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THE GOVERNMENT OF KENYA

MINISTRY OF ENVIRONMENT, WATER AND NATURAL RESOURCES

KENYA URBAN WATER AND SANITATION OBA FUND FOR LOW INCOME AREAS

DRAFT

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

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WATER SERVICES TRUST FUND, KENYA

ISO 9001:2008 CERTIFIED

Financial Support for Improved Access to Water and Sanitation

TABLE OF CONTENTS

GLOSSARY OF TERMS

Cumulative impacts/effects: The total effects on the same aspect of the environment resulting from a number of activities or projects.

Direct impacts: An effect on the environment brought about directly by the Kenya Urban Water and Sanitation OBA Fund for Low Income Areas project.

Disclosure: Information availability to all stakeholders at all stages of the development of projects.

Environment: physical, biological and social components and processes that define our surroundings.

Environmental and Social Impact Assessment (ESIA): A comprehensive analysis of the project and its effects (positive and negative) on the environment and a description of the mitigative actions that will be carried out in order to avoid or minimize these effects.

Environmental Monitoring: The process of examining a project on a regular basis to ensure that it is in compliance with an Environmental and Social Management Plan (ESMP), or the Government of Kenya (GoK) Environmental and Social Impact Assessment (ESIA) certification of approval conditions and / or environmental prescriptions.

Impact: A positive or negative effect that a project has on an aspect of the environment.

Indirect impact: A positive or negative effect that a project indirectly has on an aspect of the environment.

Involuntary resettlement: The forceful loss of land resources that requires individuals, families and / or groups to move and resettle elsewhere.

Lead Agency: The agency with primary responsibility for the protection of the environment. For instance, the lead agency for environment matters in Kenya is the National Environment Management Authority (NEMA).

Mitigation measures: The actions identified in an ESIA to negate or minimize the negative environmental impact that a project may have on the environment.

Project and sub-project: a set of planned activities designed to achieve specific objectives within a given area and time frame.

Project Brief: The initial submitted document to NEMA to initiate the process that will lead to the issuance of the ESIA certificate of approval.

Scoping: The initial stage in an environmental assessment that determines the likely major environmental parameters that will be affected and the aspects of the project that will bring upon these effects.

Screening: An initial step when a project is being considered for environmental assessment. The screening is the determination of the level of assessment that will be conducted. In the case of GoK, screening will place project into one of environmental categories (A, B or C). Projects that are classified as A as a result of the screening will not be financed under this operation.

Significance: Importance.

Significant effect: An important impact on an aspect of the environment.

Stakeholder: Any person or group that has an interest in the project, and the environmental effects that the project may bring about.

ACRONYMS & ABBREVIATIONS

AFD	French Development Agency
AF	Additional Financing
AfDB	African Development Bank
AWSB	Athi Water Services Board
CAS	Country Assistance Strategy
CBO	Community Based Organisation
CWSB	Coast Water Services Board
CDO	County Development Office
CEO	County Environment Officer
EA	Environmental Audit
ESIA	Environmental and Social Impact Assessment
EMCA	Environmental Management Co-ordination Act
ESMP	Environmental and Social Management Plan
ERSWEC	Economic Recovery Strategy for Wealth and Employment Creation
ESMF	Environmental and Social Management Framework
GDP	Growth Domestic Product
GoK	Government of Kenya
HIV/AIDS	Human Immuno-Deficiency Virus
IBA	Important Bird Area
IDA	International Development Association
ITCZ	Inter Tropical Convergence Zone
IUCN	World Conservation Union
KFS	Kenya Forest Service
LVNWSB	Lake Victoria North Water Services Board
M&E	Monitoring & Evaluation
MDG	Millennium Development Goals
MoEWN	Ministry of Environment, Water and Natural Resources
MTR	Medium Term Review
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organization
OBA	Output Based Aid
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SEA	Strategic Environmental Assessment
USD	United States Dollars
WAB	Water Appeals Board
WaSSIP	Water and Sanitation Service Improvement Project
WB	World Bank
WRMA	Water Resources Management Authority
WSBs	Water Services Boards
WSPs	Water Services Providers
WSTF	Water Services Trust Fund
WUA	Water Users Association

EXECUTIVE SUMMARY

This Environment and Social Management Framework (ESMF) relates to the Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project, which is being financed by the World Bank under Global Partnership on Output-Based Aid (GPOBA). The project aims at incentivizing the urban Water Services Providers (WSPs) to invest in water supply and sanitation improvement subprojects to benefit households in low income areas by applying one-off Output-Based Aid (OBA) subsidies to make water and sanitation access affordable.

The project development objective is to increase the number of people in low income areas with access to improved water supply and sanitation services in Kenyan towns and cities.

This ESMF is to be used by the Ministry of Environment, Water and Natural Resources (MoEWN) and, more specifically, the WSPs in order to ensure that the World Bank environmental safeguard policies, with emphasis on Operational Policy OP 4.01 (Environmental Assessment) are adequately addressed. MoEWN should in addition ensure that the relevant capacity and training needs are established in order for the recommended measures to be implemented effectively.

The purpose of this ESMF is to ensure that environmental and social management is integrated into the development and operation of projects to be financed under this OBA Project to ensure effective mitigation of potentially adverse impacts while enhancing accruing benefits.

This ESMF has been prepared in compliance with the World Bank's Safeguard Policies and Kenya's Environmental Management and Coordination Act (EMCA) of 1999, both of which require environmental and social assessment prior to any investment. The ESMF recognises all World Bank (WB) safeguard policies relevant to social and environmental management and has also factored and duly recognised all Kenyan sectoral laws with bearing to environmental and social management within Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project.

Preparation of the ESMF employed both desktop and field research methods, whereby project planning documents were reviewed to provide an insight into the scope, design and motivation of the project and later complemented by on-the ground observations and consultations with municipalities and the public within target municipalities. The core outcome of the ESMF process is an Environmental and Social Management Plan (ESMP) through which municipal and community action in environmental and social mitigation within the OBA Project will be collated.

Project Description

The project comprises two components. These are: (1) Implementation Support to the Project Implementing Unit – the Water Services Trust Fund (WSTF), a state corporation under the Ministry of Water and Irrigation supporting pro-poor investments in water and sanitation. This component will support the WSTF with project management, supervision and independent verification of outputs, and the WSPs to develop and supervise the construction of subprojects, (2) OBA subsidies to provide low income households with

access to water and sanitation services. The proposed activities under each component are presented below.

Component 1 – Implementation Support for project management, subproject preparation and supervision, and to contract an independent verification agent (GPOBA US$2.20 million). This component will fund a proportion of the costs of the activities listed in Table 1 below. The funds will be administered by the WSTF, and consultants will be procured in accordance with the World Bank Guidelines for the "Selection and Employment of Consultants January 2011"

Component 2: OBA subsidies for water and sanitation subprojects (GPOBA US$9.50 million). This component will provide one-off OBA subsidies for sub-project investments made by WSPs to increase access to water and sanitation services in low income areas. The subsidy funds will be administered by the WSTF, and WSPs will follow the World Bank Guidelines on "Procurement of Goods, Works, and Non - Consulting Services January 2011" when implementing the subprojects.

Environmental and Social Requirements

The Government of Kenya (GoK) by its national laws and the World Bank's Operational and Procedural Policies, specifically OP 4.01 (Environmental Assessment) requires the government to prepare an Environment and Social Management Framework (ESMF), which establishes a mechanism to determine and assess future potential environmental and social impacts of the MoEWN planned investments/activities under the proposed OBA Project.

An ESMF is prepared during project preparation as per OP 4.01 when the nature of the proposed investments is well understood, but details (either locations, designs, or both) of the specific investments in the project are not yet known, and therefore a detailed ESIA cannot be prepared. The purpose of the ESMF is:

> (i) to provide as much information as possible about environmental and social impacts (including possible land acquisition and resettlement) at the project's current state of preparation;
>
> (ii) to inform project planning and design process by comparing potential impacts of alternative locations, configurations, and construction techniques that are under consideration; and
>
> (iii) to describe procedures for subsequent assessment of impacts and development of appropriate impact management instruments when the details of the project become available.

The scope and coverage of an ESMF generally includes the following key tasks:

- Task 1: Screening and Scoping of Issues
- Task 2: Environmental Policy and Regulatory Framework
- Task 3: Identification of Key Environmental and Social Issues
- Task 4: Description of Typical Mitigation Measures to Avoid or Minimize Impacts
- Task 5: Outlines of Environmental and Social Management Plans

- Task 6: Public Consultation and Disclosure Process

An ESMF is required for this project because the precise details of the majority of investments are yet to be defined in terms of their exact location etc. Therefore it is not possible to ascertain the precise location and nature of impacts at this stage.

The draft ESMF report will firstly be made publicly available to project-affected groups and local NGOs in Kenya by placing a public notice in a national newspaper and making the report available at the offices of relevant government ministries and NEMA. This measure will also satisfy the Environmental Management and Coordination Act (EMCA).

OP 4.01 further requires that the ESMF report must be disclosed by the Government of Kenya and the World Bank prior to OBA Project approval, based on the nature of the project cycle financed by GPOBA. The disclosure of these documents should be both in locations where it can be accessed by the general public and local communities using the media, and at the InfoShop of the World Bank.

Safeguard Screening Procedures

The proposed project has been rated Category B under the World Bank Operational Policy on Environmental Assessment (OP 4.01), requiring a partial Environmental Assessment (EA) commensurate with the scope and risks of the project. The ESMF provides a baseline environmental assessment, assesses positive and negative environmental and social impacts of the project through screening tools, and recommends mitigation measures to limit negative impacts. The screening and review process will determine whether a particular subproject will trigger a safeguard policy, and what mitigation measures will need to be put in place. The screening and review process will also ensure that subprojects that may have potentially significant impacts will require more detailed study and the need for subproject specific EA and/or ESMP.

Procedure for screening and development of ESMPs

The ESMF serves as a guide to the preparation of subsequent site-specific Safeguards documents such as an Environmental and Social Impact Assessment, Environmental and Social Management Plan, or similar documents that are appropriate to the nature of the project, once specific sites and project designs are selected and can be subject to detailed impact assessment. This ESMF requires that all the subprojects under the OBA investment be subjected to the screening for social and environmental impacts using the Screening Checklist provided in section **6.4.1**. The screening will take place at the feasibility stage and will determine compliance with both Government of Kenya (GoK) and World Bank Safeguard Policies and statutes, following which TORs for follow-up environmental impact assessment (EIA) and resettlement action plan (RAP) studies will be developed.

Follow-up EIA studies will be guided by LN 101 of EMCA 1999, and World Bank OP 4.01while the scale of RAP studies will depend on whether screening has allocated an S1, S2 or S3 category to the sub-project in line with the RPF. Screening and follow-up EIA study will yield an Environmental Management Plan (EMP)—a generic version of which is outlined below—which will be reviewed and approved by Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project and the World Bank for submission to NEMA. Upon approval by NEMA, the ESMP will guide resolution of all potential environmental and social impacts likely to be identified for each investment. In case any resettlement or restriction of access, permanent or temporary will be needed as a result of project activities, a RAP will be developed to deal with.

