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REPUBLIC OF MALAWI

LILONGWE WATER BOARD

LILONGE WATER AND SANITATION PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

October 2017

ACRONYMS/ABBREVIATIONS

ADB	African Development Bank
ADL	Airport Development Limited
AIDS	Acquired Immune Deficiency Syndrome
ARAP	Abridged Resettlement Action Plan
AEC	Area Executive Committees
CMCs	Catchment Management Committees
CBOs	Community Based Organizations
CDSS	Community Development Secondary School
CHAM	Christian Health Association of Malawi
CSR	Corporate Social Responsibility
CWG	Compensation Working Group
DC	District Commissioner
DESC	District Environmental Sub-committee
DEA	Director for Environmental Affairs
DEC	District Executive Committee
DEWATS	Decentralized Wastewater Systems
DFO	District Forestry Officer
EAD	Environmental Affairs Department
EDO	Environmental District Officer
EMA	Environment Management Act
ESAP	Environmental and Social Assessment Procedures
ESCOM	Electricity Supply Cooperation of Malawi
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FLWSP	First Lilongwe Water Supply Project
GRC	Gross Replacement Cost
GoM	Government of Malawi
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IFC	International Finance Corporation
KCH	Kamuzu Central Hospital
LCC	Lilongwe City Council
LWB	Lilongwe Water Board
LWSP	Lilongwe Water and Sanitation Project
M	Meters
MGDS	Malawi Growth and Development Strategy
MK	Malawi Kwacha
Mm	Millimeters
MAIWD	Ministry of Agriculture, Irrigation and Water Development
MOTPI	Ministry of Transport and Public Infrastructure
MoWDI	Ministry of Water Development and Irrigation
MSEs	Medium and Small Enterprises
MTL	Malawi Telecommunication Network
MIS	Management Information System
NAC	National AIDS Commission
NEAP	National Environmental Action Plan
NEP	National Environmental Policy

NSO	National Statistical Office
NWDP	National Water Development Program
NGOs	Non-Governmental Organizations
Ops	World Bank's Operational Policies
OVIs	Objectively verifiable Indicators
PAPs	Project Affected Persons
PSC	Project Steering Committee
RFP	Resettlement Framework Policy
RWG	Resettlement Working Group
SADC	Southern Africa Development Corporation
SEP	Socio-economic profile
SLWSP	Second Lilongwe Water Supply Project
STIs	Sexually Transmitted Infections
STA	Sub Traditional Authority
TA	Traditional Authority
TB	Tuberculosis
THAs	Traditional Housing Areas
TLWSP	Third Lilongwe Water Supply Project
TNM	Telecoms Network Malawi Limited
TORs	Terms of Reference
USD	United States Dollar
UDHR	United Declaration of Human Rights
UNICEF	United Nations Children's Fund
US	United States
WUA	Water Users Association
WHO	World Health Organization
USAID	United States Agency for International Development
VDC	Village Development Committees

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EXECUTIVE SUMMARY

This document is an Environmental and Social Management Framework (ESMF) for Lilongwe Water and Sanitation Project (LWSP). This ESMF will be applied to future water and sewerage network rehabilitation, upgrading and expansion activities, as well as other sanitation activities (rehabilitation of sewage treatment plant and construction of household and public onsite sanitation facilities) planned under the project where the exact locations or scope of works and potential adverse environmental and social impacts have not yet been identified prior to implementation of the project in the City of Lilongwe with support from the World Bank.

Potential adverse environmental and social impacts anticipated in the project components will be addressed in the context of this ESMF, while potential social impacts related to land acquisition such as loss of livelihoods or loss of access to economic assets will be addressed in the Resettlement Policy Framework (RPF).

The proposed ESMF is consistent with the World Bank's Safeguard Policies, including OP 4.01 (Environmental Assessment) and Malawi's national legislation. This policy requires that all Bank-financed operations are screened for potential adverse environmental and social impacts, and that the required environmental and social work be carried out based on the screening results. In terms of its potential environmental impacts, the works will involve rehabilitation, expansion and upgrading of the existing water and sanitation infrastructures.

The overall objective of this Environmental and Social Management Framework (ESMF), is to guide the Implementing Agencies (IA) in the environmental and social management during implementation of the expansion, and upgrading and rehabilitation works of the projects. This ESMF defines environmental and social concepts, methodologies, tools, and procedures that should be applied during the "project cycle" to comply with World Bank's safeguard policies the national legislations.

OBJECTIVES OF THE ESMF

The objective of the Environmental and Social Management Framework (ESMF) is, among others, to provide an environmental and social screening process for the project components. It also provides guidance to staffs, communities, and others participating in the project components regarding the sustainable environmental and social management programs.

In general, this ESMF has following general objectives:

- Screen for potential environmental and social impacts;
- Identify possible impacts and propose appropriate mitigation measures; and
- Monitor the implementation of these measures.

The aim of the project is to increase access to improved water services and safely managed sanitation in Lilongwe City.

The project scope consists of the following four components:

Component 1*–Network rehabilitation, expansion and NRW reduction (US$66 million*). This component involves investments in priority network rehabilitation to remove bottlenecks, increase hydraulic capacity of the existing network and reduce losses, and network expansion to increase coverage. Investments include: upgrading of approx. 142km of existing distribution network and creation of pressure zone boundaries; construction of approx. 27km of transmission mains, eight associated pumping stations and four storage reservoirs with a combined storage of 2,600m3; and performance-based water loss reduction through improvements in network maintenance, active leakage control, speed and quality of leak repairs and pressure management. The component will also finance approx. 186km of network expansion to unserved areas.

Component 2-*Priority sanitation improvements (US$19 million).* This component will finance various investments to increase access to safely managed household and public sanitation in Lilongwe. These investments include: rehabilitation and expansion of the sewerage network (100km); rehabilitation and upgrading of the existing Kauma sewage treatment plant; support to construction of 8,000 improved sanitation facilities targeting the poor and vulnerable households; sanitation marketing campaigns; and construction of improved sanitation facilities in 10 markets and 10 schools.

Component 3–*Technical assistance (US$8.5 million).* This component includes various TA activities designed to (i) support preparation and supervision of all infrastructure investments planned under the project; and (ii) enhance LWB's capacity to plan future investments and to strengthen the pipeline of investment-ready sub-projects under the Lilongwe Water Program.

Component 4–*Institutional Capacity Strengthening (US$8.5 million).* This component includes various activities designed to (i) strengthen the capacity of LWB to implement the project and to provide improved water services to its customers; (ii) strengthen the capacity of LCC to implement the sanitation component of the project; operate and maintain the sanitation infrastructure; and support the reforms needed to provide and promote safely managed sanitation services in Lilongwe City.

The ESMF covers activities with potential environmental and social impacts under all the project components. They include**:**

Component 1

i. Priority Network Rehabilitation

Replacement/upgrading of existing pipelines with larger diameter pipelines. The entire existing network shall be reconfigured to ensure that there is smooth operation of the whole LWB distribution system. This include upgrading of approx. 142km of existing distribution network and creation of pressure zone boundaries; construction of approx. 27km of transmission mains; eight associated pumping stations and four storage reservoirs with a combined storage of 2,600m^3. **Environmental impacts associated with these investments are limited and will be managed using an Environmental and Social Management Plan (ESMP). LWB has already prepared an ESMP consistent with the provisions of this ESMF. The ESMP was consulted upon and publicly disclosed in-country and on the Bank's website on October 3, 2017.**

ii. NRW water reduction

This activity will involve: (i) verifying all the existing District Metered Areas (DMAs) established by LWB; (ii) carrying out a baseline 7-day inflow and pressure measurement prior to starting any activities in any of the DMAs;(ii) leak detection surveys (using appropriate equipment and technologies); pressure management: stabilizing, managing and reducing average DMA pressure using PRVs and controllers and various techniques as appropriate; (iii) leak repair: repair of leaks on mains and replacement of leaking service connections; (iv) detection of illegal connections; (v) quarterly leakage modelling; (vi) continuous monitoring of DMA inflow, pressure and minimum night flow and execution of leak detection and repair should the tolerance limits be exceeded; and (vii) execution of the final inflow and pressure measurement. These activities are covered by this ESMF. Specific instruments will be prepared during project implementation following the provisions of this ESMF.

iii. Network Expansion

This activity will involve installation of a total of approximately 186 km of water distribution pipeline network in areas of the city that are currently not served by piped water. The proposed expansion areas include: Area 25, western bypass, Nanjiri, Chitedze and Mchezi. These areas have registered considerable development over the last five years, but currently lack piped water supply as the existing distribution network does not reach these areas. The exact pipeline routes/locations are unknown at this stage as the design is not yet done. However, pipe diameters are expected to range from DN100mm to

DN500 mm. The activity will also include installation of 14,700 new household water connections and construction of 60 communal water points to increase water supply coverage in the expansion areas. These activities are covered by this ESMF. Specific safeguards instruments will be prepared during project implementation following the provisions of this ESMF.

Component 2

i. Sewerage network rehabilitation/expansion

This activity includes rehabilitation and expansion of the sewerage network (approximately 100km of sewers pipelines), and connection of 5,000 new sewer connections. The exact location of sewer network rehabilitation/expansion works is unknown at this stage. However, it is expected that these will mainly be in the central part of the city where most of the sewer network is concentrated. Sewer network expansion will be limited to those areas of the city that are within the vicinity of an existing trunk sewer. Priority sewer expansion areas identified include Area 3, 6, 12,18,30, 47 and 48. The exact sewer pipeline routes are unknown at this stage as the design is not yet done. The activity is therefore covered by this ESMF. Specific instruments will be prepared during project implementation following the provisions of this ESMF.

ii. Rehabilitation and upgrading of the existing Kauma sewage treatment plant

The nature and scope of rehabilitation works is unknown at this stage, but it is expected to include the following:

- Construction of additional facultative and maturation ponds
- Installation of a perimeter fence around the treatment plant;
- Flow measurement equipment installation;
- Treatment expansion and rehabilitation, including embankments, tertiary treatment and effluent disposal facilities;
- Baffle installation; and
- Site office rehabilitation/construction

The activity is covered by this ESMF. Specific safeguards instruments (ESIA/ESMP) will be prepared during project implementation following the provisions of this ESMF.

iii. Onsite sanitation

This activity includes the development and implementation of sanitation marketing activities, the construction of 8,000 on-site sanitation facilities for the poor households, and the construction of 20 public sanitation facilities (10 school sanitation facilities and 10 market sanitation facilities - to be delegated to private management). The exact location of household and public sanitation facilities will be determined during project implementation. Specific safeguard instruments (ESIA/ESMP) will be prepared during project implementation following the provisions of this ESMF.

Component 3

The ESMF also covers the following technical assistance activities:

i. Technical Assistance for Water Supply

This activity includes Technical Assistance designed to support preparation and supervision of all water supply infrastructure investments planned under the project and future investments under the Lilongwe Water Program. These are:

- Detailed engineering designs, tender documentation and construction supervision of water distribution network rehabilitation and expansion infrastructure planned under the project;

- Preparation and/or update of environmental and social management plans and resettlement action plans for network investments planned under the project;
- Development of an 'investment framework' to serve as a guide for improving the quality and speed of preparation of future investments under the Lilongwe Water Program.
- Assessment of groundwater resources, map the groundwater potential and vulnerability to support groundwater planning and management around Lilongwe City;
- Preparation of a water supply master plan for Lilongwe City; and
- Feasibility studies and engineering designs for priority water supply infrastructure identified in the water supply master plan (excluding dams[1]).

ii. Technical Assistance for Sanitation

This activity includes Technical Assistance designed to support preparation and supervision of all sanitation infrastructure investments planned under the project and in the future. These are:

- Preparation of a sanitation master plan for Lilongwe City;
- Engineering designs, tender documentation and supervision of priority sanitation investments planned under the project;
- Preparation of environmental and social impact assessments, environmental and social management plans and resettlement action plans for priority sanitation investments planned under the project; and
- Feasibility studies for other priority sanitation investments identified in the sanitation master plan.

Component 4

This ESMF is also applicable to the following institutional capacity strengthening activities to be financed under this component.

iii. Institutional Capacity Strengthening of Lilongwe Water Board (LWB)

This activity will support the implementation of LWB's institutional capacity development action plan code-named "Pathway to Success Program" (PSP). PSP is a five-year program (2016-2021) to strengthen corporate governance; improve staff productivity; improve customer service; and modernize LWB's internal processes and systems. The activity also includes Project Implementation Unit (PIU) support for incremental operating costs, individual consultants to support the PIU on monitoring and evaluation, as well as environmental and social safeguards implementation and monitoring for the entire project; and support to implementation of citizen engagement and communication plans and gender action plans.

iv. Institutional Capacity Strengthening of Lilongwe City Council (LCC)

This activity will support the establishment of a revenue stream and financial management, improve operational efficiency, and staff training for Lilongwe city Council (LCC). The operational management and maintenance of sewers, WWTP and other sanitation facilities—including sewer cleaning equipment—will be strengthened and customer management and community liaison will be improved.

[1] LWB already completed feasibility studies and detailed designs for a new water source (Diamphwe dam), and will therefore not require any further technical assistance under this project. LWB is also currently studying the feasibility of abstracting water from Lake Malawi. This study is already underway, and is unlikely to require any technical assistance support from this project.

JUSTIFICATION OF THE ESMF

Since many specific project investments in the LWSP have not been clearly identified at this stage (except for priority network rehabilitation investments), the ESMF provides a general impact identification framework to assist project implementers to screen the projects and institute measures to address adverse environmental and social impacts. This ESMF thus applies to all subprojects and other activities to be financed under LWSP. Specific information on project locations, land to be impacted and requirements, bio- physical features etc., when known at a later stage, will trigger the preparation of subproject-specific Environmental and Social Management Plans (ESMPs) and, in special cases, possibly also a subproject-specific Environmental and Social Impact Assessment (ESIA).

Institutional Implementation Arrangements for the ESMF Implementation

LWB will prepare (through consultants) a subproject-specific Environmental and Social Impact Assessment (ESIA)/Environmental and Social Management Plans (ESMP) and (if needed) Resettlement Action Plans (RAP) as the safeguards instruments for identified investments during the feasibility study phase of the subproject following detailed screening. These reports (ESIAs/ESMPs) will be reviewed by the LWB's Project Implementation Unit (PIU), Lilongwe City Council (LCC) project team (for sanitation investments), and Environmental Affairs Department (EAD) before submission to the World Bank.

The implementation arrangements of the ESMF build on the arrangements for mitigation measures and monitoring plans required during the implementation and operation phases of the project components. The main executing and accountable agency is the LWB via its PIU.

Framework for Preparation and Implementation of ESMF under LWSP

The steps to be undertaken toward the preparation of each individual ESMP or ESIA under LWSP include a screening process, a socioeconomic profile, census and identification of Project impacts on land and people who will be directly affected and those that will be indirectly affected due to project activities, development of mitigation measures to minimize the impacts, public consultations with the PAPs and stakeholders. This will be followed by the development of ESMPs or ESIAs, ESMP/ESIA reviews and approvals by EAD and World Bank, implementation of the ESMP, and monitoring of the ESMP implementation. These steps will be the responsibility of the Project Implementation Unit (PIU) at LWB.

Disclosure of ESMF/ESMPs

Public disclosure of the LWSP ESMPs/ESIAs will be made to Project Affected Persons (PAPs) and other interested stakeholders for review and comments on mitigation and monitoring measures and other issues in the implementation of the ESMF. The purpose of the disclosure will be to receive comments and suggestions from PAPs and other stakeholders and incorporate appropriate suggestions. The LWSP ESMPs will be disclosed in a form, manner and language comprehensible to PAPs and in places accessible to the affected population and other stakeholders for review and comments on mitigation measures. LWB shall disclose and post any LWSP ESMPs on its website, places where PAPs can easily access the documents within the project implementation areas, local newspapers with wide circulation and receive comments. Comments and critiques made on any LWSP ESMPs by PAPs and other stakeholders will be taken by LWB for consideration. LWB will also conduct a half day workshop in the project areas for the PAPs, stakeholders, representatives of civil societies, local leaders with the objective of disclosing project specific ESMPs. The Public disclosure of any ESMP will be made in Chichewa and English languages. This could be done through by depositing / posting them in a range of publicly accessible places such as, Lilongwe District Council Offices, Schools, Churches and other public places. They will also be disclosed for input from civil societies, academics and other professionals as well in local newspapers and LWB website. The disclosure shall be for a period of 21 days.

Monitoring and Evaluation Framework

The arrangements for monitoring the ESMF activities will fit the overall monitoring program of the entire LWSP, which will fall under the overall responsibility of the PIU and LCC. Periodic evaluations will be conducted to determine whether the monitoring and mitigation measures proposed in the ESMPs for the project components are being implemented by the project implementing agencies.

ENVIRONMENTAL AND SOCIAL BENEFITS

Beneficial Impacts

The residents of the Lilongwe City will benefit from improvements in water supply and wastewater collection and treatment services. Through the proposed network expansion, people living in the peri-urban surrounding will also benefit from improved water supply, and safely managed sanitation services which currently is not adequately being provided. An improved water service means a minimum of 18-hour water supply meeting GoM water quality standards, and supplied at an average pressure of 12m at predetermined points in the distribution network for no less than 300 days in a year, unless the service area is declared a disaster affected area. Safely managed sanitation is defined as the use of an improved sanitation facility which is not shared with other households, and where excreta is safely disposed in situ and/or transported and treated off-site.

Sanitation related investments including treatment works will positively impact target communities by ensuring that there are efficient sanitation disposal infrastructures in targeted areas including schools and market places. Poor sanitation is a trigger of water and sanitation diseases and a burden to the health and other related sectors. Lack of sanitation infrastructure is also an environmental hazard with likelihood of disposal of sewerage wastes into the external environment without treatment, hence the sanitation efforts under this project will not only reduce disease burden (public health) but also protect the environment from sewerage pollution.

Construction and rehabilitation of water facilities will have significant positive impacts on the health of the communities and populations in the targeted project areas by reducing public health diseases normally associated with poor sanitation and lack of water. Water borne diseases are associated with lack of water or access to poor water quality and contamination of water bodies from sewerage waste. The project is also expected to help reduce the burden of water collection, enabling women and girls to manage sanitation and hygiene needs with dignity. This will contribute towards attaining the Millennium Growth Development Strategy (MGDS) for the city of Lilongwe, and Malawi in general.

The LWSP proposed sub project components may have some negative impacts on both social and the environment from a sub project specific perspective and cumulatively.

Potential Adverse Impacts

This ESMF has been designed to anticipate and address potential adverse impacts at the planning stage of existing and new investments and related activities. The anticipated impacts have been highlighted in the document including mitigation measures. Some of the impacts are as follows:

Environmental Impacts	Social Impacts
• Loss of Vegetation • Loss of Flora and Fauna • Noise and Vibration • Contamination of Water Bodies • Borrow Pits and Quarry Sites • Impacts on Ecosystems • Greenhouse Gas Emission • Decreased Air Quality	• Diseases Spread-Public Health • Traffic Impacts • Loss of Land • Impact on Social Fabric and Community Relations • Gender Issues and Impacts • Occupational Health and Safety (workers and community)

Capacity Building and Training for ESMF

Effective implementation of the ESMF will require that adequate capacity enhancement for LWSP implementing institutions and other stakeholders.

ESMF Implementation Budget

The estimated cost for the implementation of this ESMF is **USD 864,000**. This budget covers costs related to stakeholder trainings and consultation forums on ESMF; preparation, implementation monitoring and evaluation of individual instruments (EA/ESMPs) and hiring of safeguards staff/consultants to support LWB in implementation of the ESMF.

1 PROJECT DESCRIPTION

1.1 Background

LWB's medium-term investment plan is packaged in what is called the "Lilongwe Water Program" (2016-2025). The Program consists of a series of investment projects designed to address the immediate and medium term water and sanitation needs, and support a long-term solution to Lilongwe City's growing demand for improved water services and safely managed sanitation services.

Over the next five years, LWB plans to rehabilitate and raise the height of Kamuzu Dam 1 (KD1) on Lilongwe River – the main source of water for the city. This investment is expected to increase abstraction capacity and allow for an additional 50,000 m3/day expansion in treated water production capacity, reaching a total production capacity of 175,000 m3/day – enough to meet projected 2025 demand. The rehabilitation and raising of KD1 is financed by EIB and is already at works procurement stage.

Beyond 2025 however, the city will need a new water source since any additional demand on the Kamuzu dam system will reduce assurance levels below acceptable levels. Extensive hydrological, technical, financial, economic, social, and environmental studies recommended a new multipurpose dam on Diamphwe River (35km southeast of Lilongwe) as the most feasible water source among the alternatives considered. At the same time, LWB is considering pumping water from Lake Malawi (120km away) as an alternative to Diamphwe dam, although the feasibility of this option is yet to be established. Irrespective of where the water comes from, LWB will need to invest beforehand in the distribution network to improve its hydraulic capacity, reduce losses, and expand the reach of the network to serve more customers.

The proposed Lilongwe Water and Sanitation Project (LWSP) will support LWB's broader investment Program by focusing on priority investments in water production and distribution, as well as sanitation improvements. In addition, the project will support a set of activities designed to (i) enhance LWB's capacity to plan future investments and to strengthen the pipeline of investment-ready projects under the Lilongwe Water Program; (ii) enhance the capacity of LWB and LCC to deliver improved water services and safely managed sanitation services; and (iii) enhance LWB's capacity to manage its investment Program.

1.2 Project Development Objectives and Components

The project development objective is to increase access to improved water services and safely managed sanitation in Lilongwe city. Project activities are structured in four components as follows:

Component 1–Network Rehabilitation, Expansion and NRW Reduction (USD66 million). This component involves investments in priority network rehabilitation to remove bottlenecks, increase hydraulic capacity of the existing network and reduce losses, and network expansion to increase coverage. Investments include: upgrading of approximately 142km of existing distribution network and creation of pressure zone boundaries; construction of approximately 27km of transmission mains, eight associated pumping stations and four storage reservoirs with a combined storage of 2,600m3; and performance-based water loss reduction through improvements in network maintenance, active leakage control, speed and quality of leak repairs and pressure management. The component will also finance a total of approximately186km of network extension to areas in the city that are currently not served by the piped water distribution network.

Component 2–Priority Sanitation Improvements (USD19 million). This component will finance various investments to increase access to safely managed household and public sanitation in Lilongwe. These investments include: rehabilitation and expansion of the sewerage network (approx. 100km); rehabilitation and upgrading of the existing Kauma sewage treatment plant; support to construction of 10,000 improved sanitation facilities targeting the poor and vulnerable households; sanitation marketing campaigns; and construction of improved sanitation facilities in 10 markets and 10 schools.

Component 3–Technical Assistance (USD8.5 million). This component will finance technical assistance (TA) activities designed to support preparation and supervision of all infrastructure investments planned under the project; and to enhance LWB's capacity to plan future investments and to strengthen the pipeline of investment-ready sub-projects under the Lilongwe Water Program. The TA activities are organized into two sub-components: (i) technical assistance for water supply, which includes consultancy services for engineering designs and supervision of distribution network infrastructure planned under the project; preparation/update of safeguards instruments; development of a framework to guide investment planning under the Program; assessment of ground water resources potential; and preparation of a water supply master plan for Lilongwe city, including feasibility studies for priority investments identified in the master plan (excluding dams[2]); and (ii) technical assistance for sanitation, which includes consultancy services for engineering designs, supervision of priority sanitation infrastructure planned under the project; preparation of environmental and social impact assessments, environmental and social management plans and resettlement action plans for priority sanitation investments planned under the project; and preparation of a sanitation master plan for Lilongwe City, including feasibility studies for other priority sanitation investment identified in the master plan.

