



# Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 08-Nov-2017 | Report No: PIDISDSA23052



**BASIC INFORMATION**

**A. Basic Project Data**

Country Malawi	Project ID P163794	Project Name Lilongwe Water and Sanitation Project	Parent Project ID (if any)
Region AFRICA	Estimated Appraisal Date 09-Oct-2017	Estimated Board Date 20-Dec-2017	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) The Republic of Malawi	Implementing Agency Lilongwe Water Board	

Proposed Development Objective(s)

To increase access to improved water services and safely managed sanitation services in Lilongwe City

Components

Water Distribution Network Rehabilitation, Expansion and NRW reduction  
 Priority Sanitation Improvements  
 Technical Assistance  
 Institutional Capacity Strengthening

**Financing (in USD Million)**

Financing Source	Amount
Borrower	2.00
International Development Association (IDA)	75.00
IDA Grant	25.00
<b>Total Project Cost</b>	<b>102.00</b>

Environmental Assessment Category

B - Partial Assessment

Decision

The review did authorize the preparation to continue



Other Decision (as needed)

## B. Introduction and Context

### Country Context

Malawi is a small, peaceful and democratic country, with a population of about 17 million people. Most the population (85 percent) lives in rural areas. Population growth rate is estimated at 2.8 percent per annum. At this growth rate, Malawi's population is expected to reach 23 million by 2025. The country is land-locked, has unexploited natural resources, and is highly vulnerable to hydro-climatic shocks. Despite a recent difficult economic and political period, Malawi has a stable democratic political system and has initiated economic and political reforms. The country however remains one of the world's poorest, with over half of its population living in poverty.

Malawi's economy is heavily dependent on agriculture. However, most the population is engaged in smallholder, rain-fed subsistence agriculture which regularly suffers exogenous climate-induced shocks with significant negative impacts on overall growth and poverty reduction. Malawi has a narrow export base consisting mostly of tobacco, with high dependence on imports and external aid flows. Investment climate constraints hinder private investment. The 2017 Doing Business report ranks Malawi 133<sup>rd</sup> out of 190 countries. The main obstacles to doing business include poor support infrastructure and services such as electricity, water, transport, an uncertain economic environment, poor legal and regulatory framework, lack of access to long-term finance and a limited skills base. Business confidence remains subdued following two years of drought conditions and weak economic growth.

Medium-term economic prospects however appear positive as the country recovers from the recent weather-induced shocks in 2016. Real GDP growth after two consecutive years of drought, fell below three percent in 2016 but is expected to pick up in the range of four to five percent in 2017. Annual inflation has now fallen to 9.3 percent in July 2017—its lowest level in recent years. However, there is still a wide range of constraints to growth in Malawi, including the high-dependence on rain-fed agriculture; low access to electricity; water scarcity and lack of drought resilience; unsafe drinking water and poor sanitation in both rural and urban areas, to name but a few. The Government of Malawi (GoM) is currently developing a medium-term strategy, looking beyond the recent crisis, to establish strong foundations for economic recovery and growth.

While Malawi is still predominantly rural and agrarian, the urban economy is projected to play a significant role in the country's long-term economic growth prospects. Projected urbanization and economic growth rates for the period from 2010 to 2030 show that even a slightly increased rate of urbanization could greatly enhance Malawi's long-term economic prospects<sup>1</sup>. Much of the urban growth, and consequent demand for better services, is taking place in Lilongwe, the capital city. Lilongwe is growing at a rate of 4.3 percent per year, the fastest in the country and the region. The current population is estimated at 1.1 million, and is expected to grow to 1.5 million by 2021, and to 2.2 million by 2030. This rapid growth is putting a strain on the city's services, including water supply and sanitation, and thereby limiting the city's potential as a catalyst for economic growth.

### Sectoral and Institutional Context

---

<sup>1</sup> World Bank (2016). *Malawi Urbanization Review: Leveraging Urbanization for National Growth and Development*, Urban, Rural and Disaster Risk Management Global Practice, Washington DC: The World Bank.



Unsafe drinking water and poor sanitation in both rural and urban areas is a binding constraint to Malawi's growth and poverty reduction. Malawi has made significant progress in improving access to water supply. Access rates for water supply have increased from 42 percent in 1990 to 90 percent in 2015, but progress on sanitation has been slower (from 29 percent in 1990 to 40 percent in 2015). Moreover, sanitation access figures often hide the high exposure to fecal pathogens due to limited fecal sludge management services, especially in the peri-urban areas, with most of the fecal matter ending into the environment without treatment. Similarly, with respect to water supply, official access figures often mask the poor levels of services. High population growth, dwindling water resources, lagging infrastructure development, and aging water systems create large gaps between supply and demand, leading to unreliable services.