Environmental and Social Impacts

The following adverse impacts have been identified as likely to arise from the implementation of the Kenya Urban Water and Sanitation OBA Fund for Low Income Areas and which this ESMF report seeks to address:

Environmental Impacts

- *Water quality and quantity degradation (both surface & ground water),*
- *Soil erosion and quality deterioration,*
- *Surface water sedimentation,*
- *Damage to aquatic habitats,*
- *Soil salinity,*
- *Sanitation and waste management problems,*
- *Pathogen breeding ground,*
- *Introduction of invasive flora species.*

Socio-cultural and Economic Impacts;

- *Temporary displacement of local inhabitants,*
- *Damage to property e.g. crops, structures, houses,*
- *Water use conflicts,*
- *Temporary loss of crops,*
- *Damage of aesthetics of the area/land,*
- *Traffic congestion,*
- *Camp construction impacts.*

Health Impacts

- *Spread of water borne diseases,*
- *Spread of HIV/AIDS,*
- *Dust impacts,*
- *Noise impacts,*
- *Construction camps related impacts.*

The impacts are considered to be localised to the specific project areas, limited in scale and in terms of magnitude and should be easily mitigated through the preparation of adequate ESMPs and RAPs whenever required.

Positive Impacts

- *Water Resources Conservation,*
- *Poverty Alleviation,*
- *Improved access to water for domestic purposes,*
- *Water for domestic use-washing clothes, bathing, watering of livestock.*
- *Improved access to public and private sanitation facilities,*
- *Public health improvement.*

Project Monitoring Requirements

A series of reports from the WSTF, WSPs and the IVA will allow for the specific monitoring and evaluation of the implementation of the project and achievement of its objectives.

- WSTF will submit semi-annual performance reports to WSP-Africa and GPOBA in accordance with the reporting requirements set out in the Operations Manual.
- To satisfy the fiduciary requirements of project fund disbursements, WSTF will provide Interim Financial Reports on a quarterly basis to the World Bank's Financial Management specialists.
- The IVA will prepare a baseline report for each WSP subproject prior to subproject implementation, which will provide existing coverage details and the output targets agreed to trigger the release of the subsidy (format to be included in the Operations Manual).
- The IVA will prepare an output verification report for each WSP subproject to assess the extent to which the outputs have been achieved. Subsidies may only by paid against output verification reports (format to be included in the Operations Manual).
- WSTF is subject to a statutory financial audit annually

Capacity Building and Training

Effective implementation of the Environmental and Social Management Framework will require that adequate capacity enhancement within institutions and other stakeholders are undertaken. Participating WSPs will undergo safeguards training. The training will cover application of the ESMF including project screening, impact identification and analysis, Environmental Assessment procedures and requirements (ESA and ESIA), design and implementation of mitigation measures at sub project level, monitoring and review of environmental performance and reporting, and implementation of ESMPs.

Cost of the ESMF

At the time of finalizing this ESMF, potential projects are still undergoing identification and their environmental and social impacts largely remain unknown. Implementation of the mitigating measures will be incorporated into each subproject proposal submitted for OBA funding.

Report Structure

The key highlights in this ESMF report are presented as follows:

- **Introduction** about the objectives of the ESMF including description about the OBA Project. The description of the project is found in **chapter 1** and further details the Project components and anticipated sub project activities within the components.
- **Chapter 2** of the ESMF outlines the methodology that was used in undertaking and developing this framework.
- Detailed and comprehensive environmental and social baseline data which provide the environmental and social management process with key baseline information when identifying adverse impacts is found in **chapter 3**. The information contains data on Kenya's bio-physical environmental features such as the climate, hydrology in terms of ground and surface water resources, and natural resources. On social baselines the report discusses the main features of Kenya in terms of demographics, public health features, education, water and sanitation and poverty.
- **Chapter 4** presents a description of the administrative, policy and regulatory framework related to environmental concerns in Kenya.
- A review of the World Banks Safeguards Policies is made in **chapter 5**. The triggered policies are:
    - Environmental Assessment (OP 4.01)
    - Involuntary Resettlement (OP 4.12)

- Potential adverse environmental and social concerns and impacts from anticipated project activities have been identified and presented in detail in **chapter 6** in a generic format. A monitoring plan for the mitigation measure is in the same chapter. **Chapters 7** and **8** highlight the project coordination and implementation agreements, approvals and reporting.

The ESMF report is organized as follows:

- Acronyms and abbreviations
- Executive summary
- Chapter 1-Introduction Chapter and description of the proposed project
- Chapter 2-Study Methodology and consultation
- Chapter 3-Baseline information
- Chapter 4-Description of National and International Regulatory Framework
- Chapter 5-World Bank Environmental and Social Safeguards Policies
- Chapter 6- Determination of Potential Environmental and Social Impacts
- Chapter 7- Project Coordination and Implementation Arrangements
- Chapter 8 - Capacity building and training requirements
- Chapter 9- References
- Technical annexes
    - *Annex A - Suggested format for ESIA study.*
    - *Annex B – Suggested format for an ESMP.*
    - *Annex C – Sample Monitoring Plan*

1 INTRODUCTION

This chapter describes the proposed **Kenya Urban Water and Sanitation OBA Fund for Low Income Areas project** including the different components and activities and outcomes expected during the duration of the project.

1.1 Project Description

Country and sector context

With an average renewable supply of freshwater resources of less than 650 cubic meters per capita per year, Kenya is among the water-scarce countries in the world. Rainfall is highly variable both geographically and temporally. Over 80 percent of Kenya's territory is arid or semi-arid lands. With such scarce water resources, efficient allocation, utilization, and management of the available resources, including drinking water supplies, is critical. However, water resource management in Kenya has been characterized by many years of neglect in both management of resources and investment in infrastructure.

Kenya made substantial investments in production and treatment capacities during the 1980s and 1990s. However, due to inadequate management and maintenance, coupled with a lack of commensurate expansion in distribution networks, these investments did not result in efficient and sustainable service delivery. Consequently, by the start of the 2000s the infrastructure had significantly deteriorated. Management of water and sanitation services was not transparent. Responsibility for delivery of services was split among various agencies and organizations, often with overlapping mandates. This led to a lack of coordination and weak accountability.

The inability of the utilities to deliver adequate services has disproportionately hurt poor residents, especially those living in informal settlements[1]. Poor people have increasingly come to rely on kiosks and private vendors for their water supply, paying much higher prices per cubic meter and spending much more time fetching water than those with access to piped supplies.

In 1999 the government adopted its new National Water Policy, setting ambitious targets for access to improved water and sanitation services. The Millennium Development Goals for Kenya are that 70 percent of the population should have access to safe water by 2015, while 93 percent should have access to improved sanitation. In 2000, about 51 percent of the population had access to safe drinking water, and 41 percent had access to improved sanitation.[2] The government realized that the targets could not be achieved without comprehensive reform of sector institutions and large new investments, and in response prepared the Water Act, which parliament enacted in 2002. The Act is one of the most far reaching and comprehensive reforms of the water sector undertaken in any country. The Act called for a completely new institutional setup, aimed at harmonizing and streamlining the management of water resources and water supply and sewerage services. A central tenet of the new service delivery framework is the separation of functions between each aspect of service delivery: policy making, regulation, asset ownership or control, and service delivery. This change was expected to reduce conflicts of interest and increase transparency and accountability.

[1] In this paper, the terms informal settlements and slums are used interchangeably, and refers to areas refer to areas that lack at least two of the following: secure tenure, adequate infrastructure, planning at the settlement level, and quality housing. About 30 percent of Nairobi's population lives in slums.

[2] World Development Indicators database.

Although more needs to be done, the new sector arrangements have led to much improved management of water and sanitation services. Significant progress has been made in increasing transparency and accountability. Service delivery institutions are subject to periodic technical and financial audits, the results of which are published on their websites. Customer and employee satisfaction surveys are periodically carried out, and their results made available to the public. These show increasing levels of satisfaction with services.

Another water related sector reform is "The Draft national wetlands conservation and management policy June 2013" The development of this policy was recognized in 1990 when Kenya ratified the Convention on Wetlands of International Importance. The convention obligates contracting parties to "formulate and implement their planning so as to promote the conservation" of wetlands. GPOBA recognizes the possible enchrotchment of wetlands or pollution of the same during its interventions therefore finds reference to this policy a necessity. GPOBA will specifically put emphasis on two objectives in the policy, the first is focused on *promoting innovative planning and integrated management approaches* and the second one *promoting communication, education and public awareness*

The Government of Kenya's (GOK) National Water Policy (1999) envisages 100% access to safe water for the country's population by 2010. The Millennium Development Goals (MDG) envisages access to safe water and improved sanitation of 70% and 93% respectively by 2015. Current coverage figures are 49% and 86% respectively. During the 1980's and 1990's Kenya made large investments in water supply and sewerage (WSS) production and treatment capacities, but these did not result in efficient and sustainable service distribution. WSS operations were not transparent, unsustainable and ill-suited to respond to consumer needs. There was widespread collapse of infrastructure due to under-investment in operations and maintenance. To address the deteriorated situation and the previously fragmented water supply and sanitation (WSS) delivery responsibilities, GOK commenced a comprehensive sector reform in early 2003.

The main sector reform vehicle is the Water Act (2002), aimed at harmonizing the management of water resources and WSS. A central tenet of the new service delivery framework is the separation of functions between each aspect of service delivery - policy making, regulation, asset ownership / control and service delivery operations. The consequent formalization of relationships between these functions is expected to reduce conflicts of interest and increase transparency and accountability. Consistent with this tenet, the GOK (i) is reorganized the Ministry of Environment, Water and Natural Resources (MoEWN) into a body focused on policy issues, (ii) established a Water Services Regulatory Board (WASREB), and (iii) established seven Water Services Boards (WSBs). Each WSB is mandated to appoint Water Services Providers (WSPs), which are legal entities contracted by WSBs to be responsible for service delivery operations.

Kenya's 2010 Constitution provides for decentralization of resources and responsibilities to subnational county governments, including delivery of water and sanitation services. Kenya is country in a high state of transition. The March 2013 elections brought in a new president, with new cabinet and ministers, as well as initiated a devolved county government structure. Devolution, a key component of the new Constitution, provides for the creation of a new tier of 47 county governments and the devolution of many resources and services, including water/sanitation and urban services. Existing municipal utilities will be absorbed by the new counties; however, the Constitution allows for a transition period to 2015. The current Water Act

of 2002 does not incorporate the devolved county structure, and the proposed Water Bill of 2012 was not passed but a new Water Bill is under development.

1.2 Sectoral and Institutional Context

The Project supports Kenya Vision 2030, the national development plan. The Project seeks to provide access to water and sanitation services to under-served households in low-income areas of Kenya thereby contributing to one of the key objectives of Vision 2030, that "*improved water and sanitation are available and accessible to all*" by the year 2030.

The Project will contribute to improved social conditions and will also have a positive health impact. It will provide customers who rely on alternative sources of water with access to municipal/county water supply and sewerage networks and public sanitation facilities, thereby reducing the spread of waterborne diseases. The GPOBA grant will help GoK achieve its access and poverty reduction objectives while also contributing to the achievement of its overall development goals.