Component 4–Institutional Capacity Strengthening (USD8.5 million). This component will finance a set of activities designed to: (i) strengthen the capacity of LWB to implement the project and to provide improved water services to its customers; and (ii) strengthen the capacity of LCC to implement the sanitation component of the project, operate and maintain the sanitation infrastructure and support the reforms needed to provide and promote safely managed sanitation services in Lilongwe. With respect to LWB, the component will support implementation of LWB's institutional capacity development action plan code-named "Pathway to Success Program" (PSP). PSP is a five-year (2016-2021) change management program to strengthen corporate governance; improve leadership skills at all levels; improve staff productivity, work culture and motivation; improve customer service; and modernize LWB's internal processes and systems – all critical areas for achieving the project objectives. This component will also finance incremental operating costs for LWB's Project Implementation Unit (PIU) as well as implementation of citizen engagement and communication plans and gender action plans.

With respect to LCC, the component will finance equipment, logistical support, training and specific technical assistance to the engineering and public health departments of LCC to strengthen their capacity to provide sanitation services in the city, until such a time that GoM takes a decision to transfer sanitation services to LWB. Any operational capacity (i.e. human resources, tools and assets) developed within LCC under the project would be transferred to LWB when GoM makes the decision to transfer sewerage services to LWB. The component will also finance incremental operating costs for LCC to manage sanitation activities under the project, as well as coordination and consensus building efforts around a future institutional framework for sanitation services in Lilongwe.

[2] LWB already completed feasibility studies and detailed designs for a new water source (Diamphwe dam), and will therefore not require any further technical assistance under this project. LWB is also currently studying the feasibility of abstracting water from Lake Malawi. This study is already underway, and is unlikely to require any further technical assistance support from this project.

The preliminary list of interventions to be funded under the project, and which are covered by this ESMF are as follows:

Water supply improvements

- Replacement/upgrading of 142km of existing pipelines with larger diameter pipelines;
- Creation of pressure zone boundaries;
- Construction of approximately 27km of transmission mains;
- Construction of eight pumping stations;
- Construction of four storage reservoirs with a combined storage of 2,600m^3;
- Water loss reduction
- Construction of a total of approximately 186 km of new distribution network;
- Installation of 14,700 new household water connections; and
- Construction of 60 communal water points.

Sanitation improvements.

- Rehabilitation and expansion of the sewerage network (100km);
- Rehabilitation and upgrading of the existing Kauma sewage treatment plant;
- Installation 15,000 new sewerage connection;
- Construction of 8,000 onsite sanitation facilities,
- Construction of 20 public toilets (10 schools and 10 markets);
- City-wide sanitation marketing campaign.

Technical Assistance

- Water Supply:
  - Detailed engineering designs, tender documentation and construction supervision of water distribution network rehabilitation and expansion infrastructure planned under the project;
  - Preparation and/or update of environmental and social management plans and resettlement action plans for network investments planned under the project;
  - Development of an 'investment framework' to serve as a guide for improving the quality and speed of preparation of future investments under the Lilongwe Water Program;
  - Assessment of groundwater resources, map the groundwater potential and vulnerability to support groundwater planning and management around Lilongwe City;
  - Preparation of a water supply master plan for Lilongwe City; and
  - Feasibility studies and engineering designs for priority water supply infrastructure identified in the water supply masterplan

- Sanitation
  - Preparation of a sanitation master plan for Lilongwe City;
  - Engineering designs, tender documentation and supervision of priority sanitation investments planned under the project;

- Preparation of environmental and social impact assessments, environmental and social management plans and resettlement action plans for priority sanitation investments planned under the project; and
- Feasibility studies for other priority sanitation investment identified in the sanitation master plan.

Institutional Capacity Strengthening

- LWB
  - Design and implementation of an incentive-based performance management system as a driver for both individual and team performance;
  - Staff training and change management in the areas of water distribution network management and NRW reduction; water treatment process optimization; public private partnerships; corporate utility management and finance;
  - Modernization of LWB's operational processes, including development of standard operating procedures and training of staff in their use; development and implementation of quality management systems and preparing LWB for ISO 9000 certification;
  - Development and implementation of water safety plans and business continuity plans for disasters and emergency events;
  - Customer services improvement, including branding and remodeling of zone customer service centers;
  - Support for incremental operating costs for the Project Implementation Unit (PIU),
  - Individual consultants to support the PIU on monitoring and evaluation, as well as environmental and social safeguards implementation and monitoring for the entire project; and
  - Support to implementation of citizen engagement and communication plans and gender action plans.
- LCC
  - Equipment and logistical support to the engineering and public health departments of LCC to strengthen their capacity to provide sanitation services in the city;
  - Specific technical assistance and training on: (i) sewerage operations and asset management, including development of GIS-based inventory of sewerage infrastructure; (ii) development and implementation of strategy to connect more households to the sewer network; (iii) improved customer service with respect to dealing with sewer blockages and new connections;
  - Establishment of a revenue stream for sanitation services and implementation of revenue collection strategies to ensure gradual recovery of O&M costs for sanitation services;
  - Support to on-site sanitation implementation, including hygiene promotion; identification of vulnerable households to be supported under the project; establishment of appropriate partnerships with the private sector and civil society with respect to management of public sanitation facilities, as well as safe collection, transportation, and treatment of fecal sludge from pit latrines, septic tanks or other onsite sanitation system;
  - Incremental costs associated with consensus building efforts around a future institutional framework for sanitation services in Lilongwe as well as coordination. A Sanitation Task Force comprising representatives from LWB, LCC, Ministry of Health and MAIWD has

been formed to strengthen coordination of sanitation investments in the city and to facilitate dialogue on institutional and policy issues;

- Project management support to LCC to successfully implement the sanitation component of the project. This includes (i) incremental operating costs for the engineering and public health departments; (ii) individual consultants to support LCC in managing sanitation activities under the project; (iii) support to implementation of citizen engagement and gender action plans.

2 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Malawi's Policy, Legal and Administrative Framework

Malawi has, over the past years, developed several policies, legal and administrative framework to guide environmentally sustainable development in various sectors of the economy. The aim of adopting these policies and legal and administrative framework is to promote and consolidate sustainable socio-economic development in the country through mainstreaming of environmental and social considerations in project planning and implementation. Some of the policies and legal frameworks are discussed in the sections that follow.

2.1.1 Policy Framework

The Constitution of the Republic of Malawi, 1995, provides for setting up of various national policies to guide implementation of different project activities in the country. Some of the policies relevant to the activities of the proposed project are discussed below:

2.1.1.1 National Environmental Policy, 2004

The National Environmental Policy, 2004, aims at narrowing the gap between the degradation of the environment and depletion of the natural resources on one hand and development on the other. The Policy promotes sustainable social and economic development through sound management of the environment and natural resources. The policy has the following guiding principles with regards to water and sanitation:

a) All people should have access to clean potable water in order to reduce the incidence of water borne diseases and reduce the time devoted by individuals to water collection,

b) In planning and providing water supply services, consideration should be given to safe disposal of the resultant wastewater,

c) The responsibility for water-borne sanitation should be integrated in the water sector,

d) The precautionary approach to water quality management shall be pursued with a focus on pollution minimization and prevention,

e) To improve human welfare and sustainable environment and natural resources management,

The activities of the proposed project shall among other things involve clearing, excavation and laying down of pipes of different sizes, construction of manholes, which will have the potential to cause different environmental and social impacts. The implication of the policy is that the project has to put in place measures to reduce adverse impacts arising from the activities of the project and that implementation of the activities of this project has to take sustainability issues on board.

2.1.1.2 National Water Policy (2005)

The overall policy goal is sustainable management and utilization of water resources, in order to provide water of acceptable quality in sufficient quantities. It aims at ensuring efficient and effective provision of potable water and sanitation that meets the basic needs of every Malawian. The proposed project is in line with the policy goal as it aims at improving water distribution to different consumers in the City of Lilongwe as well as the surrounding areas in order to provide safe and adequate water to the consumers. Lilongwe Water Board and Lilongwe City Council will therefore be required to implement the project activities in accordance with the provisions of this policy by ensuring sustainable provisions of water and sanitation services that are equitably accessible and used by individuals and entrepreneurs for socio-economic development at affordable cost.

2.1.1.3 Republic of Malawi Gender Policy, 2008

Malawi Government appreciates that gender inequality is a significant constraint to socio-economic growth and poverty reduction. The policy specifies that Government has a responsibility to integrate gender into the development, design, implementation, and monitoring of different development programs. According to this Policy, Government of Malawi is expected to implement a constitutional obligation of building a society where men, women, boys and girls equally and effectively participate in and benefit from different development processes. The proposed project will benefit women more when implemented as it will have significant gender dimensions as well. Instead of spending a considerable amount of time and energy on daily basis fetching for water for household uses, women will be able to improve their living conditions just as men as the availability of water within easy reach will give them adequate time for more productive activities and leisure. Furthermore, the project will ensure that wherever there are any employment opportunities, women will be given equal chances as men for employment. Deliberate effort will also be made to ensure that among the employees, 30% should be women. The project will also benefit girl child as sanitation facilities will be provided in schools which will promote privacy to girls therefore reduction in dropouts.

2.1.1.4 National Sanitation Policy, 2008

The National Sanitation Policy provides a broad framework and policy guidelines to enhance and support sanitation coverage in the country through formulation of sanitation strategies, plans and programs at all levels for improving the quality of life of the people of Malawi and the physical environment necessary for health life. The primary focus of the policy is on the safe disposal of excreta away from the dwelling units and work places by using a sanitary latrine and includes creation of an open defecation free environment along with the safe disposal of liquid and solid wastes and the promotion of health and hygiene practices in the country.

For any social and economic development to take place, adequate sanitation in conjunction with good hygiene and safe water are essential. Lack of clean water and poor sanitation causes many diseases and the spread of diseases. It is estimated that inadequate sanitation is responsible for 4.0 percent of deaths and 5.7 percent of disease burden worldwide. A number of studies have also shown that improvements in drinking water and sanitation lead to decreased risks of waterborne diseases such as diarrhea. Such improvements might include for example use of water filters, provision of high-quality piped water and sewer connections.

The present project is therefore in support of the National Sanitation Policy as in intends to upgrade, rehabilitate, expand sewer systems, waste water treatment plant and construct new sanitation facilities in the city of Lilongwe. This will improve the health and wellbeing of the city residents.

2.1.1.5 National Land Policy, 2002

The project will cause loss of land and property; damage to road pavements; damage to concrete driveway; damage to different building structures; obstruction to passage on the roads; and disruption of public service utilities.

The land belongs to different individuals and institutions, which they are currently using for different livelihood activities. The policy guides land management and administration in Malawi. It introduces major reforms intended for land planning, use, management and tenure and provides clear definition of land ownership categories (Section 4); addressing issues of compensation payment for land (Section 4.6). The policy has provisions for environmental management, urban management of solid and liquid wastes, protection of sensitive areas, agricultural resource conservation and land use, community forests and woodland management.

The National Land Policy has a few sections which briefly make reference to matters relating to land acquisition. It alludes to necessity of having provisions in the land law that would give the Government the opportunity to acquire any piece of land required for public services following guidelines such as:

a) Clearly spelling out or specifying the purposes for which Government may require the land in order to prevent possible abuse of the power of eminent domain;

b) Payment of compensation in the event of the repossession of a leasehold interest on Government land, to be limited to the negotiated value of improvements made by the leaseholder; and

c) No compensation to be paid for the land, when the private user rights granted as a result of the lease are terminated.

The Land Policy recognizes Government's duty to protect the free enjoyment of legally acquired property rights on land and a landholder's entitlement to fair and adequate compensation where the Government acquires property for public use. It further stipulates that compensation valuation for customary land, at the time of acquisition by the Government, be based on the open market value of the land and all improvements carried out on the land.

The Policy notes that the inadequacy of compensation is always a direct result of excluding certain items or qualities from the factors considered when determining the value; and delays in payment of compensation.

While this remains a policy document only and therefore not as binding as the legislation, it is significant in that it reflects the approach of the state to land management. Besides, given that this policy is later in time to the Constitution, it is arguable that the policy takes into account constitutional dictates unlike the previous pieces of legislation. Project management therefore needs to consider the policy direction.

2.1.1.6 Malawi National HIV/AIDS Policy (2003)

Once the project implementation starts, the project area will experience a very high rate of influx of people some seeking employment and others plying different types of trade. The social interactions that will result thereafter and the increased money circulation in the area will result into increased cases of relationships between members of opposite sex, which is likely to result into increased cases of HIV and AIDS and other sexually transmitted diseases. The Malawi National HIV and AIDS policy was adopted by government in 2003 to prevent HIV infections, reduce vulnerability to HIV, improve the provision of treatment, care and support for people living with HIV and AIDS and mitigate the socio-economic impact of HIV and AIDS on individuals, families, communities and the nation.

Chapter 7 of the Policy observes that in workplaces unfair discrimination against people living with HIV and AIDS has been perpetuated through practices such as pre-employment HIV and AIDS testing, dismissal for being HIV and AIDS positive and the denial of employee benefits if known to be infected. HIV and AIDS affects every workplace. Absenteeism and death impact on productivity, employee benefits, production costs and workplace morale.

As a way of implementing the Malawi National HIV and AIDS policy, the project proponent will implement an HIV and AIDS workplace policy and prevention, treatment, care, support and impact mitigation programs as one way of effectively reducing and managing the impact of HIV and AIDS in the work place.

2.1.1.7 Guidelines for Environmental Impact Assessment (1997)

The Guidelines for Environmental and Social Impact Assessment (ESIA), 1997 outline the process for conducting ESIAs and facilitating compliance with the ESIA process as provided for in the

Environment Management Act, 1996. The guidelines provide a list of prescribed projects for which ESIA is mandatory. They act as a tool for integrating environmental concerns into development plans at all levels.

It is a requirement under section 29 of EMA that project proponents submit ESIA/ESMPs Reports to EAD for review and approval. The documents to be submitted to EAD for review and approval are as follows:

i. Project components screening forms and briefs.

ii. The ESMPs for the project sub components including the project screening forms for each component will be submitted to EAD for review and approval.

iii. The water distribution ESMP will also be reviewed by EAD prior to being finalized.

All these documents will be submitted to EAD after internal reviews by LWB PIU. Finally, this ESMF will also be reviewed by EAD prior to being finalized.

2.1.2 Legal Framework

The section provides a review of the key national legislation pertinent to the construction and operation of the proposed project. LWB intends to develop and operate the proposed project in line with all relevant national laws. Details of the legal frameworks considered are presented in the sections that follow.

2.1.2.1 The Constitution of Republic of Malawi, 1995

The Constitution of the Republic of Malawi (1995) is the supreme law of the land. All other pieces of legislation or Acts of government are valid to the extent of their consistency with the Constitution. Several judgments of the High Court and even the Supreme Court confirm this position. It will be necessary that the project complies with the Constitution and indeed any other relevant laws.

Under Section 13 of the Constitution as part of the state responsibility of promoting welfare and development of the people of Malawi, the State has the responsibility to ensure gender equality, responsible environmental management, enhance the quality of life in rural communities, among others. The Constitution uniquely provides for the right to development in Section 30, which not only confers the right but also places responsibility on the State to take all necessary measures for the realization of the right to development. To the extent that the proposed project is no doubt development project, it is welcome in this constitutional setting. It is nevertheless imperative to examine key legal rights accorded to potential PAPs under the project.

The Constitution further provides for the principle on which land acquisition can occur in Malawi. Section 28 (2) states that "No person shall be arbitrarily deprived of property" and section 44 (4) states that "Expropriation of property shall be permissible only when done for public utility and only when there has been adequate notification and appropriate compensation, provided that there shall always be a right to appeal to a court of law for redress. Since the proposed project will require land to be acquired, the principles of the Constitution shall be considered when implementing the project.

2.1.2.2 Environment Management Act, 1996

The Environment Management Act (EMA), 1996 is the overarching legal framework on environmental management in Malawi, and emanated from the Malawi National Environmental Policy (NEP). Both the EMA and the NEP provide for the protection and sound management of the environment, and conservation and sustainable utilization of natural resources. Chapter 27 of EMA provides the legal mandate to the Director of Environmental Affairs (DEA) to carry periodic monitoring of the Environmental management systems of any project to enforce Environmental Management Act. The

Act further requires that project proponents must take all reasonable measures to mitigate undesirable effects arising from implementation of a project which could not reasonably be foreseen at the construction phase. These measures are being undertaken to meet the prerequisite requirements when developing and operating the proposed rehabilitation, upgrading and expansion of the sewer systems, waste water treatment plant and the water network for different residential areas in the City of Lilongwe. LWB will be required to conduct an Environmental Assessment and to prepare an ESMP (it takes the form of an Environmental and Social Management Framework in this case) to be approved by the Environmental Affairs Department before the project begins. The process requires full compliance with the precepts as laid down in Environmental and Social Impact Assessment (ESIA) guidelines pertaining to ESMP. This ESMF has also been reviewed by World Bank to ensure compliance with World Bank safeguard policies.

2.1.2.3 The Lands Acquisition Act (1971)

The Lands Acquisition Act, 1971 provides for acquisition of land by the Minister responsible for land matters. This is the main Act that provides for land acquisition and compensation, to be administered by the Commissioner for Lands. Per Section 3 of this Act, the Minister responsible for land matters is given powers to acquire land either by compulsorily or by agreement, where he is of the opinion that the land is required for public interest. For purposes of the project, the relevant features of the law under this Act are that;

a) Under Section (3). the Minister responsible for land matters has power to acquire land compulsorily or by agreement and pay compensation for it whenever he thinks it is desirable or in the interest of Malawi to acquire the land;

b) In acquiring the land, as per Section (5), the Minister must serve notice on the persons in possession of the land or who have an interest in the land of his intention to acquire the land, and the notice must also be published in the government gazette, inviting persons claiming an interest in the land to submit to the Minister particulars of their claim within two months from the date of publication of the notice. In other words, the person in case is not aware of this requirement and does not submit an application, may not be compensated.

Fair compensation is assured under Section 9, where the Act provides for payment of fair compensation for any land acquired by the minister with the provision for payment of compensation either as a lump sum or in instalments. Section 10 says that assessment for fair compensation would take into account the following:

a) Amount of money the person paid when acquiring the land;

b) The value of improvements to the land; and

c) Appreciation in the value of the land since the date of acquisition.

However, per the Act, no compensation is to exceed current market value of the land. Under this project as in others, the issue of compensation could be tricky and a source of discontentment if not properly handled. As such, and since most PAPs do not have documentary proof of ownership, it will be important to conduct proper due diligence with the local customary authorities such as Family heads, Village Heads and Traditional authorities (chiefs) before paying out in order to establish that the recipient of the compensation is the rightful owner of the property for which compensation is being paid because there will be many wanting to take advantage of what others will see as easy free money by falsely claiming that they are the rightful owners or rightful heirs.

The Lands Acquisition Act says the assessment of compensation made by the Minister shall be final and not be subject to any appeal to, or to any review by any court. So, this means that if there is a

grievance or dispute concerning the compensation assessed, the person entitled to the compensation has no remedy. So, since this provision in the Lands Acquisition Act which purports to bar an aggrieved person from accessing justice and legal remedies through the Courts may be in conflict with the Constitution, the provision can arguably be invalidated to the extent of its inconsistency with the Constitution in case a given PAP is justifiably discontented with the compensation given. This therefore means that any grievance or dispute can be resolved by reference to a court or a tribunal by the aggrieved party.

There is no set time limit by which a person should be paid his or her compensation, but obviously it must be paid within a reasonable time. What is reasonable time will vary from case to case depending on the facts and circumstances. It is also obvious that where there is a dispute of ownership, compensation cannot be paid until that dispute is resolved to determine the rightful owner entitled to compensation. Paying out before the dispute is resolved could lead to more problems and even possibility of violence. However, in case of this project, it will have to be paid prior to commencement of civil works or in other words, civil works cannot commence till compensation amounts are paid.

2.1.2.4 The Land Act (1965) (Cap 57:01) and the Registered Land Act (Cap 58:01) Laws of Malawi

These Acts provide for registration of land and the types of tenure. Legal title such as leasehold or freehold is usually obtained by registration under the Registered Land Act. The Land Act under in Part (v) provides for acquisition of customary land in public interest. Section 27 (1) of the Act states that "whenever it appears to the Minister that any customary land is required for a public purpose, that is to say a purpose which is for the benefit, direct or indirect, of the community as a whole or part of the community, he may declare, by notice under his hand and published in the Gazette, that such land is public land, and thereupon such land shall become public: provided that this subsection shall not apply to any customary land required for use as a public road or for the widening or diversion thereof, but such land shall be acquired for such purpose under or in accordance with the Public Roads Act".

Section 20 of the Land Act states that "in the event that the lessee surrenders the lease, such lessee shall be entitled to compensation in respect of the improvements effected upon the premises and such compensation is determined by the Minister".

Thus, besides compensation for the loss or damage to the property, a disturbance allowance needs to be given as it is almost impossible to suffer loss or damage without feeling disturbed. However, if the customary land is required for temporary public purposes, then the Minister may authorize such use provided the period does not exceed 7 years. During this period the land shall remain customary land.

Impacts on customary land due to rehabilitation, upgrading and construction works of water transmission and distribution lines, sewer lines and expansion of waste water treatment plant are very likely to occur and hence cognizance would need to be taken in accurate recording of impacts on such parcels of land and their valuation.

2.1.2.5 Water Works Act (No. 17 of 1995)

This Act mandates the constitution of Water Boards, power and its duties for water supply and sewerage system in their areas. The various boards were established in Malawi and Lilongwe Water Board was established in 1947 and it was reconstituted as a parastatal organization by an Act of Parliament, Water Works Act No. 17 of 1995. The Board is mandated to supply potable water to the City of Lilongwe and the surrounding areas. Its clients include domestic, institutional, industrial as well as commercial customers. Hence the present project is within the mandate of the Board.

The Act also empowers water boards to make by-laws for regulation of water use and prevention of pollution. The proposed project intends to develop the water distribution network within the city of

Lilongwe and the surrounding areas, which in a way supports the provisions of the Act. The project will take due consideration of the protection of the environment, the reservoirs the water will be abstracted from, and Lilongwe Water Board Treatment Works against siltation pollution and damage.

2.1.2.6 Water Resources Act (2013)

The Act governs water rights, water abstraction, pollution control, building of dams and water resource planning and development. The Act further prohibits any person to divert, dam, store, abstract or use public water for any other purpose except in accordance with the provisions of this Act. Part VIII, Section 89 (1) of the Act makes it an offence for any person to interfere with, alter the flow of or pollute or foul any public water. The Act defines pollution or fouling of public water to mean the discharge into or near public water or in a place where public water is likely to flow, of any matter or substance likely to cause injury whether directly to public health, livestock, animal life, fish, crops orchards or gardens which such water is used or which occasions, or which is likely to occasion, a nuisance.

2.1.2.7 Occupational Safety, Health and Welfare Act (1997)

Section 66 of the Occupational Safety, Health and Welfare Act (1997) defines the procedure to be followed in case of the occurrence of an accident which either causes loss of life or disables a person from carrying out the normal duties at which he is employed. Furthermore, it stipulates measures that relate to work in confined spaces (section 55), measures taken to prevent and deal with fire (section 56), matters relating to bulk storage of dangerous materials, matters dealing with noise (section 63) and general matters relating to health and safety.

This Environmental and Social Management Plan examined all aspects of occupational health, safety and welfare of all the persons involved in management of the project to determine compliance of the outlined sections of the law. In this effect, the proponent is willing to let the Ministry of Labour to assess the facility and make determinations of the adequacy of the mitigation measures towards occupational safety of the workers.

2.1.2.8 Town and Country Planning Act, 1988

The Town and Country Planning Act (cap 23.01), is a principal act for regulating land use planning and physical developments in Malawi. The aim of regulating land uses is to enhance orderly spatial physical growth of human settlements activities. In addition, the law promotes orderly physical planning in order to enhance optimum use of land and service infrastructures, regulate traffic flow protect and conserve fragile environmental systems in space. These objectives are achieved by guiding physical developments and structures within planning areas. The control of developments is regulated under various sections in part V of the Town and Country Planning Act. Section 40 basically prescribes environmental and socio-economic screening for large scale projects such as industrial developments before it can be granted planning permissions under this act. Normally this screening is undertaken by local assemblies and LWB of proposed large projects before they can be sanctioned under this act.