Lilongwe City, in particular, faces unique water security challenges. Lilongwe River – the only source of water for the city is highly variable and very vulnerable during dry years. The river has been dammed twice to create storage for the dry season. The two dams – Kamuzu Dam 1 (KD1) and Kamuzu Dam 2 (KD2) constructed in 1966 and 1989 respectively – have a combined storage of 24 million m<sup>3</sup>/day, which is barely able to sustain current demand during the dry season. Water is abstracted at an intake point on the river about 20km downstream of KD2 and treated in Treatment Works 1 (TW1) and Treatment Works 2 (TW2), with a combined production capacity of 125,000 m<sup>3</sup>/day. However, on average, the plants are operating at 70 percent capacity<sup>2</sup>, producing an average of about 90,000 m<sup>3</sup>/day – of which about 32,400 m<sup>3</sup>/day (36%) is unaccounted for. Current peak demand is estimated at 130,000 m<sup>3</sup>/day, and this is projected to increase to 170,000 m<sup>3</sup>/day by 2025 and 220,000 m<sup>3</sup>/day by 2035. Thus, the water supply system is under strain and the city is already facing water shortages which are expected to become severe over the coming years, unless major investments in water loss reduction and additional water production are undertaken.

Sanitation is also a major challenge in the city. A recent city-wide survey<sup>3</sup> showed that only five percent of the population is served by a sewer system, while the majority relies on onsite sanitation systems (70 percent pit latrines and 25 percent septic tanks). 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. Faecal sludge emptying and collection from onsite systems is mainly done by small-scale private sector operators, with minimal regulation from the city council. There has not been any major investment in sanitation in Lilongwe since the 1980s. It is estimated that Malawi loses about US\$3.8 per capita or 1.1 percent of the country's annual GDP due to poor health outcomes attributed to, among others, low access to safely managed sanitation services<sup>4</sup>. Given the current levels of sanitation services, city authorities need to urgently plan for integrated sanitation investments, and address some of the priority infrastructure needs to reduce public health risks and environmental hazards due to poor sanitation. 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.

In terms of institutional set up, the Ministry of Agriculture, Irrigation and Water Development (MAIWD) leads the water sector. MAIWD is responsible for oversight of the water sector, including water resources management, irrigation, and water supply and sanitation. Urban and small town water supply is under the responsibility of the two urban Water Boards (Lilongwe and Blantyre) and the three regional Water Boards (Northern, Central, and Southern). The Water Boards report to MAIWD on technical matters and to the Department of Statutory Corporations (DSC)—under the Office of President and Cabinet—on policy issues (such as financial, administrative and managerial oversight). There is no independent regulator for the water sector. DSC currently reviews and

<sup>2</sup> Due to a combination of low yields from the Kamuzu dam system in the dry season and high levels of siltation in the river during the rainy season.

<sup>3</sup> World Bank (2017). Lilongwe Citywide Sanitation Survey. Interim Report (under preparation)

<sup>4</sup> WSP (2012). Economic impacts of poor sanitation in Africa. Water and Sanitation Program, The World Bank.



approves tariff increases. With respect to sanitation, city councils are currently in charge of sanitation services under the Local Government Act of 1998. At the same time, the Waterworks Act 1995 mandates urban Water Boards to provide sewerage services within their areas of jurisdiction. Despite having the mandate, none of the Water Boards are providing sewerage services and all sewerage assets (where they exist) remain with the city councils. GoM had previously decided to keep city sewerage systems under the responsibility of the city councils, until the Water Boards develop the necessary capacity to operate the systems. However, recent highly publicized cases of contamination of Lilongwe city's drinking water by a leaking sewer pipe have led to renewed calls for sewerage services to be transferred to Water Boards.

Lilongwe Water Board (LWB) is a statutory corporation established in 1995 with responsibility for water and sewerage services in Lilongwe City. LWB currently provides water services to about 70 percent of the city's population. The extension of the water distribution network is estimated at 1,758km in length, serving a total of 67,581 connections. LWB's financial performance remains highly unstable, with operating ratios varying between 1.0–2.8 over the past seven years, and collection rates stagnating at around 85 percent. Current water production does not meet demand, and thus, LWB rations water. Demand assessments show that LWB needs to augment its production capacity in the medium to long term even under the most conservative estimates. In addition, it is critical for LWB to look at diversifying its water sources to reduce the water security risk to the city. With the projected rapid growth in water demand, LWB and the Government of Malawi (GoM) has embarked on an ambitious investment program to secure water supply for Lilongwe.

