production, transmission and distribution system to initiate immediate rehabilitation whenever problems are identified to reduce system leakage losses and downtime.

3.3.2 Possible Mitigation Measures

Possible mitigation measures for negative environmental impacts include the following:

- Avoid hampering drainage of surface water and plan for restoration measures after construction.
- Water sources checked for quality to confirm water quality standards are met.
- Water sources designed and constructed to prevent contamination.
- Plan and set up on-site sanitary facilities for the disposal of wastewater.
- Construction activities should be scheduled appropriately to reduce high noise levels from overlapping noisy activities.
- Avoid areas sensitive to erosion.

- Avoid establishing access roads along steep slopes; instead, locate access roads perpendicularly or diagonally to the slope.
- At the end of construction works, level off the soils and facilitate vegetation re-generation.
- Design the water conveyance layout by taking into account ecologically sensitive and protected areas.
- Establish a perimeter of protection around sensitive ecosystems such as wetlands and unique habitats sheltering endangered species.
- Minimize land clearing areas
- Restore the vegetation in cleared areas.
- Design the water conveyance layout by taking into account wildlife reproduction areas and migration corridors.
- During subproject preparation, the safe yield and potential drawdown of water levels in the vicinity of boreholes and pumping stations should be checked to confirm that the proposed water source is sustainable and will not adversely affect nearby wells or wetlands or be affected by other abstractions.
- For surface water sources development, the sustainability of the proposed abstraction and the impact of withdrawals on downstream beneficial uses should be assessed.
- Carry out specific EIA for all major water supply, sewerage and water resources development projects and propose mitigation measures for their implementation.

3.3.3 Responsibilities and Time Frame for Implementation of the Enhancement and Mitigation Measures

Table 2 below provides a general implementation plan of the suggested enhancement and mitigation measures basing on detailed potential enhancement and mitigation measures for environmental and social impacts of typical water supply projects. The appropriate enhancement and mitigation measures for a specific subproject shall be identified according to the project context and major anticipated impacts during the implementation.

Table 2: Environmental and social management plan for the RWSSP II subprojects

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
Water resources			
• Interruption of surface water flows during construction. • Variations in the level of groundwater table resulting from changes in the drainage. • Contamination of surface and underground water quality by wastewater and hazardous materials, including stored chemicals products used for raw water treatment. • Risk of water pollution as a result of discharge of wastewater and filter-washing waters. • Over-pumping of groundwater. • In coastal area, infiltration of salted water in non-salted surface or underground water.	• Do not hamper drainage of surface water and plan for restoration measures after construction. • Plan and set up on-site sanitary facilities for the disposal of wastewater. • Maintain vehicles, machinery and equipment in good condition in order to avoid leaks and spill of hazardous materials (hydrocarbons, chemical products, etc.). • Ensure a safe management of hazardous materials (hydrocarbons, chemical products, etc.). • Take all precautions during the refuelling of vehicles and machinery, and forbid the refuelling near water bodies. • Avoid crossing permanent waterways; if necessary, locate the crossing where the banks are stable and the waterway the narrowest. • Conserve the vegetation along water bodies and near wetlands. • Plan emergency response measures in case of accidental spill. • Favour the recycling of filter-washing waters. • Adjust the annual pumped water volumes in accordance with the aquifer annual refill.	Contractors, Resident Engineers, LGAS (DEMO, DWSTs), BWOs	During Mobilization, Construction and after construction i.e. long term
Soil resources			
• Runoff erosion resulting in sedimentation problems. • Change in the local topography. • Contamination of soils from spilling of hazardous materials. • Landslides and other types of soil movements in the works areas. • Soil compaction and erosion.	• Avoid areas sensitive to erosion. • Carry out the construction works in the dry season. • Favour the establishment of water supply infrastructures on low-productive soils. • Limit the circulation of heavy machinery to minimal areas. • Avoid establishing access roads along steep slopes; instead, locate access roads perpendicularly or diagonally	LGAS (DEMO, DWSTs), BWOs, Contractors, Resident Engineers	During Design, Mobilization, Construction and after construction