2.1.2.9 Administrative Framework

The Environment Management Act and the EIA Guidelines provide for the administrative framework of the EIA process. The EIA process is managed by the Director of Environmental Affairs. The Director of Environmental Affairs works with other line Ministries/agencies and stakeholders. Under section 26 of the Environment Management Act, a prescribed project cannot receive the required authorization to proceed from the relevant licensing authority unless the Director has issued a certificate that an EIA is not required or that he has approved the project on the basis of an EIA report.

The Director is empowered under the Act to require changes to a project in order to reduce environmental impact and to reject a project, if, in his view, the project will cause significant and

irreparable injury to the environment. A person not satisfied with the decision of the Director may appeal to the Environmental Appeals Tribunal.

The Director relies upon the advice of the Technical Committee on the Environment established under section 16 of the Environment Management Act in order to make his determination. Through this committee, member agencies are informed about projects being appraised; participate in reviews of project briefs, EIA ToRs and EIA reports; develop project approval terms and conditions; develop and monitor project auditing conditions; and recommends courses of action to the Director. The Director is not bound by the advice of the Committee to arrive at any action that may be considered necessary.

Institutional responsibilities for the co-ordination, planning, administration, management and control of development and environmental issues are fragmented among several agencies, ministries and organizations. The major institutions to be involved in this project shall include:

a) Environmental Affairs Department;
b) Lilongwe Water Board;
c) Lilongwe City Council
d) Ministry of Lands, Housing and Urban Development;
e) Ministry of Agriculture, Irrigation and Water Development;
f) Ministry of Labour and Vocational Training;
g) Ministry of Local Government and District Administration;
h) Department of Physical Planning.

During the preparation of this ESMF, these major institutions and/or their documents were consulted for their technical advice, expert knowledge and concerns or future programs as related to the project. This ESMF is subject to review and approval by Environmental Affairs Department (EAD).

2.2 International Guidelines and Procedures

The existing national policies, laws and regulations regarding land acquisition and compensation are consistent with the provisions of different regional and international instruments such as the Equator Principles, and the World Bank Policy on Involuntary Resettlement. LWB will therefore comply with the different national, regional and international instruments when implementing different activities of the proposed project. Furthermore, Malawi is a signatory to various international treaties, agreements and conventions, which aim at conserving the environment and different natural resources. This chapter therefore outlines the policies, legislative and administrative framework relevant to guide implementation of activities of the proposed project. Some of the important instruments that are relevant to the project include:

2.2.1 The World Bank Safeguard Policies and Guidelines

2.2.1.1 The World Bank Safeguard System

The proposed Project is being developed with support from the World Bank. Therefore, this ESMF was developed in accordance with the policies and safeguard procedures of the World Bank. During the preparation of this report, the following World Bank Operational Policy/Bank Procedure (OP/BP) were examined:

a) Environmental Assessment OP/BP 4.01;
b) Natural Habitats OP/BP 4.04;
c) Forests OP/BP 4.36;

d) Pest Management OP 4.09
e) Physical Cultural Resources OP/BP 4.11;
f) Indigenous Peoples OP/BP 4.10;
g) Involuntary Resettlement OP/BP 4.12;
h) Safety of Dams OP/BP 4.37;
i) Projects on International Waterways OP/BP 7.50; and
j) Projects in Disputed Areas OP/BP 7.60

The project triggers World Bank Safeguards Policies on Environmental Assessment OP/BP 4.01; Natural Habitats OP/BP 4.04; Physical Cultural Resources OP/BP4.11; Involuntary Resettlement OP/BP 4.12, and Safety of Dams OP/BP 4.37.

Environmental Assessment OP/BP 4.01 applies because the works for the project will have environmental and social implications. Therefore, an environmental assessment must be conducted to determine the scope of such impacts and an Environmental and Social Management Framework (ESMF) developed to avoid, manage and mitigate those impacts. An ESMF was developed since specific locations for works are not yet known.

Natural Habitats OP/BP 4.04 applies because trenching activities associated with rehabilitation/expansion of the water distribution, sewer networks and expansion of the wastewater treatment plant may have impacts on natural habitats such as wetlands and rivers during the construction phase and operational phases. Sanitation interventions in particular (rehabilitation/expansion of sewerage network, rehabilitation and expansion of sewage treatment plant, construction of public/household onsite sanitation systems) may result in impacts to water quality in receiving waters.

Physical Cultural Resources OP/BP 4.11 applies because project activities may have impacts on physical cultural resources. Although, the project area is already impacted by the laying of existing water and sewer pipelines, road network and residential areas, chance finds are still possible. This project ESMF incorporates chance-find procedures for construction contracts (Annex 4.). The ESMF also provides for an assessment of the impacts on physical cultural resources for sub-projects as an integral part of the environmental assessment process.

Involuntary Resettlement OP/BP 4.12 is triggered because some of the project activities will disturb settlements, requiring land acquisition leading to temporary or permanent resettlement, and is likely to disrupt livelihood activities. However, no major resettlement is expected in the project. This is because the sewers and water supply pipelines will be aligned along the road reserves except where the pipelines cross the roads or pass through built up areas like market places and other residential areas, which will cause temporary disturbances especially during the construction phase. The disturbances will result in loss of land and property; damage to road pavement; damage to concrete driveway; damage to different building structures; obstruction to passage on the roads; disruption of public service utilities; and temporary loss of business activities. For priority water distribution network investments, it is estimated that approximately 363 households/businesses will be impacted, and LWB has prepared a Resettlement Action Plan (RAP) to mitigate these impacts. For sanitation activities and other water distribution network investments not yet identified, the exact impact is unknown at this stage, but is likely to be in the same order of magnitude.

Safety of Dams OP/BP 4.37 is triggered because the project relies on the performance of existing dams (KD1 and KD2) during periods of low flows in Lilongwe River. LWB engaged dam specialists to inspect and evaluate the safety status and performance history of the KD1 and KD2 in 2013 and 2015, respectively. The assessments recommended several remedial works to upgrade the dams, which were.

reviewed and endorsed by an independent panel of dam experts. The remedial works for KD1 constitute part of the scope of the EIB-funded subproject for rehabilitation and raising of the dam, which are currently under procurement. The Project will finance the development of dam safety plans for both dams and priority remedial actions for KD2. LWB will also engage the Panel of Experts for continuous technical oversight and guidance during the rehabilitation of KD1.

The World Bank classifies projects per level of risk and potential social and environmental impacts. These categories are:

a) **Category A** – Projects with potential significant adverse social or environmental impacts which are diverse, irreversible or unprecedented;

b) **Category B** – Projects with potential limited adverse social or environmental impacts that are few, generally site-specific, largely reversible and readily addressed through mitigation measures; and

c) **Category C** – Projects with minimal or no social or environmental impacts.

Lilongwe Water Board in consultation with the Lilongwe City Council prepared this ESMF and the Resettlement Policy Framework (RPF) for the project to satisfy Malawi Environmental Laws and World Bank safeguards policies. No major negative environmental and social impacts are envisaged since the project will invest in activities that support rehabilitation and improvements of infrastructure and service delivery and provide an improvement and systematic operational and maintenance systems. This project is therefore categorized as a "B" project in accordance with the World Bank Operational Policy 4.01 Environmental Assessment (January 1998) and requires the preparation and implementation of this ESMF.

The World Bank Group Environmental, Health and Safety (EHS) General and Water and Sanitation (WS) Guidelines (December 2007) also apply to the Project. The EHS Guidelines are technical reference documents with general and industry specific (in this case, Water and Sanitation) examples of Good International Industry Practice. The WS EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to the sector. The guidelines can be found at: www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The General EHS guidelines will be sufficient guidance for general (i.e. non WS specific) construction works such as building construction and rehabilitation.

2.2.2 Gaps between World Bank Policies and the National Legislation

Both the Malawi Government's environmental assessment requirements (detailed in the 1997 *Guidelines for Environmental Impact Assessment*) and the World Bank's Environmental Assessment Policy (OP 4.01) have provisions for conducting environmental impact assessment studies for projects that are likely to cause adverse environmental impacts. For the case of Malawi legislation, there is no provision for environmental and social screening of projects whose activities and locations are not known, while the World Bank policy provides for environmental and social screening of each proposed project (and its subprojects) to determine the extent and type of environmental (and social) assessment. The World Bank further classifies proposed projects into one of four categories (A, B, C, and FI), depending on the type, location, sensitivity, and scale of the project, and the nature and magnitude of its potential environmental and social impacts. This ESMF has been prepared so as to bridge the relevant

differences between the Malawi EIA Guidelines and the World Bank OP 4.01, such that the ESMF satisfies the environmental assessment review requirements of both the Government and the Bank.

2.3 Required Licenses

Table 2.1 provides a list of statutory requirements that will be obtained prior to project commencement.

Table 2.1 Licenses Required

List of statutory approvals or licences to be obtained	**Regulatory framework.**	**Responsible Department**	**Responsible officer**
1. Environmental impact assessment certificate. To guide the synchronization of environmental management practices.	Environment Management Act (Cap 60:02)	Environmental Affairs Department	Director of Environmental Affairs
2. Work Place Registration Certificate. To guide on procedures on workers' environmental health, safety during project implementation and operations.	Occupational Health, Safety and Welfare Act (Cap 55:01)	Ministry of Labour and Vocational Training	Director of Occupational Health, Safety and Welfare.

3 BIO-PHYSICAL ENVIRONMENT AND SOCIO-ECONOMIC BASELINE

3.1 Description of Existing Environment

This Chapter presents the descriptions of the biophysical and socio-economic environment of Lilongwe City. The physical and biological factors considered included climate, topography and geology, soils, hydrology, flora and fauna and socio-economic factors among others.

3.2 Biophysical Characteristics

3.2.1 Topography and Geology

The topography of Lilongwe is largely flat with an elevation ranging from 1,000 to 1,200 meters above sea level. The northern part of the city is undulating with several small streams flowing eastwards. In the past, these drainage lines were retained as open spaces, however with pressure for land in the more affluent north they have been developed. This has an impact on the flood levels and groundwater. Lilongwe and Lingadzi are the two main rivers flowing through the City.

The geology of the project area is dominated by crystalline precambrian to Lower Palaeozoic rocks that have been affected by the polycyclic Mozambique orogeny (Carter and Bennett, 1973) and generally referred to as the Basement Complex (Carter and Bennet, 1973). Pelitic to semi-pelitic rocks including banded hornblende-biotite gneisses with intercalations of marbles, calc-silicate gneisses, quartzites and mica schists cover much of the country.

3.2.2 Soil

The type of soils for Lilongwe is ferruginous mixed with lithosols including the project zone of influence. These soils are less exposed to the risk of erosion due to their deep sub layer which encourages infiltration of runoff. Erosion surfaces are not commonly seen in project area despite a considerable loss of land cover over the past few years due to agricultural activities.

3.2.3 Climate

Like the rest of the country, the city is characterized by two distinctive seasons. The dry and cool season is from April to October while from November to March it is hot and wet. Average maximum temperatures range from 23.4 degrees Celsius in July to 32 degrees Celsius in October. In October and November, temperatures above 30 degrees Celsius are not uncommon. The lowest temperatures are experienced in July with the monthly average minimum temperatures ranging from 9.5 to 18.9 degrees Celsius. Figure 3.1 gives temperature data for Chitedze Research Station, which represents the temperature details of Lilongwe.

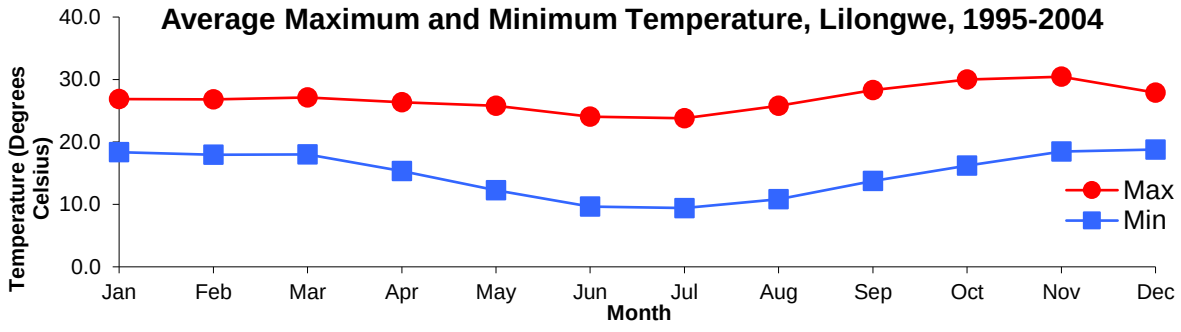

Figure 3.1 - Temperature data for Chitedze Research Station and the City of Lilongwe (*Source: Chitedze Research Station, February, 2012.*)

Table 3.1 presents annual average rainfall, which ranges from 808mm to 1, 080mm while Table 3.2 presents average monthly rainfall. January is the wettest month with an average of 239 mm of rain for the period 2004 to 2010. The months of February and December also experience a lot of rains with an average of 200mm and 194mm over the period 2004 – 2010. February, 2010 recorded the highest rainfall of 322.4mm. May to October is the driest period of the year with virtually no rain at all recorded over the seven-year period of 2004 – 2010.

Table 3.1 Annual rainfall data in mm (Chitedze, Lilongwe)

Year	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	Ave
Total	478	1,023	768	1,156	1,285	668	987	787	1,038	776	**897**
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
Total	613	826	986	863	808	938	730	851	722	578	**791**

Table 3.2 Average monthly rainfall in mm (Chitedze, Lilongwe)

Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1995 / 2004	249	209	151	38	2	1	0	0	1	11	61	179
2005 / 2013	239	200	123	31	1	0	0	0	0.2	5.5	82	194

The recent trends in rainfall have been generally a reduction in the total amount with the average for the last 10 years 100mm less than the previous 10 years. The rainy seasons are also characterized by dry spells of 2 – 4 weeks in late January and February. In discussions with the brick makers on site they said that there was very little water in the stream during the rainy season last year (2014 – '15) which is explained by the figure of 578mm, 214mm less than normal / average.

3.2.4 Flora and fauna

Lilongwe City has a Herbarium and Botanic Gardens covering 75ha and has naturally growing indigenous trees. The trees are preserved and researched, while exotic trees covering a small part of the area are propagated and planted for research. Other forms of biodiversity are also preserved such as animals, birds, shrubs and flowers. The Botanic Gardens has a large natural woodland with a wide variety of natural tree species that add beauty to the area. The natural trees are also playing a very important role in conserving the water resources, providing habitat to some animals and birds and prevent soil erosion

Lilongwe City has a sanctuary, the Lilongwe Nature Sanctuary, which covers an area of over 137 hectares. It is home to a wealth of biodiversity and is important for the conservation of different fauna and flora. The Sanctuary is managed by the Ministry of Tourism and Wildlife. The Sanctuary houses a Wildlife Centre, which serves as an education and a wild animal rehabilitation centre. Some of the fauna in the sanctuary include Common Duiker, Bush Buck, Porcupine, Velvet Monkey, Bush Pig, Pangolin, Hedgehog, Bats, Rodents, Nile crocodile, African Python, Tortoise, Monitor Lizard and many birds.

Lilongwe City has also some wetlands commonly known as Dambos. Some of these are being cultivated for growing of horticultural plants which becomes a threat to some biodiversity in the sense that the areas act as habitat to small animals, birds and insects. The cultivation also encourages soil erosion during rainy season and reduces water table during the dry season. However, some of the

areas that have not been cultivated are rich in biodiversity like small animals, rodents, reptiles, birds, frogs, and dragonflies.

The proposed development of the LWSP is planned to pass along the road reserve which generally has little or no vegetation at all. In some places trees and people's assets will be affected and details of the affected assets and the exact proposed routes and sites of implementation will be known during detailed designs and development of ESMPs/RAPs studies.

The LWSP will promote use of soil stabilized blocks or cement bricks instead of burnt bricks which are environmentally friendly. Therefore, project activities will not harm protected areas such as Dzalanyama Forest indirectly by not purchasing burnt bricks which are produced from cutting down trees. This will be part of the contract agreement with all the contractors that will be involved in this project.

3.2.5 Hydrology

The City of Lilongwe has several rivers and streams that provide water for various uses but the most notable ones are Lilongwe, Lingadzi, Nankhaka and Chankhandwe. The Lilongwe River is the biggest and longest of all and is the main source of water utilized by the Lilongwe Water Board, supplying water to almost 80 percent of the City residents. It runs form the west to the east of the City and is a tributary to Linthipe River that empties its water into Lake Malawi. A few fish species and crocodiles are also found in this river. Some residents fish in the river.

Kauma Wastewater Treatment plant discharges its effluent into the Lilongwe River. The quality of the effluent is monitored by the Ministry of Agriculture, Irrigation and Water Development. According to information from Lilongwe City Council and the Ministry of Agriculture Irrigation and Water Development, the effluent from Kauma Sewerage Plant currently does not meet the required standards. The improvements to the plant from this project are intended to improve the water quality discharged from Kauma.

3.3 Socio-Economic Profile

3.3.1 Population and settlement

Lilongwe is the fastest growing urban area in the country. It has an area of approximately 728,000 Ha. According to the UN-Habitat Lilongwe Urban Profile 2015, Lilongwe has a population of 1,077,116. The City had a population of only 19,425 in 1966 which means that it has grown over 55 times in the last 50 years. The population growth has had a corresponding increase in the population density, from 43 persons per square kilometre in 1966 to 1,479 persons per square kilometre in 2015, which has exerted so much pressure on the requirements for water distribution network to service the residents in the city and surrounding areas. Table 3.3 gives details of the Lilongwe City Population, Growth Rate and Density (1966-2015).

Table 3.3 Population and density figures for Lilongwe, 1966 – 2015

Year	Population	Growth Rate (%)	Density	Area sq. km
1966	19,425		49	
1977	98,251	15.9	251	390
1987	223,318	8.5	568	390
1998	440,471	6.4	1,121	390
2008	674,448	4.3	1,702	396
2015	1,077,116	8.5	1,479	728

Source: Draft Lilongwe Urban Structure Plan, 2010 and UN-Habitat Lilongwe Urban Profile

Malawi's population was estimated at 13.1 million in 2008 with population prospects of 14.9 million in 2010. As of 1 January 2016, the population of Malawi was estimated to be 17 473 734 people. This is an increase of 3.06 % (518 491 people) compared to population of 16 955 243 the year before. The major source of demographic data in the project impact area was obtained from Lilongwe central, north and southern zones. Table 3.4 shows that among the urban zones, where the project will be implemented.

Table 3.4 Lilongwe City Population and Density by Urban Zone

Urban Zone	Areas	Pop.	Area (ha)	Den
Alimaunde Northern Zone)	52&55	18,876	7,919	2.4
Lumbadzi (Northern Zone)	53&54	23,942	3,265	7.3
Mvunguti (Northern Zone)	25,26&27	71,698	4,121	17.4
Kanengo (Northern Zone)	28,29,39,50&51	45,957		
Maliya (Northern Zone)	49&56	62,187	1,693	36.7
Chimutu (Central Zone)	3,6,9,18,47,15&48	30,801	2,665	11.6
Nyama (central Zone)	10, 12, 30&43	10,175	2,326	4.4
Tsabango (Southern Zone)	35,41&44	33,729	4,324	7.8
City Centre (Central Zone)	11,13,14,16,17,19,20,31,32,33,34,40,42	5,109	1.612	3.2
Old Town Southern Zone)	1,2,3,4,5,7,8,21&37	124,431	1,644	75.7
Chinsapo (Central Zone)	45,46,57&58	88,453	5,055	17.5
Ngwenya (Southern Zone)	22,23,24,36&38	154,971	3,051	50.8

Source: Draft Lilongwe Urban Structure Plan, 2010

3.3.2 Land Ownership and Administration

Land in the city is managed by six major landlords, namely: The Commissioner for Lands, Malawi Housing Corporation, Lilongwe City Council, Airport Development Limited (ADL), Press Properties, and private individuals and companies.

The Commissioner for Lands is responsible for public land which has been subdivided and offered for development under leasehold titles that are usually for 99 years or shorter terms. The Malawi Housing Corporation owns public freehold land for purpose of subdivisions in residential and commercial development in the city. The Lilongwe City Council has assumed the administration of Traditional Housing Areas (THAs) in the City. Airport Development Limited is a statutory corporation responsible for airport development activities and land administration particularly in Areas 53, 54 and 55. Press Properties have been responsible for demarcation, servicing and allocation of plots in Area 9 (part), such plots are sold to prospective buyers.

3.3.3 Land Tenure

The title to land in Malawi is recognized by the Land Act and consists of three tenure categories: customary, private and public. Customary land is held, occupied or used under customary laws and is administered by traditional leadership. This is the most predominant tenure category and constitutes about 65% of all the land in Malawi. Public land is the land which is occupied, used or acquired by government, and any land which reverts to the government on termination, surrender or falling-in of freeholds or leaseholds. This category constitutes approximately 21% of the land in Malawi. The third

land category is the private land which is owned, held or occupied under a freehold title, or a leasehold title, or a certificate of claim or which is registered as private land under the Land Act. It constitutes about 14% of the land in Malawi. Freehold land is a superior form of land tenure under English Law from which leaseholds are created. Leasehold interests are determined by a given number of years. Freehold and leasehold land can be created from customary or public land.

3.3.4 Land Use

Table 3.5 is a summary of the land use structure of the Lilongwe City as contained in the Lilongwe Outline Zoning Scheme of 1986 and details of the same are shown in Figure 3.2. This scheme has not been implemented as envisaged by the Lilongwe Outline Zoning Scheme. Reasons cited for the failure include: time consuming planning application process, inadequate implementation capability of the Lilongwe City Council and LCC's insufficient capability to control development

Table 3.5 Land Allocation - Outline Zoning Scheme in 1986

Land Use			**Area (ha)**	**Percent**	**Land Use**	**Area (ha)**	**Percent**
Housing	**Permanent**	**Low Density**	2,005	5.9	**Institutional**	2,300	6.8
		Medium Density	1,855	5.5	**Agriculture/ Forestry**	7,990	23.5
		High Density	1,135		**Open Space**	1,060	3.1
	Traditional	**High Density**	6,740,		**State House**	560	1.6
	Total		11,735		**Government Offices**	155	0.5
Commercial			295	0.9	**Airport**	1,340	3.9
Industry			2,050	6.0	**Undetermined**	6,545	19.2

Source: Lilongwe Outline Zoning Scheme (OPC, 1986)

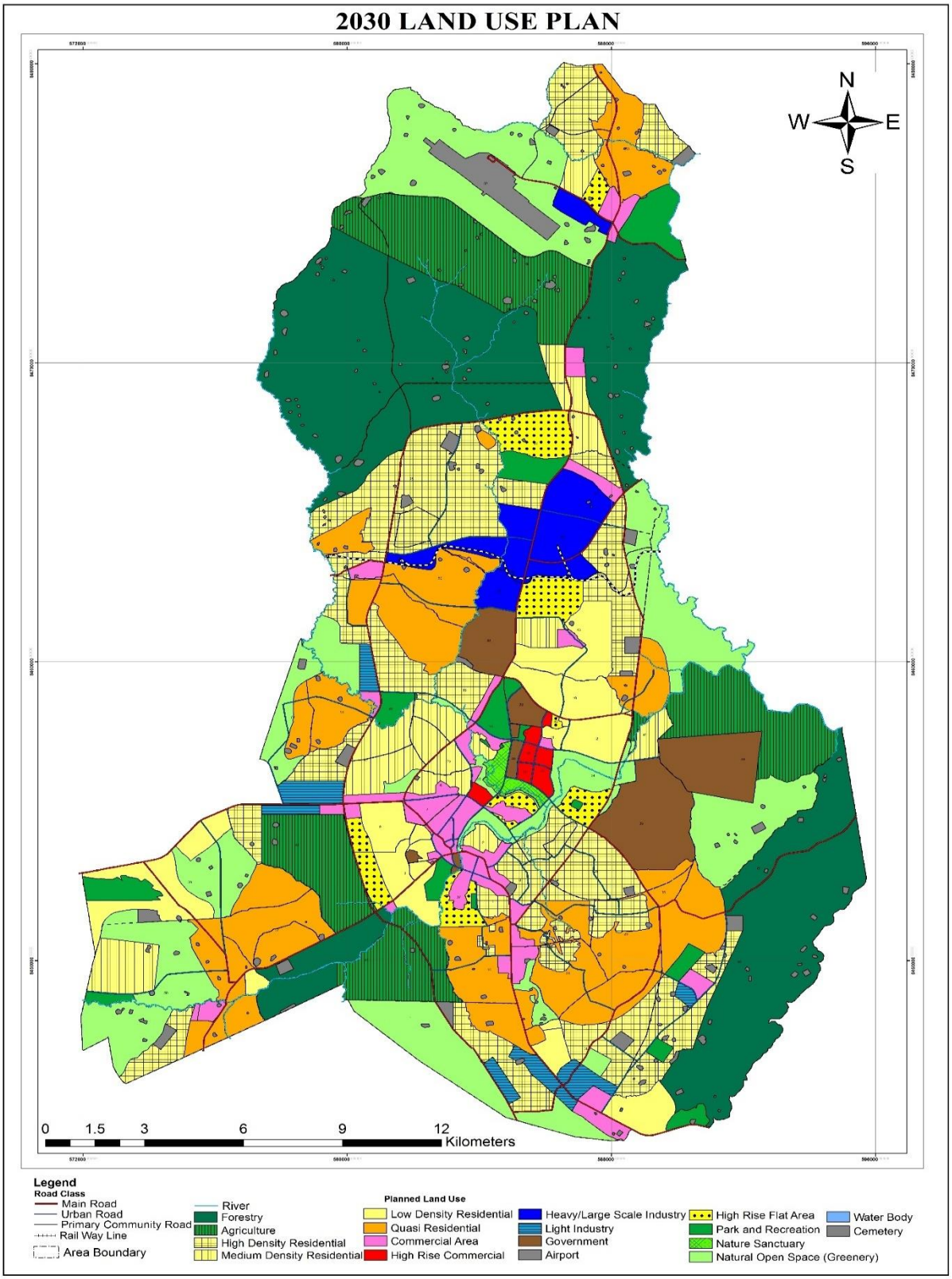

Figure 3.2 - Land use structure of the Lilongwe City

3.3.5 Poverty Rate, Household Income and Expenditure

The population of Lilongwe has grown as villagers, including young orphaned children, from the surrounding rural areas have relocated to the capital in search of jobs and the unattainable quality of life enjoyed by government officials, NGO and other international workers, and expatriates. Despite the highly visible class differences, most of the city's residents go about their lives in relative harmony.