LWB's medium-term investment plan is packaged in what is called the "Lilongwe Water Program". The Program consists of a series of investments designed to address the immediate and medium term water security needs, and support a long-term solution to Lilongwe's growing water demands. Over the next five years, LWB plans to raise the height of KD1 dam (by 7m) to increase abstraction capacity, which would enable full utilization of the installed production capacity and allow for an additional 50,000 m<sup>3</sup>/day expansion in treated water production capacity (TW3), reaching a total production capacity of 175,000 m<sup>3</sup>/day – enough to meet projected 2025 demand. This sub-project (KD1 raising) is financed by the European Investment Bank (EIB) and is already at procurement stage. Recent yield assessment<sup>5</sup> of the Kamuzu dam system confirms that the required 175,000 m<sup>3</sup>/day can be abstracted at a reasonable assurance level of between 96 and 97 percent<sup>6</sup>, considering environmental flow requirements. 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.

To help kick-start the Program, GoM has requested the World Bank to support priority investments in water distribution network rehabilitation, as well as sanitation improvements. In addition, GoM would like the Bank to support a set of technical assistance 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

<sup>5</sup> SMEC (2016). Feasibility Study and Preliminary Design of Lilongwe Water Treatments Works 3 (TW3). Kamuzu Dams Yield Assessment. Report to Lilongwe Water Board

<sup>6</sup> By comparison, reservoirs in South Africa - a country with similar hydrological variability to Malawi- are designed and operated to achieve reliability levels of 98 percent for urban water supply



capacity of LWB and Lilongwe City Council (LCC) to deliver improved water services and safely managed sanitation services; (iii) enhance LWB's capacity to manage its investment program. GoM has also engaged IFC to act as a transaction advisor for a possible public-private partnership (PPP) for water production expansion investments, following a series of feasibility studies that showed that it may be feasible to implement priority water production investments under a Build Operate Transfer (BOT) contract with the private sector.

### C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To increase access to improved water services and safely managed sanitation services in Lilongwe City

#### Key Results

The project is expected to directly benefit a total of 250,000 people with improved water services. A further 250,000 people are expected to benefit from safely managed sanitation services. For purposes of this project, 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 (including handwashing facility with soap and water) which is not shared with other households, and where excreta is safely disposed in situ and/or transported and treated off-site. Improved sanitation facilities include flush/pour flush toilets to piped sewer, septic tank or pit latrine; composing toilet or pit latrine with slab.

### D. Project Description

The project scope consists of four components: Component 1 – Water Distribution Network Rehabilitation, Expansion and NRW Reduction; (iii) Component 2 – Priority Sanitation Improvements; (iv) Component 3–Technical Assistance; and (v) Component 4–Institutional Capacity Strengthening. Below is a summary description of each of the components.

**Component 1–Network Rehabilitation, Expansion and Non-Revenue Water (NRW) Reduction (USD66 million of which USD65 million IDA Credit).** 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 142km of existing distribution network and creation of pressure zone boundaries; construction of 27km of transmission mains, eight associated pumping stations and four storage reservoirs with a combined storage of 2,600m<sup>3</sup>; 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 approximately 186km of network expansion to unserved areas. However, network expansion will only be undertaken if water production is increased either through improvements in the efficiency of existing treatment plants, savings from physical water loss reduction activities, construction of a new treatment plant or a combination of these three.

**Component 2–Priority Sanitation Improvements (USD19 million of which USD18 million IDA Grant).** 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 (approximately 107km); installation of 5,000 new connections; 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 (USD8.5 million of which USD5.5 million IDA Credit, and USD3 million IDA Grant).** 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; preparation 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<sup>7</sup>; 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; preparation of a sanitation master plan for Lilongwe City; feasibility studies for other priority sanitation investment identified in the master plan; and diagnostic studies on urban development and governance issues in Lilongwe

**Component 4–Institutional Capacity Strengthening (USD8.5 million of which USD 4.5 million IDA Credit and USD 4million IDA Grant).** 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 (i) implementation of LWB’s institutional capacity development action plan; (ii) incremental operating costs for LWB’s Project Implementation Unit (PIU); (iii) preparation of dam safety management plans, including instrumentation plan, O&M plan and emergency preparedness plan for both KD1 and KD2; (iv) implementation of priority dam safety measures for KD2<sup>8</sup> (which include relocation of gauge boards, installation of chainage markers, installation of vibrating wire piezometers, maintenance of standpipes piezometers, detailed inspection of fuse gates and concrete spillways during seasonal drawdown periods, cleaning and re-commissioning of relief wells, and maintaining the embankment structure free of shrubs and trees); and (v) independent review and expert advice to LWB on implementation of dam safety measures for both KD1 and KD2. With respect to LCC, the component will finance equipment, logistical support, training, specific technical assistance and incremental operating costs to the engineering and public health departments of LCC to strengthen their capacity to provide sanitation services.