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
• Reduction of soil fertility. • Soil destabilisation as a result of excavation. • In limestone areas, risk of soil collapsing due to the creation of underground cavities following groundwater over-pumping.	to the slope. • Use existing borrow pits rather than creating new ones; after the works, restore borrow pits by stabilising slopes and facilitating vegetation regeneration. • Stabilise the soils in order to reduce potential erosion. • At the end of construction works, level off the soils and facilitate vegetation re-generation. • Lay down water conveyance and distribution systems on surface of adequate support capacity. • Adjust the annual pumped water volumes in accordance with the aquifer annual refill capacity.		
Ecosystems			
• Encroachment into ecologically sensitive and protected areas. • Draining of wetlands. • Reduction of the biodiversity.	• Design the water conveyance layout by taking into account ecologically sensitive and protected areas. • Establish a perimeter of protection around sensitive ecosystems such as wetlands and unique habitats sheltering endangered species. • Minimise the length of work in ecologically sensitive areas. • Minimise the water conveyance layout in forest land. • Avoid crossing wetlands and protected areas.	LGAS (DEMO, DWSTs), BWOs Contractors, Resident Engineers,	During Mobilization, Construction and after construction
Flora			
• Destruction of the vegetation cover. • Loss of forest products (fuel wood, timber, non timber forest products). • Decrease in the vegetation development that could enhance desertification.	• Minimise land clearing areas. • Plan for recuperating the forest products extracted from land clearing and identify mechanisms to distribute the products to the local population. • Protect trees from machinery along right-of-way. • Restore the vegetation in cleared areas. • Ensure the plantation of indigenous species. • Promote the development of community nurseries, ideally operated by women.	Contractors, Resident Engineers, LGAS (DEMO, DWSTs), BWOs	During Mobilization, Construction and after construction
Fauna			

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
• Disturbance of wildlife and fish habitats. • Disturbance of wildlife migrations. • Increase in poaching. • Disruption in wildlife habitat.	• Design the water conveyance layout by taking into account wildlife reproduction areas and migration corridors. • Do not carry out any work in reproduction areas during the reproduction periods. • Minimise sedimentation in spawning grounds downstream. • Forbid workers to fish and hunt illegally.	Contractors, Resident Engineers, LGAS (DEMO, DWSTs), BWOs	During Mobilization, Construction and after construction
Natural and cultural heritage			
• Change in, encroachment, destruction or degradation of sites of cultural, archaeological or historical importance.	• Carry out an archaeological survey of the project area. • In case of discovery of any artefact of cultural, archaeological or historical importance, protect the concerned areas during construction and contact the relevant authorities.	Contractors, Resident Engineers, LGAS (DEMO, DWSTs), BWOs	During Mobilization, Construction and after construction
Air quality			
• Degradation of air quality by dust and vehicles emissions. • Increase in ambient noise.	• Install and operate air pollution control equipment. • Near the residential areas, avoid noisy works after regular working hours. • Maintain vehicles and machinery in good condition in order to minimise gas, noise and dust emissions. • Use appropriate means for minimising dust dispersion during construction. • Use dust and noise attenuators, such as vegetation edges along transport corridors in order to minimise noise and the aerial transport of dust.	Contractors, Resident Engineers, LGAS (DEMO, DWSTs), BWOs,	During Mobilization and Construction i.e. short term
Social issues			
Local economies			
• Increase in local development and employment. • Difficulties for water suppliers to meet profitability objectives. • Exclusion of specific groups from	• Give preference to local employment (men and women) and local inputs (food, basic material) to the extent possible. • Base profitability forecast on conservative revenue assumptions.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), local communities	Long term