Up to 24.6 percent of the City's population is classified as ultra-poor, living on less than a dollar per day. The ultra-poor cannot even afford potable water of their own connection as they cannot have excess income to pay for water bills. Expansion of the water distribution networks will assist the ultra-poor to access potable water through water kiosks, as they can afford at least to pay for a bucket or two of water per day. The poor category comprising of those with annual earnings of less than MK16, 165.00 makes 8.8 percent of the total population. At the national level 22.4 percent and 52.4 percent are categorized as ultra-poor and poor respectively.

According to findings of Integrated Housing Survey of 2004-2005, the major source of income of the city population is salaries/wages and enterprises come a close second. The same survey indicated that close to 50 percent of the total income is used to purchase food stuff while 24.2 percent of the monthly income is used to cover housing, utilities and furnishings and 18.2 percent is for expenses related to transport, communication and recreation.

These findings have an implication on the issue of affordability as the majority of the city residents are low income earners and spend a large proportion of their earnings on food and housing. Hence

3.3.6 Employment

According to 2008 Census, the number of economically active persons was at 260,000. Out of these, 100,000 persons were working in the formal sector. The tertiary sector is the largest accounting for 78 percent of the jobs in the formal sector, primary sector accounts for 13 percent while the remaining 9 percent of the formal employment is in the secondary sector.

3.3.7 Gender analysis and mainstreaming

Sections 20 and 41 of the Constitution of Malawi uphold the principle of equal rights for men and women and prohibit any discrimination based on gender or marital status. The Republic of Malawi ratified the Convention on the Elimination of All Forms of Discrimination against Women in 1987. Malawi signed the Optional Protocol in 2000, but has yet to proceed with ratification. It ratified the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa in 2005. Malawi has achieved gender parity with respect to primary school enrolments, which indicates an improvement in attitudes towards girls' education.

The City treats gender and HIV/AIDS as crosscutting issues in all program being implemented with the Department of Health taking the lead in the implementation of Gender and HIV/AIDS initiatives. HIV/AIDS rates stood at about 15 percent in 2007 down from about 25 percent in 1996. Other institutions that have contributed to efforts to tackle HIV/AIDS include the National AIDS Commission (NAC) and local development and humanitarian organizations.

3.3.8 Education and Literacy

Literacy is defined as the ability to read and write. Specifically, this analysis classifies all those who can read and write in Chichewa or English or any other language as being literate. Among males, almost 76 percent is literate while half of females are literate.

Education services are provided by the government. By the year 2020, Lilongwe Urban Education district will provide quality and relevant education to its learners to enable them acquire relevant knowledge, skills, expertise and competencies to perform effectively as citizens of Malawi.

Lilongwe City has 55 full public government primary schools, 48 registered private primary schools and 51 unregistered private primary schools. There is a total of 1,100 classrooms in the 55 public schools. The district has a total of 2,144 teachers of which 1,920 are female and 224 are male and there are 70, 999 boys and 75,214 girls making an enrolment of 146, 213 which translate into pupil: teacher ratio of 68:1.

There are 29 public secondary schools. Out of these, 24 are Community Day Secondary Schools (CDSSs). Out of the five conventional secondary schools, one is a girls' national boarding secondary school, three are double shift day secondary schools and the remaining is a day secondary school. There are 10 registered and more non-registered private secondary schools.

3.3.9 Health and Sanitation (including HIV and AIDS Prevalence Rate)

Some of the major hospitals operating in Lilongwe are Kamuzu Central (area 33), Bwaila/Bottom (area 1), Likuni Mission (Area 57), and Daye Yong Hospital (area 27). There are 33 public and private health centres and clinics run by the government, Lilongwe City Council, private sector, and churches.

Lilongwe has the full range of diseases including cholera, typhoid, tuberculosis (TB), measles, infectious hepatitis, malaria, and HIV/AIDS. Malaria is the leading cause of morbidity and mortality in the City, especially among children under five years old. Malaria accounts for 40 percent of all outpatient visits to health facilities. Pneumonia and diarrhea are the other leading causes of death in children under five years old. Despite the continuing presence of these diseases, overall, Malawi's health conditions appear to be improving. The impact areas are mainly affected by malaria, pneumonia, diarrhea, common injuries, chicken pox outbreaks and HIV/AIDS. Malaria is still the biggest health challenge with over 206,830 cases reported in the city. Most of the malaria cases were reported in the low-income areas and the informal settlements.

Lilongwe has a lot of people from different areas with diverse interests and health concerns. Most of these people go to the city with different types of diseases, others are referred from Lilongwe rural health centres to Lilongwe urban main hospitals such as Kamuzu Central Hospital and Bwaila Clinic. Most people are not satisfied with the quality of healthcare. They indicated there are problems with medical supplies (inconsistent supplies; drugs are often not available). The ratio of doctor to patient is also big, for example, Area 18 health centre sees more than 100 people a day and yet the health facility only has 2 medical officers. Another related issue with these facilities is the long queuing times due to the large volume of patients per facility.

3.3.10 Socio-Economic Activities

While the nation of Malawi is primarily a rural culture with most of the population living in rural areas, recent famines and high levels of unemployment have created higher levels of migration to the cities. According to 2008 Census, the number of economically active persons was at 260,000. Out of these, 100,000 persons were working in the formal sector. The tertiary sector is the largest accounting for 78 percent of the jobs in the formal sector, primary sector accounts for 13 percent while the remaining 9 percent of the formal employment is in the secondary sector. About 76 percent of Lilongwe's population live in informal settlements while poverty stands at 25 percent and unemployment is at 16 percent. The civil service employs about 27 percent of all formal workers

while 40 percent work in the private sector and 2 percent are self-employed. Those that are working earn little money and are usually below the poverty line.

3.3.11 Water Supply

LWB supplies water in the city from Lilongwe River, downstream Kamuzu dams (KD1 and KD2). Recent water demand assessments suggest that LWB needs to augment its production capacity in the medium to long term, even under the most conservative scenarios. Current peak water demand is estimated at 130,000 m3/day, and this is projected to increase to 170,000 m3/day by 2025 and 220,000 m3/day by 2035 (see Figure 3.3below). At present, there are two existing water treatment works (TW1 and TW2) with a combined design production capacity of 125,000 m3/day. However, on average, the plants are operating at 70 percent capacity producing an average of about 90,000 m3/day – of which about 32,400 m3/day (36%) is unaccounted for. The low production efficiency is due to a combination of factors: low yields from the Kamuzu dam system during the dry season; poor raw water quality; inefficiencies in the existing treatment processes; and limitation in the hydraulic capacity of the distribution network.

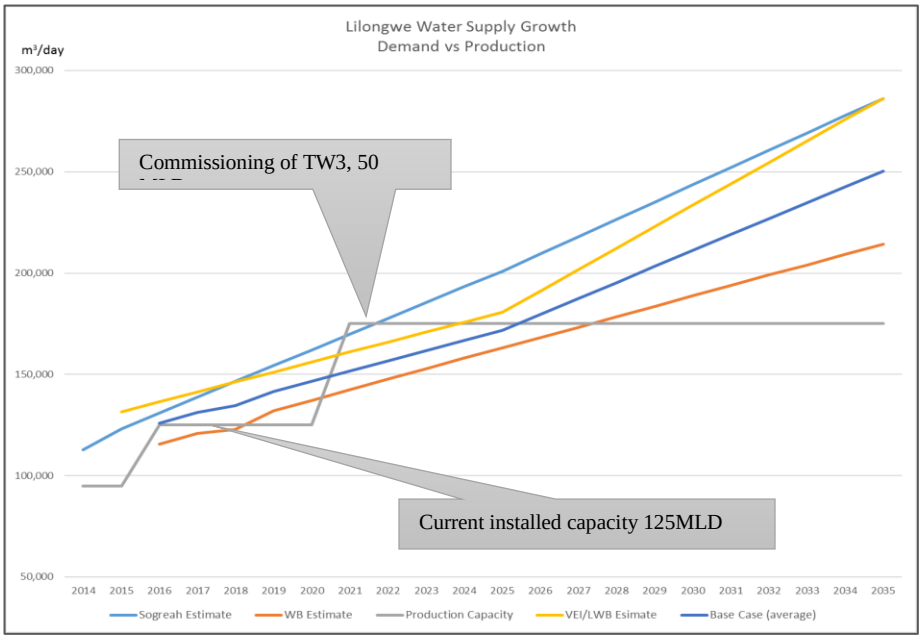

Figure 3.3: Recent Water Demand Projection Vs Production

LWB plans to raise the height of Kamuzu Dam 1 (KD1)[3] by 7m to increase abstraction capacity, which would enable full utilization of the installed production capacity and allow for an additional 50,000 m^3/day expansion in water production capacity (TW3), reaching a total production capacity of 175,000 m^3/day – enough to meet projected 2025 demand. Beyond 2025 however, the city will need a new water source. Extensive hydrological, technical, financial, economic, social, and environmental studies recommended a new multipurpose dam on Diamphwe River (35km southeast of Lilongwe) as the most feasible water source among the alternatives considered. At the same time, LWB is considering pumping water from Lake Malawi (120km away) as an alternative to Diamphwe

[3] KD1 raising is financed by EIB and it is at works procurement stage. ESIA and RAP were completed for the KD1 raising.

dam, although the feasibility of this option is yet to be established. Irrespective of where the water comes from, LWB will need to invest beforehand in the distribution network to improve its hydraulic capacity, reduce losses, and expand the reach of the network to serve more customers.

3.3.12 Sanitation and Liquid Waste Management

LCC is responsible for providing sewerage and sanitation services in the City. The City derives its authority to do so from the Public Health Act (34:01) of 1948.

Houses in the traditional housing areas largely depend on pit latrines for disposal of human waste. In those houses, household wastewater is discharged untreated and seeps underground. Human waste also seeps underground from pit latrines affecting the quality of underground water.

In Lilongwe, only 5% of the population served by a sewer system, while the majority relies on onsite sanitation systems (69% pit latrines, 25 percent septic tanks and 1% open defecation). When full, septic tanks are emptied primarily by unregulated private operators and the contents transported to disposal ponds. The ordinary or conventional dug-out pit latrine, with or without a superstructure of either logs or a concrete slab over the pit, is the dominant fecal-disposal measure. A standard pit latrine may be 3m deep and is designed to last up to 10 years.

For permanent residential units, septic tanks are required and designs need to be approved by the planning authority. There is no regulation on septic tank de-sludging and people remove sewage at their own convenience. Existing sewers and sewage treatment plants are dilapidated due to lack of maintenance, resulting in environmental pollution, as most of the sewage ends up in the environment without treatment. Recent cases of contamination of the city's drinking water by a leaking sewer pipe have created a sense of urgency to fix the city's ailing sewerage system.

Open defecation is common in the outskirts of Lilongwe and are practiced by approximately 1% of the population. This results in pollution of water bodies and spread of waterborne diseases as the feces are eroded into water bodies when it rains. As such support is necessary to eliminate open defecation. Average income for a household practicing open defecation is U$ 0.8/per capita. Most of the sewage is discharged into the environment posing a threat to the public and the waste water treatment plants are not fenced as such the public have access to the facilities.

The Draft Lilongwe Urban Structure Plan estimated that the total sewerage generation is around 6,000 m^3/d which is less than the current treatment plant capacity. There are seven treatment plants in the City namely: Kauma, Kanengo Industrial Treatment Plant, KIA Treatment Plant, Kamuzu Barracks, Cold Storage Sewage Treatment Plant, Lumbadzi Sewage Treatment Plant and NRC Sewage Treatment Plant. Only 9% of the city is attached to the sewage system.

3.3.13 Solid Waste Management and Sanitation

LCC oversees waste management in the city. The Cleansing Services within the LCC is responsible for waste collection and disposal. Waste management is largely focused towards planned areas. The informal urban areas, which include over 60 percent of the urban population, have little access to waste management services provided by the LCC, mostly serving the markets.

According to a baseline study on Waste management GHG emissions by F. Munthali, the generation of solid waste per capita of Lilongwe City is 0.5Kg, this is also in agreement with the Waste Management World Bank Report, 2012. According to the annual report (2007-08), annual collection is 31,431.78 tons translating to an average daily collection of 86 tons per day. Thus, the current collection is less than 30 percent of daily generation. Collection from medium and high income areas is regular, while in low income areas households dispose the waste either in waste pits within their plot or in skips located in the neighborhoods. In low and medium density residential areas, garbage

is collected once a week and for high density residential areas, waste skips are placed in strategic locations. Waste is collected by skip carriers once a week. There is limited waste collection from informal areas due to problems of accessibility resulting into garbage being dumped everywhere as shown in Figure 3.3.

Figure 3.3 - Waste Disposal in Lilongwe City

At household level, most families, because of lack of knowledge on the use waste as manure or on separation as noted above, have the option either to bury filled pits and dig a new one (31%), or burn the waste (6.2%) when pits are full. Very few (4.1 %) would use the waste as manure on their gardens. A block leader in Mgona, to emphasize the shortage of land in his area, told enumerators that he had asked his neighbors to dispose of all their solid wastes at his premises to bury a large drain so that his land increases in size. Those surveyed who did not respond to this question (25.4%) may include those disposing of waste on road- or river-sides, open areas and skip sites. In addition, the management of construction site wastes and building materials needs to be improved in Lilongwe to reduce the risk of pollution in elements such as soil, ground water and air.

3.3.14 Transport and Communication

Minibuses are the most common means of public transport in lilongwe as shown in Figure 5.5. An average of about 40 percent of the population rely on minibuses to transport them from one location to another. Taxi services are available but they are too expensive for the poor majority. bicycle taxis are also increasing in popularity in the peri-urban and low-income areas. However, the current roads infrastructure is inadequate to support the growing number of vehicles leading to increased traffic congestion and a lot of time wasted in traffic jams. The city has one international airport and railway station. Many people however still walk to their various places of work resulting in a high number of pedestrians. However, the absence of footpaths creates conflict between motorists and pedestrians and has resulted in a high increase in road accidents. There is a need for adequate transport infrastructure such as footpaths, bicycle paths, safe pedestrian crossings and flyovers, and well-protected bus lay-bys.

The road network in the City comprises main, secondary and minor roads. MI forms the north-south trunk axis. Secondary and (minor) urban roads extend from M1 to main urban development areas and

settlements, especially in the southern part of the city. The total road length is approximately 585 km. Overall, the main and secondary roads are well developed in terms of pavement condition.

Figure 3.4 - Transport System in Lilongwe City

The area is within the coverage of Access, Airtel, MTL and TNM networks hence people are able to make and receive calls and send and receive messages from friends and relatives using cell phones and land lines and there are a number of service providers of internet including Skyband, Malawi Net, Globe Internet, and Broadband Digital Solutions.

3.3.15 Energy and Electricity

The Electricity Supply Commission of Malawi (ESCOM) is the sole provider of electricity in Malawi. Currently its installed capacity is 302MW (95% hydro; 5% diesel) whilst available capacity is only 265MW against an estimated demand of 295MW. Planned investment in Kapichira-II hydropower plant and the possible interconnection of Malawi's electricity grid with Mozambique should help reduce capacity shortages and load shedding and improve supply reliability. However, demand is growing fast and is projected to reach 757 MW for the year 2020. Given the expected load growth, the planned investment will not be sufficient to meet the projected demand. As such this would lead to more load shedding, discouragement of business investment, and would undermine economic development and efforts to reduce poverty. It would also damage attempts to widen access to electricity among Malawi's population.

Energy sources in Lilongwe include electricity, fuel wood and paraffin. The Electricity Supply Commission of Malawi supplies electricity in most parts of the city. In Lilongwe, only 26 percent of residents are connected to electricity. The electricity supply infrastructure is old and worn out resulting in frequent power outages and high maintenance costs. Further, the cost of electricity supply is high and inaccessible to the poor. The high reliance on charcoal and firewood for cooking and lighting, mainly by the urban poor, is the major cause of deforestation. The majority of the population cannot access electricity; hence they use fuel wood for heating and cooking; there is also a high demand for firewood for brick curing. Almost 74% of the population in the city use fuel wood in form of charcoal and firewood.

3.3.16 Cultural, Ancestral Framework and Local Customs and Traditions

Records show that there is a mixture of cultures in Lilongwe City, as a result of co-existence of the major tribes Mang'anja, Chewa, Ngoni, Senga, Tumbuka, Yao and foreigners. Generally, the project area is ethnically mixed, reflecting a regional trend with significant numbers of settlers from other parts of Malawi. Chichewa is the most common language that is used; other languages spoken are Mang'anja, Yao and Tumbuka. All the tribes have beliefs such as witchcraft and evil spirits/ supernatural gods. All people in the area have different beliefs according to their customs and norms. As mentioned before, there are no people that are considered indigenous according to World Bank OP 4.10 definition in the project area or Malawi as a whole.

3.3.17 Monuments and Buildings

In terms of specific places of cultural and historical interest, Lilongwe has a few, including original mission stations and centres of excellence for handicrafts. However, the project will not interfere with any monuments or buildings. Although the project area is already disturbed and no cultural heritage is expected to be affected by the rehabilitation and expansion of existing water pipelines and treatment works, there will be excavation and therefore chance find procedures (Annex 4) will be used by the project in case any unexpected physical cultural resources are found.

3.3.18 Religion and Sacred Sites

Most residents are Christian, with only 14% following animism and Gule Wamkulu, and 1% being Muslim in Lilongwe City. There are a variety of churches; however, the main church following was with the Church of Central African Presbyterian (CCAP), the African Abraham Church, and Catholicism.

There are several sacred sites in the city which include grave yards but none of the grave yards will be affected by the project.

3.3.19 Local Settlements

Lilongwe City Council is responsible for urban planning and development functions in the city under the Town and Country Planning act of 1988 and the local Government act of 1998. The major land owners in Lilongwe include the Ministry of lands, Housing and urban Development, Lilongwe City Council and Lilongwe District Council. Chiefs claim ownership to land and undertake customary land administration as de facto landlords and managers of public land. The total area of the city is 456 km^2, 60 percent being public land, 30 percent being private land and 10 percent being customary land. Within residential areas, informal settlements occupy 54 percent of land, Traditional Housing areas occupy 19 percent, high density housing areas occupy 4 percent, medium density occupy 9 percent and low density occupy 14 percent. The multiplicity of land owners has created urban land management challenges.

3.3.20 Land Use Planning

The land use structure of Lilongwe City is contained in the Lilongwe Outline Zoning Scheme of 1986 and includes housing, commercial, industry, institutional, agriculture/forestry, open space, state house, government offices airport and undetermined. However, this scheme has not been implemented fully as planned due to the following reasons:

a) The plan has a time-consuming planning application process;

b) Inadequate implementation capability of the Lilongwe City Council; and

c) LCC's insufficient capability to control development.

4 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Several factors will be considered when selecting project sites. The networks will follow the already established water and sewer routes for LWB and LCC respectively which are usually in road reserves. However, there might be a few diversions due to other reasons. However, it is anticipated that there would be negative and positive impacts of this project. Some of the positive socio-economic impacts that the study identified included:

a) Increased water production and hence reduced water shortage;
b) Reduced water losses;
c) Increased employment opportunities for the local people;
d) Gain of time, especially for women and girls, that may be used for other, productive activities, spare of time to go to school
e) Creation of market for goods and services due to availability of running water;
f) Increased economic activities within the project area;
g) Increased economic development in the country;
h) Increased tax revenues for the Government though payment of water; and
i) Improved living and welfare standards of people of Lilongwe
j) Increased access to proper sanitation facilities
k) Improved hygiene and enbling women and girls to manage sanitation and hygiene needs with dignity
l) Proper liquid waste disposal and improved quality of effluent

The following may be negative impacts of the project:

a) Increased water abtraction from the river may reduce availability for downtream users, including the natural ecosystems along the river
b) Increased discharge of effluent into the River due to increased access to the sewerage system and/or improved potable water distribution system which could lead to a deteorioration in water quality
c) Digging of road ways that disrupt traffic, pedestrian right of way and pose public safety hazards (including from open pits and trenches)
d) Dislocation/interruption of already existing businesses, homes or other economic activity (Impacts on livelihoods, including Gender issues)
e) Increased dust/reduced air quality, Noise, vibration and solid waste during the construction phase
f) Impacts on flora and fauna
g) Occupational Health and Safety (workers and community)
h) Labour influx related impacts (Gender Based Violence (GBV), Violence Against Children (VAC), etc)
i) Disturbance to topsoil created by earthmoving works and heavy vehicle traffic at construction phase
j) Potential leaks of sewage and potable at operation phase with health risks associated with water borne diseases such as malaria and dysentery
k) Land acquisition requirements for pipelines, treatment works and other structures
l) The cost of the sanitation service will be recovered, which may be detrimental to the poorest in the community
m) Potential impact of the handling of sludge and other sanitation- related solid waste

n) Contamination of ground water and soils through sewage leaks

The proposed project will not cause any permanent displacement of people, institutions and their property hence issues of resettlement will not arise. The pipelines for the sewers will be installed along the road reserves except in places where the pipelines will cross the road and in highly built up places like market places and in some residential areas. In such places, the project will cause temporary disturbances, which shall include damage to road pavements, concrete driveways, different building structures; obstruction to passage on the roads; disruption of public services; and temporary loss of business activities.

The project will compensate all the project affected persons for the different losses arising from such disturbances. The situation will be the same with the expansion and rehabilitation of the distribution network. The project will not displace people permanently as the pipe routes will follow the existing pipe network and the road reserves. Those that will be affected will be compensated following the compensation procedure of the land.