## E. Implementation

### Institutional and Implementation Arrangements

LWB will be 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

<sup>7</sup>Excluding dams. 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. Further, LWB is currently studying the feasibility of abstracting water from Lake Malawi. This study is already underway, and is unlikely to require any further support from this project.

<sup>8</sup> Implementation of KD1 safety measures is included in the scope of the EIB project for KD1 raising and rehabilitation



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 an implementation agreement with 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.

Project implementation will be governed by a set of four agreements. The World Bank will sign a financing agreement with the Ministry of Finance, Economic Planning and Development (MoFEPD) as the recipient of the IDA credit/grant. MoFEPD will, in turn, sign a subsidiary financing agreement with LWB, with terms and conditions acceptable to the World Bank. The World Bank will also sign a project agreement with LWB as the lead implementing entity. LWB will sign an implementation agreement with LCC, with terms acceptable to the Bank. All project operational modalities will be detailed in a Project Implementation Manual (PIM) to be prepared and adopted no later than one month after project effectiveness.

**F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

The project location is Lilongwe, Malawi’s capital city. The population of the city is about 1.1 million. Water supply for the city is abstracted from Lilongwe River, a tributary of the Linthipe River that flows to Lake Malawi. About 70 percent of the city’s population have access to potable water distributed through a pipeline network of 1,758km in length. The existing sewer system on the other hand covers only five percent of the population. Most the population relies on onsite sanitation systems (seventy percent pit latrines and twenty-five percent septic tanks). The effluent from the city’s main sewage treatment plant (Kauma STP) is discharged in Lilongwe River. Component 1 activities include upgrading and rehabilitation of the water distribution network in different residential and peri-urban areas of the city. Activities will be undertaken in all the three zones of LWB’s distribution network, namely southern, central and northern zones. The upgrading works shall involve (i) replacement of 142km of the existing distribution pipelines with diameters ranging from 50-800mm; (ii) construction of four new reservoirs, each with a capacity of 650m<sup>3</sup>, at Chikungu, Mwenda, Area 25, and Chitedze; (iii) construction of 17km of new transmission mains; and (iv) construction of eight pumping stations of varying capacities. The component will also include expansion of the distribution network by about 186km to increase coverage of improvements. However, network expansion will only be undertaken if water production capacity is increased under the proposed public-private partnership (PPP) for water production expansion. Component 2 activities include rehabilitation/expansion of approximately 107km of sewerage network in the city; rehabilitation and upgrading of the existing Kauma STP; and construction of improved toilets. The exact location of sewer network rehabilitation 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. Rehabilitation/expansion works for Kauma STP will be assessed during feasibility studies. The scope of works is likely to include general rehabilitation





and construction of additional facultative ponds.

**G. Environmental and Social Safeguards Specialists on the Team**

George Campos Ledec, Environmental Safeguards Specialist  
Nicole Andrea Maywah, Environmental Safeguards Specialist  
Boyenge Isasi Dieng, Social Safeguards Specialist

**SAFEGUARD POLICIES THAT MIGHT APPLY**

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project is classified as Category B because although there will be negative impacts, they will be small scale and temporary in nature and scope (mostly during construction), and can be easily and cost-effectively mitigated. There will not be any significant, large-scale irreversible impacts. Most of the direct impacts will be site-specific and will not affect an area broader than the sites or facilities of the physical works. Potential negative social impacts will largely occur during the construction phase of the project. The likely temporary impacts will largely be associated with civil works emanating from digging of trenches to install and/or replace water distribution and sewer pipelines. Impacts may include soil erosion; generation of construction related solid waste; reduced vegetation cover due to clearing of land to pave way for construction activities; impacts on natural habitats such as rivers and wetlands during construction; increased localized noise and dust emissions due to earth moving equipment and machinery, and oil spillage from construction equipment and machinery. Dam safety remedial measures for both KD1 and KD2 are mostly non-structural, with the exception of repairs of the spillway concrete and embankments for KD1. Construction stage impacts of these remedial works financed by EIB include increase in soil erosion, contribution to siltation of water reservoirs for KD1