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
water facilities benefits. • Disruption of other activities, particularly if they represent potential sources of contamination. • Decrease in water prices for those who were buying from resellers. • Increase in water prices when no user fees were in place.	• Identify why specific groups are not benefiting from the project and adopt corrective measures as required. • Ensure that the poor and other vulnerable groups can continue to safely satisfy their basic water needs. • Take into account the population's capacity to pay when determining user fees. • Offer alternative income opportunities to those having a limited access to or loosing productive means.		
Access to infrastructures & services			
• Better access to drinking water. • Decreased pressure on health services. • Increased water demand leading to insufficient supply to satisfy drinking water needs. • Unreliable water service and/or quality. • Inadequate water storage facilities causing water contamination.	• Ensure adequate water supply for addressing the basic needs of the host and migrant populations. • Develop alternative supply options to palliate for service breakdowns. • Involve the population (men and women) in the management of new and improved services to ensure their sustainability. • Implement water fees/tariffs to maintain a good quality and constant service level. • Establish quality control for water supply and storage facilities.	LGAs (DEMO, DWSTs), BWOs Contractors, Resident Engineers, local communities	During Mobilization, Construction and after construction i.e. long term
Quality of life			
• Improvement in standard of living. • Disturbance of quality of life due to nuisances such as noise, dust and traffic related to construction works. • Degradation of the landscape by land clearing, construction works, new infrastructures, etc. • Disagreements caused by increased wastewater quantities.	• Involve the population (men and women) in the maintenance and management of new infrastructures to ensure their sustainability. • Provide information and education on monitoring and maintaining water supply systems, particularly for ensuring water quality preservation. • Establish a formal consultation mechanism with local authorities to discuss issues disturbing inhabitants and to find solutions satisfying all parties. • Use an architectural design integrating the new infrastructures into the landscape. • Plan wastewater management as part of the project.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), BWOs, local communities,	During Mobilization, Construction and after construction i.e. long term
Information, education and communication			

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
• Exclusion of specific groups from the water management processes due to a lack of knowledge. • Development of skills in water conservation and management. • Lack of awareness on the importance of hygiene at water points.	• Assist groups of individuals who may lack the capacity to participate in water management processes. • Provide water suppliers, men and women, with the training required to preserve water resources and to maintain regular water supply. • Ensure that social services provide education to men and women on appropriate hygienic conditions and water conservation, taking into consideration gender particular roles and responsibilities. • Inform the local population on potential project benefits for the community and identify individual behaviours that would contribute to achieve those benefits.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), BWOs, local NGOs, CBOs, MoWI, MoHSW, local communities	During Mobilization, Construction and after construction i.e. long term
Communicable diseases			
Changes in exposure to: • Water borne diseases e.g.: diarrhoea and cholera associated with contamination, intermittency and poor sanitation. • Water related diseases e.g.: malaria, filariasis, dengue associated with drainage, storage and wastewater disposal. • Water contact diseases e.g.: schistosomiasis and swimmer's itch associated with impoundment. • Water washed diseases e.g.: scabies and skin infections associated with insufficient supply. • Sexually transmitted infections e.g.: HIV/AIDS associated with migration, construction, economic change.	• Facilitate the implementation of appropriate latrines and other sanitation facilities. • Information, education and communication about safe uses of drinking water. • Environmental management for vector control; contact avoidance via settlement location and design and use of bed nets and repellents; rapid diagnosis and treatment; focal insecticide application; covered water storage; reduced domestic storage; functional drainage. • Strengthen medical services to ensure rapid diagnosis and treatment. • Safe water and food storage and handling. • Implement HIV/AIDS prophylaxis through appropriate health promotion as well as wide distribution and use of condoms (for men and women); employment opportunities for project-affected women; provision of family accommodation for construction workers. • Assure continuous supply. • Avoid using contaminated groundwater and unauthorized connections. • Avoid contamination via runoff and contamination of collection and storage equipment. • Train communities in pump maintenance.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), BWOs, MoHSW, Local NGOs, CBOs, Local Heath Facilities	During Mobilization, Construction and after construction i.e. long term

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
	• Ensure piped supply is accompanied by appropriate drainage and disposal. • Survey community opinion about taste of water and water collection preferences. • Refer to measures proposed under environment and poverty crosscutting themes as they address many health determinants of communicable diseases.		
Non communicable diseases			
• Poisoning associated with excess chemicals (e.g.: fluoride, nitrite, arsenic, chlorine). • Diseases associated with chemical deficiencies (e.g.: iodine is associated with goitre and cretinism).	• Monitor water quality and adjust chemical content as appropriate.	BWOs, LGAs (DEMO, DWSTs)	During Mobilization, Construction and after construction
Injuries			
• Increased risk of accidents on working sites and roads due to increased traffic. • Work injuries.	• Develop, communicate and implement safety and preventive measures for the population (such as traffic calming devices). • Control access to working sites. • Install and maintain appropriate signs. • Plan stabilisation and evacuation of injured. • Plan for accident and emergency facilities. • Develop, communicate and implement safety and preventive measures for construction workers. • Plan equipment for moving heavy loads such as donkey carts and ergonomic equipment for men and women.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), BWOs, local Health Facilities , Traffic police	During Mobilization, Construction and after construction
Natural resources and land management			
• Disturbance of land and water uses, which can lead to social conflicts. • Rivalry associated with incompatible uses upstream and downstream of the water supply	• Design the project and coordinate work with other land users. • Consult all groups of the population using water or rejecting effluents in water. • Clearly define water rights in consultation with affected	Contractors, Resident Engineers, LGAs (DEMO, DWSTs),	During Mobilization, Construction and after construction