The project supports increased access to private sector finance for investment in water and sanitation. A shortage of resources for urban infrastructure investment is likely to grow more pronounced in the near future, due to rapid urban population growth and the fact that public resources are increasingly being devoted to upstream water resource investments. The urban WSPs are therefore seeking alternative sources of funding, such as commercial banks or bond markets, to undertake strategic investments such as network densification, rehabilitation, metering, and other programs that can improve their revenue positions. By requiring the private domestic financial sector to pre-finance utility investments, the project helps unlock potentially large flows of liquidity from the private sector for investment in water and sanitation. Several WSPs currently have short-term loans and asset financing facilities with several local banks, and there is a well-established commercial bank lending practice to the energy and public sector in Kenya that the project seeks to build upon.

Linkages to Country Partnership Strategy (CPS). The CPS for Kenya, discussed by the World Bank's Board of Directors on April 20, 2010, has three strategic objectives: (a) unleashing Kenya's growth potential, (b) reducing inequality and social exclusion, and (c) managing resource constraints and environmental challenges. The CPS also has a special focus on governance. The project supports all three strategic objectives and the governance agenda. It helps to foster economic growth by increasing the availability of clean water and sanitation for poor households to become more productive, while attracting financial resources from the private financial sector for water and sanitation. It assists in improving equity by bringing water supply and sanitation services specifically to low-income areas. It helps to promote improved environmental management by ensuring that development of water supplies and sanitation systems are done in accordance with national environmental guidelines supported by the World Bank's environmental safeguards framework. Finally, it encourages improved governance by ensuring that only legally compliant and creditworthy WSPs are financed under the project.

1.3 Rationale for GPOBA involvement

The poor have consistently lower levels of service. The Water Services Trust Fund has mapped over 1,880 urban settlements considered 'low income' based on an index of quality of life indicators, which includes service conditions for water supply and sanitation, other public services and the conditions of dwellings. There are over 7 million people residing in such settlements. A large portion of these residents rely on connections from neighbours outside the plot (31%), vendors (11%) and other unimproved sources (6%). On-plot water connection comprises 28% in these settlements compared to an average of 45% in urban areas. Almost twice the portion of the population in these areas needs to fetch water compared to the national average (61% of the low income population versus 35% of the urban population). Irregular supply and continuity of supply top the main complaint of low income households on the service they receive. Limitation in supply is usually citywide i.e. WSPs are constrained by their current production capacity, high unaccounted-for-water and the present reach of their distribution networks. Without incentives, WSPs may not prioritize delivery of services to low consumption, low tariff areas such as these. The Project will, therefore, provide WSPs with incentives to improve services and connect households in low income urban areas to water and sewerage networks. This support is expected to contribute to increased productivity of residents and improved quality of life in such settlements.

The project is consistent with GPOBA's strategy of scaling-up pilot projects and mainstreaming OBA approaches within government systems. The project builds on the successful OBA pilot, the Kenya Microfinance for Community Managed Water Project, which uses OBA subsidies to increase access in rural and peri-urban areas. Investments in community managed small piped water systems are pre-financed by K-Rep Bank, a local lender specialized in microfinance lending, and Output Based Aid (OBA) subsidies are paid to communities on achievement of service delivery and operational efficiency related outputs. The project replicates the approach by encouraging urban WSPs to finance pro-poor water and sanitation investments with loans from domestic lenders and provides OBA grants to utilities for providing services to low income households. The approach to providing output-based grants will be incorporated into the Government's program by working through the Water Services Trust Fund (WSTF), the GoK's agency for supporting pro-poor investments in water and sanitation. The project will demonstrate the efficiency of using an output based approach for deploying public subsidies to better target the poor. If successful, WSTF could channel additional government and donor funding through the OBA facility.

1.4 Project Description

The project development objective is to increase the number of people in low income areas with access to improved water supply and sanitation services in Kenyan towns and cities.

This objective will be realized by incentivizing urban Water Services Providers (WSPs) to invest in water supply and sanitation improvement subprojects to benefit households in low income areas by applying one-off Output-Based Aid (OBA) subsidies to make water and sanitation access affordable. The project will leverage financial resources from the private sector and support the objective of increasing access to private sector finance in the water and sanitation sector.

The project comprises two components. These are: (1) Technical Assistance to the WSTF for program management, supervision and independent verification of outputs, and to the WSPs to develop and supervise the construction of subprojects, (2) OBA subsidies to provide low income households with access to water and sanitation services. The proposed activities under each component are presented below.

1.5 Component 1: Technical assistance for program management, subproject preparation and supervision and output verification (GPOBA US$2.0 million).

This component will fund a proportion of the costs of the following Technical Assistance (TA) and verification activities under the project:

	Component	Estimated amount
	Project manager based at WSTF (fees and travel costs). The function will: support subproject identification, preparation and implementation, including overseeing the procurement of consultant and goods and works contracts; review TA and subsidy applications and assist in establishing and verifying output targets; support monitoring and evaluation of subprojects; track development indicators, objectives and outcomes; perform the fiduciary responsibilities of WSTF under the grant; and, monitor the compliance of WSPs with the project operating guidelines.	$300,000
	TA for WSP subprojects[a]. Project preparation surveys; development of financial and technical analyses and business plans; environmental, health and safety, and social safeguards analyses; subproject implementation and completion supervision; system operating and financial diagnostics and performance improvement related activities	$1,200,000
	Independent Verification Agent (IVA). Role of the IVA: to establish baseline coverage indicators at WSPs applying for OBA grants; assist in the setting of output targets; carry out verification of outputs up to a maximum of three times per subproject; recommend the release of subsidy funds to WSPs; analyze socio-economic indicators before and after subproject investments.	$300,000
	Publicity, workshops and meetings administered by WSTF	$100,000
	WSTF administrative overheads including project audits	$100,000

	Total	**$2,000,000**

[a] WSPs will contribute to at least 10 percent of the cost of TA related to subproject preparation and supervision.

1.5.1 Component 2: OBA subsidies (GPOBA US$9.70 million).

This component will provide one-off OBA subsidies for sub-project investments made by WSPs to increase access to water and sanitation services in low income areas.

Principles for selection of WSP subprojects. Selection of subproject investments by WSPs for subsidy support will be guided by the following principles:

- WSPs will invest in subprojects that allow residents of low-income areas to access water and sanitation services
- The subprojects will be pre-financed with commercial loans from licensed commercial banks in Kenya on market terms.
- Subprojects may also be pre-financed by lending facilities that are financed with bonds or pooled debt instruments. Subprojects financed through such instruments will only be eligible for subsidies to the extent that they are pre-financed by domestic lenders at market rates
- The subsidies will be paid to the WSPs against achievement of service delivery related outputs as agreed between the WSTF and eligible WSPs prior to commencement of the development of subprojects
- The subsidies payable to WSPs on achievement of outputs will be calculated as follows:
    - 60% of subproject investment cost pre-financed by local commercial lenders
    - Subsidy cap: Each subproject is subject to a subsidy cap of $100 per beneficiary i.e. where 60 percent of subproject cost is greater than $100 per beneficiary, a maximum of $100 per beneficiary is payable to a WSP as subsidy
    - Failure to reach output target: Where the agreed outputs have not been achieved, the WSP will be paid a subsidy based on the proportion of outputs achieved
- The portion of the project cost not covered by the subsidy will be repaid by the WSPs through the tariff as per the terms of the loan agreements with the lenders. The WSPs may finance a portion of the subprojects using external funds such as working capital, equity, grants and soft loans3 but project costs financed using these sources of funding will not be eligible for subsidies.
- The WSPs will develop financial and technical analyses of the subprojects for appraisal by domestic lenders
- WSPs will charge consumers tariffs approved by WASREB. The WSP business plans will discuss tariff affordability in the targeted areas in order to assess consumer willingness to pay water and sewerage tariffs on an on-going basis.

[3] "Soft loans" refers to loans not on market terms such as those from development partners

- WSPs will be in compliance with WASREB and Water Resources Management Authority (WRMA) regulations and any other statutory requirements governing the operation of WSPs
- WSPs will demonstrate that the economic impacts of the subprojects are positive

Eligible expenditures. Investments that are eligible for subsidies include the rehabilitation, expansion and development of water supply, sanitation and sewerage infrastructure. The subproject investments under this project are:

- Network extensions to connect new customers to water and sewerage services, including water points and kiosks
- Water source augmentation, treatment and distribution works
- Sewerage treatment and distribution works
- Measures to improve operating performance such as reduced non-revenue water and improved energy efficiency
- Measures to improve financial performance such as billing, accounting and financial management systems
- Public sanitation facilities
- Bank interest during construction period (up to the time of first output verification)

Connecting low income households to the water and sewerage networks and construction of public water points/kiosks and sanitation facilities will trigger the release of subsidies from WSTF to WSPs. Upstream investments to obtain the connections will be eligible for subsidies subject to the principles for selection of subprojects listed in section 1.5.1 above.

Outputs to trigger the release of subsidies. For each subproject, a baseline survey will be carried out by the IVA prior to implementation and output targets will be established as per the business plan. WSPs will be eligible for subsidies once the subprojects have been completed and the targeted residents of low-income areas have access to water and sanitation services. The following outputs will trigger the release of subsidies:

- Household water connections
- Household sewer connections
- Public water points
- Public sewer connections
- Public sanitation facilities

50% of the subsidy is payable on independent verification that the connections / facilities listed above have been made in low income areas as per the pre-agreed output targets. A further 50% is payable against demonstrated service delivery, as evidenced by 3 months of continuous billing and receipt of payments for services from beneficiary customers under the project. The WSP may apply for a third output verification if all the pre-agreed outputs were not achieved in the first two verifications.

Geographic targeting will be used to identify low-income-households that qualify for subsidies. WSPs will apply to the WSTF for subsidies to provide low income households with water and sanitation services. WSTF will determine eligibility for pro-poor subsidies using its *majidata* methodology, which will be used to identify sub-areas within WSP service areas that are eligible for subsidies http://www.majidata.go.ke/. At a national level, 7.8 million people are classified as being poor as per the WSTF's *majidata*[4]. The project will target the following low-income areas defined by WSTF: Informal settlements, planned areas with (planned) low income housing, large rural centers with urban characteristics and low income housing, peri-urban areas, urban IDP camps/settlements, and urban villages / large informal settlements. If the targeted area is in the *majidata* database it will be considered a poor area for the purpose of the project and therefore eligible for subsidies. Additionally, Low income areas not mapped in *majidata* may be eligible for subsidies if classified as low income according to the *majidata* methodology.

Procedure for WSPs to apply for subsidies:

- WSP develops business plan and loan application based on planned investments, OBA grant and revenue from proposed subproject
- WSP applies to WSTF for OBA grant eligibility as per the principles of subproject selection
- WSTF pre-approves OBA grant application, commissions baseline study, and sets output targets to be achieved as determined in the WSPs business plan
- WSP applies for loan from commercial lender based on subsidy pre-approval by WSTF
- Commercial lender approves loan and disburses to WSP
- WSP implements subproject and provides consumers in low income areas with water and sanitation services
- WSP applies to WSTF for subsidy on achievement of outputs, using phased output verification if desired
- On independent verification, WSTF pays subsidy to WSP against outputs, part of which may be swept into its loan account with the lender depending on the terms of its loan agreement
- WSP services the balance of its loan with the lender from water and sanitation revenues

1.6 Implementation

The project grant of US$ 11.70 million will be administered by the Water Services Trust Fund (WSTF), a state-owned corporation with the mandate to fund pro-poor

[4] The MajiData program was not preceded -or accompanied by a detailed assessment of average household incomes in all urban areas. The decision to categorize an area as being either a low income or a medium/high income, i.e. the decision to include or exclude an area, was made on the basis of a set of wealth and service level indicators such as legal status, quality of housing, housing materials used, area layout, condition of roads and drainage, the solid waste situation and the water supply situation. These criteria were used to prepare a set of area typologies and definitions.