		<p>and KD2, and soil contamination and pollution etc.</p> <p>An Environmental and Social Management Plan (ESMP) has been prepared for all priority water distribution investments and publicly disclosed in-country and on the Bank's website on October 3, 2017.</p> <p>For sanitation and other water distribution network investments not yet identified and/or whose location is unknown at this stage, an Environmental and Social Management Framework (ESMF) has been prepared and disclosed on October 29, 2017. All subsequent sub-projects will be screened, assessed and site-specific environmental assessment carried out during the implementation stage of the project according to the procedures described in the ESMF. The ESMF also covers technical assistance and institutional capacity strengthening activities. Remedial works for KD1 are covered in the ESIA/ESMP for KD1 rehabilitation and raising project financed by EIB. The ESIA/ESMP was disclosed in-country and on EIB website on January 20, 2016.</p>
Natural Habitats OP/BP 4.04	Yes	<p>Trenching activities associated with rehabilitation/expansion of the water distribution network and sewer pipelines will likely have minimal impacts on natural habitats such as wetlands and rivers during the construction phase. The ESMP for priority network rehabilitation works includes an assessment for potentially affected natural habitats, as well as mitigation measures to minimize impacts. Similar assessments will be done for sanitation investments as part of preparation of site-specific safeguards for these investments, in accordance with the provisions of the ESMF.</p>
Forests OP/BP 4.36	No	<p>No forests will be affected by the project, and no project activities have anything to do with forest management.</p>
Pest Management OP 4.09	No	<p>The project activities will not promote the use of pesticides</p>
Physical Cultural Resources OP/BP 4.11	Yes	<p>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. The project ESMF</p>



		incorporates chance-find procedures for construction contracts. 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
Indigenous Peoples OP/BP 4.10	No	There are no Indigenous Peoples in the project area
Involuntary Resettlement OP/BP 4.12	Yes	<p>Some of the water distribution network rehabilitation/expansion works and sewer pipeline installation will be in densely populated areas of the city. Although the pipelines will be laid in road reserves to minimize land acquisition and disturbances, there are signs of encroachment on the road reserves in many areas across the city. The project is thus expected to disturb settlements, requiring temporary land acquisition, and is likely to disrupt livelihood activities. The disturbances will result in loss of property; damage to road pavements; damage to concrete driveway; damage to building structures; obstruction to passage on the roads; disruption of public service utilities; and temporary disruption to business activities and loss of income. For priority water distribution network investments, it is estimated that approximately 363 households/businesses will be impacted. LWB has conducted extensive consultations and socioeconomic studies of the areas affected by the priority water distribution network investments, and prepared a Resettlement Action Plan (RAP). The RAP was publicly disclosed in-country and on the Bank's website on October 3, 2017. Public consultations on the RAP have been held and appropriate grievance-handling procedures and arrangements for monitoring RAP implementation are in place.</p> <p>For sanitation and other water network investments not yet identified and/or whose locations are unknown at this stage, LWB has prepared a Resettlement Policy Framework (RPF). The RPF was disclosed in-country and on the Bank's website on October 25, 2017. The frameworks will ensure that the process of identifying, assessing, and mitigating social impacts is integrated in the development of the specific subprojects. Subsequent subprojects will be screened as per the provisions of the RPF and RAPs will be prepared, consulted on and disclosed</p>



before commencement of civil works.

The project will not support the construction of new dams or entail rehabilitation of existing dams. However, the project relies on the performance of existing dams (KD1 and KD2) during periods of low flows in Lilongwe River. Failure of the dams could cause damage to the water intake for water supply to Lilongwe. LWB engaged dam specialists in 2013 and 2015 to inspect and evaluate the safety status of KD1 and its performance history. The assessment recommended several remedial works to upgrade the dam, including structural repair works on the spillway concrete and outlet. The remedial works constitute part of the scope of the EIB-funded subproject for rehabilitation and raising of KD1. The works are currently at procurement stage and are expected to be completed by in 2019. The Bank team has reviewed all key documentation relating to the assessment and remedial measures, design of dam raising and found it overall satisfactory, for purposes of the policy. LWB has agreed to re-establish a Panel of Experts for continuous technical oversight and guidance during KD1 rehabilitation/upgrading. Further, the Bank team will continue its due diligence during implementation of the KD1 dam sub-project and work with LWB and EIB to address any issues identified with respect to compliance with the requirements of OP4.37. With respect to KD2, the safety assessments conducted in 2015 concluded that KD2 dam and its appurtenant structures were performing reasonably well, except for the damaged instrumentation. The assessment recommended several non-structural safety measures which will be financed under this project. The project will also finance preparation of dam safety management plans (including instrumentation plan, O&M plan and emergency preparedness plan) for both KD1 and KD2, as well as independent review and expert advice (through the Panel of Experts) to LWB on implementation of dam safety measures for both KD1 and KD2.