Impact	Mitigation and Enhancement Measures	Responsible institution	Mitigation Time frame
source/system. • Sustainable management of water resources. • Improvement in water resources conservation. • Loss of or limited access to territory for some groups, particularly farmers and livestock herders. • Reduction in the quantity of water available for other uses.	groups. • Create water supply system management committees. • Build on the respective knowledge and experience of women and men in water management. • Restore productive lands into initial conditions. • Ensure that water user fees and conditions are determined in consultations and well understood by all project beneficiaries. • Plan water intake according to available water resources. • Implement appropriate methods for water distribution.	BWOs	
Migration and resettlement			
• Decreased standard of living for involuntarily displaced people (likely few people). • Inappropriate living conditions for workers.	• Minimise resettlement by negotiating rights-of-way rather than proceeding with expropriations. • Provide equivalent or better housing and accompanying facilities to involuntarily displaced people in accordance with consultation results, prior to taking possession of their land. • Plan adequate settlement areas with appropriate housing and services (water and sanitation) for workers. • Provide temporary food supplies to involuntarily displaced people, as needed.	Contractors, Resident Engineers, LGAs (DEMO, DWSTs), BWOs, MoWI, WB, MoLHHSD, AfDB	During Mobilization, Construction and after construction

3.4 Monitoring Program and Complementary Initiatives

3.4.1 Monitoring Indicators for Water Supply Projects

The national EIA guidelines require the project proponent to prepare and undertake monitoring plan and regular auditing. Monitoring is needed to check if and to what extent the impacts are mitigated, benefits enhanced and new problems addressed. The key verifiable indicators which will be used to monitor the impacts (depending on the nature, size and scope of the subproject) are presented in **Table 3** below.

Table 3: Key environmental and social monitoring indicators for water supply projects

Component	Indicators
Poverty	
Economy	• Annual revenues generated by water supply operations compared to forecast revenues.
Environment	
Water	• Quality of water based on National and WHO Standards. • Quantity of water used compared to initial estimates.
Ecosystems	• Surface of sensitive areas affected by the project (encroachment, sedimentation on spawning grounds, river banks erosion, etc.).
Population	
Natural resources and land management	• Number of conflicts among water users (upstream, on site and downstream). • Presence of a water user organisation, including men and women. • Revenues from water fee/tariff collection and allocation.
Quality of life	• Level of satisfaction of beneficiaries toward water supply sources and facilities.
Health Outcomes	
Communicable diseases	• Prevalence rates (evolution over time) of diseases such as malaria, schistosomiasis, and diarrhoea.
Non communicable diseases	• Prevalence rates of poisoning and goitre.
Gender	
Roles and responsibilities	• Time allocation of women before and after the project.
Income generating activities	• Proportion of household income devoted to water supply and sources of funds – men or women (before and after the project).

3.4.2 Tanzania's Standards for Water Supply and Sanitation Systems

The National Bureau of Standards (NBS) provides chemical and physical limits for quality of drinking water supplies; standards of sanitary protection of water intake and surrounding land as indicated in table 4 and 5below. It also provides. These standards should be adhered to by service providers for investment subprojects under the Program.