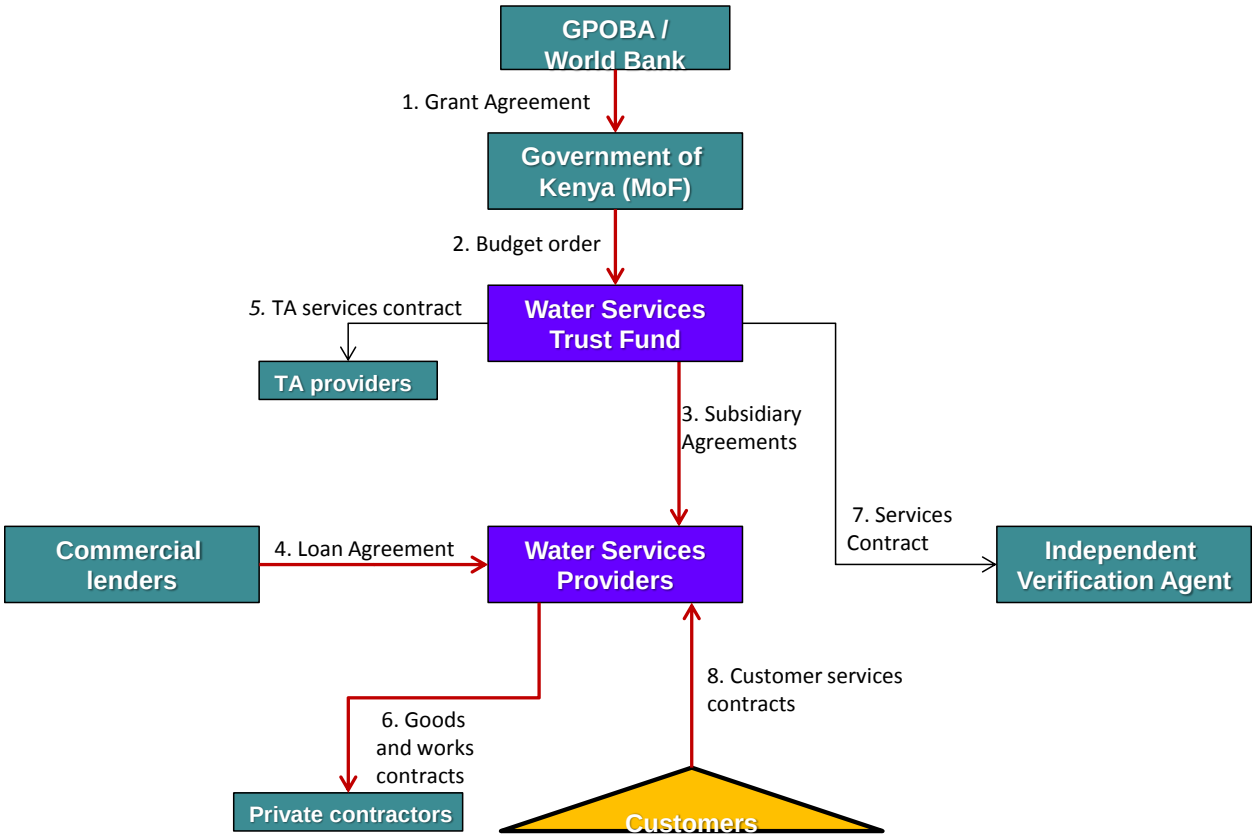
water and sanitation related investments. The terms and conditions for implementing the project will be governed by the Grant Agreement. In addition to the Grant Agreement, a detailed Operations Manual will describe the *modus operandi* of the project.

Service providers. WSPs licensed by WASREB will be responsible for implementing the utility subprojects, including preparation of subsidy and loan applications, procurement of contractors for construction and supervision of subproject implementation. WSPs will provide water and sanitation services to consumers targeted under the project over the long term and will generate revenue in the form of connection fees and tariffs. WSPs will also be obligated to repay the loans to the commercial lenders.

Lenders. Kenyan based commercial lenders will appraise loan applications, enter into loan agreements with the WSPs and pre-finance the construction of subprojects. The loan agreements may stipulate a cash sweep of the subsidy into the borrower's loan account, with the remainder of the loan amount being repaid over a longer period.

Contractual agreements. This section summarizes the proposed contractual agreement arrangements under the project.

Figure 1- Proposed Project Agreements

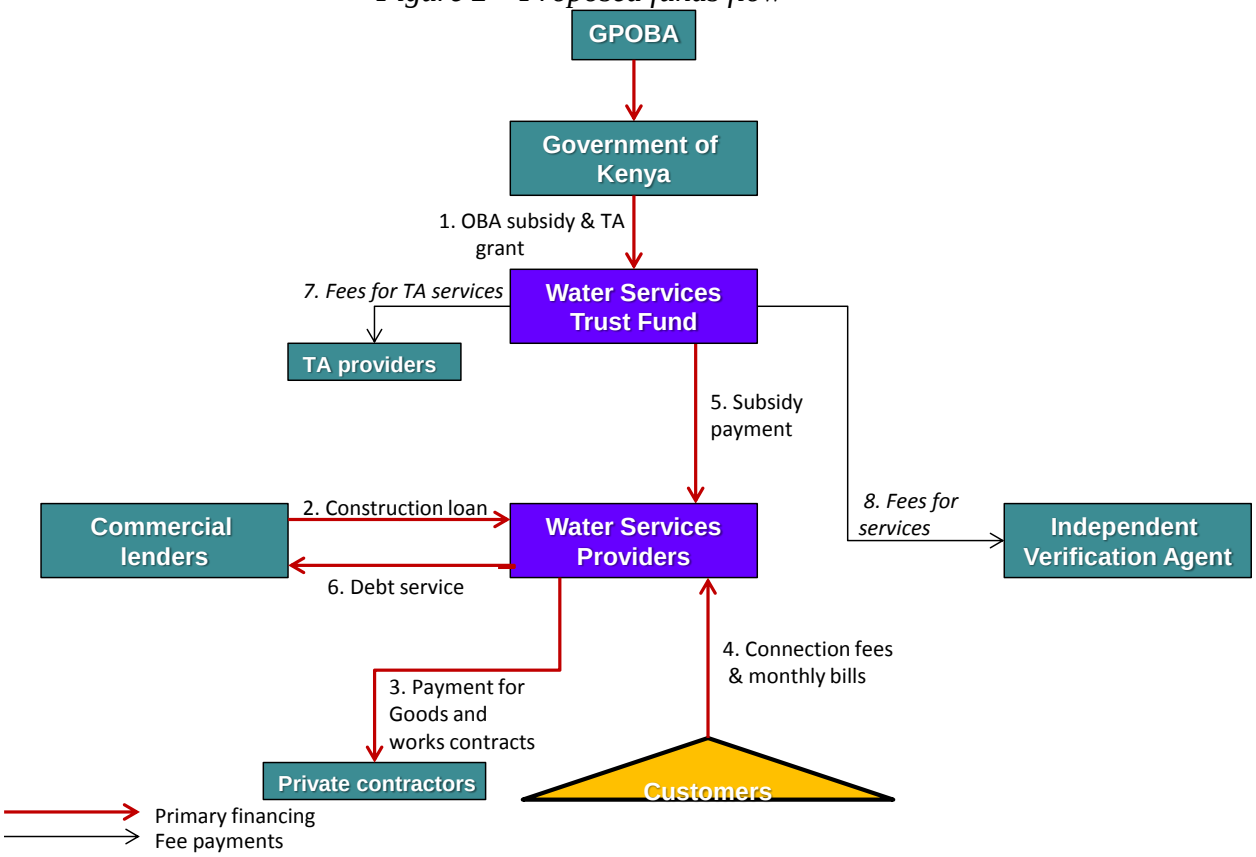


1) Grant agreement between GPOBA/World Bank and the Ministry of Finance (MoF), signed on behalf of the Government of Kenya, following consultations with the line ministry, the Ministry of Environment, Water and Natural Resources (MoEWN), and the proposed Project Implementing Unit, the WSTF. The provisions of the Grant Agreement will be supervised by the Water and Sanitation Program (WSP-Af) on behalf of the World Bank.
2) Budget order from the MoF allowing funds to be transferred to the WSTF, the project implementing unit
3) Subsidiary Agreements between WSTF and participating WSPs to pay subsidies on achievement of outputs. These will include the agreed subproject output targets.
4) Loan agreements between commercial lenders and WSPs.
5) Contract for Technical Assistance consulting services for project preparation, business planning, appraisal and supervision (WSPs are counterparty to this contract).
6) Goods and works contracts between WSPs and contractors.
7) Contract for services of an IVA managed by WSTF.
8) Customer services agreements between WSPs and beneficiary households.
9) (*not shown in diagram*) Service Provision Agreement (SPA) between WSP and respective Water Services Board (WSB) approved by the Water Services Regulatory Board (WASREB).

10) (*not shown in diagram*) County Governments endorsements where necessary. During the transition period, the county governments are represented as board of directors of the WSPs

Flow of Funds: This section summarizes the proposed funds flow arrangements under the project.

Figure 2 – Proposed funds flow



1) OBA subsidy for investments and technical assistance, including project management and subproject development and implementation support. WSP-Africa will also support the project with TA and will supervise the project on behalf of the World Bank
2) Loan from commercial lenders to WSPs for subproject implementation.
3) WSP payments to contractors for goods and works to develop infrastructure.
4) WSP connects low income households and collects revenue from connection fees and monthly bills paid by households targeted under the project.
5) Subsidy payment to the WSPs on achievement of connection targets and independent verification that accounts are active after four months (phased subsidy disbursement).
6) Debt service payments by WSPs to the lenders, including a bullet payment on receipt of subsidy, if stipulated in the loan agreement

7) TA payments for consultants to support the WSPs in project preparation and implementation supervision.
8) Payments to independent verification agent on report submission

Roles of the project partners. The table below provides an outline of the scope of works to be carried out by the various project partners.

Entity	Scope of work
WSTF	▪ Project implementing unit ▪ Fiduciary responsibility to ensure that the project is implemented in accordance with the terms of the Grant Agreement and the operating manual ▪ Administer TA and OBA subsidies under the project ▪ Verify that target investments are being made in low-income areas in line with objectives of WSTF's urban window ▪ Monitor and evaluate the project impacts ▪ Disbursement and audit of project funds
WSPs	▪ Develop and implement water supply and sanitation subprojects within their service areas in accordance with the project rules ▪ Access loans from commercial lenders to pre-finance subprojects ▪ Provide water and sanitation services to consumers in low income areas ▪ Repay non-subsidized portions of commercial loans during subproject post-implementation operational phase
County Governments	▪ Within the transition period, serve as members of WSP Board of Directors as per the Water act 2002 until the new law is effected. ▪ Provide strategic leadership and oversight management of WSPs. ▪ Monitor development of infrastructures for customers in low income areas.
Lenders	▪ Appraise WSP loan application ▪ Pre-finance subprojects ▪ Longer term loan management
GPOBA	▪ Subsidy funding ▪ Technical assistance funding ▪ Support to WSP-Africa in project supervision ▪ Donor reporting
Water and Sanitation Program – Africa	▪ Supervision of the project and terms of the Grant Agreement ▪ Support to WSTF and WSPs to meet the project objectives ▪ Support development of private sector/commercial lending initiatives
Target Beneficiaries (households)	▪ Payment of connection fees ▪ Payment for monthly consumption
IVA	▪ Baseline assessment and output verification

2 METHODOLOGY AND CONSULTATION

The study was conducted by the consultant using the following approach and methodology.