Safety of Dams OP/BP 4.37

Yes

Projects on International Waterways  
OP/BP 7.50

Yes

OP 7.50 is triggered because the project areas lie within the Lilongwe River watershed. Lilongwe River is a tributary of the Linthipe River, which flows into Lake Malawi. Lake Malawi drains into the Shire



River which flows south to the Zambezi River. Both Lake Malawi and Zambezi River are categorized as international waterways for purposes of the policy.

Lilongwe River is the main source of water for Lilongwe city. The river is at risk of increased pollution from point and non-point pollution sources, including fecal discharge. Sanitation investments envisaged under the project (e.g. rehabilitation of existing sewage treatment plant) will improve the quality of effluent and reduce the overall pollution load to Lilongwe River. Incremental wastewater to be collected will be treated in the rehabilitated Kauma sewage treatment plant to comply with the national BOD5 standard of 20mg/L before discharging into the Lilongwe River.

Therefore, the exception to the riparian notification applies as the upgraded wastewater treatment plant, receiving less than the design capacity will meet the national BOD5 standard of 20mg/L indicating that the water quality in Lilongwe River will not be adversely affected.

LWB has sought exemption for the requirement for notification of riparian states prior to appraisal. The exemption has been approved by the RVP.

Projects in Disputed Areas OP/BP 7.60

No

The project location is not within a disputed area

## KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

### A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Environmental and social impacts attributable to this project are mainly linked to (i) rehabilitation and upgrading of 142km of existing water distribution pipelines in different residential areas of Lilongwe city; (ii) laying of an additional 186km of water distribution pipelines to the network to reach unserved areas of the city; (iii) rehabilitation and upgrading of approximately 100km the sewer lines pipelines, as well as and improvements to onsite sanitation systems; and (iv) rehabilitation and expansion of Kauma sewage treatment plant from 6 MLD to 8.7 MLD. These investments are not expected to generate any negative large scale, significant and/or irreversible impacts. Instead, the investments will generate largely positive environmental and social impacts. The major positive social impact of the project is that approximately 500,000 people in Lilongwe city will gain access to reliable water services and safely managed sanitation, resulting in significant health and economic benefits for the city. Further, the project is expected



to help reduce inequalities in service delivery between different segments of the population by increasing access to water services in the underserved areas of the city, and contribute to reducing water rationing in the medium-term. The major positive environmental impact is expected to come from investments in sanitation. The project is expected to result in reduced public health risks and environmental pollution due to poor sanitation. Further, project investments in rehabilitation of the water distribution network will reduce water losses and improve energy efficiency.

The project is classified as Category B based on the minimal negative environmental impacts. Potential negative impacts are small-scale, temporary in nature and scope, and can be easily and cost-effectively mitigated. Most of the direct impacts will be site-specific and will not affect an area broader than the sites or facilities of the physical works. Potential negative social impacts will largely occur during the construction and operational phases of the project. During construction, the likely temporary impacts will largely be associated with civil works emanating from digging of trenches to install the water distribution and sewer pipelines. Impacts may include soil erosion; generation of construction related solid waste; reduced vegetation cover due to clearing of land to pave way for construction activities; impacts on natural habitats such as rivers and wetlands during construction; increased localized noise and dust emissions due to earth moving equipment and machinery, and oil spillage from construction equipment and machinery.

During the operational phase, the principal environmental risks are largely related to environmental and human health effects from effluent discharges. Preliminary assessment of the likely impacts of the effluent to the water quality of the Lilongwe River indicates long term improvement in the water quality of the effluent discharged into the Lilongwe River. Incremental wastewater to be collected will be treated in the rehabilitated Kauma sewage treatment plant to comply with the national BOD5 standard of 20mg/L before discharging into the Lilongwe River.