Table 4: Chemical and physical limits for quality of drinking water

Group	No. Substance	Unit	Lower limit	Upper Limit
Toxic	1. Lead Pb 2. Arsenic As 3. Selenium Se 4. Chromium (6+) Cr 5. Cyanide CN 6. Cadnium Cd 7. Barium Ba 8. Mercury Hg 9. Silver Ag	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	- - - - - - - - -	0.1 0.05 0.05 0.05 0.20 0.05 1.0 0.0 01 n.m
Affecting Human Health	1. Fluoride F 2. Nitrate N03	mg/L mg/L	1.5 10.0	4.0 75.0
Organoleptic	1. Colour 2. Turbidity 3. Taste 4. Odour	TCU NTU - -	1.5 5 n.o n.o	50 25 - -
Salinity and Hardness	1. pH 2. Total Filterable Residue 3. Total Hardness (CaC03) 4. Calcium Ca 5. Magnesium Mg 6. Magnesium + Sodium S04 7. Sulphate S04 8. Chloride CI	 mg/L mg/L mg/L mg/L mg/L mg/L	6.5 500 500 75 50 500 200 200	9.2 2000 600 300 100 1000 600 800
Less Toxic Metals	1. Iron Fe 2. Manganese Mn	mg/L mg/L	0.3 0.1	1.0 0.5
	3. Copper Cu 4. Zinc Zn	mg/L mg/L	1.0 5.0	3.0 15.0
Organic Pollution of Natural Origin	1. BOD (5 days at 30°C) 2. PV (Oxygen abs KMN04) 3. Ammonium, (NH3 + NH4) 4. Total Nitrogen (Excluding N03)	mg/L mg/L mg/L mg/L	6.0 10 2.0 1.0	6.0 20 2.0 1.0

Organic Pollution Introduced Artificially	1. Surfactants (Alkly Benzyl Sulphonates) 2. Organic Matter (as carbon in Chloroform extract) 3. Phenolic Substances (As Phenol)	mg/L mg/L mg/L	1.0 0.5 0.002	2.0 0.5 0.002

Source: NBS 2003 (n.o - not objectionable; n.m - not mentioned)

Table 5: Standards of sanitary protection of water intake and surrounding land

	Parameter	Requirements
1.	Distance to source of contamination	***The following distances from sources of pollution should always be taken into account and be an integral part of every water supply system*** • 50 meters for pit preview, septic tanks, sewers; • 100 meters from borehole latrines, seeping pits, trenches; and sub surface sewage disposal fields. • 150 meters from cesspools, sanitary land field areas and graves ***In addition to the above minimum distances, the following precautions must also be observed:*** • Domestic livestock and other animals should be kept away from the intake by fencing the area of a minimum radius of 50 meters from the installation. • Defecation and urination around the intake should be completely prohibited by law • Drainage and run off waters should be led away from intakes • The water source should be guarded against inundation by the flooding of nearby rivers • Soil erosion should be prevented by reforestation and other methods. • Algal growth should be prevented by draining swamps and pools around the intake or reservoir
2.	Frequency of sampling	• Irrespective of the size of the population, all types of waters should be tested at least two times per year - once under dry conditions and once under rainy conditions
3.	Surface Water Intakes	***When water is drawn from rivers, streams, Lakes and reservoirs, the following shall be observed in respect of intakes: Intake should be so placed and designed as to draw water that is as clean and palatable as the source of water supply can provide:*** • River intake should be constructed upstream from villages and industrial factories, and the intake should be in deep water close to a stable bottom. • Small stream intake should comprise and take-pool which can also act as a settling "basin". • Lake Intake should as much as possible avoid shore water, avoid stirring up of sediments, and seeks the clean bottom water.
4.	Sanitary Protection	• Chlorination of newly built water supplies is advisable before handing over the water supply to the public

Source: NBS 2003

3.4.3 Monitoring Roles and Responsibilities

As provided in the ESIA report, the overall monitoring is the responsibility of the Program executing agency (MoWI). Monitoring roles and responsibilities of MoWI and other stakeholders are as follows:

Ministry of Water and Irrigation

MoWI is responsible for the overall implementation, administration and enforcement of the recommendations of this ESIA and the ESMP report. The ministry's Environmental Section headed by Sector Environmental Coordinator shall:

- Ensure that the ESMP provisions are included in all tender documents issued for construction work and activities on site and shall monitor/enforce that the Tenderers/Contractors abides by the specifications thereof
- Coordinating the implementation of the ESMP among the LGAs, BWOs, and contractors
- Receiving safeguard compliance quarterly reports from LGAs and BWOs and preparing annual environmental progress reports
- Facilitate LGAs in registering with NEMC for subprojects that would require undertaking of full EIA studies
- Conducting training for institutional capacity building
- Organizing biannual environmental and social audits for the Program
- Provide NEMC with reports on environmental and social compliance as part of their annual progress reports and annual environmental monitoring reports.
- Report to AfDB and other Program financiers on the status of safeguard matters through submission of annual progress reports.