5 PROJECT ALTERNATIVES ANALYSIS

5.1 Do-Nothing / 'Without Project' Option

The Do-Nothing/ 'Without Project' Option entails that the proposed development fails to be implemented. In case this happens, positive impacts associated with the proposed project will not be realized. The positive impacts of the proposed project include access improved water supply and safely managed sanitation to the Lilongwe City residents, improved wastewater treatment and quality of effluent into receiving waters and support of the Malawi Government initiative to achieve the Sustainable Development Goals (SDGs). Hence, from an environmental management perspective, the investments will be beneficial in the sense that any potential negative impacts associated with the project water distribution network expansion will be avoided. On the other hand, without improvements to the sewers, sanitation systems and the Kauma Waste Treatment Plant, waste water quality going to receiving waters will not be improved.

The "Do Nothing Option" should not be adopted, as the Lilongwe City are currently facing critical water shortage due to limited water distribution network, an increased demand for potable water due to urbanization and pollution of soil, ground and surface water from largely untreated wastewater discharge.

5.2 Develop the Proposed Project

The "Develop the proposed project" option is recommended as a better option than the "Do-Nothing/Without Project" option. The anticipated benefits of implementing the project include:

- Improved public health and safety due to:
    - Increased access to potable water supply and safely managed sanitation;
    - Improved hygiene practices, especially for children, women and girls;
    - Rehabilitation of the treatment works will limit public (especially children's) access;
- Improved environmental conditions due to:
    - Improved sewage collection and transport;
    - Reduced water leaks;
    - Improved efficiency on drinking water production;
    - Improved effluent quality to receiving waters;
- Supporting the Malawi Government initiative to achieve the Sustainable Development Goals (SDGs).

5.3 Different Technologies Alternatives

This section examines the different technologies alternatives that have to be considered during the planning, design, construction and operation phases of this project. The alternatives to be considered are discussed as follows:

5.3.1 Alternative Excavation Methods

During the construction phase of the project, there will be a lot of excavation works for the water distribution pipelines and sewers. It is anticipated that some structures will be disturbed or destroyed. Some of the excavation methods that can be considered are as follows;

a) Using Excavator, Trencher or Ditch Witch

The use of an excavator, trencher or ditch witch for excavation is one of the options that can be considered during the planning, design and construction phases of the project. The advantages and disadvantages of this method include the following:

Advantages

i) Fast operation hence less time will be taken to complete the project; and
ii) Less labor will be involved hence less labor related conflicts.

Disadvantages

i) Loss of potential employment opportunity since few people will be employed as laborers;
ii) It requires some space for the machine to operate so in some confined areas like markets, which could result into destroying some property hence high compensation costs; and
iii) It is easy to destroy other utilities like cables

b) Using local labor

Advantages

i) Creation of employment during the construction phase;
ii) Less working space is required so it is easy to work in confined areas with minimal disturbance; and
iii) The chance of destroying utilities is minimal.

Disadvantages

i) It is difficult or impossible in some cases to manually excavate hard or rocky soils;
ii) It takes longer to undertake the same tasks manually as compared to using a machine; and

Construction workers will likely be exposed to health and safety hazards like dust.

A careful analysis of the two excavation methods concludes that it will be cost-effective to use both methods during the construction phase of this project. The best way to utilize the two methods is to use labour method in confined areas like markets while the excavator can be used where there is no chance of destroying properties that can attract compensation and reconstruction.

5.3.2 Alternative to Passing Pipeline through Culvert

The option to pass the pipeline through an existing culvert is an attractive option since breaking of the tarmac and other paved driveways will be avoided hence avoiding inconveniencing traffic and also associated reconstruction costs. However, it is important to note that culverts are specifically designed to drain a specific discharge so passing a pipe through it will compromise its capacity. Culverts are usually de-silted during the rainy season for the sole reason of maintaining their capacity to drain the water. Ideally it can be the better option to avoid passing the pipeline through the culvert but it is difficult to do so in practice. In view of this, some considerations must be made during planning, design and construction to address this challenge. These can include the following:

a) Consider designing and construction of a wide inlet drain to the culvert so that it can contain the backflow water due to the reduced capacity of the culvert. Otherwise the backflow water will overtop the road surface hence compromise the strength of the road and safety to the road users when driving along such roads.
b) Depending on the topography, consider diverting water to the existing drainage network or constructing mitre drains.
c) In situations where there are more than one culvert lines close by, consider using a series of smaller pipes to cross the road. For instance, there are three culvert locations and a 450-mm pipeline is intended to cross the road, consider crossing the 150 mm pipeline at each of the three culvert locations and connect them back to the 450 mm on the other side of the road.

5.3.3 Alternatives to Pipeline Crossing the Side Drains

All the pipelines will be buried underground and no pipelines will be exposed unless the pipe is crossing the river. This will prevent drainage water overtopping on to roads.

5.3.4 Alternatives to Pipeline Crossing the Roads

In some cases, it will be impossible to avoid breaking the road and pass the pipelines through. In that case, the following will be considered:

a) Alternative routes for traffic will be identified and the public should be informed in advance. In addition, appropriate signage must be installed to guide traffic flow.
b) In case that there are no alternative traffic routes, the contractor can work on a single lane while traffic is allowed on the other lane. Appropriate signage must be installed to guide traffic flow.
c) Another alternative is to consider working during the night since the traffic flow will below.

5.3.5 Alternatives to Building Materials for Associated Civil and Building Works

This project is expected to involve some civil and building works. These works include thrust blocks, anchor blocks and man holes. Different choices on the building materials will have to be made. The choice of building materials is a key determinant of the durability of the built structures, the cost of building the structures and the damage that can be impacted on the environment. Three options, use of burnt bricks, stabilized soil blocks and concrete bricks can be considered as follows:

a) Use of Burnt Bricks

In Malawi, use of burnt bricks is cheap because they are locally made and can be close to the project site. The traditional fired/burnt bricks are made from soil that is mixed with water, dried in the sun there after baked using wood fuel.

Disadvantage of Burnt Bricks

Firewood and soil is required to produce bricks and most of the wood that is used for burnt bricks comes from Dzalanyama Forest which is 45 km from Lilongwe City. This can lead to destruction of natural forest and land degradation due to formation of borrow pits. Lilongwe Water Board is facing forest destruction and land degradation in the Dzalanyama Catchment area which is a source of Lilongwe River that supplies water to the City. The Lilongwe Water Board will avoid supporting deforestation in the Dzalanyama Forest Reserve by prohibiting Contractors from using burnt bricks on its projects and this will form part of the contract agreement with all the contractors that will be engaged in the project activities.

Advantages of Burnt Bricks

- Bricks are strong and durable;
- They require low maintenance cost;
- Have excellent thermal mass i.e. in winter they keep the buildings warmer while in summer they keep the buildings cooler; and they are fire resistant.

b) Stabilized Soil Blocks (SSB)

Stabilized soil blocks are made by mixing soil and cement in appropriate proportions. The process requires skilled labour because the strength of the bricks depends on the mixture and quality of soil used.

Disadvantage of SSB

The use of soils for a large project can lead to borrow pits which can lead to ponding and creation of breeding grounds for disease vectors. However, the cost is lower than the cement blocks.

Advantages of SSB

- SSB allows users to produce uniform blocks of greater strength than typical fired blocks that provide better thermal insulation;
- The total cost of building a structure with SSB is 20% -30% cheaper than building with fired bricks because far less mortar is required;
- SSB can be made on site so transportation costs are minimized;
- SSB are environmentally friendly because they are cured in the sun as such do not contribute to deforestation as compared to fired/burnt bricks; and
- The bricks have an appealing aesthetic with an elegant profile and uniform size that doesn't require plastering.

c) Concrete Blocks

Concrete blocks are made from a mixture of quarry dust and cement to which water has been added. Like SSB, the mixture is compacted using a manual machine to ensure strength and quality.

Disadvantage of Concrete Blocks

The bricks are usually expensive due to increased costs of cement.

Advantages of Concrete Blocks

- Like SSB, concrete blocks allow users to produce uniform blocks of greater strength;
- Concrete blocks can be made on site so transportation costs are minimized;
- Because Concrete blocks are cured in the sun, there is no fuel needed thereby helping to curb deforestation as such they are environmentally friendly like SSB;
- Concrete blocks are strong and durable; and
- Concrete blocks are fire resistant.

After analyzing the different building materials, it is recommended that SSB and concrete blocks be considered for construction of the manholes and other building works for the project. Lilongwe Water Board will consider Contractors who will indicate that they will use SSB and concrete blocks for construction of the different infrastructure for the project as opposed to those who will indicate burnt bricks.

6 ENVIRONMENTAL AND SOCIAL MITIGATION AND ENHANCEMENT MEASURES

Environmental and social concerns are anticipated if this project is implemented. The Project will incorporate the following environmental and social considerations in the planning and design of the project:

6.1 Traffic Management

During construction phase of this project, it is expected that there will be a lot of excavation works close to the roads. There is high chance of accidents happening. The contractor will be required to install appropriate and approved signage as well as speed control structures during construction to regulate and accommodate traffic. The client will be required to make sure that the contractor will abide by these requirements.

6.2 Resettlement

Resettlement, which includes Physical Displacement, Loss of Livelihood, Land and other assets will be addressed through site specific Resettlement Action Plans (RAPs) which will be drafted in accordance with the project's Resettlement Policy Framework (RPF) and implemented prior to any civil works.

6.3 Influx of Labor Related Impacts

Generally, the influx of workers employed by construction companies, along with those looking for jobs and the establishment of workers' camps, can expose affected communities to many negative impacts that include, (i) the spread of HIV/AIDS, (ii) instances of Gender Based Violence (GBV) and Violence Against Children (VAC), and (iii) including Child Labor. Contractors' measures to mitigate these impacts could include:

- Development of a *Labor Influx Management Plan* and "*Workers Camp Management Plan*" that outline the contractors' responsibilities in contracts.
- Drafting of enforceable Workers' "*Codes of Conduct*"
- Regular Sensitization of workers and surrounding communities of the risks of HIV/AIDS and other STDs

Influx of Labor is however expected to be minimal, as the project will mainly be implemented within an urban setting with a readily available pool of laborers and lodging for any potential expatriate workers. In cases where construction activities are undertaken in proximity to schools or around areas with vulnerable individuals such as street children, appropriate mitigation measures will need to be implemented. No workers' camps will be established.

6.4 Labor and Employment Related Impacts

Labor related concerns and violation of workers' rights is a potential and adverse impact in construction sites. The main issues could include; low pay, lack of adequate housing; health and safety issues, sexual harassment - by supervisors in particular; lack of severance pay; short-term contracts; lack of maternity leave; unfair dismissal; excessive overtime; deductions from pay; lack of freedom of association; lack of contracts; social security payments not met and abusive supervisors among others.

These risks can be mitigated by ensuring that workers are provided satisfactory working conditions and work environment including pay in accordance with the laws of the country. Regular monitoring of sites by relevant national authorities should also be carried out.

6.5 Drowning

The waste water treatment plant should be secure enough by fencing the stabilization ponds to avoid drowning by children.

6.6 Control of Soil Erosion

During excavation of the trenches the soil will be loosened thus increasing potential of soil erosion to occur. This can be checked by ensuring that excavation and backfilling should be done some months before the rains so as to ensure the backfill consolidates. In case of the excavation across a road, the backfill must be of suitable geotechnical properties and compacted accordingly.

6.7 Risk of Malaria and Other Waterborne Diseases

The gravel that will be mined for road reconstruction and construction of access roads will create some borrow pits. During the rainy season, water can pond in the borrow pits as a result they can turn into breeding grounds for mosquitoes and other disease vectors. The contractor must make sure that excess materials excavated from trench excavation is used to backfill the borrow pits and also that borrow pits are levelled up properly so much so that they can freely drain.

6.8 Occupational Safety and Health Risks

A construction site poses an occupational risk to workers as they undertake various construction activities and handle construction equipment. Workers will be exposed to various hazards such as heavy machinery, dust, chemicals, asbestos pipes and others. Accidents may also occur at the construction site due to use of vehicles and operation of heavy machinery and may endanger the workers. The site may also be a danger to passers-by due to presence of excavated trenches. The contractor will abide by as health guidance as outlined in the previously mentioned World Bank Group *Environmental, Health and Safety General Guidelines* to include:

a) Train workers in occupational health and safety measures;
b) Provide workers with appropriate protective clothing;
c) Ensure availability of First Aid Kits at project site;
d) Determine and enforce appropriate speed limits;
e) Maintain all vehicles and machines in good condition according to manuals; and
f) If an excavated trench is deemed to likely cause accidents, it must be cordoned off properly and appropriate signage provided.

6.9 Visual Intrusion

A construction site is not a pleasant site to look at due to construction works such as excavation, stockpiling of materials and mixing of concrete. Large quantities of dust generated during this period contribute to reducing the aesthetic value of the land. Dust generation should be minimized by frequent watering of the working area, provision of Personal Protective Equipment to workers and minimize unnecessary movement of vehicles/machinery.

6.10 Water Pollution

Poor management of oils and fuels from equipment and machinery and soil stockpiles during construction can contaminate surface and ground water through run-off and seepage. Water quality

may be adversely affected by leakages from diesel generators and other construction plant. The contractor will locate storage areas for fuels and lubricants away from natural drainage paths and use well maintained plant equipment that is not leaking.

Effluent discharge into water bodies will increase due to increased connections and volumes of waste water generated from the project as more people will be connected to the water and sewer system in Lilongwe City. The project will rehabilitate, upgrade, expand and make improvements to the sewerage treatment facilities to accommodate the larger volumes of wastewater generated and improve the wastewater treatment efficiency in order to meet effluent standards which are not currently being met.

6.11 Dust

Dust will be generated from bulk earth works and excavation works and may negatively affect surrounding environs. The labourers who will be excavating the will be exposed the dust. It is important for the contractor to provide Personal Protective Equipment (PPE) to the labourers. The PPE must include protective clothing, dust masks, snake gutters, goggles and gloves.

6.12 Increased Noise Levels

It is expected that noise will be generated during the construction period. Noise will be generated by civil works equipment such excavators and tippers, which may affect surrounding people in the area. The contractor will limit use of noisy heavy equipment, limit working period to daytime and use ear protectors.

6.13 Hazards from Open Trenches and Pits.

Open trenches and pits if left without any warning signs can be a death trap to both people and domesticated animals. It will be important that all trenches and pits are backfilled as soon as the works are completed. If not backfilled immediately, the sites should be geofenced with barrier red tape and warning signs installed to warn others. If a road cut is envisaged, prior permission should be sought from the Roads Authority and alternative routes should be provided to avoid inconveniencing other road users.

Manholes constructed should be installed with appropriately secured covers to avoid accidents and dumping of wastes by communities which eventually leads to sewage overflows which has been observed throughout the City.

6.14 Mitigation Considerations and Options

All moderate to major adverse impacts are considered for mitigation. Specific measures have been suggested in this regard where practicable. With regard to negligible and minor impacts where the project activity is not expected to cause any significant impact in such cases, best practice measures and mitigation have also been recommended where appropriate to improve the environmental and social performance of the Project. The mitigation options considered may include project modification, provision of alternatives, project timing, pollution control, compensations and relocation assistance. In cases where the effectiveness of the mitigation is uncertain, monitoring programs are introduced.

6.15 Recommended Mitigation Measures

The recommended mitigation measures have been designed to avoid, minimize and reduce negative environmental and social impacts at the project level. The mitigation measures are presented in the following tables in a descriptive format.

6.15.1 Proposed Mitigation Measures

Impacts	Description of Mitigation Measures
Physical Environment	
Solid and Effluent Waste	Solid nontoxic waste • Adequate waste receptacles and facilities should be provided at project sites and camp sites • Training and awareness on safe waste disposal in construction camps for all workers • Final disposal should be at dumpsites approved by the Lilongwe City Council Toxic Waste a. Final disposal should be at dumpsites approved by the Lilongwe City Council b. Asbestos waste (pipes, etc.) must be disposed of in a manner to prevent scavenging and reuse Waste Oil/fuel • Spent or waste oil from vehicles and machinery should be collected and stored temporarily in containers or drums at the site • Disposal of waste oil should be done by oil marketing companies or approved agents that have the capacity to undertake the oil disposal • Prepare waste disposal plan for each construction site • Install waste disposal receptacles and signs in strategic places within the construction camps • Provide training and awareness to avoid littering • Ensure construction sites have sanitary facilities
Decreased Air Quality	• Proposed project components will require use of well-maintained vehicles and equipment. A routine maintenance program for all equipment, vehicles and power generating engines should be in place • The project should ensure use of good quality fuel, oil and lubricants • Limited wetting of the construction sites should be encouraged to minimize generation of dust • Traffic speed measures should be put in place and adhered to with speed road signs placed along the roads to construction sites • Construction equipment should be switched off when not in use
Noise and Vibration	• Proposed project components should make sure that contractors use equipment and vehicles that are in good working condition, well maintained, and that have some noise suppression equipment (e.g. mufflers, noise baffles) intact and in working condition • This should be part of the contractual agreement with the construction contractors • Contractors will be required to implement best driving practices when approaching and leaving the sites to minimize noise generation created through activities such as unnecessary acceleration and breaking squeal. • Engines of vehicles and earth moving equipment should be switched off when not in use
Exposed/Open Trenches and Pits	• Immediately backfill all open trenches after works • Geofence the exposed trenches with barrier red tape • Install signs to warn pedestrians and others especially on roads
Visual Impacts	Landscaping around facilities after construction and restoration of disturbed areas e.g. borrow pits

Impacts	Description of Mitigation Measures
Impact on traffic and public safety	Only road worthy vehicles and trucks should be used to avoid frequent breakdowns on the roads Only experienced drivers should be employed Contractors must provide training for drivers; establish speed limits for vehicles and earth moving equipment Enforce safe driving and disciplinary action against repeat offenders
Soil Erosion	• Minimize unnecessary land clearing as much as possible to avoid exposure of bare ground to elements of weather • Re- vegetate cleared areas as early as possible with indigenous plant species
Impact of flora and fauna	• Avoid unnecessary exposure to sensitive and wildlife or other important habitat areas • All suspected sensitive areas (wetlands/swamps), although none expected in the urban capitol city, should be inspected prior to start construction activities • Workers are prohibited from hunting and consumption or purchase of game meat
Social Environment	
Physical displacement	• All affected persons should be provided with assistance (cash or kind) by the developer to enable them relocate to new site in accordance with the Resettlement Policy Framework (PRF) • Resettlement plans should be developed and the project affected persons should not incur ant costs due to the temporary disturbances during the project period
Loss of employment and livelihoods	• Project affected persons who will lose livelihoods should be assisted to ensure that they are not worse off as a result of the project. This may include provision of livelihood assistance, new jobs employment so that there is no loss of income • Use of local labor should be encouraged as much as possible where available and all unskilled labor should be sourced from the local community within the project implementation area.
Loss of Land and structures	• Processes be put in place to established the really owners of any land that may be taken up by the project activities. • Once established the project should acquire the land and pay appropriate compensation in accordance with RPF which will be based on replacement cost of the lost assets • Depreciation should not be factored during valuation of properties and the compensation should satisfy the RPF developed by the project • Appropriate compensation should be paid to destroyed or damaged property that belong to affected persons and no depreciation should be factored during valuation of the damaged properties
Impacts on access roads/foot paths among communities in the project areas	Measures should be taken into consideration to avoid dividing communities' due to project activities. If not, avoidable appropriate mitigation measures should be put in place to address the problem
Impacts on human health/traffic safety and sanitation	• Vehicles carrying construction materials such as sand, quarry dust etc. will have buckets covered with appropriate polythene material from or to project site • Only road worthy vehicles should be used • Employ only experienced drivers • All the construction site should be marked with visibility tape to avoid accidents except areas that will be fenced • Adequate, appropriate and well maintained sanitary facilities should be provided at all construction sites and open defecation shall not be allowed • Provision of appropriate and use of PPEs should be enforced at all times for the staff and laborers • All open trenches should be backfilled immediately construction activities have been finalized. • Workers should be educated to adhere to basic rules with regard to protection against sexually transmitted diseases such as STI, HIV/AIDS

Impacts	Description of Mitigation Measures
	• Condoms should be placed in suitable designated areas for easy access by workers e.g. toilets
Labor and employment related impacts	• Ensure that child labor is not allowed in the project • Local communities should be given priority in relation to employment and provided with training to equip them for future projects. • Workers should be provided satisfactory working conditions and ideal work environment including pay in accordance with the labor laws of Malawi. Contractors and others performing project work must provide personal protective gear and equipment especially when working with asbestos pipes. • The project should prepare redundancy plans and packages to be discussed with the affected workers and impart knowledge on proper utilization of the redundancy packages
Influx of Labor Related Impacts	• Development of a *Labor Influx Management Plan* and "*Workers Camp Management Plan*" that outline the contractors' responsibilities in contracts. • Drafting of enforceable Workers' "*Codes of Conduct*" • Regular Sensitization of workers and surrounding communities of the risks of HIV/AIDS and other STDs

7 ENVIRONMENTAL AND SOCIAL SCREENING, REVIEW, AND APPROVAL PROCESS

7.1 Screening Process, Impact and Risk Approach

7.1.1 Environmental and Social Screening Framework in Malawi

The Malawi Environment Management Act (1996) and the Malawi EIA guidelines (1997) prescribe the conduct for Environmental Impact Assessment for development projects. However, these instruments do not contain guidelines regarding the screening, identification, assessment and mitigation of potential localized impacts of small-scale investments, where the project details and specific project sites are not known.

7.1.2 Environmental and Social Screening in this Framework

Environmental and Social Screening Process outlined below complies with Malawi's EIA procedures for meeting the environmental and social management requirements, as outlined in the EIA guidelines. The Environmental and Social Screening Process also meets the requirements of the World Bank's OP 4.01 Environmental Assessment. It provides a mechanism for ensuring that potential adverse environmental and social impacts of LWSP-funded subprojects are identified, assessed and mitigated as appropriate, through an environmental and social screening process.

7.1.3 Application of the Screening Processes

Since the specific details and locations of certain LWSP subproject activities are not known at this time, the environmental and social screening process is necessary for the review and approval of the sub projects, for the development of new and the rehabilitation of existing facilities or infrastructure. The objectives of the screening process are to:

a) Determine the level of environmental work and the type of follow-up safeguards instrument required (i.e. whether an ESMP or ESIA is required; whether the use of Environmental Rules for Contractors, Chance Finds Procedures, and other simple mitigation measures will suffice; or whether no additional environmental work is required);
b) Determine the appropriate environmental category for each subproject (A, B1, B2, or C);
c) Determine which World Bank Safeguard Policies apply to (are triggered by) the subproject;
d) Determine appropriate mitigation measures for addressing adverse impacts;
e) Incorporate mitigation measures into the development plans;
f) Determine which construction and rehabilitation activities are likely to have potential negative environmental and social impacts;
g) Determine if there will be land acquisition, impact on assets, loss of livelihood, and/ or restricted access to natural resources;
h) Indicate the need for a Resettlement Action Plan (RAP), which would be prepared in line with the Resettlement Policy Framework (RPF);
i) Facilitate the review and approval of the screening results regarding construction and rehabilitation proposals; and
j) Provide guidelines for monitoring environmental and social parameters during the construction, rehabilitation, operation and maintenance of the infrastructure service facilities and related project activities.

7.1.4 The Process

The extent of environmental and social work that might be required, prior to the commencement of construction and rehabilitation of the sub-projects will depend on the outcome of the screening process described below.

Step 1: Screening of Sub-Project Activities and Sites

Prior to going to the field, a desk appraisal of the construction and rehabilitation plans, including infrastructure designs, will be carried out by the PIU Environmental and Social Specialists.

Subsequently, the Specialists will also carry out the initial screening in the field, using the Environmental and Social Screening Form (Annex 1).