The project is also expected to result in negative social impacts. Some of the water distribution network rehabilitation/expansion works and sewer pipeline installation will be in densely populated areas of the city. Although the pipelines will be laid in road reserves to minimize land acquisition and disturbances, there are signs of encroachment on the road reserves in many areas across the city. The project is thus expected to disturb settlements, requiring temporary land acquisition, and is likely to disrupt livelihood activities. The disturbances will result in loss of property; damage to road pavements; damage to concrete driveway; damage to building structures; obstruction to passage on the roads; disruption of public service utilities; and temporary disruption to business activities and loss of income. For priority water distribution network investments, it is estimated that approximately 363 households/businesses will be impacted. 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 of similar magnitude. Overall, the negative social impacts from the project are temporary, site specific and reversible.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: Project-supported investments in water distribution network rehabilitation are expected to result in a reduction in water losses. This would in turn result in improved quality of services (hours of service and pressure) for existing LWB customers and allow for additional customers to be served, without necessarily increasing the volume of water produced.

The potential negative long-term impact from sewer network expansion is the increase in effluent generation by about 3MLD, which will in turn increase surface water pollution load from the sewage treatment systems. This is expected to be counter balanced by the expected positive long-term impact of such sewer network on groundwater quality and public health considering that all waste associated with such discharge was being directed to the



groundwater resources through soak away and pit latrines. Considering that it is more difficult to remediate ground water contamination as compared to surface water, the net impact from the sewer network expansion is expected to be positive.

Taken together, the project's water supply and sanitation interventions are expected to have long term impacts on public health and the economy. An improved water distribution network will enable LWB to expand water production to match rising demand. Better water and sanitation services will improve the business climate and enhance the potential of Lilongwe city as a catalyst for economic growth.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

For major road crossings, the alternative is to use underground tunnel across the major roads as compared to road cuttings. Consultation between Lilongwe Water Board (LWB), Lilongwe City Council (LCC) and Malawi Roads Authority will arrive at the final most sustainable option. Consultation between LWB, Electricity Supply Corporation of Malawi (ESCOM) and Malawi Telecommunications Limited (MTL) will avoid relocation of communication and electricity infrastructure by efficiently using the available road reserve. In residential and restricted areas, manual trenching will be employed as compared to mechanical trenching, thereby reducing the impact zone.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

LWB has prepared various safeguards instruments acceptable to the Bank. Priority water distribution network investments are known and have been screened for environmental risks and impacts. The scope of activities is limited to rehabilitation and upgrading of existing network infrastructure (pipelines, storage tanks and pumping stations). Environmental impacts associated with these investments are limited and will be managed using an Environmental and Social Management Plan (ESMP). LWB has prepared an ESMP that is acceptable to the Bank. The ESMP was consulted upon and publicly disclosed in-country and on the Bank's website on October 3, 2017, thereby complying with the requirements of O.P 4.01. Similarly, LWB has conducted extensive consultations and socioeconomic studies of the areas affected by the priority water distribution network investments, and prepared a Resettlement Action Plan (RAP) in accordance with the Bank's Operational Policy on involuntary resettlement and the requirements of Malawi regulations. The RAP was publicly disclosed in-country and on the Bank's website on October 3, 2017. Public consultations on the RAP have been held and appropriate grievance-handling procedures and arrangements for monitoring RAP implementation are in place.

For sanitation and other water network investments not yet identified and whose locations are unknown at this stage, LWB has prepared an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF). These frameworks will ensure that the process of identifying, assessing, and mitigating environmental and social impacts is integrated in the development of the specific subprojects. Subsequent subprojects will be screened as per the provisions of the ESMF/RPF and the appropriate safeguards tools will be formulated and implemented. The frameworks also cover technical assistance activities related to preparation of a water and sanitation master plans, as well as feasibility studies for future water supply and sanitation investments under the program. Consultations on the ESMF and RPF have been held and appropriate grievance-handling procedures and arrangements for monitoring implementation are in place. The RPF was publicly disclosed in-country and on the Bank's website on October 25, 2017, while the ESMF was disclosed in-country and on the Bank website on October 29, 2017.



LWB has also taken steps to comply with the World Bank operational policy on safety dams (OP 4.37) given the project's reliance on the performance of existing dams (KD1 and KD2). LWB engaged dam specialists in 2013 and 2015 to inspect and evaluate the safety status of KD1 and its performance history. The assessment recommended several remedial works to upgrade the dam, including structural repair works on the spillway concrete and outlet. The remedial works constitute part of the scope of the EIB-funded subproject for rehabilitation and raising of KD1. The works are currently at procurement stage and are expected to be completed by in 2019. LWB will maintain a Panel of Experts for continuous technical oversight and guidance during construction. With respect to KD2, the safety assessments conducted in 2015 concluded that KD2 dam and its appurtenant structures were performing reasonably well, except for the damaged instrumentation. The assessment recommended several non-structural safety measures which will be financed under this project. The project will also finance preparation of dam safety management plans (including instrumentation plan, O&M plan and emergency preparedness plan) for both KD1 and KD2.