Ministry of Land, Housing and Human Settlement Development

MoLHHSD shall:

- Ensure that, in inevitable events involving land acquisition and displacement of people, correct procedures are followed by LGAs to acquire land from current owners
- Ensure compensation to current land owners follows what is indicated in the laws
- Collaborate with MoWI in executing different Program activities

National Environment Management Council

NEMC is the main responsible agency for foreseeing development projects carried out in the United Republic of Tanzania adequately address environmental and social issues during the lifetime of the program. NEMC shall therefore:

- Ensure ESIA/EIA is carried out appropriately in accordance to EIA guidelines

- Review ESIA/EIA and all its related subproject documents to warrant or refuse to issue an environmental permit
- Periodically carry out or assign an independent evaluator to carry out compliance monitoring in cases when claim has been raise from any member of the community, CBO, or NGO on the negative aspects of the relevant subproject
- Have the power to request for compliance and take necessary measure including fines to enforce compliance of ESMP.

DEMO/ DWSTs/LGAs

These will be responsible for monitoring, reviewing and verifying compliance with the ESMPs by the Contractors. More specifically, their responsibilities include the following:

- Undertake screening process using a project brief and site visits.
- Visit and inspect major subproject sites regularly, to ascertain the level of compliance of works and report back environmental issues
- Maintain inspection reports on file
- Working with the Resident Engineer who has day-to-day interaction through supervisory staff,
- Ensures the Contractor has all plans, procedures, approvals, and documentation in place to ensure ESMP compliance prior to commencement of any work.
- Verifying environmental compliance, the issuing of penalties for contraventions of the ESMP;
- Ordering the removal of person(s) and/or equipment not complying with the specifications;
- Taking decisions in case of severe non-compliances to the ESMP are detected;
- Providing input for ongoing internal review of the ESMP;
- Stopping works in case of emergency or if significant environmental impacts are apparent or imminent.
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Sampling sites and surrounding areas regularly with regard to compliance with the ESMP;
- Preparing reports on environmental issues and social issues and submit them to MoWI quarterly;
- Recommending the issuing of penalties (via the proponent) for contraventions of the ESMP;
- Support from the Resident Engineer through the site construction supervision staff; and

- The overall role of the DEMO is to oversee and monitor adherence to, and implementation of the ESMP by the Contractor (which includes compliance with the relevant obligations contained in the ESMP).

Basin Water Offices

BWOs were established to ensure sustainable management of water resources through monitoring water availability, planning, allocating and regulating its use, and control pollution. BWOs shall therefore:

- Subprojects are implemented in line with basin water resources management plans
- Carry out data collection, processing and analysis for essential development and monitoring of water resources
- Be aware of subprojects ESMPs
- Promote water demand management and efficient water use
- Facilitate and supervise formation and management of water user entities in the basin
- Collect water user charges including water user fee and discharge permit fees that will ensure effective and efficient management of water resources in the basin
- Create awareness to the general public regarding IWRM
- Prepare and timely submit quarterly, and annual reports to MoWI
- Submit reports or information on all major events affecting or likely to affect water resources or ongoing projects and the discharge of the functions of the BWOs to MoWI, NEMC and where applicable, LGA and general public

Contractors

Contractors shall:

- Ensure that the environmental and social specifications of this ESIA, ESMPs (including any revisions, additions or amendments) are effectively implemented;
- Notify the DEMO/DWST, BWOs and Engineers immediately in the event of any accidental infringements of the environmental requirements to enable appropriate remedial action to be taken.
- Notify the DEMO/DWST, BWOs and Engineer, at least ten working days in advance, of any activity he has reasons to believe that may have significant negative impacts, so that mitigatory measures are implemented accordingly.
- Ensure environmental awareness among his/her employees and subcontractors so that they are fully aware of, and understand the environmental and social requirements and the need for them.
- Report and record all accidents and incidents resulting in major injuries or death
- Inform DEMO/DWSTs and BWOs of problems arising when implementing the ESMP and ways of improving the ESMP

- Undertake rehabilitation of all areas affected by construction activities in order to restore them to their original states, as determined by the Engineer.
- Undertake the required works within the designated working areas.