2.1 Detailed and in-depth literature review

Review on the existing baseline information and literature material was undertaken and helped in gaining a further and deeper understanding of the project. Among the documents that were reviewed in order to familiarise and deeply understand the project included:

- *World Bank Environmental Assessment Policy 4.01*
- *World Bank Involuntary Resettlement Operational Policy 4.12.*
- *Environmental Management and Coordination Act (1999)*
- *Water Act*
- *World Bank Project Integrated Safeguards Data Sheet*
- *Project Commitment Paper*
- *The ESMF and RPF for WaSSIP*
- *The Project Appraisal Document for WaSSIP AF*
- *Project Concept Note for WaSSIP AF*
- *World Bank Group Environmental, Health, and Safety Guidelines (known as the "EHS Guidelines"). <http://www.ifc.org/ifcext/sustainability.nsf/Content/EHSGuidelines>*

The consultant also undertook detailed review and analysis of the national relevant legislations, policies and guidelines including the World Bank Safeguards Policies, international conventions related to this project and other relevant documents.

2.2 Field Visits

The Project team has made site visits to the Informal Settlements where the Bank-financed WaSSIP sub-projects are being implemented in order to get familiarized with the issues on the ground, as many of the OBA Project investments will be located in the low-income areas in towns and cities, where WaSSIP subprojects are located. As the subprojects are identified during the OBA Project implementation, further field visits will be made to the target low income areas to receive OBA funding before subproject inception.

2.3 Preparation of ESMF

Preparation of this ESMF included the following steps:

- Collation of baseline data on the environmental conditions of the project area;
- Identification of positive and negative environmental and social impacts;
- Identification of environmental and social mitigation measures;
- Preparation of screening procedures to be used while screening subproject proposals; and
- Formulation of environmental and social monitoring plans.

3 BASELINE DATA

This section describes baseline bio-physical, socio-economic conditions and cultural attributes of Kenya, focusing on a sample of water service areas, where the OBA Project investments are likely to be located. Based on the screening, the environmental and social impacts of the OBA Project are envisioned to be localised to the specific project areas within the boundary of selected Informal Settlements, and will be limited in scale and magnitude and can be easily mitigated through the preparation of adequate EMPs and RAPs whenever required.

3.1 Project Location and Site Physical Characteristics

Sub-projects are expected to be implemented in urban and peri-urban areas country-wide, with the exclusion of the capital City of Nairobi. These may include but are not limited to: Ruiru-Juja, Muranga, Meru, Embu, Malindi, Mathira, and Nyahururu. All WSPs licensed by the WASREB will be eligible for subsidies under the project. There are currently approximately 132 licensed WSPs operating in Kenya, but the project will target only creditworthy utilities.

WSPs will implement subprojects that involve the rehabilitation, expansion and development of water supply, sanitation and sewerage infrastructure. Activities may include:

- Network extensions to connect new customers to water and sewerage services, including water points and kiosks
- Water source augmentation, treatment and distribution works
- Sewerage treatment and distribution works
- Public toilets, where the WSP has the mandate to build and service such facilities
- Bank interest during the construction period

The provision of water and/or sewerage services to low income households and the construction of public water kiosks and toilets in low income areas will trigger the release of subsidies from WSTF to WSPs. Upstream investments to obtain these results, such as source augmentation and treatment, will be eligible for subsidies subject to the principles for selection of subprojects listed under "Project Description" above. A potential pipeline of projects analyzed at the pre-feasibility stage is presented below.

Table 3: Summary of Indicative Subproject Pipeline

WSP	Project summary	Number of beneficiaries	Project cost	Projected subsidy	Subsidy per capita
Ruiru-Juja	Network extensions to areas not served by the on-going donor funded project, non-revenue water reduction, and household connections.	30,000	US$3.4 million	US$ 2.4 million	US$79
Mathira	Improve water supply replacing the current dilapidated system and expansion to new areas without services	45,000	US$3.1 million	US$ 2.1 million	US$ 48

Muranga	Supply potable water to Kambirwa and Mirira areas.	45,000	US$2.8 million	US$ 1.9 million	US$43
Meru	Expansion of water treatment works, installation of new transmission and distribution lines and connections into un-served areas.	12,500	US$2.0 million	US$ 1.4 million	US$114

3.2 Sample Project Locations

3.2.1 Athi Water Service Board

3.2.1.1 Climate

The climate of the area is predominantly controlled by its equatorial position and the large scale pressure systems of the African Continent and the Indian Ocean. However, topography strongly influences the magnitude of the climatic elements and to a lesser extent their seasonal distribution.

The seasonal distribution of rainfall is dominated by the movement of the Inter Tropical Convergence Zone (ITCZ) which separates the North-eastern and South-eastern trade wind systems and the belt of maximum rainfall follows the position of the overhead sun with a time lag of about 4 to 6 weeks. The two rainy seasons are therefore centered around April-May (The Long Rains) and October-November (The Short Rains). During the intervening dry seasons monsoonal systems bring rather dry air masses. From December to March the persistent North-easterly monsoon brings clear sunny weather with only occasional showers. During the period of South-easterly monsoon from June to October the weather is duller and cooler with occasional drizzle which is more persistent at higher elevations.

Rainfall is the climatological element of greatest water resource significance. The highest annual totals of over 2600mm occur at the windward side of summit of the Nyandarua Mountains and there is a decline with elevation which is much more rapid on the leeward slope towards the Rift Valley than on the windward side.

Indeed further south in the headwaters of the Thiririka and Ruiru rivers the rainfall divide is some distance to the east of the topographic divide. In general also there is a decrease towards the south in the rainfall at a given altitude.

At the edge of the piedmont zone between Nairobi and Thika, the annual rainfall values decline to 800 to 900 mm but there is little further decline towards the east. However, to the South within the Upper Athi catchment there is a further reduction to less than 600mm. Associated with these lower totals is a higher coefficient of variation.

Other climatic elements have a significant influence on water resources, especially in their effect on the rate of evapotranspiration loss. Throughout the area mean daily temperature varies little with season and the diurnal variation is greater than the seasonal variation. With increasing altitude, daily minimum temperature values decrease more rapidly than the daily maximum.

Typically the annual average diurnal range at elevations of 1500m is 13°C to 25°C whilst at 2500m the range is from 6°C to 22°C.

Mean annual relative humidity values range from 65% at lower elevations to 80% or more above 2500m. Humidity is greatest at dawn and lowest in the early afternoon when the temperature reaches the diurnal maximum. Below 1500m the mean daily duration of bright sunshine ranges from 4 hours during July and August to 9 hours during the Northern Monsoon season with an annual mean of 6.8 hours.

Sunshine shows a decrease with altitude, with an annual mean of 5 hours at 2500m. Mean annual free water surface evaporation as calculated by Woodhead using Penman's ranges from around 1800mm in piedmont zone to less than 1400mm in the Nyandarua Range Potential evapotranspiration is estimated to be about 75% of free water evaporation in the highlands and 80% or more in dryer lying areas.

3.2.1.2 Relief

Catchment, Topography and Hydrology

Athi Water Services Board is covered by 3 river basins used to supply Nairobi and Satellite Towns (Tana, Thika and Athi River Basins). These basins include rivers like

- *Kikuyu springs*
- *Kimakia and Kiama Rivers*
- *Chania River*

3.2.1.3 Topography and Drainage

The Tertiary volcanic uplands on the margin of the Rift Valley are the source areas of the present drainage network. The highest land occurs in the Nyandarua Mountains where elevations of over 3,500m are reached within the Study Area. From the vicinity of Mt. Kinangop, the highest point, rise four major tributaries of the River Tana; the most Southerly, the River Chania, which provides the greater part of Nairobi's present water supply and the Rivers Thika, Maragua and Mathioya.

At the southern end of the Nyandarua Range the watershed to the internal drainage system of the Rift Valley becomes an undulating plateau and from this area originate several tributaries of the River Athi including from north to south the Ndarugu, Thiririka, Ruiru and Nairobi Rivers. The rivers within both the Tana and Athi drainage system form a parallel drainage density, oriented generally south-easterly, and following the dip direction of the underlying lava flows.

They have formed deeply incised valleys in long narrow catchments with steep side slopes and longitudinal profiles. The valley sides as well as the headwaters generally have a thick mantle of weathered rock and soil and only rarely is bedrock seen except within the river channel. This weathered mantle and the forest vegetation which covers elevations above 2200m, dampen the flood response of the rivers to intense rainfall and sustain dry weather flows.

The rivers emerge from their incised valleys onto a flat piedmont zone (at an elevation of approximately 1500m) which is without significant perennial tributaries and join up with the main Athi and Tana rivers.

With exception of the Ngong Hills which rise to 2460m, the character of the landscape changes to the South of Nairobi. The headwaters on the Rift Valley margin are both flatter and lower in elevation and in their middle courses the widely spaced tributaries of the Athi flow through a rolling plateau, with occasionally rocky hills standing above the general level. Of the three

tributaries of the Athi meeting at the Athi River Township, only the Upper Embakasi (or Mbagathi) is perennial, although its dry weather flow is small.

Downstream, the course of the Athi approaches that of the lower Thika and at one point they are separated by a distance of only 1.5 km and an intervening relief of 50m. Subsequently their courses diverge, the Thika turning northwards to join the Tana at Masinga reservoir and Athi continuing south-eastward along the margin of the Yatta plateau.

3.2.1.4 Rivers/water sources

There are two main rivers in the Athi WSB project area, Athi and Tana Rivers. Nairobi City and its neighbouring Towns are located within the Athi River catchment.

3.2.1.5 Soils and Geology

The Study Area is overlain with an ancient core of crystalline rocks of the Basement Complex which underlies the greater part of the plateau areas of Africa which have been affected by the extensive faulting, displacement and volcanic activity associated with the Rift Valley System. The eroded surface of the pre-Cambrian basement rocks outcrops only on the southern and eastern margins of the area. Elsewhere it is overlain by a variable thickness of volcanic and pyroclastic rocks of Tertiary age.

The Tertiary succession comprises various lava flows, pyroclastic rocks or their weathered derivatives, and also palaesoils, developed intervening periods sub-aerial weathering. Upthrusting and concentration of volcanic activity at the margins of Rift Valley has resulted in a general alignment of lava flows and associated deposits in a south-easterly direction. The sporadic character of the volcanic events both in space and time has dictated the lateral and vertical variability of geological succession.