LWB will have the overall responsibility to implement, monitor and report on the provisions contained in the safeguards instruments. LWB staff are familiar with both the national requirements and World Bank requirements for environmental and 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 risks at the scale of this project is still weak. Environmental issues/risks are currently managed by the Water Quality and Environmental Manager, who is experienced and knowledgeable about World Bank safeguard requirements. The project will support the recruitment of additional environmental and social safeguards specialist into the PIU in LWB to implement and monitor the mitigation measures described in the various safeguards instruments. All contractors will be required to follow site-specific management plans 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 dust control, as well as safety and health of workers.

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.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

As part of project preparation, a stakeholder analysis was conducted to identify stakeholders affected by the project or whose participation can positively or negatively affect outcomes. Key stakeholder groups identified include: Consumers or residents of Lilongwe city; Media; Government Ministries and Agencies; Members of Parliament; Local Government Leaders; Civic society organizations/NGOs; and Development Partners. Representation in the project areas is via elected and appointed leadership. Local leadership is through elected ward councilors and Members of Parliament. Local NGOs and CBOs that are active on various social activities. NGO activities include outreach to communities to promote sanitation and hygienic practices and support to local sanitation entrepreneurs. As part of





project preparation, local NGOs working on water and sanitation in peri-urban areas were identified and consulted.

Consultations with the project affected persons (PAPs) formed an important part of the process of preparing the safeguards instruments. The consultation meetings provided an opportunity for PAPs and other community members around the project areas to express their views on the proposed project activities as well as to raise any issues of concern relating to the project. The consultation meetings and focus group discussions were conducted in built up places and market centres in the project area such as Katondo market in Area 38, Ngwenya Market in Area 24, Zebra market in Area 49, Kachere market (Chinsapo) in Area 46 and at Senti market in Area 50. Consultation meetings were held in such areas because implementation of project activities will have more temporary effects in these areas.

Government departments, business representatives, community leaders and NGOs were consulted through a stakeholder meeting that took place at Lilongwe City Council offices on August 3, 2017. The consultation meetings were interactive in nature. Newspapers were used to provide information on the project and safeguard documents. The documents were disclosed in Lilongwe on LWB’s website on October 3, 2017; the Nation Newspaper on October 5, 2017; and on the Bank’s website on October 3, 2017.

**B. Disclosure Requirements**

**Environmental Assessment/Audit/Management Plan/Other**

Date of receipt by the Bank  02-Oct-2017	Date of submission for disclosure  03-Oct-2017	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
--	--	--

**"In country" Disclosure**

Malawi  
03-Oct-2017

Comments

**Resettlement Action Plan/Framework/Policy Process**

Date of receipt by the Bank  02-Oct-2017	Date of submission for disclosure  03-Oct-2017
--	--

**"In country" Disclosure**

Malawi  
03-Oct-2017

Comments



**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)**

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

Yes

**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

**OP/BP 4.37 - Safety of Dams**

Have dam safety plans been prepared?

NA

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

NA



Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

NA

**OP 7.50 - Projects on International Waterways**

Have the other riparians been notified of the project?

No

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?

Yes

Has the RVP approved such an exception?

Yes

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes

**All Safeguard Policies**

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

**CONTACT POINT**

**World Bank**



Josses Mugabi  
Sr Water & Sanitation Spec.

Odete Duarte Muximpua  
Water Supply and Sanitation Specialist

**Borrower/Client/Recipient**

The Republic of Malawi

**Implementing Agencies**

Lilongwe Water Board  
Alfonso Chikuni  
Chief Executive Officer  
achikuni@lwb.mw

**FOR MORE INFORMATION CONTACT**

The World Bank  
1818 H Street, NW  
Washington, D.C. 20433  
Telephone: (202) 473-1000  
Web: <http://www.worldbank.org/projects>

**APPROVAL**

Task Team Leader(s):	Josses Mugabi Odete Duarte Muximpua
----------------------	--

**Approved By**

Safeguards Advisor:	Nathalie S. Munzberg	08-Nov-2017
Practice Manager/Manager:	Wambui G. Gichuri	08-Nov-2017
Country Director:	Greg Toulmin	08-Nov-2017