Resident Engineers

The roles and responsibilities of the engineer shall include the following:

- Be familiar with the contents of the ESMP.
- Monitor the Contractor's compliance with the environmental and social requirements on a daily basis and enforce compliance.
- Communicate to the Contractor for the advice of the ECO and contents of the ECO's reports and issue site giving effect to the ECO requirements where applicable.
- Communicate to the ECO, at least ten working days in advance, any proposed actions which may have negative impacts on the environment.
- Designate all working areas.
- Communicate to the DEMO/DWST and BWOs any infringements of the environmental requirements and accompany them during site inspections.
- Maintain a record of complaints from the public and communicate to the Employer and Contractor.
- Facilitate communication between all role players in the interest of effective environmental management.
- Monitor the compliance of the Contractor through the DEMO/DWST and BWOs reports.

3.5 Cost Estimates for ESMP Implementation

The cost for the implementation of this ESMP shall be included in the overall supervision cost of the program. Most of the environmental cost which involves engineering design is embedded in the engineering costs. However, it is estimated in the reviewed scoping and rapid EIA that 2 percent of each subproject cost will be spent in the implementation of the mitigation measures and environmental management administration. These costs should also cover environmental monitoring.

As provided in the ESIA report, Estimated costs for the implementation and management of safeguard requirements for the entire Program duration amount to USD 1.4 million which is about 0.5% of the total estimated costs for the entire Program. This budget will specifically cover for necessary additional training for capacity building; environmental and social screening and review; and monitoring enforcement and compliance including two biannual environmental and social audits.

3.6 Institutional Arrangements and Capacity Building Requirements

3.6.1 Capacity Building and Training Programmes

There have been significant efforts for capacity building on environmental and social impacts to people who are involved in the implementation of the program. In collaboration with NEMC, MoWI has been undertaking training to relevant/ responsible people in LGAs (DWST, DEMCs, BWOs) in environmental and social screening, assessment, mitigation planning and management. At the Ministry level, MoWI has enhanced the capacities of 15 environmental and social desk officers responsible for environment issues, out of 15 trained desk officers, 4 social specialists to become trainees of trainers in March 2009. A comprehensive training for all implementing agencies was conducted through nine BWOs.

Basin water officers, DWST/RWST have been trained to become more environmentally conscious and capable. Project planners and implementers in LGAs, BWOs, RWSTs, DWSTs and Water Authorities have been trained to (i) enhance their ability to mainstream environmental and social aspects in project planning, design and implementation and (ii) enable them to undertake environmental and social screening and oversee/ support the consultative and monitoring processes. Table 8 below summarizes capacity building and training programme conducted for WSDP from 2007 to 2009.

Table 6: Capacity building and training programme for WSDP from 2007-2009

S/No	Workshop/Training	Titles	Location	No. of participants	Date
1	Training to LGAs, RSs, PMO – RALG on procurement procedures based on World Bank procedures	Preparation of ToR & RFP for Selection of Consultants	Ubungo Plaza – Dar es salaam	452	November 2007
2	Training to LGAs, RSs, PMO – RALG	• Reporting mechanism • RFP & ESMF • Preparation of Monitoring plans	Ubungo Plaza – Dar es Salaam	895	May 2008
	Environmental and social safeguards training organized by MoWI in collaboration with NEMC and the Ministry of Lands and housing Settlement (MoLHS) *(see table 8.2below)*	• Environmental and Social relevant Safeguards, among them were • Environmental and Social Management Framework – ESMF, • Resettlement Policy Framework – RPF, • International water ways, • Dam safety and Water resources safeguards. In addition to that a presentation on • Environmental Management Act, Environmental Impact Assessment • Environmental and social safeguards were discussed as inputs to complement the safeguard modules mentioned above.	BWOs (*see table 9 below)*	375	April-July 2009
3	Training to LGAs & RSs on	• Demand responsive approach	Kilimanjaro,	90	September

	Establishment of Water User Entities(Participants were DED S, Regional Water Advisors, CDOs, DWES, DASs and Councils Chairpersons from 3 Regions	• Conservations of Water sources • Challenges facing water supply projects • Different laws for establishment of water user entities • Different forms of water user entities • Guidelines for establishment of water user entities • Implementation of water sector development programme • Importance of community participation on water supply projects • HIV & AIDS prevention	Mbeya & Dodoma		& October 2008
4	Training to LGAs, RSs, PMO – RALG and MoWI on procurement process of consultants	• Review of RFP specifically on expression of interests, introduction on RFP and ToR, letter of invitation, instruction to consultant's data sheet and standard forms for technical and financial proposals. • Evaluation of technical and financial proposals from consultants • Lessons learnt in RWSSP on consultancy service • Review and discuss issues on financial proposals • Negotiations, contract writing, awarding and issuing	Ubungo Plaza – Dar es Salaam	211	December 2008
5	General annual meeting on implementation of Rural Water Supply and Sanitation Programme	• Implementation of Rural Water Supply and Sanitation Programme • Discussion of Matters arises during Joint supervision mission and undertakings of RWSSP • Supervision and monitoring of water supply projects and procurement of consultants for LGAs. • Preparation and implementation of Capacity Developments plans • Review Water Supply and Sanitation No. 12 of 2009 particularly for establishments of water user entities • Report writing	AICC-ARUSHA	600	December 2009