The screening form, when correctly completed, will facilitate the identification of potential environmental and social impacts, the determination of their significance, the assignment of the appropriate environmental category (consistent with OP/BP 4.01), the determination of appropriate environmental and social mitigation measures, and the need to prepare an Environmental and Social Impacts Assessments/Environmental and Social Management Plans (ESIAs/ESMPs) and/or Resettlement Action Plans (RAPs).

Step 2: Assigning Appropriate Environmental and Social Categories

The environmental and social screening form, when completed, will provide information on the assignment of the appropriate environmental and social category to a particular activity for construction of new structures, expansion of existing network, or rehabilitation of existing structures.

The PIU Environmental and Social Specialists will be responsible for assigning the appropriate environmental category to the subprojects consistent with the requirements of OP/BP 4.01, and based on the criteria provided in this ESMF.

If Resettlement Action Plans (RAPs) are prepared, these would be reviewed and approved by the Commissioner for Lands, consistent with the Resettlement Policy Framework as well as the World Bank, prior to initiating compensation and commencement of project activities.

Step 3: Deciding the Required Type of Environmental and Social Work

After reviewing the information provided in the environmental and social screening form, and having determined the appropriate environmental category, the Environmental Affairs Department will review the screening form and, if agreed, a formal approval will be issued depending on the category determined through the screening process.

7.1.5 Use of the Environmental and Social Screening Form

The Environmental and Social Screening Form (Annex 1) will be completed by the Environmental and Social Specialists. In situations where the screening process identifies the need for land acquisition, loss of assets, or loss of livelihoods, a RAP shall be prepared consistent with the standards and guidelines set forth in the Resettlement Policy Framework and the World Bank's Involuntary Resettlement Policy, OP 4.12.

The Social Specialist will confirm that any land donation was truly voluntary and free of community pressure or coercion. Where community land was donated, LWSP will confirm the land was vacant and not being utilized by any individual.

7.1.6 Environmental and Social Impact Assessment Process

The assessment process will identify and assess the potential environmental and social impacts of the proposed construction activities, evaluate alternatives, as well as design and implement appropriate mitigation, management and monitoring measures. These measures will be captured in a subproject-specific Environmental and Social Management Plan (ESMP) or Environmental and Social Impact Assessment (ESIA), as needed, based on the environmental screening carried out for each sub-project.

Preparation of any ESMPs, ESIAs, and/or RAPs will be carried out in consultation with the relevant sector Ministries, along with potentially affected persons. The Environmental Social and Safeguard Specialists, in close consultation with the Environmental Affairs Department, will arrange for the (i) preparation of the ESMP/ESIA terms of reference; (ii) recruitment of a service provider to prepare the ESMPs/ESIAs; (iii) public consultations; (iv) review of ESMPs/ESIAs by PIU; (v) review and approval of the ESMPs/ESIAs by EAD through Malawi's national ESIA approval process; and, finally, (vi)World Bank review and approval.

The Social Specialist will arrange for the preparation of any RAPs, following the provisions outlined in the Resettlement Policy Framework. The Ministry of Lands, Housing and Urban Development, Physical Planning and Surveys must approve any RAPs produced; copies of the RAPs will be sent to the Bank for review and clearance prior to the commencement of civil works.

Step 4: Review and Approval of the Screening Activities

7.1.7 Review and Recommendation for Approval/Disapproval

Where an ESMP or ESIA has been prepared, EAD will review the reports to ensure that all environmental and social impacts have been identified and that effective mitigation measures have been proposed.

Where a RAP has been developed, the PIU will ensure World Bank review and clearance of the RAP before compensation is provided. RAPs will then be reviewed for approval by the Ministry of Lands, Housing and Urban Development.

7.2 Screening Process

7.2.1 Overview

The screening aims at categorizing the sub-projects into one of the following environmental and social categories. The Environmental Specialist in charge of the screening will propose the environmental category in consultation with the Social Specialist as necessary. Screening will also help to propose whether a proposed sub program will further require a full-fledged Resettlement Action Plan (RAP), per procedures outlined in the Resettlement Policy Framework.

- **Category A:** ***An LWSP sub-project would be categorized as A if it would likely result in one or more major adverse environmental impacts.*** Category A projects require a full ESIA. However, **the LWSP is not expected to have any Category A subprojects**.
- **Category B:** ***LWSP Category B subprojects have potential environmental impacts that are less severe than under Category A and can readily be mitigated as follows:***
    - **Category B1**: ***For LWSP Category B1 subprojects, no further environmental assessment work is required; however, the subproject must fully apply the relevant, generic mitigation measures specified in the ESMF, including the Environmental Rules for Contractors and Chance Finds Procedures.*** **Examples of LWSP subproject types that are likely to be classified as Category B1 include:**

- Installation of new household water connections
- Construction of communal water points
- Installation of new sewerage connections
- Construction of public toilets

- **Category B2**: ***For LWSP Category B2 subprojects, further environmental assessment work is required, specifically the preparation of a separate Environmental and Social Management Plan with tailored, site-specific environmental mitigation measures (not just the generic ones).***
- It is possible that for a few LWSP Category B2 subprojects--where in-depth, site-specific fact-finding would be needed to ascertain the likely environmental (including social) impacts--a subproject-specific ESIA would also be required. The scope of such an ESIA would be limited to the environmental and related social issues of specific concern, as identified in the screening process. For any Category B2 subprojects with their own ESIA, the ESMP will comprise a portion of the ESIA.
- **Examples of LWSP subproject types that are likely to be classified as Category B2 include:**
  - Replacement/upgrading of existing water and sewer pipelines with larger diameter pipelines
  - Construction of water transmission mains
  - Construction of pumping stations
  - Construction of storage reservoirs (tanks, not dams)
  - Rehabilitation and upgrading of sewage treatment plants

- **Category C**: ***LWSP activities are classified as Category C if they do not involve civil works and if no significant environmental issue has been identified and no specific mitigation measures are required.*** In such cases, subproject implementation can proceed without reference to additional environmental requirements. **Examples of LWSP Category C activities include:**
  - Water loss reduction measures
  - City-wide sanitation marketing campaign

7.2.2 Screening Form

The screening form (Annex 1) formalizes a rapid field investigation to screen on-site whether any environmental and social issues may require specific attention and supplemental environmental assessment work. All proposed interventions will undergo the screening process in order to identify all potential environmental and social issues. The PIU Environmental Social and Safeguards Specialists will conduct the screening.

7.3 Assignment of Category to Subprojects and other Activities

7.3.1 CATEGORY ''A'' Activities

Category A activities are those with potentially major adverse environmental impacts. No Category A activities are expected under the LWSP.

7.3.2 CATEGORY ''B'' Sub-Projects

10.5.1 A sub-project categorized as "B" will either implement mitigation measures as outlined in this ESMF and based on the recommendations of the environmental and social screening process (for Category B1 activities), or, a separate ESMP report will be prepared (for Category B2 subprojects).

7.3.2.1 Category B1 Sub-Projects (Not Requiring Further Environmental Safeguard Instruments)

As mentioned above, sub-projects categorized as B1 will not require any further environmental assessment work. They will, however, apply the Environmental Rules for Civil Works Contractors (see Annex 3), Chance Finds Procedures (see Annex 4), and other generic requirements presented in this ESMF. The Environmental Rules for Contractors and Chance Finds Procedures are to be appended to all construction-related contracts under the LWSP. If any LWSP subproject entails significant social impacts and requires the development of a RAP (Resettlement Action Plan), then this will be conducted in accordance to the procedures outlined in the LWSP Resettlement Policy Framework.

7.3.2.2 Category B2 Sub-Projects (Requiring a separate Environmental and Social Management Plan)

Examples of issues requiring the implementation of specific mitigations in cases where specific environmental or social issues are identified and where a change in the design or siting of the subproject is not possible include:

- Impacts on land without physical displacement or significant impacts on livelihoods,
- Potential for heavy traffic at construction phase through inhabited areas,
- Construction in water bodies (pipeline river crossings, water works in river beds-intakes),

ESMPs (and ESIAs, if any) for Category B2 subprojects will be carried out by independent, experienced specialists; include meaningful public consultation in accordance with OP 4.01; and include public disclosure of relevant documents in a culturally-adequate form (terms of reference, draft ESMP report, etc.), and demonstrate that public's comments and observations have been taken into consideration. The suggested contents of a subproject-specific ESIA (including ESMP) are detailed in Annex 5.

Mitigation actions will be detailed in the ESMP, to be addressed prior to the start of any construction activities. They may include, for example:

- Specific construction arrangements to minimize physical footprint and negative impacts on fragile ecosystems, topsoil and flora,
- Compensation per resettlement policy framework,
- By-passes of heavy traffic out of inhabited areas, speed limits, speed bumps, safety awareness with children and adults,
- Excavation and disposal of contaminated soil prior to construction.

As part of ESMP preparation, it may be concluded that changes to the design or the siting/routing of facilities are required. These changes may be needed to eliminate unacceptable adverse impacts such as:

- Impossibility to drain run-off water from the water point site,
- Impact on inhabited dwellings,

- Impact on structures used for commercial activities or other businesses,
- Impact on graves or other cultural resources (physical cultural resources),
- Impact on land use and/or users.

Changes in the subproject design may include:

- Re-siting of the water point or of another program component,
- Re-routing of a pipeline,
- Changes in the location of an effluent discharge,
- Changes in processes used for raw water treatment or waste water treatment for instance to improve efficiency or to reduce land take.

7.3.2.3 Consultation and Disclosure for all Category "B" Sub-Projects

Public Consultation

For all Category "B1" sub-projects, public consultation will include the following steps:

- Identification of interested parties (beneficiary neighboring communities, communities potentially affected by the sub-project, downstream water users, local authorities, regional authorities);
- Information on the proposed sub-project and its likely impacts, seeking feedback on impact
- identification and general mitigation measures as they are described in this ESMF.

For all Category "B2" sub-projects, public consultation will include the following steps:

- Identification of interested parties (beneficiary neighboring communities, communities potentially affected by the sub-program, downstream water users, local authorities, regional authorities);
- Initial step of consultation, before further environmental assessment work is undertaken: one initial meeting with each of the identified parties, presenting the sub-program and seeking input on the scope of work for further environmental assessment work;
- Second step of consultation, after further environmental assessment work is complete: presentation of the results of the environmental assessment, including presentation of identified impacts and proposed mitigations, seeking input on these proposed environmental management measures; this second step will include dissemination to identified interested parties of a summary of the environmental assessment in local language (generally Chichewa).

On average, it is estimated that 2 to 5 meetings will be required for each of the above two steps of consultation for Category "B2" sub-projects. The consultation will be undertaken by PIU Social Specialist. Any consultation meeting will be documented. Annex 6's format can be used for documenting consultation meetings.

7.3.2.4 Disclosure

In conformance with OP 4.01, subproject-specific ESMP or ESIA reports under Category B2 will be made available to the public as follows:

- Disclosure Notices in local newspapers with wide circulation and soft copies of reports will be available on LWB and LCC websites. Hard copies will be available at PIU offices – LWB;
- Disclosure (at least one copy of the full report and copies of the summary in Chichewa) at the World Bank country office in Lilongwe;
- Disclosure through the World Bank Website.

7.3.3 Category ''C'' Sub-Projects

Sub-projects for which the screening process does not identify any specific environmental or social issues are categorized as "C". A sub-project categorized as "C" will not require any further environmental and social assessment work and implementation can proceed immediately.

7.4 Review and Clearance of Environmental Screening Results

In conformance with Malawi EIA guidelines, environmental screening results are to be reviewed. and cleared by EAD (the Malawi Government agency with a mandate to review and approve environmental and social screening and ESIA study documents). A sample of screening forms will be reviewed by the World Bank during LWSP implementation.

7.5 Review and Clearance of ESMPs

1. For Category B2 sub-projects, ESMPs (and ESIAs, if any) will be reviewed by EAD as follows:

- Review of the scope of work (Terms of Reference),
- Review of the draft ESMP,
- Clearance of the final ESMP.

2. For these sub-projects, ESMPs (and ESIAs, if any) will be reviewed by the World Bank as follows:

- No-objection on the scope of work (TOR) and consultant contract,
- Review of the final ESMP after it has been reviewed and cleared by EAD.

7.6 Rules for Civil Works Contractors

Environmental rules for civil works contractors are presented in Annex 3. They will apply to all activities involving civil works (large and small) in the LWSP. These rules will be appended to all Requests for Proposals and bidding documents for construction works and the resulting contracts under the LWSP. Among other requirements, contractors are also expected to abide by the EHS General Guidelines and the EHS Water and Sanitation Guidelines.

7.7 Environmental and Social Management Process

This ESMF contains potential mitigation measures and monitoring indicators through which the adverse impacts for specific subproject investments may be managed. As has already been noted, some subprojects will require an ESMP. The ESMP should at a very minimum contain the following items, among others:

- Description of the possible adverse effects that the ESMP is intended to address;
- Identification of project design alternatives that would meet similar objectives, and a description of why these projects are not viable, especially if they have a lesser environmental or social impact;
- Description of planned mitigation measures, and how and when they will be implemented
- Program for monitoring the environmental and social impacts of the project, both positive and negative;
- Description of who will be responsible for implementing the ESMP.
- Cost estimates.

8 ENVIRONMENTAL AND SOCIAL MONITORING

The aim of monitoring is to determine whether interventions have been effective in dealing with the negative impacts, whether further interventions are needed or monitoring is to be extended in some areas. Monitoring indicators will be very much dependent on specific project contexts.

The PIU Environmental and Social Specialists will be responsible for overall monitoring and reporting on compliance with the ESMF ensuring that the subproject is screened, their safeguards instruments are prepared, cleared and disclosed prior to approval. The PIU will also ensure that contractors executing the works are implementing the specific ESMP for the subprojects that require it and submit reports on ESMP implementation as required. Annex 2 contains a checklist of general issues to be followed up on for sanitation related activities.

Reports on sub project components implementation will be shared with the Bank. The PIU will keep records on complaints received, resolved, accidents, and other environmentally or socially related topics of relevance and importance for this project. This data will be reflected in biannual reports on safeguard compliance to be furnished to the Bank. The Bank will conduct periodic audits of the projects and access documented information. Any project-related fatalities or serious injuries will also be reported to the World Bank. The monitoring indicators with verified indicators and responsible institutions are as in the table below.

Table 8.1 – Monitoring indicators

Monitoring level	Monitoring issue	Verifiable indicators	Responsibility
ESMF level	Adequate dissemination of ESMF and RPF to stakeholders Capacity building and training programs	Records of consultations and meetings Workshop reports	PIU PIU
Subproject Level	Preparation of ESMP (or ESIA) Environmental permitting Monitoring and evaluation	Independent consultants hired to prepare ESMP, ESIA, and RAP documents Environmental permits for sub projects, Environmental Management Plans Monitoring reports (monthly quarterly and annual) Daily on-site compliance Compliance overall	PIU PIU PIU Contractor (Supervising Engineer) Contractor and PIU
Outcomes	Use of new sanitary facilities Effluent quality and quantity discharged into water bodies Use of water system improvements	Already existing methods Already existing methods Already existing methods	LCC LCC PIU

8.1 Project Monitoring Indicators and Responsibilities

It is important to note that although contractors and others may be responsible for particular activities, the PIU is ultimately responsible to ensure the implementation of any mitigation or other activities contained in this ESMF. During project construction, the Supervising Engineer is responsible for ensuring environmental compliance. The above table presents the proposed monitoring indicators and responsibilities.

8.2 Reporting

8.2.1 Annual Report

PIU will develop a brief annual environmental monitoring report. The report contents will generally be the following:

- A summary of Environmental and Social Screening reports, with a table summarizing which subprograms have been assigned to each of the screening categories,
- A summary of ESMPs developed during the year,
- A summary of environmental monitoring carried out on systems at both construction and operation phases.

Impact issue	Proposed mitigation action or measure	Implementation tool/criteria	Monitoring indicators (inputs)	Monitoring indicators (outcomes)	Verification	Project stage	Responsibility
Solid waste disposal	Provide adequate waste receptacles facilities at construction camps Wastes should be disposed at approved waste collection sites Asbestos containing waste must be disposed of in a way to prevent scavenging for reuse.	Waste management plan/construction site management plan	Number of waste bins at site Availability of waste disposal plan Final disposal records	Number of workers following waste disposal plan and use of receptacles Number of workers familiar with the waste disposal plan at sites	Weekly checks by project Health and safety officer	Construction Operation	Contractor Health and safety officer and ultimately PIU
Waste oil/fuel disposal	Provide drums/containers for temporary storage on site for the oils collected from vehicles and equipment Dispose of waste oil through an approved agent	Waste management plan/construction management plan	Waste oil drums/containers on site Availability of waste disposal plan/construction site management plan	Number of workers familiar with the waste disposal plan at sites Number of workers following waste disposal plan and use of receptacles	Monthly checks by Health and safety engineer	Construction Operation	Contractor Health and Safety Officer

Air quality degradation/pollution	procure good equipment/machinery for the project Operate well maintained vehicles and equipment Use good quality fuel and lubricants Suppress dust at project sites Switch off engines when not in use	Contractual agreement Routine maintenance plan for machinery Purchase fuel in recognized stations Apply water to surfaces to limit dust	Number of good equipment procured Availability of equipment and machinery maintenance plan F requency of watering of surfaces to minimize dust related impacts	Number of workers following good practices for equipment and machinery maintenance	Independent check by project engineers Verification of maintenance by project engineers Self-check by contractor	construction	Contractor/projects engineer
Noise pollution	Adhere to working hours in accordance to the Employment Act Provision of PPEs for workers for noise pollution Workers training on the use of PPEs for noise mitigation and warn those not complying	Contractual agreement	Recorded grievances Number of PPEs procured for noise mitigation	Number of workers correctly and frequently using PPs	Self-check by contractor	construction	Contractor /project engineer
Visual Impacts	Landscaping around facilities after construction and restoration of disturbed area e.g. borrow pits	Construction site and restoration plan	Plan implementation	Quality of stored landscapes Number of disturbed sites successfully restored	Self-check by contractor	Construction	Contractor/project engineer

Hazards to Community such as exposed trenches and pits (uncovered manholes)	Immediately backfill all open trenches after works Geofence the exposed trenches with barrier red tape Install signs to warn pedestrians and others especially on roads	Construction site and restoration plan, ESMP, Contractual Agreement	Number of exposed trenches and pits created Presence of appropriate signage	Number of exposed trenches and pits remaining after work is completed	Inspection self-check by contractor and Supervising Engineer	Construction and Operation	Contractor, PIU (for all), LWB (for potable water system improvements), LCC (for sewers)
Traffic Impacts	Use roads only worthy for vehicles and heavy machinery Use experienced drivers Contractor must provide drivers training Establish speed limits Enforce safe driving and take disciplinary action against repeat offenders	Procure good vehicles and machinery for the project Driver qualifications should be documented Develop Traffic safety plan	Traffic incidence recorded Grievance recorded	Number of drivers aware and familiar with the traffic safety plan Number of drivers following traffic rules for the past three months	Verification by Project Engineer	Construction	Contractor /project engineer

Water Pollution	Garbage /refuse oily wastes should not be discharged into water bodies or drains Maintenance and lubricating of vehicles should take place offsite Workers should be provided with adequate and appropriate sanitation facilities Construction activities including camps should have measures to control runoff water Effluent discharge (during Operation)	Waste management plan Spill prevention management Water quality monitoring plan	Visibility of oil in water bodies Procure water quality monitoring equipment Onsite soil erosion observation Quality of water from regularly scheduled testing Number of pollution incidences recorded Routine lab testing of daily samples during Operation	Change in water quality as per measurements done Water samples collected showing compliance with standards	Daily self-checks by contractors Periodic reports on performance by contractor to Project Engineer Spot checks /audits by project engineer Routine daily monitoring by LCC or its contractor	Construction Operation	Contractors/project engineer Project engineer LCC staff and contractors
Drinking Water Quality Supplied (during Operation)	• Routine testing of daily water quality according to Malawi or WB EHS standards whichever is more stringent	• Water quality monitoring plan	• Routine lab test results of daily samples during Operation	Water samples collected showing compliance or not with standards	Routine daily monitoring	Operation	LWB or its designated contractor. Supervision by Quality Assurance Manager

Influx of Labor Related Impacts	Development of a *Labour Influx Management Plan* and "*Workers Camp Management Plan*" that outline the contractors' responsibilities in contracts. Drafting of enforceable Workers' "*Codes of Conduct*" Regular Sensitization of workers and surrounding communities of the risks of HIV/AIDS and other STDs	Development of Labor Management Plans Development of Workers Management Plans Drafting and enforcement of workers' "Code of Conducts" Sensitization of workers and surrounding communities	Labor Management Plans developed Workers management Plans Developed Workers Code of Conducts developed Number of sensitization meeting held	Labor Management Plans implemented Workers management plans implemented Workers' Code of Conduct implemented Number of workers and community member who attended meetings	Monthly checks by Health and safety Officer and Social Development Specialist	Construction	Contractor Health and safety officer, Social Development Specialist and ultimately PIU

9 PROJECT IMPLEMENTATION ARRANGEMENTS

9.1 Partnership Arrangements

This project will contribute to GOM's National Water Sector Policy for improvement of access to potable water and for safely managed sanitation services. The project contributes to meeting the Sustainable Development Goal No 6. The main partner is the World Bank, specifically the International Development Association (IDA). However, there are interventions that are complementary (but not linked) to the project that are being financed by other partners including Lilongwe Water Resources Efficiency Program (LWREP) financed by European Investment Bank (EIB). The IDA funded activities for the project will follow the Bank's fiduciary and safeguards policies. The project implementing entities will be LWB and LCC. The lead agency will be LWB which will oversee the project implementation, and will be responsible for all aspects of project management, including planning, procurement, finance management, results monitoring and evaluation and safeguards through the PIU office to be housed within LWB.

9.2 Institutional and Implementation Arrangements

The roles and responsibilities of the executing agencies and sector stakeholders are detailed here. The following groups will be involved in implementing the Lilongwe Water and Sanitation Project:

The Ministry of Finance, Economic Planning and Development (MoFEPD) will be responsible for: (i) securing and channeling resources to LWB for the project (ii) allocating financial resources; (iii) approving public sector borrowing and public and private financing arrangements; and (iv) monitoring disbursements (v) economic validation of the project activities and for ensuring that the project activities are in line with the national economic agenda.

The Ministry of Energy, Mining and Natural Resources, and its Environmental Affairs Department (EAD) will dictate the requirements of the environmental and social impact assessment. They will advise on the (i) preparation of Environmental Assessment (EA) terms of reference; (ii) arrangements for public consultations; and (iv) review and approval of the EA through the national EA approval process. This will be for this ESMF and any ESMPs that may be subsequently prepared for this project and its activities.

The Ministry of Agriculture, Irrigation and Water Development (MAIWD) will be responsible for: (i) the development of policies, laws, and strategies for the water sector; (ii) refining implementation arrangements through experience; (iii) participating in Sanitation Task Force; and (iv) facilitating the development of sanitation management institutional framework for safely managed sanitation services.

The Ministry of Lands, Housing and Urban Development will be responsible for: (i) advise on the implementation of the Resettlement Planning Frameworks (RPF); and (ii) reviewing and approving Resettlement Action Plans (RAPs) consistent with the RPF.