3.2.1.6 Biological Environment

The Eastern Aberdare Rivers of interest to this study, rise within the Aberdare Conservation Area (ACA). Many of the river flow measurement gauges are located near to the boundary of the ACA. The ACA includes the Aberdare National Park and the gazetted Forest Reserves that surround the National Park. These areas are all under Government protection through Kenya Wildlife Service (KWS) and Kenya Forest Service (KFS). These areas are not subject to catchment degradation through settlement and forest clearance, as has been recorded in other national forests, notably the Mau Forest. It can reasonably be assumed that the "protected area" status will not only be maintained by the Government, but will be strengthened. Hence the sustainability of the surface water sources arising from the ACA is assured under current Government policy, subject to control of abstractions under approval from the Water Resource Management Authority (WRMA).

3.2.2 Coastal Region

3.2.2.1 Climate

The Kenyan coast runs in a south-westerly direction from the Somalian border in the north, at 1o 41'S to 4o 40'S at the border with Tanzania. It lies in the hot tropical region where the weather is influenced by the great monsoon winds of the Indian Ocean. Climate and weather systems on the

Kenyan coast are dominated by the large scale pressure systems of the western Indian Ocean and the two distinct monsoon periods.

From November/December to early March, the Kenyan weather, particularly at the Coast, is dominated by the Northeast Monsoon which is comparatively dry. During March and April the wind blows in an east-to-south-easterly direction with strong incursions of maritime air from the Indian Ocean bringing heavy rains. During the months of May, June, July and August, the South-easterly Monsoon influence gradually sets in and the weather becomes more stable with dull and comparatively cooler temperatures. Between September and November, the Northeast Monsoon gradually re-establishes itself and by December the northern influence is dominant once again.

3.2.2.2 Rainfall

A relatively wet belt extends along the entire Indian Ocean coast of Africa and annual rainfall on the Kenyan coast follows the strong seasonal pattern outlined above. The main rains come between late March and early June with the rainfall decreasing from August. Some rain occurs between October and November but from December, rainfall decreases rapidly once again to a minimum during January and February.

Mean annual total rainfall ranges from 508mm in the drier, northern hinterland to over 1,016mm in the wetter areas south of Malindi. Relative humidity is comparatively high all the year round, reaching its peak during the wet months of April to July. However, there is a marked diurnal change particularly in Mombasa where it is around 60-70% during the afternoon, rising to 92-94% during the night and in the early morning.

Records kept for Mombasa and Malindi indicate that both are generally sunny throughout the year. The average number of daily sunshine hours at Mombasa is 8.4 in July and 8.9 in February, October and November. The corresponding values for Malindi are 7.3 in July and 9.3 in December. Evaporation at Mombasa increases from a low of 138 mm in July to 221mm in March. Whereas in Malindi the rainfall low in July is around 128mm, rising to 193mm in March.

3.2.2.3 Geology and Geomorphology

The Kenyan coastal environments are set in a passive continental margin, the evolution of which was initiated by the break-up of the mega continent Gondwanaland in the Lower Mesozoic. The initial opening of the Indian Ocean was preceded by doming, extensive faulting and down warping similar to that observed in the modern Great Rift Valley of East Africa. These tectonic movements formed a North-South trending depositional basin. During the Mesozoic, this basin was exposed to numerous marine incursions and by the Jurassic, purely marine conditions are thought to have existed. The coastal range running parallel to the coastal zone appears to have been uplifted through faulting during this time.

Throughout the Tertiary, the coastal areas experienced further faulting and extensive continental erosion. The older Cretaceous deposits were totally removed in many areas. The present coastal configuration, however, evolved during the Pleistocene to Recent times, a period marked by numerous fluctuations in sea level.

Three physiographic zones are observed on the Kenya coastal zone. The Nyika lies at 600m above the present sea level and represents the higher ground covered by the Duruma sandstone series and older rocks to the west. The Foot Plateau occurs at an elevation between 140m and

600m above the present sea level. This coincides well with the relatively younger Jurassic rocks. The Coastal Plain, the lowest step, rises from sea level to 140m.

On average, this belt increases from a few kilometres wide in the southern sector, to over 40km in the north. The geomorphology of the Coastal Plain is dominated by a series of raised old sea level terraces. Most of the coastal environment and the modern shore configuration, follow the 0-5m and the 5-15m sea level terrace complexes. Due to its evolutionary history, the principal rocks observed along the Kenyan coastal margin, are of sedimentary origin and range in age from Triassic to Recent.

The Duruma Sandstone series, the oldest formation, is represented by the Mariakani and the Mazeras sandstones which were deposited under sub-aqueous, deltaic, lacustrine or possibly neritic conditions that prevailed before the opening of the Indian Ocean. The Upper Mesozoic is represented by marine limestones and shales with occasional horizons of sandstones and early limestones. Cenozoic to Recent rocks comprises mostly of marls and limestones, and is represented by the sandstones, clays, conglomerates and gravels such as the Marafa beds. Quaternary representatives include windblown Magarini Sands, limestones, cemented sands and coral sands. Recent unconsolidated windblown sands, beach sands and clays overlie the older units.

Kenya has a coastline of over 600km, but the exact figure depends on the extent to which small islands are included in the measurements. The Kenyan coastal region is generally low-lying and characterised by the extensive fossil reef, which lies a few metres above present sea level. The coastal plain is backed in the interior by a line of hills that rarely exceed 300m except in southern parts where the Shimba Hills reach an altitude of around 1,000m above sea level. Further inland the Taita Hills rise to an elevation of 1,500m above sea level.

Soils of the coastal region show considerable variety. The porous parent rocks of sedimentary origin, generally give rise to soils of low fertility. However, patches of highly productive soils have been observed in areas of alluvial deposits. The principal soil types in the region include a narrow strip of coastal sands towards the north where it is permeated by narrow bands of grumosolis brown clay soils. The soil south of Lamu is composed of bi-alternate bands of loams beyond which the grumosolis are permeated by thick bands of ash and pumice soils.

The shoreline in most of the region apart from the Malindi area, is receding as a result of coastal erosion. Sand supplies from rivers and coral reefs are not sufficient to keep up with the rise in sea level and the problem is further exacerbated by coastal development.

3.2.2.4 Hydrology

Rivers and Catchments

The hydrology of the coastal region of Kenya can best be viewed by examining the drainage patterns of both perennial and seasonal rivers draining into the western Indian Ocean basin. There are two main perennial rivers namely the Tana River and the Sabaki River which also incorporates the Athi and Galana Rivers. Each of these perennial rivers has catchments extending far from the coastal hinterland into the high country of the Mount Kenya region and the Aberdare (Nyandarua) Ranges in central Kenya.

The Tana River is the longest in Kenya being approximately 850 km in length and it has a catchment area of 95,000 km2. The Tana is regularly replenished by a number of tributaries

which have their headwaters on Mount Kenya. Several hydroelectric power schemes have been constructed on its upper reaches, including those at Masinga, Kamburu, Gitaru, Kindaruma and Kiambere. In terms of annual freshwater and sediment discharges, the Tana River has the greatest volume of freshwater and the highest amount of sediment. An average of 4,000 million m3 of freshwater are discharged annually with peak flows occurring between April and June and a shorter high flow period during November/December.

The Tana River also discharges some 3 million tonnes of sediment per year. It enters the ocean about halfway between Malindi and Lamu, near Kipini, into Ungwana (Formosa) Bay. However, before it does, and about 30km upstream, it gives off a branch which leads to the complex of tidal creeks, flood plains, coastal lakes and mangrove swamps known as the Tana Delta. The Delta covers some 1,300 km2 behind a 50m high sand dune system which protects it from the open ocean in Ungwana Bay.

The Sabaki River (also known as the Athi and Galana in its upland stretches) is the second longest with a length of 650km and a catchment area of 70,000 km2 extending into the south-eastern slopes of the Nyandarua Range in central Kenya. Its floodplain is less extensive than that of the Tana River and its catchment comprises important agricultural regions of central Kenya. The combined Sabaki River discharges 2,000 million m3 of freshwater and 2 million tonnes of sediment annually into southern Ungwana Bay through the Sabaki estuary north of Malindi. The high sediment loads carried by the Tana and Sabaki rivers are partly attributable to poor land use practices in their upper catchments which are important agricultural lands. Such a high rate of sediment discharge is threatening the sustainability of marine and coastal ecological biotopes such as mangroves, seagrass meadows and coral reefs. In addition, the high concentrations of silt in river water makes it unattractive for recreational purposes and limits the extent to which river water can be used for other purposes.

There are also a number of semi-perennial and seasonal rivers such as the Mwache, Kombeni, Tsalu, Nzovuni, Umba, Ramisi, Mwachema and Voi, all of which drain into the coastal region from arid and semi-arid catchments. The Ramisi River, which arises in the Shimba Hills forested area, discharges 6.3 million m3 of freshwater and 1,500 tonnes of sediments annually into Funzi - Shirazi Bay in the southern part of the Kenya coast. The Umba discharges 16 million m3 of freshwater into Funzi - Shirazi Bay while the Mwachema and Mwache rivers discharge 9.6 million m3 and 215 million m3 of freshwater annually, respectively. Other small streams such as Mto Mkuu, Tsalu, Sinawe, Kombeni, etc, have not been gauged.

These rivers draining the coastal low plateau and the coastal ranges tend to have relatively low concentrations of silt. Since their water quality is also moderately high, these waters are normally usable for a variety of purposes with minor conventional treatment.

Coastal Lakes

There are a number of lakes in the Kenya coastal region with the greater number being found in the Tana Delta. Most of these lakes are quite small and shallow and are typical oxbow lakes, remnants of the various meanders of the Tana River. Two good examples of such lakes are Bilisa and Shakabobo. Some of the lakes, especially the smaller ones, show swamp characteristics. Examples of such lakes are Ziwa la Chakamba, Ziwa la Taa, Ziwa la Maskiti and Ziwa la Ndovu. These lakes are either recharged through ground water seepage or by the periodic flooding of the Tana River. Apart from these oxbow lakes in the Tana Delta area, there are two larger lakes in the Mount Kilimanjaro region. These are Lake Jipe which has a maximum length of 12 km and an area of 28 km2, and Lake Chala which is smaller than Lake Jipe and has an area of 5.0 km2 and a

maximum length of 2.2km. These lakes receive ground-water contributions from the Mount Kilimanjaro region in addition to being recharged by surface runoff.

The coastal lakes of Kenya are very important economically. They are a source of water for domestic and livestock purposes and are also important sources of fish protein. More recently, they are also becoming important for recreational activities. In general, water quality in these lakes is good since they are located some distance away from the main pollution sources.

Ground-water resources
The coastal region of Kenya has enormous potential in terms of ground-water resources. This is as a result of its geological structure which promotes rapid infiltration and percolation of surface runoff to recharge. Hot water springs with temperatures ranging between 65oC and 75oC are found near Mkongani and Mwananyamala in Kwale District which is also the site of other potable freshwater springs.

The rate of ground water yield varies from place to place depending on physiographic and hydraulic factors in addition to geological influences. Highest ground-water yields are experienced in areas covered with Kibiongoni beds, and Magarini and Kilindini sands on the coastal belt (for example at Tiwi). Areas covered with Jurassic shales and Pleistocene limestone of the low plateau and coastal belt tend to yield relatively poor quality water and yields are normally lower in volume when compared with areas covered with Kilindini and Magarini sands. Areas with Triassic sandstone geology also have relatively high groundwater yields.