Source: MoWI 2010

Table 7: Staff who participated in environmental and social safeguards training

S/No	Basin name	Basin staff	Regional water experts	UWSAs Officials/National Projects	District water engineers	District Environmental coordinators	Community development Officers	Zonal irrigation officers	Total No. of participant
1	Rufiji	7	3	1	14	15	15	2	**57**
2	Pangani	4	2	2	19	11	11	2	**51**
3	L. Victoria	5	3	3	15	10	2	2	**40**
4	Internal Drainage	4	2	2	13	10	12	2	**45**
5	Wami-Ruvu	5	2	2	12	9	7		**37**
6	L. Rukwa	3	1	1	6	12	7		**30**
7	L. Nyasa	6	1	2	8	8	8		**33**
8	L. Tanganyika	9	2	2	9	11	9	2	**44**
9	Ruvuma	4	2	3	10	7	9	1	**36**
	Total	**46**	**18**	**18**	**106**	**93**	**80**	**11**	**375**

Source: MoWI, May 2010

Challenges and recommendations

Experience has shown that inadequate knowledge and technical manpower in environmental and social impacts management, both at private and public sectors hinders the pace of its effective use in program like RWSSP. There is a feeling among the MoWI staff that training conducted so far targeted to few representatives from each LGA and other implementing agencies on environmental and social safeguard management trainings. It is recommended that an additional training be organized to include other key implementers from DWST, RWST, UWSAs and BWOs on environmental and social screening and reviews, monitoring and general reporting on safeguard issues. Such training should also consider the involvement of local NGOs and Community Based Organizations (CBOs).

3.7 Public Consultations and Disclosure Requirements

The main stakeholders for RWSSP II include MoWI, PMO-RALG, Ministry of Health and Social Welfare (MoHSW), Ministry of Land, Housing and Human Settlement Development (MoLHHSD), NEMC, program financiers particularly the World Bank, water resources management institutes and authorities such as Basin Water Offices (BWO), local NGOs, LGAs, and local communities. These stakeholders were consulted during the ESIA study and their inputs have been integrated into this ESMP appropriately. Summaries of both the ESIA and this ESMP will be prepared and disclosed according to AfDB's ESAP requirements.

3.8 Implementation Schedule and Reporting

All mitigation and enhancement measures will be implemented along side with the implementation of program subprojects as required and planned in the subproject implementation schedules. As mentioned earlier, progress on the implementation of the safeguards is included in the overall periodic progress reports, supervision mission's Aide Memoires, midterm review and monitoring and evaluation reports for the WSDP.

4. CONCLUSION AND RECOMMENDATIONS

The ESIA study clearly demonstrated that with relatively easy and cost effective mitigation strategies, social and environmental impacts can all be kept to a low significance while beneficial impacts can be easily enhanced. Furthermore, the ESIA study clearly revealed that the anticipated negative impacts will be short-term, site specific, confined and reversible and can be managed through the application of mitigation and monitoring measures while beneficial impacts can be readily enhanced. Mindful of the greater socio-economic significance of investment subprojects, their successful implementation will improve the quality of life of about 4.6 million people living in villages, hamlets and streets in 132 LGAs in Tanzania.

This ESMP report has been prepared from the ESIA report and has suggested comprehensive generic mitigation measures. Implementing such mitigation and enhancement measures will reduce the limited potentially significant adverse environmental impacts to acceptable levels. Therefore, increase environmental and social soundness of the program in line with both applicable national and Bank's environmental policies, legislations and procedures. It is certainly up to MoWI to ensure an effective and efficient coordination mechanism for safeguard management at the Ministry and local levels particularly for the implementation of this ESMP.

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