Lilongwe Water Board (LWB): LWB is the lead implementing agency responsible for all aspects of project management, including planning, procurement, finance management, results monitoring and evaluation and safeguards. LWB has an existing Project Implementation Unit (PIU)– under the Directorate of Technical Services (DTS)– which is charged with the responsibility of delivering LWB's capital projects. With respect to sanitation activities, LWB will enter a Memorandum of Understanding (MoU) with Lilongwe City Council (LCC) that will define the roles/obligations of each entity with respect to implementation of sanitation activities, as well as other joint undertakings related to sanitation services delivery in the city. A Sanitation Task Force comprising members from MAIWD, Ministry of Health, LWB and LCC will be formed to strengthen coordination of sanitation investments in the city and to facilitate policy dialogue on the future institutional framework for sanitation services in the city

9.3 Implementation arrangements for the ESMF

LWB, through its PIU, will have the overall responsibility to implement, monitor and report on the implementation of this ESMF and subsequent site-specific instruments. Key PIU responsibilities include

- overall coordination and management of the project's social and environmental safeguard instruments;
- prepare, implement and monitor the safeguards instruments under the project
- establishment of good and operational relations with affected communities;
- implementation of the project communication plan and continuing consultation with project affected communities and other stakeholders;
- communication and cooperation with LCC and other institutions and actors involved in ESMF implementation;
- ensure and monitor overall social and environmental due diligence as per the provisions of the ESMF;

The PIU's Environmental and Social Specialists will conduct the environmental and social screening of subprojects. Site-specific safeguards instruments (ESIA/ESMP, RAP, etc.) will be prepared by consultants recruited by the PIU. The Environment Affairs Department (EAD) will review and approve the ESMPs or ESIAs in line with the national approval processes. LWB, through its PIU, will implement, monitor, supervise and report on implementation of all the safeguard instruments under the project. LWB will also contract a third-party agency to conduct regular evaluation of implementation of safeguards instruments, as well as audit of compliance and completion.

Finally, all contractors will be required to follow the ERCs and any site-specific environmental management actions agreed and incorporated into all construction contracts. Mitigation for construction works will be guided by method statements for general environmental issues such as sediment and erosion control, noise and duct control, as well as safety and health of workers.

9.4 Assessment of Institutional Capacity to Implement the ESMF

LWB will have the overall responsibility to implement, monitor and report on the implementation of this ESMF. LWB staff are familiar with both the national requirements and World Bank requirements for social safeguards. LWB prepared the ESMF and RPF itself, demonstrating commitment and ownership of the necessary measures for mitigation. LWB was also one of the implementing agencies under the World Bank-financed Second National Water and Development Project (NWDP-II) which closed in October 2015, with satisfactory safeguards performance. In addition, LWB is currently implementing the RAP for KD1 dam raising – one of the sub-projects under EIB-funded Lilongwe Water Resources Efficiency Project (LWREP). Although LWB has some experience in implementation of safeguards instruments, the capacity to manage social risk at the scale of this project is still insufficient. Thus, the project will support the recruitment of a social development/safeguards specialist into the PIU in LWB to implement and monitor the mitigation measures described in the various safeguards instruments. In addition to the other professionals in the Unit, there will be a full-time Environment Specialist and a full-time Social Specialist to lead implementation of this ESMF, RPF, ESMP, RAP and any other safeguard instruments to be developed under the project. The PIU will coordinate as necessary with the Lilongwe City Council to ensure implementation of this ESMF.

At the national level, Malawi's legal and institutional framework for environmental and social management is relatively good. The country has, over the past years, developed several policies,

legal and administrative framework to guide environmentally sustainable development in various sectors of the economy. The Environment Management Act (EMA), 1996 is the overarching legal framework on environmental management in Malawi. The aim of this Act is to promote sustainable socio-economic development in the country through mainstreaming of environmental and social considerations in project planning and implementation.

10 PUBLIC PARTICIPATION

10.1 Stakeholder Consultations

The Lilongwe Water Board and Lilongwe City Council conducted a consultation meeting with different relevant stakeholders at Lilongwe City Council offices. The meeting was conducted at Lilongwe City Council Civic Offices on 3 August 2017. The consultation meetings were interactive in nature. In these meetings, general information about the project was discussed and several issues were raised pertaining to how the project will affect both environment and social issues. The consultation meeting was conducted to:

a) Inform the stakeholders about the project;

b) Provide an opportunity for them to discuss their opinions and concerns;

c) Manage their expectations and misconceptions regarding the project;

d) Verify the significance of environmental, social and health impacts identified;

e) Compensation issues to the assets that will be affected during implementation;

f) Disseminate concepts of the proposed Project activities with a view to provoking Project interest amongst the stakeholders;

g) Promote sense of ownership for the Project; and informing the process of developing appropriate mitigation measures.

The consultation meetings were conducted in a form of a presentation to the stakeholders and getting feedback from the participants (see Annex 6).

10.2 Grievance Redress Mechanism

The project's procedures for the redress of grievances and complaints from PAPs are explained in detail here. The grievance and complaints about expropriation, resettlement, construction activities, social issues and any other subjects related to the project from the start of project till the end of the monitoring should be redressed for effective implementation. In this respect, all grievances and complaints will be recorded and processed in all stages of the project implementation.

10.2.1 The Aim of the Grievance Redress Procedure

The aim of Grievance Redress Procedure is to settle or redress any individual grievance or complaint of PAPs promptly, fairly and as much as possible in a manner that is acceptable to all parties. The general approach is to seek a solution to the problem in the earliest stage and avoid taking complaints to courts for redress. The following should be taken into account in application of this approach:

- Provide straightforward and accessible ways to PAPs for making complaints or resolving any disputes that may arise due to the realization of the project,
- Identify and implement appropriate and mutually acceptable actions to address complaints,
- Ensure that complainants are satisfied with outcomes of the corrective actions,
- Avoid the tendency to resort to judicial proceedings.

Grievances are useful indicators of a project performance. A high number of grievances may point out a need to adjust work practices or procedures in order to mitigate adverse impacts or conflicts with the PAPs. In this respect, the effectiveness of the related procedures will be evaluated in all stages of implementation.

10.2.2 Duties and Responsibilities

The grievance redress mechanism will be managed by the PIU overall. Since LCC is implementing the sanitation component, the Ward Councilors for affected areas will also receive complaints.

The Grievance Redress Committee will be comprised of the representatives of District Commissioner of Lilongwe District, the Chief Executive Officer of Lilongwe Water Board, Chief Executive Officer Lilongwe City Council, Commissioner for Lands, local leaders, PAPs representative, Representative of Civil Society in the project area, Politicians and Councilors in the project affected area.

The purpose of including these institutions and associations into the grievance redress committee is to ensure the participation of local authorities and associations into the problem-solving processes. Thus, these institutions and associations, functioning as a balancing body between the PAPs and the project, will contribute to the fairness and transparency of the grievance redress mechanism. The decisions of the Committee will be binding for all the local implementing agencies.

The committee will meet twice a month to propose corrective/precautionary actions. If required, the committee may also invite the applicants, relevant governmental authorities and/or third parties to these meetings. The committee will also monitor the grievance mechanism via the reports prepared by the resettlement action plan committee and propose improvement when necessary.

10.2.3 Types of Grievances

All types of grievances related to the project will be received at the project implementation unit at Lilongwe Water Board Madzi House and at LCC offices. In addition, grievances can be received through the project-dedicated phone line, which will be active throughout the project. By this phone line, PAPs who cannot come to the project office or are away from the affected areas, can express their concerns and grievances regarding the project. The phone number shall be widely advertised in all affected settlements through the community information meetings. In addition, each site will have grievance boxes where affected PAPs can deposit grievances – Those are likely to include:

a) Damages to buildings and assets,
b) Disruption or damages to local roads,
c) Closure of passageways,
d) Damages to lands outside the project demarcated working area,
e) Reinstatement of immovable assets after temporary use (establishment of easement rights, rental or temporary occupation),
f) Nuisance from dust, noise and vibration,
g) Disruption or damages to water sources and infrastructures,
h) Destruction of wells that are water sources for the local communities,
i) Increase in the traffic load,
j) Health problems, injuries and accidents,
k) Misconduct of project personnel/workers, and
l) Unfair selection practice of employees for project-related jobs.

10.2.4 Procedure for Receiving and Responding to Complaints, Grievances, Appeal and Claiming Process

All types of complaints, appeals and claims related to the project will be received by the Grievance Committee at the project office at Lilongwe Water Board. Complaints can be lodged through the toll-free phone line (80005000) and complaint boxes to be located on project sites. Complaints may also be received by the Lilongwe City Council through Ward Councilors or other means since LCC is implementing sanitation activities. Those complaints will be channeled to the PIU and to the office of the Mayor then reported for action to the Secretariat (technical team) through the Chief Executive for action or response. The PIU will work with the LCC channels to resolve the complaints to World Bank and Malawi standards.

At the beginning of the project, the grievance mechanism will be disclosed to all stakeholders via written information including meetings with the Project Affected Persons.

All types of grievances will be received by the Social Specialist or other designated project official (in person or via project dedicated phone/site boxes) at the project office, which will operate throughout the project cycle. These grievances will be recorded in Grievance Forms, which contain the details regarding the grievance as well as the name and address of the applicant, application date, type of application and the name of the person receiving the grievance.

For proper functioning of this procedure, all grievances (no matter where lodged) will be recorded by the PIU Social Specialist located at Lilongwe Water Board.

• In receiving the grievances of the vulnerable PAPs such as elderly, disabled and illiterate people, the PIU will pay special attention and help them to receive their grievances properly.

• The grievances depending on the gravity of the matter will be solved via the Grievance Committee and in consultation with the contractor if it occurs during the implementation period of the project. When required, site investigations will be undertaken involving technical staff from relevant organizations such as the Developer, Ministry of Lands, District Council officials, MPs and Councilors. Technical reports to serve as a basis for the discussions will be prepared and tabled before the Grievance Redress Committee. During this site observation, the complainant or his/her representative shall also be present.

The committee will inform the complainant about the status of their grievances within 10 working days after receiving the complaint and carrying out the investigations. In case the applicant is not satisfied with the result, the Social Specialist will forward the case to the Grievance Redress Committee and notify the applicant. In addition, in case the applicant cannot receive a respond within the designated time frame, s/he can apply directly to the Grievance Redress Committee.

11 ESMF IMPLEMENTATION BUDGET

The actual cost of resettlement and compensation for each LWSP investment will be determined during each socio-economic study for the preparation of the individual RAPs. The Government of Malawi will finance all the resettlement and compensation costs. The total cost of resettlement under LWSP will depend on the number of investments that will be made.

At this stage, it is not possible to estimate the exact number of people who may be affected under LWSP project since the technical designs and details of all investments have not yet been finalized. It is therefore not possible to provide an estimated budget for the total cost of resettlement that may be associated with LWSP implementation.

However, when these locations are known, and after the conclusion of the site specific socio-economic assessment, information on specific impacts, individual and household incomes, assets and numbers of affected people and other demographic data will be available, hence a detailed and accurate budget for each RAP will be prepared. PIU together with the relevant implementing agency for a given investment will prepare the detailed resettlement budget, to be financed by the Government of Malawi through the Ministry of Finance. Each RAP will include a detailed budget, using the following template.

Indicative ESMF Budget for the Next 5 years

	Indicative Budgetary Item	**No.**	**Unit cost (USD$)**	**Total cost (USD$**
1.	Stakeholders trainings/ consultation forums on ESMF	5	3,000.00	15,000
2	Preparation and implementation of specific instruments (ESMPs and ESIAs)	sum	sum	300,000
3	Monitoring and evaluation of ESMP implementation	sum	sum	10,000
4	Compensations for PAPs	sum	sum	Included in RPF budget
5	Implementation of grievance redress mechanism	sum	sum	30,000
6.	Safeguards staff/consultants	sum	sum	315,000
7	Training and capacity building	sum	sum	50,000
			Sub-total	**720,000**
			Add 20% contingency	144,000
			Total	**864,000**

ANNEX 1: ENVIRONMENTAL AND SOCIAL SCREENING FORM (ESSF)

Environmental and Social Screening Form for the Screening of Potential Environmental and Social Impacts of LWSP Activities

1. Introduction

This Environmental and Social Screening Form (ESSF) has been designed to assist in the evaluation of planned construction, rehabilitation and expansion activities under LWSP. The form will assist in the identification of any environmental and social impacts and their mitigation measures. It will also assist in the determination of requirements for further environmental and social work as needed.

The form helps to determine the characteristics of the prevailing local bio-physical and social environment with the aim of assessing the potential impacts of the construction and rehabilitation activities on the environment by the activity.

The ESSF will also assist in identifying potential socio-economic impacts that will require mitigation measures and/or resettlement and compensation.

2. Guidelines for Screening

The evaluator should undertake the assignment after:

1. Gaining adequate knowledge of baseline information of the area.
2. Gaining knowledge of proposed project activities for the area.
3. Having been briefed / trained in environmental and social screening.

The form is to be completed by the PIU Environmental and Social Specialists.

PART A: GENERAL INFORMATION

Sub project Name	
Estimated Cost (MK)	
Sub project Site	
Sub project Objectives	
Proposed Main Activities:	
Name of Evaluator/s	
Date of Field Appraisal	

PART B: BRIEF DESCRIPTION OF THE PROPOSED ACTIVITIES

Provide information on the type and scale of the construction/rehabilitation activity (e.g. area, land required and approximate size of structures)

Provide information on the construction activities including support/ancillary structures and activities required to build them, e.g. need to quarry or excavate borrow materials, water source, access roads, etc.

Describe how the construction/rehabilitation activities will be carried out. Include description of support/activities and resources required for the construction/rehabilitation.

PART C: ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION OF THE SUB PROJECT SITE BRIEF DESCRIPTION

Category of Baseline Information	Brief Description
GEOGRAPHICAL LOCATION ***** Name of the Area (District, T/A, Village) * Proposed location of the sub project (Include a site map of at least 1:10,000 scale/or coordinates from GPS)	
LAND RESOURCES * Topography and Geology of the area * Soils of the area * Main land uses and economic activities	
WATER RESOURCES * Surface water resources (e.g. rivers, lakes, etc.) quantity and quality * Ground water resources quantity and quality	

BIOLOGICAL RESOURCES * Flora (include threatened/endangered/endemic species) * Fauna (include threatened/endangered/endemic species) * Sensitive habitats including protected areas e.g. nature reserves and forest reserves	
CLIMATE * Temperature * Rainfall	
SOCIAL * Number of people potentially impacted * Type and magnitude of impacts (i.e.. impact on land, structures, crops, standard of living) * Socio-economic overview of persons impacted	

PART D: SCREENING CRITERIA FOR IMPACTS DURING SUBPROJECT IMPLEMENTATION, AREAS OF IMPACTS AND IMPACTS EVALUATION AND POTENTIAL MITIGATION MEASURES

Screening Criteria for Social and Environmental Impacts

Item	Areas of Impacts			Impacts Evaluation						Potential Mitigation Measures
	Is this subproject site/activity within and/or will it affect the following environmentally sensitive areas?			Extent or coverage (on site, within 3-5km or beyond 5km)			Significance (Low, Medium, High)			
		No	Yes	On Site	Within 3-5 km	Beyond 5 km	Low	Medium	High	
1.0	Screening Criteria for Social and Environmental Impacts									
1.1	National parks or game reserve									
1.2	Wetlands									
1.3	Productive traditional agricultural /grazing lands									
1.4	Areas with rare, endangered or other interest flora or fauna									
1.5	Areas with outstanding scenery/tourist site									
1.6	Within steep slopes									
1.7	Forested or near forest or will impact forest									
1.8	Along lakes, beach or river									
1.9	Near industrial activities									
1.10	Near human settlements									
1.11	Near cultural heritage sites									

1.12	Within prime surface run off									
1.13	Will the subproject discharge to or otherwise impact water bodies?									
2.0	Screening Criteria for Impacts during Implementation and Operation									
	Will the implementation and operation of the subproject within the selected site generate the following externalities/ costs/impacts?									
2.1	Deforestation									
2.2	Soil erosion and siltation									
2.3	Siltation of watercourses, dams									
2.4	Environmental degradation arising from mining of construction materials									
2.5	Damage to wildlife species and habitat									
2.6	Increased exposure of communities/workers to agro-chemical pollutants									
2.7	Hazardous wastes, (pipes, etc.), PCB's, pollution from unspent PV batteries									
2.8	Nuisance - smell or noise									
2.9	Reduced water quality									
2.10	Increase in costs of water treatment									
2.11	Soil contamination									
2.12	Loss of soil fertility									
2.13	Salinization or alkalinisation of soils									
2.14	Reduced flow and availability of water									
2.15	Long term depletion of water resources									
2.16	Incidence of flooding									

	Will the implementation and operation of the subproject activities within the selected site generate the following socio-economic costs/impacts?									
3.0 Screening Criteria for Social and Economic Impacts										
3.1	Loss of land/land acquisition for human settlement, farming, grazing									
3.2	Loss of assets, property, houses, agricultural produce, etc.									
3.3	Loss of livelihood									
3.4	Require a RAP or ARAP									
3.5	Loss of cultural sites, graveyards, monuments[4]									
3.6	Disruption of social fabric									
3.7	Interference in marriages for local people by workers									
3.8	Spread of STIs and HIV and AIDS, due to migrant workers									
3.9	Increased incidence of communicable diseases									
3.10	Health hazards to workers and communities									
3.11	Changes in human settlement patterns									
3.12	Conflicts over use of natural resources e.g. water, land, etc.									
3.13	Conflicts on land ownership									
3.14	Disruption of important pathways, roads									
3.15	Increased population influx									
3.16	Loss of cultural identity									
3.17	Loss of income generating capacity									
4.0	Consultation (comments from beneficiaries and other project affected peoples)									

[4] Subprojects affecting cultural property negatively either should be redesigned to avoid any damages, or, they will not be undertaken by the project.

With respect to the World Bank Safeguard Policies, the Environmental Assessment Policy (OP 4.01) applies broadly to all the types of potential impacts listed in the above table. It should be understood that (i) Category A in this ESMF corresponds to Category A in OP 4.01; (ii) Categories B1 and B2 in this ESMF correspond to Category B in OP 4.01; and (iii) Category C in this ESMF corresponds to Category C in OP 4.01. Furthermore, (i) the Natural Habitats Policy (OP 4.04) applies to (is triggered by) Impacts 1.1-1.2, 1.4, 1.7-1.8, 1.13, 2.1, 2.5, and 2.14-2.15; (ii) the Physical Cultural Resources Policy (OP 4.11) applies to Impact 3.5; and (iii) the Involuntary Resettlement Policy (OP 4.12) applies to Impacts 3.1-3.4.

PART E: OVERALL EVALUATION OF THE SCREENING PROCESS ON THE SITE AND PROJECT ACTIVITY

The result of the screening process would be either:

- The subproject would be **Category A** if it were likely to result in one or more major adverse environmental impacts. Category A subprojects would require a full ESIA, subject to review by Malawi's Environmental Affairs Department (EAD).
- However, no Category A subprojects are expected under the LWSP.
- The subproject would be **Category B1** if no further environmental assessment work is required, but the subproject must fully apply the relevant, generic mitigation measures specified in the ESMF, including the Environmental Rules for Contractors and Chance Finds Procedures.
- The subproject would be **Category B2** if further environmental assessment work is required, specifically the preparation of a separate Environmental and Social Management Plan (ESMP) with tailored, site-specific environmental mitigation measures (not just the generic ones). For any LWSP Category B2 subprojects--where in-depth, site-specific fact-finding would be needed to ascertain the likely environmental (including social) impacts--a subproject-specific ESIA would also be required. The scope of such an ESIA would be limited to the environmental and related social issues of specific concern, as identified in the screening process. For any Category B2 subprojects with their own ESIA, the ESMP will comprise a portion of the ESIA.

The LWSP subproject or other activity would be Category C if it does not involve civil works and no significant environmental issue has been identified, such that no specific mitigation measures are required. In such cases, subproject implementation can proceed without reference to additional environmental requirements.

Completion by PIU	
Is This Project Likely To Need An ESIA	YES/ NO
List A/B Paragraph Numbers	
Date Exempted	

Completion by EAD	
Date Received from District Assembly:	
Dated Reviewed:	
Date of Submission of Project Brief	

Date Forwarded To EAD	
Name & Signature of Environmental and/or Social Specialist/s	

Date of Submission of ESIA Reports	
Date of Approval/Rejection	

NOTES:

- Once the Environmental and Social Screening Form is completed it is analysed by the Environmental and Social Specialist/s from the PIU who will classify it into the appropriate category based on a predetermined criteria and the information provided in the form.
- All projects' proponents exempted from further impact assessment must be informed to proceed with other necessary procedures.
- Any projects recommended for a specific ESIA will have to follow the procedures outlined in section 24 and 25 of the Environmental Management Act, and the Malawi Government's Guidelines for Environmental Impact Assessment Appendix C, page 32.

ANNEX 2: SANITATION SUBPROJECTS ENVIRONMENTAL AND SOCIAL CHECKLIST

Environmental & Social Checklist for Sanitation Sub-Projects

S/N	Potential Negative Environmental and Social Impacts	Tick if relevant	Possible Mitigation Measures	Tick if relevant	Responsible Person
1.0	**Septic tanks**				
1.1	**Soil and water pollution due to seepage from tanks**		Ensure regular emptying; conduct hygiene education campaign to raise awareness of the health risks of exposed sewage; establish and support affordable pump out services		
2.0	**Sewers**				
2.1	**Soil and water pollution**		Ensure regular maintenance		
2.2	**Construction impacts**		Follow EHS General Guidelines and Environmental and Social Clauses for Contractors		
3.0	**Sewerage maturation ponds**				
3.1	**Construction impacts**		Follow EHS General Guidelines and Environmental and Social Clauses for Contractors		
3.2	**Possible land acquisition**		Refer to RPF or RAP		
3.3	**Sludge disposed of indiscriminately and causing health risks**		Ensure that sludge is properly dried and disposed of in a manner that poses no risk to human health		
3.4	**Animals accessing sewage ponds and transmitting diseases to people**		Install and maintain proper fencing to prevent animals from entering the area		
3.5	**Incompletely treated waste water contaminating surface water streams**		Operate ponds in a manner that only allows waste water meeting prescribed quality standards leaving the treatment site; ensure that ponds are sized and operated to retain waste water for an adequate period to complete the treatment process		
3.6	**Exposed trenches and pits during construction**		Backfill trenches after installation of pipes Geofence the trenches with barrier red tape		
3.7	**Uncovered manholes during operation**		Appropriately cover all manholes to avoid bad smell and dumping of wastes		
4.0	Public toilets				

4.1	Contamination of water supply sources		Ensure latrines are located at least 30 m from hand dug wells and springs, and 60 m from boreholes		
4.2	Latrines overflowing and creating health risks through people and animals coming in contact with human wastes		Conduct hygiene education campaign to raise awareness of the health risks of exposed human waste and promote the support and use of municipal or private sector cleaning services		
4.3	Flies and rodents carrying diseases from the latrines		Block pathways for flies, i.e. by putting a screen over the vent and installing lid on the hole; ensure latrines are constructed with a suitable superstructure to prevent entry of rodents into vault		
4.4	Open defecation		Conduct hygiene education campaign to raise awareness of the health risks of open defecation, and promote the use of latrines		

ANNEX 3: ENVIRONMENTAL RULES FOR CIVIL WORKS CONTRACTORS

1 General Applicability of the Environmental Rules and ESMP

These general environmental guidelines apply to any work to be undertaken under the LWSP. All work must be conducted in accordance with the World Bank Group *General* and *Water Supply and Sanitation Environmental, Health and Safety Guidelines (EHS)*. The Construction and Demolition guidance in the *General Guidelines* is particularly pertinent. For certain work sites entailing specific environmental and/or social issues, a specific Environmental and Social Impact Assessment, including an Environmental and Social Management Plan (ESMP), has been prepared to address the above-mentioned specific issues in addition to these general environmental guidelines. In addition to these general Environmental Guidelines, the Contractor shall therefore comply with any specific ESMP for the works s/he is responsible for. The Contractor shall be informed by LWSP about such an ESMP for certain work sites, and prepare his/her work strategy and plan to fully take into account relevant provisions of that ESMP. If the Contractor fails to implement the approved ESMP after written instruction by the works supervisor to fulfill his/her obligation within the requested time, the Client reserves the right to arrange for execution of the missing action by a third party on account of the Contractor.

Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP where such an ESMP applies.

These Environmental Rules, as well as any specific ESMP, apply to the Contractor. They also apply to any sub-contractors present on Program work sites at the request of the Contractor with permission from the Client.

2 General Environmental Protection Measures

In general, environmental protection measures to be taken at any work site shall include but not be limited to:

(a) Minimize the effect of dust on the environment resulting from earth mixing sites, vibrating equipment, construction related traffic on temporary or existing access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity of work sites and access roads.