4 DESCRIPTION OF THE ADMINISTRATIVE, POLICY AND REGULATORY FRAMEWORK

4.1 National Environmental and Social Management Requirements

This chapter of the report describes the institutional, legal and policy framework for environmental and social requirements in Kenya, the relevant World Bank safeguard Operational Policies applicable to the project as well as the international laws and conventions that bear relevance to the implementation of this project.

4.2 The Legal, Regulatory and Policy Framework

Constitutional provisions
Kenya now has a new Supreme law in form of the New Constitution which was promulgated on the 27th of August 2010 and which takes supremacy over all aspects of life and activity in the New Republic. With regard to environment, Section 42 of the Constitution states as follows:-

> Every person has the right to a clean and healthy environment, which includes the right—
>
> (a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and
>
> (b) to have obligations relating to the environment fulfilled under Article 70.

In Sections 69 and 70, the Constitution has inter alia identified National Obligations in respect of the environment and Enforcement of Environmental Rights respectively as follows:-

Section 69 (1): The State shall—

a) *Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;*
b) *Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;*
c) *Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;*
d) *Encourage public participation in the management, protection and conservation of the environment;*
e) *Protect genetic resources and biological diversity;*
f) *Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;*
g) *Eliminate processes and activities that are likely to endanger the environment; and*
h) *Utilize the environment and natural resources for the benefit of the people of Kenya.*

Section 69 (2) Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

Section 70 provides for enforcement of environmental rights thus:

(1) If a person alleges that a right to a clean and healthy environment is recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter.

(2) On application under clause (1), the court may make any order, or give any directions, it considers appropriate—

a) *To prevent, stop or discontinue any act or omission that is harmful to the environment;*
b) *To compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or*
c) *To provide compensation for any victim of a violation of the right to a clean and healthy environment.*

(3) For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury.

Essentially, the new Constitution has embraced and provided further anchorage to the spirit and letter of EMCA 1999 whose requirements for environmental protection and management have largely informed Sections 69 through to 71 of this document. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law.

4.2.1 Vision 2030

Kenya Vision 2030 is the current national development blueprint for period 2008 to 2030 and was developed following on the successful implementation of the Economic Recovery Strategy for

Wealth and employment Creation which saw the country's economy back on the path to rapid growth since 2002. GDP growth rose from 0.6% to 7% in 2007, but dropped to between 1.7% and 1.8% in 2008 and 2009 respectively. The objective of the vision 2030 is to transform Kenya into a middle income country with a consistent annual growth of 10 % by the year 2030". The 2030 goal for urban areas is to achieve "a well-housed population living in an environmentally-secure urban environment." This will be achieved by bringing basic infrastructure and services—roads, street lights, water and sanitation facilities, storm water drains, footpaths, and others—to informal settlements. By strengthening tenure security in informal settlements, the KISIP will also foster private investment in housing and in businesses. The government's Medium-Term Plan 2008–2013, which presents the first five-year program to implement the Vision 2030, also specifies improving urban informal settlements as a priority. One of its flagship projects is installation of physical and social infrastructure in slums in 20 urban areas to make them formal settlements, permit construction of permanent houses, and attract private investment. The proposed KISIP will directly contribute to this goal.

4.2.2 Environment Management and Coordination Act, 1999

There are several laws and regulations that will govern the implementation of this project at the national level. However the most prominent legislation that will be evoked is the EMCA 1999. EMCA 1999 was enacted in 2000 to harmonize environmental legislation previously scattered among 77 national laws. As the principal environmental legislation in Kenya, EMCA sets the legal framework for environmental management. Its core elements are as follows;

Creation of a National Environmental Management Authority (NEMA)
EMCA 1999 allows for formation of the National Environmental Management Authority (NEMA) as the body charged with the overall coordination of environmental protection in Kenya, mainly through setting and harmonizing standards for environmental quality. NEMA was established in 2001, and is headed by a Director General appointed by the President. The Director General is assisted by several directors in charge of Enforcement, Education, and Policy, who in turn are assisted by Assistant Directors and Senior Officers.

To facilitate coordination of environmental matters at a County level, EMCA 1999 allows for the creation of County Environmental Committees chaired by respective County Commissioners, and the appointment of a County Environmental Officer who oversees environmental coordination and is also secretary to the CEC.

Environmental Assessments
Section 58 of EMCA requires that an Environmental Impact Assessment precedes all development activities proposed to be implemented in Kenya. This requirement was operationalized by NEMA through its publication of the Guidelines for the Conduct of EIAs and Environmental Audits (Kenya Gazette Supplement No. 56 of 13th June 2003). The framework for environmental assessment in Kenya and a description of types of development that should be subjected to environmental impact assessment are outlined in Legal Notice 101 and the Second Schedule of EMCA respectively.

Legal Notice 101 is silent on the minimum size threshold for projects triggering EIA requirements. However Section 10(2) (Part II) of Legal Notice 101 allows for the approval of proposed projects at the 'Project Report' Stage. This Section is used by NEMA to grant Environmental Licenses to small projects without the requirement for a full-scale EIA.

Environmental Audits
Under Sections 68 and 69, EMCA requires that all ongoing projects be subjected to annual environmental audits as further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003. Part V of the Legal Notice 101 defines the focus and scope of Environmental Audit studies as including an appraisal of all the project activities, within the perspective of environmental regulatory frameworks, environmental health and safety measures and sustainable use of natural resources.

Sectoral Coordination in Environmental Protection
Among other functions, EMCA mandates NEMA to regularly review and gazette standards and regulations for environmental quality as a way of guiding activity in all sectors. Further, in recognition that EMCA is an umbrella law coordinating diverse sectoral statutes, all of which are still in force, the Legal Notice 101 of EMCA requires that the respective sectors be consulted as 'Lead Agencies' in making decisions pertaining to environmental assessment for projects in respective sectors. Therefore to ensure that NEMA does not approve projects that contradict sector policies and legislation, all EIA reports are subjected to review by the relevant sector in their capacity as Lead Agency. Their opinions have a strong bearing on the final decision arrived at by NEMA.

4.2.3 The Water Act 2002

Sessional Paper no. 1of 1999 on the National Water Policy on Water Resources Management and Development provides policy direction for the water sector.

Kenya's 2010 Constitution provides for decentralization of resources and responsibilities to subnational county governments, including delivery of water and sanitation services. Kenya is country in a high state of transition. The March 2013 elections brought in a new president, with new cabinet and ministers, as well as initiated a devolved county government structure. Devolution, a key component of the new Constitution, provides for the creation of a new tier of 47 county governments and the devolution of many resources and services, including water/sanitation and urban services. Existing municipal utilities will be absorbed by the new counties; however, the Constitution allows for a transition period to 2015. The current Water Act of 2002 does not incorporate the devolved county structure, and the proposed Water Bill of 2013 was not passed but a new Water Bill is under development.

The policy directions include:

- *Preservation, conservation and protection of available water resource;*
- *Sustainable, rational and economical allocation of water resources;*
- *Supplying adequate amounts of water meeting acceptable standards for the various needs;*
- *Ensuring safe wastewater disposal for environmental protection;*
- *Developing a sound and sustainable financial system for effective water resources management, water supply and water borne sewage collection, treatment and disposal.*

The Water Act 2002 forms the principal legislation governing protection and management of water resources in Kenya. This legislation provides diverse safeguards to regulate water development as follows:

Ownership of Water Resources.
In an effort to control abuse and irrational allocation, Section 3 of the Water Act vests the entire national water resource base to the State, which then authorizes utilization. Abstraction is

regulated under Section 25 of the Water Act 2002 with the Water Resource Management Authority (WRMA) assuming responsibility of issuing Water Permits subject to conditions as specified in Sections 27 to 43 and the Second Schedule of the Act. Decisions on the granting of water permits will take account of other existing lawful uses, efficient and beneficial use of water in the public interest, requisite catchment management strategies, potential impact of abstraction on the water resource and other users, quality considerations, and strategic importance of the proposed water use among other factors.

All the WSPs will be required to request for permission to abstract water from the rivers targeted as intakes by making a formal application to WRMA.

Requirements for Environmental and Social Impact Assessment.
It is a requirement under Section 29(4) of the Water Act "for all proposed water projects to be subjected to public consultation and possibly an Environmental Impact Assessment Report" for review by NEMA through Lead Agencies including County Environmental Committees. Further, in order to complement the Water Act, NEMA sets guidelines for waste disposal into natural waters and the environment and also spells out penalties for the pollution of water.

All the OBA sub-projects will be subjected to EIA following screening to determine if a Full Scale EIA is required or a project report depending on the project nature and category. Similarly all the sewerage connections and public toilet constructions and will be required to conform to the waste disposal standards into natural waters and the environment as provided for in the NEMA guidelines.

Service Provider Agreements (SPAs).
Section 73(1) of the Water Act 2002 requires Water Service Boards (WSBs) and other Licensees of the Water Services Regulatory Board to make rules for provision of water services and tariff levels. The WSBs are required to enter into SPAs with water service providers, which specify the approved tariff levels and performance targets for the project. This includes measures to ensure that those unable to pay for water are not denied access to clean water.

4.2.4 Land Control Act CAP 406

This law provides for the control of transactions in agricultural land, especially the machinery of the Land Control Boards. However of interest in this report is the consideration in granting or refusal of consent by the Board based on the impact the transaction is likely to have on the maintenance or improvement of standards of good husbandry within the specific agricultural area.

Government land is land owned by the government of Kenya under the Government Lands Act (Cap. 280). This includes, for example, forests, gazetted national parks and reserves. The Government Lands Act allows the president, through the commissioner of lands, to allocate any unalienated government land to any individual. In practice, such allocations have often been made without proper regard to social and environmental factors.

Trust land is land held and administered by various local government authorities as trustees under the constitution of Kenya and the Trust Land Act (Cap. 288). National reserves and local sanctuaries as well as county council forest reserves, are in this category. Individuals may acquire leasehold interest for a specific number of years in trust land and can (in theory) be repossessed by the local authorities should the need arise. Local authorities should retain regulatory powers over trust land.

Private land is land owned by private individuals under the Registered Land Act (Cap. 300). On registration as the landowner, an individual acquires absolute ownership on a freehold basis. The use of private land may, however, be limited by provisions made in other legislation, such an Agriculture Act (Cap. 318). For instance, to protect soils the clearing of vegetation may be prohibited or the planting of trees required. Land preservation orders issued by the director of agriculture can cover a whole range of other measures.

All private land acquired for the sake of a sub project will have to be compensated for fully as spelt out in the RPF document.

4.2.5 The Wildlife Conservation and Management Act, Cap 376

This Act provides for the protection, conservation and management of wildlife in Kenya. Nature Reserves and National Parks are controlled by the Kenya Wildlife Service under the Wildlife (Management and Co-ordination) Act of 1976. The common feature with all land reserved for use by wildlife is that its conversion to any other form must be approved by Parliament.

4.2.6 Public Health Act Cap 242

The Public Health Act provides for the protection of human health through prevention and guarding against introduction of infectious diseases into Kenya from outside, to promote public health and the prevention, limitation or suppression of infectious, communicable or preventable diseases within Kenya, to advice and direct local authorities in regard to matters affecting the public health to promote or carry out researches and investigations in connection with the prevention or treatment of human diseases. This Act provides the impetus for a healthy environment and gives regulations to waste management, pollution and human health.