(b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) comply with World Bank and Malawian standards and are generally kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.

(c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels are maintained and/or re-established where they are disrupted due to works being carried out.

(d) Prevent any construction-generated substance, including bitumen, oils, lubricants and waste water used or produced during the execution of works, from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs.

(e) Avoid or minimize the occurrence of standing water in holes, trenches, borrow areas, etc..

(f) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. Restore/rehabilitate all sites to acceptable standards.

(g) Upon discovery of graves, cemeteries, cultural sites of any kind, including ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the Client so that the Ministry in charge of Culture may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources. See Chance Finds Procedures in Annex 4.

(h) Prohibit construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities. Prohibit explicitly any purchase of bush meat, as well as the transport of bush meat in Contractor's vehicles.

(i) Prohibit the transport of firearms in Program-related vehicles.

(j) Prohibit the transport of third parties in Program-related vehicles.

(k) Implement soil erosion control measures in order to avoid surface run off and prevent siltation, etc.

(l) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.

(m) Ensure that, in as much as possible, local materials are from legally authorized and (insofar as can be feasibly determined) environmentally sustainable sources.

(n) Ensure public safety, and meet Malawian traffic safety requirements for the operation of work to avoid accidents.

(o) Ensure that any trench, pit, excavation, hole or other hazardous feature is appropriately demarcated and signposted to prevent third-party intrusion and any safety hazard to third parties.

(p) Comply with Malawian speed limits, and for any traffic related with construction at

Project sites.

(a) Ensure that, where unskilled daily-hired workforce is necessary, such workers are hired from neighboring communities as much as possible.

(b) Generally, comply with any requirements of Malawian law and regulations.

Besides the regular inspection of the sites by the supervisor appointed by the Client for adherence to the Contract conditions and specifications, the Client may appoint an environmental inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State Environmental Authorities may carry out similar inspection duties. In all cases, as directed by the Client's supervisor, the Contractor shall comply with directives from such inspectors.

Unless duly requested by the Contractor and authorized by the supervisor, no servicing of vehicles is permitted at the drilling site.

3 Pipelines

No trench shall be left open for more than 7 days, unless duly authorized by the supervisor upon Contractor's request. Trenches and other excavation works shall be demarcated and/or signposted to avoid third party intrusion and risks of injury or death.

General conditions related with topsoil stripping, storage and restoration apply.

The Contractor will take measures to dispose of water used for pressure tests in a manner that does not affect neighboring settlements.

The Contractor will provide workers with appropriate Personal Protective gear and Equipment (PPE) especially if working with the replacement of asbestos pipelines. Recommended PPE for asbestos work includes: respirators and disposable clothing.

4 Waste Management

All drums, containers, bags, etc. containing oil/fuel/surfacing materials and other hazardous chemicals shall be stored at construction sites on a sealed and/or bonded area in order to contain potential spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed of at designated disposal sites in line with the applicable World Bank Group Environmental, Health, and Safety Guidelines as well as Malawi government waste management regulations.

In the event of a limited hydrocarbon spill, the Contractor will recover spilled hydrocarbons and contaminated soils in sealed drums and dispose of them in an authorized waste management facility.

All drainage and effluent from storage areas, workshops, housing quarters and generally from construction sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

Used oil from maintenance shall be collected, properly stored in sealed containers, and either disposed of appropriately at designated sites or be re-cycled.

Entry of runoff into construction sites and staging areas shall be restricted by constructing diversion channels or holding structures such as berms, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.

Where temporary dump sites for clean excavated material are necessary, they shall be located in areas, approved by the Client's supervisor, where they will not result in supplemental erosion. Any compensation related with the use of such sites shall be settled prior to their use.

Areas for temporary storage of hazardous materials such as contaminated liquid and solid materials shall be approved by the supervisor and appropriate local and/or relevant national or local authorities before the commencement of work. Disposal of such waste shall be in existing, approved sites. Waste containing asbestos (old pipelines, etc.) is to be disposed of at authorized locations in a manner to discourage reuse or scavenging.

5 Quarries and Borrow Areas

The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas. The location of quarries and borrow areas shall be subject to review and approval by relevant local and national authorities.

New extraction sites:

a) Shall not be located less than 1km from settlement areas, archaeological areas, cultural sites - including churches and cemeteries, wetlands or any other valued ecosystem component, or on high or steep ground.

b) Shall not be located in water bodies, or adjacent to them, as well as to springs, wells, well fields.

c) Shall not be located in or near forest reserves, natural habitats or national parks.

d) Shall be designed and operated in the perspective of an easy and effective rehabilitation. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.

e) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing and safety hazards for third parties.

Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.

Stockpile areas shall be in areas where trees or other natural obstacles can act as buffers to prevent dust pollution, and generally at a distance from human settlements. Wind shall be taken into consideration when siting stockpile areas. Perimeter drains shall be built around stockpile areas.

The Contractor shall deposit any excess material in accordance with the principles of these guidelines, and any applicable ESMP, in areas approved by local authorities and/or the supervisor.

6 Rehabilitation of Work and Camp Sites

Topsoil shall be stripped, removed and stored for subsequent rehabilitation. Soils shall not be stripped when they are wet. Topsoil shall not be stored in large or high heaps. Low mounds of no more than 1 to 2m high are recommended.

Generally, rehabilitation of work and camp sites shall follow the following principles:

- To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.
- Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
- Ensure reshaped land is formed so as to be stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.
- Minimize erosion by wind and water both during and after the process of reinstatement.
- Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.

7 Management of Water needed for Construction Purposes

The Contractor shall at all costs avoid conflicting with water needs of local communities. To this effect, any temporary water abstraction for construction needs from either ground or surface water shall be submitted to the following community consultation process:

- Identification of water uses that may be affected by the planned water abstraction,
- Consultation with all identified groups of users about the planned water abstraction,
- In the event that a potential conflict is identified, report to the supervising authority.

This consultation process shall be documented by the Contractor (via minutes of meeting) for review and eventual authorization of the water withdrawal by the Supervising Engineer.

Abstraction of both surface and underground water shall only be done with the consultation of the local community as mentioned and after obtaining a permit from the relevant authority.

Abstraction of water from dambos, marshes, and similar wetlands is prohibited.

Temporary damming of streams and rivers is submitted for the Supervising Engineer's approval by the. It shall be done in such a way as to avoid disrupting water supplies to communities downstream, and to maintain the ecological balance of the river system.

No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses. Similarly, wash water from washing out of equipment shall not be discharged into water courses or road drains. Washing bays shall be sited accordingly. Unless site conditions are not favorable, it will generally be infiltrated through soak pits or similar means.

Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

8 Traffic Management and Community Safety

Location of temporary access roads shall be done in consultation with the local community and based on the screening results, especially in important or sensitive environments. Temporary access roads shall not traverse wetland areas or other ecologically sensitive areas. The construction of any access roads shall be submitted to a prior consultation process with potentially affected communities that will be documented (minutes of meetings) for the Supervising Engineer's review and approval.

Upon the completion of civil works, all temporary access roads shall be ripped and rehabilitated.

Measures shall be taken to suppress dust emissions generated by Program traffic.

Maximum speed limits for any traffic related with construction at LWSP sites shall be the following,

- Inhabited areas: 50 km/h
- Open road: 80 km/h.

9 Salvaging and Disposal of Obsolete Components found by Rehabilitation Works

Obsolete materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures shall be salvaged and disposed of in a manner approved by the supervisor. The Contractor has to agree with the supervisor which elements are to be

surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.

Any asbestos cement material that might be uncovered when performing rehabilitation works will be considered as hazardous material and disposed of in a designated facility. Scavenging and reuse of such materials must be prohibited.

10 Compensation of Damage to Property

Compensation of land acquired permanently for Program purposes will be handled under Client responsibility based on the provisions of the RPF. However, in the event that the Contractor, deliberately or accidentally, damages property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner/user a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.

In any case where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the Supervising Engineer.

11 Contractor's Health, Safety and Environment Management Plan (HSE-MP)

Within 6 weeks of signing the Contract, the Contractor shall prepare an HSE-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an ESMP for the works. The Contractor's EHS-MP will serve two main purposes:

The Contractor's HSE-MP shall provide at least:

- A description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an ESMP;
- A description of specific mitigation measures that will be implemented in order to minimize adverse impacts;
- A description of all planned monitoring activities and the reporting thereof; and
- The internal organizational, management and reporting mechanisms put in place for such**.**

The Contractor's HSE-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's HSE-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

12 HSE Reporting

The Contractor shall prepare bi-monthly progress reports to the Client (PIU, LWB or LCC) on compliance with these general conditions, the sub-program ESMP if any, and his own HSE-MP. The Contractor's reports will include information on:

- HSE management actions/measures taken, including approvals sought from local or national authorities;
- Problems encountered in relation to HSE aspects (incidents, including delays, cost consequences, etc. as a result thereof);
- Non-compliance with contract requirements on the part of the Contractor;

- Changes of assumptions, conditions, measures, designs and actual works in relation to HSE aspects; and
- Observations, concerns raised and/or decisions taken with regard to HSE management during site meetings.

The reporting of any significant HSE incidents shall be done as soon as practicable. Such incident reporting shall therefore be done individually. The Contractor should keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-monthly reports. Details of HSE performance will be reported to the Client.

13 Training of Contractor's Personnel

The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any program ESMP, and his own HSEMP, and are able to fulfill their expected roles and functions. Specific training will be provided to those employees that have particular responsibilities associated with the implementation of the HSE-MP. Training activities will be documented for potential review by the Client.

Amongst other issues, training will include an awareness session for all employees on HIVAIDS addressing the following topics:

- What is HIV/AIDS?
- How is HIV/AIDS contracted?
- HIV/AIDS prevention.

14 Penalties for Non-Compliance

In the HSE-MP, the Contractor shall specify strict penalties (warnings, dismissal, etc.) and transparent enforcement procedures for non-compliance by any employees or contracted personnel. The Supervising Engineer shall oversee the Contractor's timely and appropriate application of these procedures during project construction.

Any material (non-trivial) environmental or social damages by the Contractor due to non-compliance with these Rules must be rectified before the Contractor will be eligible to receive his final payment.

ANNEX 4: CHANCE FINDS PROCEDURES

1. Chance Finds Procedures

Chance Find Procedures outline, step by step, what needs to be done when projects come across archaeological sites, historical sites, remains and objects, including graveyards or individual graves during excavations or construction. This procedure responds to OP/BP 4.11- Physical Cultural Resources. This Policy addresses physical cultural resources which are defined as movable or immovable objects, sites, structures that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings and may be above or below the ground.

2. Chance Finds Procedures for Water Distribution Network Rehabilitation

If the contractor of the water distribution network rehabilitation component discovers archaeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavations or construction, the implementers will carry out the following steps:

a. Stop the construction or excavation activities in the area of the chance find;

b. Delineate the discovered site or area;

c. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Department of Antiquities take over;

d. Notify the Social Specialist of Lilongwe Water Project Implementation Unit or the Project Manager who in turn will notify the responsible officer in the Departments of Antiquities immediately (within 24 hours or less);

e. Responsible officer from the Department of Antiquities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;

f. Decisions on how to handle the finding shall be taken by the responsible authorities at the Department of Antiquities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;

g. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Department of Antiquities to Lilongwe Water Board; and

h. Construction work could resume only after permission is given from the responsible local authorities or department responsible for culture or antiquities concerning safeguard of the heritage.

ANNEX 5: TYPICAL SCOPE OF WORK FOR A SUBPROJECT-LEVEL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

A. Typical ESIA Scope of Work

1. Certain LWSP subprojects might require a subproject-specific ESIA, although many more are expected to require only an ESMP.

2. In preparing a subproject-specific ESIA, the Consultant will conform with the following regulations and policies:

- Malawian environmental regulations,
- The World Bank's OP 4.01 and other applicable safeguard policies,
- The applicable World Bank Group Environment, Health and Safety Standards including General and Water and Sanitation (WS) Guidelines (December 2007)
- The Lilongwe WSP Environmental and Social Management Framework (ESMF).

3. The Consultant's scope of work will include:

- Initial consultations with the implementing agency (either LWB and LCC) and EAD

- **Review of the regulatory and policy background**:
  - Based on Malawian legislation and regulation identified in the ESMF, the Consultant will identify any relevant changes which may have occurred since the time the ESMF was prepared, and identify the practical implications thereof in preparing the ESIA,
  - Based on World Bank policies identified as applicable in the ESMF, the Consultant will review any relevant changes and identify practical implications thereof,
  - The Consultant will summarize in the ESIA report the applicable regulatory and policy background with a focus on practical implications in terms of: ESIA process, including public consultation and disclosure, ESIA scope of work, Contents of the ESIA report.

- **Sub-project description:** Based on documentation prepared by the implementing agency, the Consultant will prepare a brief sub-project description, with a focus on those physical components of the sub-project that may entail environmental and/or social impacts.
- **Public consultation**: The Consultant will implement the following phases of public consultation, in coordination with the implementing agency, which may be willing to participate in this public consultation process:
  - Identification of interested parties (beneficiary neighboring communities, communities potentially affected by the sub-program, downstream water users, local authorities, national authorities);
  - Initial step of consultation, before further environmental assessment work is undertaken: one initial meeting with each of the identified parties, presenting the sub-program and seeking input on the scope of work for further environmental assessment work;
  - Second step of consultation, after further environmental assessment work is complete: presentation of the results of the environmental assessment, including presentation of identified impacts and proposed mitigations, seeking input on these proposed environmental

management measures; this second step will include dissemination to identified interested parties of a summary of the environmental assessment in local language (generally Chichewa);
    - Any public consultation meeting undertaken by the Consultant will be documented through minutes of the meeting;
    - Main issues raised during consultation meetings will be summarized in the ESIA report, with a description of the way these issues were addressed in the ESIA process;

- **Baseline Assessment**: The baseline assessment will address:
    - Physical and bio-physical environment (climate, topography at the sub-program site(s), geology, hydrogeology, surface water, soils, erosion sensitivity, flora, fauna, including the identification of any protected or endangered species),
    - Land use at the sub-program site(s) and in its (their) vicinity,
    - Human environment: description of neighboring communities (population size, population structure and demography, socio-political organization, livelihoods, access to public services),
    - The baseline assessment will be summarized using the format presented in the "typical EA report structure" hereunder;
    - Reports of field observations and bibliography used will be presented as appendices;

- **Impact assessment:** The methodology for impact assessment shall be briefly presented. Typically, impacts will be assessed along the following lines:
    - Extension in space,
    - Duration in time,
    - Probability of occurrence,
    - Magnitude
- The combination of these parameters will be summarized in an all-encompassing measure of "significance", which will be the basis for impact assessment and prioritization of mitigations;
- Where changes in the program design (such as the re-siting or re-routing of a sub-project facility) may allow to eliminate one or several identified impacts, these changes (and generally, any project alternative) will be discussed;
- **Mitigations and ESMP:** Based on the LWSP Environmental and Social Management Framework, the Consultant will develop a sub-project Environmental and Social Management Plan (ESMP), which will include as a minimum for each identified impact:
    - A description of the mitigation measures,
    - A description of monitoring measures,
    - Implementation responsibilities,
    - Cost,
    - Assessment of residual impact after implementation of the mitigation;
    - If any changes to the Environmental Rules for Civil Works Contractors presented as an appendix to the ESMF are warranted, the Consultant will propose such changes.
- **Deliverables**: The Consultant will produce:
    - A summary program description in local language for purposes of public consultation (see
    - above),
    - A First Draft ESIA report for submission to the Client
    - After initial Client's comments, have been included in a revised version, a Second Draft ESIA report, including a summary in local language for purposes of public consultation,
    - After public consultation results, have been included, a Final ESIA report for public disclosure along the lines specified in the ESMF.

B. Typical Structure of an ESIA Report (for subprojects where some of the below-stated issues do not apply, the scope of the ESIA will accordingly be more limited)**:**

1. Executive summary

2. Introduction

- Scope of the ESIA
- Team in charge of the ESIA, with list of consultants involved and task of each
- Summary of requirements applying to the ESIA:
- General Malawian legal requirements
- ESMF requirements
- RPF requirements
- Other World Bank requirements if applicable
- Time frame for implementation of the ESIA

3. Description of the Proposed Subproject

- Technical components, including description of the methods used for construction and operation
- Outline of the main alternatives
- Sub-Program decommissioning at the end of the operation period
- Implementation arrangements
- Implementation schedule and cost

4. EA Methods

- Terms of Reference of the ESIA, and process through which they were arrived at
- Description of the methods used for the ESIA, including description of field investigations, mathematical models, social investigations, available literature
- Description of standards and guidelines used
- Statement on the extent of involvement
- Identification of information gaps and uncertainties

5. Consultation

- Identification of interested parties
- Description of consultation with affected parties (timeframe, methods)
- Main issues arising from consultation and how they were addressed in the ESIA process

6. Description of the baseline environmental, socio-economic and health conditions

- Focus of the baseline assessment depending on the nature of the sub-program and on its likely impacts
- Description of the physical environment (climate, topography, geology, hydrogeology, surface water, soils in the sub-program area)
- Flora and fauna - brief description of the baseline situation at the program site, with a specific focus on endangered species if any, and assessment of the general biodiversity situation in the program area

- Description of the human environment:
- Identification of neighboring communities, description thereof, demography, sociopolitical conditions),
    - Land use pattern, land tenure, and related social organization,
    - Livelihoods
    - Water usages
    - Noise
    - Health situation

7. Subproject Impacts

- Generally, prediction and assessment of each impact at all stages of the subproject for each alternative, including but not limited to;
- Construction phase
    - Employment
    - Impact on land use
    - Impact on flora and fauna, with a specific focus on endangered species if any
    - Noise, dust and vibration
    - Impact on ground water quality
    - Impact on surface water quality (related with erosion at the vicinity of the work site for example)
    - Impact on surface water usage
    - Impact on ground water usage
    - Impact on soils (compaction by drilling equipment, removal of top soil)
    - Potential uses of the environment that will be affected

- Operation phase
    - Impact on ground water levels, flow and quality
    - Impact on surface water (quantity - flow, quality)
    - Impact on surface water usage with a focus on potential conflicts between upstream and downstream users if relevant
    - Impact on ground water usage
    - Impact of changes in water regimes on flora and fauna, and bio-diversity in general, with specific focus on wet zones if any
    - Potential uses of the environment that will be affected
- Decommissioning phase
    - Summary table assessing the significance of each identified impact in terms of magnitude, extension, duration or frequency of occurrence and probability of occurrence

8. Consultation Process

- Description of the consultation process (who was consulted, how, when)
- Results: main issues raised and how they are addressed in the program design and in the EA in general

9. Mitigation Measures

- Table showing for each identified impact at each of the main three phases of the program the proposed mitigation measures, with narrative justifying them
- Table showing the residual impacts once the mitigation measures are implemented

10. Monitoring & Evaluation

Table showing for each identified impact the monitoring measures that will be taken, with indication of indicators used, frequency of measurement, frequency of reporting and any relevant details on the methods to be used for collecting and treating monitoring data

11. **Environmental and Social Management Plan (ESMP)**

If part of the subproject ESIA, the ESMP needs to provide the pertinent details regarding each of the planned environmental mitigation, enhancement, and monitoring measures and corresponding implementation arrangements that would be a part of the subproject. In addition to a sufficiently detailed text description, the ESMP needs to include a table showing, for each identified impact, the planned mitigation and monitoring measures and the corresponding institutional responsibilities, the implementation schedule, and the estimated cost and funding source. If the ESMP is a free-standing document (with no subproject-specific ESIA), it also needs to provide, in addition to the above-mentioned requirements, (i) a subproject description and (ii) a description of the specific environmental impacts to be mitigated.

ANNEX 6: CONSULTATION MEETING

MINUTES OF AN EMERGENCY WASH SUB COMMITTEE MEETING OF 3RD AUGUST 2017 HELD AT LILONGWE CITY COUNCIL CHAMBER

MEMBERS PRESENT

No	NAME	ORGANIZATION
1	Jorlex Kamtokoma	Lilongwe City Council (LCC)
2	Bernard Mphepo	TSP
3	Alickson Msukwa	LCC
4	George Mwakasungula	CICOD
5	Griffin Phiri	OSF
6	Tanazio Bauti	LUPPEN
7	Jolly Kenan	WaterAid
8	Lloyd Mtalimanja	WaterAid
9	Jabulani Thadzi	MoAIWD
10	Handricks Mgodie	Ministry of Health (MoH)
11	Edna Mlanjira	LCC
12	Chifundo Matabwa	Waste & Hygiene
13	Asayire Kapira	WES Network
14	Charles Kachingwe	Lilongwe Water Board (LWB)
15	Stephen Phiri	LCC
16	Virginia Manda	CYDO
17	Max Howard Mgala	CYDO
18	Francis Sande	Habitat for Humanity Malawi

19	Chisomo Madula	Habitat for Humanity Malawi
20	Chimwemwe Mlongoti	Plan International Malawi
21	Philemon Chimbalu	PCO
22	Catherine Kunje	Dpt. Director. HCOWS
23	Lackson Chingana	LCC
24	Thokozani Mkaka	LCC
25	Lonisah Mphepo	LCC
26	Malano Keledo	LCC
27	Dorah Banda	LCC
28	Alphonso Phalula	LCC
29	E. Longwe	LCC
30	Matanje Kusamba	LCC
31	Gloria Guazani	MoH
32	Eva Phiri	Pump AID
33	Phyllis Mkezalamba	LCC
34	Bright Mtambasha	LCC
35	Yankho Nankwenya	LWB
36	Allan Kwanjana	LCC
37	Jimmy Tung'ade	LCC
38	Simon Mbilizi	LCC
39	James Banda	LCC
40	Alfred Sanudi	LCC

The following were discussions on the LWSP:

The Sewerage Engineer made a Presentation on behalf of the Director of Engineering Services for Lilongwe City Council. He indicated that there is a project on Water Supply by Lilongwe Water Board to be done jointly with Lilongwe City Council. He further explained that the Water Project has a Sanitation component which will be coordinated by Lilongwe City Council while the water supply component will be coordinated by Lilongwe Water Board. The project total funding is 325 million US dollars and is for three years. The funding arrangement is going to be done in phases with an initial phase of 100 million US dollars, of which Lilongwe City Council will utilize 20 million US dollars for sanitation component.

The proposed activities to be covered under the sanitation components are; extending the sewer lines, upgrading the treatment process capacity at Kauma sewerage treatment plant, onsite sanitation, construction of 10 public toilets in schools and market centres. Currently an ESMF and RPF are being developed for the project. Once finalized and approved by World Bank it will be shared with the stakeholders for their comments.

A representative from Plan Malawi requested the Implementation Unit to share the documentation of the project to the Committee.

In reaction to the question raised on the sharing of the information of the project documentation, the Chair told the members that the ESMF will be shared once it is finalized. The representative from Lilongwe Water Board further clarified that that while carrying out planned preparation studies, the ESMF will assist project management in identifying and mitigating the potential negative environmental and social impacts of potential future sub-projects. The RPF will guide the

process of addressing adverse impacts which are likely to include land acquisition leading to displacement or partial or full loss of other assets and other property of PAPs.

A representative from Water Aid also wanted to know, as to who is or will carry out the ESIA for such a big project. In reaction to this the Representative from Lilongwe Water Board indicated that, the stage to do that is not there yet, and it will be determined once the project implementation areas/sites have been known and designs done. The ESMPs will be developed through the normal procurement processes of the Consultants through the PIU that will be located at Lilongwe Water Board.

The Acting Director of Health wanted to find out the project components details, as to how they are taking care of the issue of Community participation, to ensure buy in by the community. In response to this, it was communicated that there is going to be more consultations during the planning and design phases of the project as the project implementation areas would have been known at that time. This will assist in targeting the people to be affected by the project including the beneficiaries.

Another representative from Water Aid questioned the sustainability of the additional 10 toilets, considering the worrisome condition of the current public toilets. It was responded that Lilongwe City Council will be capacitated from the same project to manage and sustain such challenges and the existing public toilets will be rehabilitated.