The Public Health Act regulates activities detrimental to human health. The owner(s) of the premises responsible for environmental nuisances such as noise and emissions, at levels that can affect human health, are liable to prosecution under this act. An environmental nuisance is defined in the act as one that causes danger, discomfort or annoyance to the local inhabitants or which is hazardous to human health.

This Act controls the activities of the project with regard to human health and ensures that the health of the surrounding community is not jeopardized by the activities of the project such as water development.

4.2.7 Physical Planning Act

This Act provides for the preparation and implementation of physical development plans for connected purposes. It establishes the responsibility for the physical planning at various levels of Government in order to remove uncertainty regarding the responsibility for regional planning. A key provision of the Act is the requirement for Environmental Impact Assessment (EIA). This legislation is relevant to the implementation and siting of sewerage plants in pilot urban centres as identified in the project document.

It provides for a hierarchy of plans in which guidelines are laid down for the future physical development of areas referred to in a specific plan. The intention is that the three-tier order plans, the national development plan, regional development plan, and the local physical development plan should concentrate on broad policy issues.

The Act calls for public participation in the preparation of plans and requires that in preparation of plans proper consideration be given to the potential for socio-economic development needs of the population, the existing planning and future transport needs, the physical factors which may influence orderly development in general and urbanization in particular, and the possible influence of future development upon natural environment.

4.2.8 The Local Government Act

The Local Government Act, CAP 265, gives the Local authorities powers over sanitation of their respective urban centres. This Act empowers the Municipal Authority to provide and maintain sanitation and sewerage services and to take measures to control or prohibit factories and industries from emitting smoke, fumes, chemicals, gases, dust, smell, noise, vibrations or any danger, discomfort or annoyance to the neighbourhood and to control disinfections particularly using cyanide. They are empowered to punish those disrupting sanitation or sewerage lines and can compel owners to construct sewage line into the systems and drainages.

4.2.9 Trends in Institutional and Legal Framework in Kenya

The Kenya Urban Water and Sanitation OBA Fund for Low Income Areas project has been conceived and developed within the context of recently concluded legal reforms in both the forestry and water sectors in Kenya.

4.2.10 Reforms in the Water Sector

The enactment of the Water Act 2002 has driven the implementation of the national water policy. Towards this, a National Water Resources Management Strategy (NWRMS 2005-2007) was released in December 2004 to provide a clear, accountable and transparent roadmap for assessing, maintaining, enhancing, developing and managing the limited available, renewable, freshwater resources using an integrated approach and on a sustainable basis.

In line with the Water Act 2002, new institutions have been formed to take responsibilities formerly held by the Ministry of Water. These new institutions include:

The Water Resource Management Authority (WRMA).
A body corporate charged (under Section 8(1) of the Water Act 2002) with the overall responsibility of managing the water resources of the country;

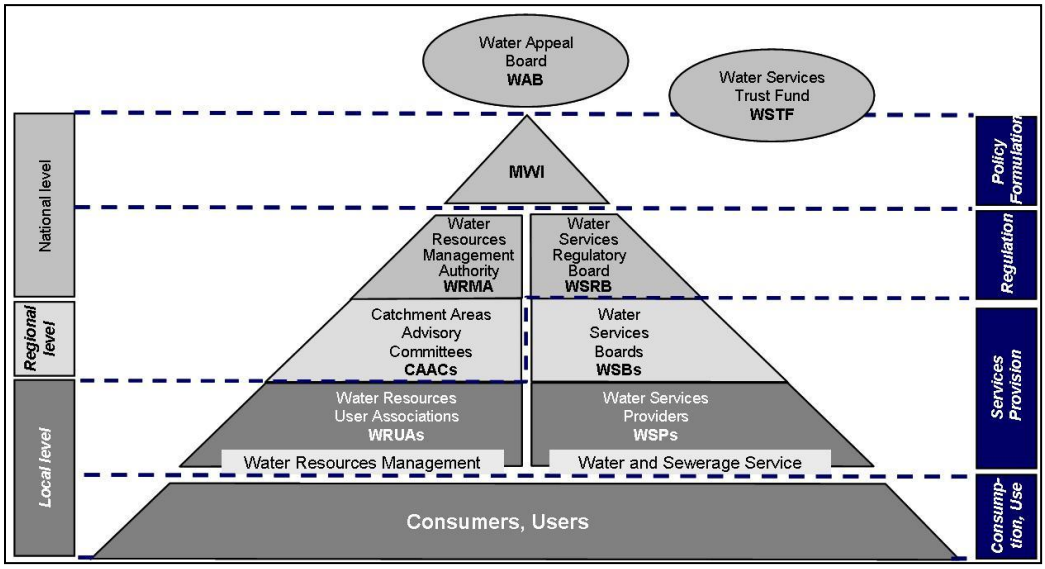
Water Service Boards (WSBs)
The WSBs are responsible for ensuring adequate access to water and sanitation services within their jurisdictions. Where government assets exist they will be owned by the WSBs and operated by Water Service Providers (see below). The WSB is the primary agent of service quality oversight;

Water Services Regulatory Board (WSRB)
Mandated as the national regulator with responsibility for providing guidelines on tariff setting and quality standards. The WSRB also is responsible for issuing licenses to WSBs;

Water Services Trust Fund (WSTF)
For providing financial support to the rural water sector through grant finance for capital investments; and Water Service Providers to provide water services to consumers, ranging from

public urban utilities, small private network operators in rural areas and community managed self-supply through water users' associations.

The diagram below depicts the institutional Framework of the various water sector institutions, and their linkage to one another including on environmental issues.



WSPs are encouraged to work with existing WRUAs in their areas of operation for the protection of catchments areas.

4.3 Relevant Institutions

4.3.1 The Ministry of Environment, Water and Natural Resources (MoEWN).

The Ministry of Environment, Water and Natural Resources (MoEWN) is the ministry in charge of the water sector and is therefore responsible for the overall management of water resources and general government policy on the water sector in the country. The Ministry was established in January 2003 with the goal of conserving, managing and protecting water resources for socio-economic development.

Under the water sector reforms, the Ministry transferred management of and operation of water services to the Water Services Regulatory Board (WASREB) from mid-2005. The Director of water was the person in charge of water services in the ministry but these powers and duties were transferred to the regional water service boards that are now licensed by the WASREB to provide water services in different regions across the country. The ministry and other state corporations that were involved in water supply such as the National Water Conservation and Pipeline Corporation also transferred their water supply facilities to these regional water service boards. NGOs, CBOs and any other community self-help groups are required to enter into agreements with the respective regional water service boards with regard to use of water supply facilities owned by the community organisations.

4.3.2 Water Resources Management Authority (WRMA)

The Water Resources Management Authority (WRMA) was formed as one of the water sector bodies under the water sector reforms; the body was established under the Water Act 2002. The overall mandate of WRMA is to protect and conserve water resources. Water resources for purposes of the Water Act include lakes, ponds, swamps, streams, marshes, watercourses or anybody of flowing or standing water both below and above the ground.

The functions of the WRMA include planning, management, protection and conservation of water resources. The WRMA is also authorized to receive and determine applications for water permits and monitor their compliance. There are currently six established regional offices in Kenya these are Athi catchment area in Machakos, Tana catchment area in Embu, Rift Valley catchment area in Nakuru, Lake Victoria South catchment area in Kisumu, Lake Victoria North catchment area in Kakamega and Ewaso Nyiro North catchment area in Nanyuki. The WRMA responsibilities extend to the management of water catchments. The Water Act establishes the Catchment Area Advisory Committees whose principal functions are to advise the WRMA on water resources conservation, use and apportionment at the catchment levels.

WRMAs will be administered based on new boundaries that do not follow the government administrative boundaries. WRMA has divided the country into 6 regions and 25 sub regions based on catchments. Each region has a regional officer and each sub-region has a sub-regional officer. In addition, the Ministry of Environment, Water and Natural Resources (MoEWN) is currently working to realign and rationalize the institutional functions and responsibilities based on the 2002 National Water Act so as to eliminate duplications and overlaps of roles and responsibilities among different institutions. The MoEWN has been downsized and many of the county water offices' responsibilities and tasks have already been taken by the WRMA and the Water Services Board.

4.3.3 Water Services Regulatory Board (WASREB)

The Water Services Regulatory Board is established under the Water Act and was operationalized in March 2003. The functions of the WASREB include the issuance of licences to Water Service Boards and to approve service provision agreements concluded between Water Service Boards and Water Service Providers. The Water Service Providers are the agencies that directly provide water and sanitation services to consumers. The WASREB is responsible for ensuring that water services and supply are efficient and meet expectations of consumers through regulation and monitoring of Water Service Boards and Water Service Providers. To standardize service provision, the Board has the responsibility of developing among others, tariff guidelines.

The Board is therefore supposed to oversee the implementation of policies and strategies relating to provision of water and sanitation services, these policies include the National Water Services Strategy (2007 -2015), Pro-Poor Implementation Plan for Water Supply and Sanitation (refer to the popular versions of these documents prepared by COHRE & Hakijamii Trust), the specific functions of the WASREB include:

- *Providing information about water and sanitation services.*
- *Regulating the provision of water and sanitation services; this is done through such methods as setting standards for the provision of water services, monitor compliance of facilities for water supply with the set standards.*

- *Licensing Water Service Boards such as the Athi Water Services Board and other regional water service boards and approving their appointed Water Service Providers through service provision agreements.*
- *Setting the rules, establishing standards guidelines and monitoring the performance of Water Service Boards and Water Service Providers and enforcing regulations.*
- *Establishing technical, water quality and effluent disposal standards.*

4.3.4 Water Services Trust Fund (WSTF)

The Government of Kenya, through the Ministry of Water and Irrigation established the Water Services Trust Fund (WSTF) under the Water Act 2002 to channel funding for its long-term objectives of developing water and sanitation services in areas of Kenya without adequate water. The main objective of the WSTF is to assist in financing capital costs of providing services to communities without adequate water and sanitation services. The WSTF focuses on reaching those areas that are underserved or not served at all such as informal settlements, the priority being given to poor and disadvantaged groups. The projects are funded through direct allocation by the Government and donations and grants that may be received from bilateral and multilateral development partners, organisations and individuals.

4.3.5 Water Appeals Board

The Water Appeals Board is established under the Water Act to adjudicate disputes within the water sector. The Appeals Board is made up of three persons, one appointed by the President on advice of the Chief Justice and two others appointed by the Minister for Water and Irrigation. The Water Appeals Board can hear and determine appeals arising from the decision of the Minster of Water and Irrigation, the WASREB and the Water Resources Management Authority (WRMA) with respect to the issuance of permits or licensees under the Water Act.

4.3.6 Water Services Boards (WSB)

Water Services Boards (WSBs) are constituted under the Water Act 2002. The WSBs are responsible for the provision of water and sewerage services within their areas of coverage and are licensed by the WASREB. The WSBs are also responsible for contracting Water Services Providers (WSPs) for the provision of water services. WSB and WSP enter into service provision agreements that include but not limited to the supply area, development, rehabilitation and maintenance of water and sewerage facilities of the WSBs. The WSBs are responsible for the review of the water services tariffs proposals from WSP before submission to WASREB for consideration.

There are currently eight (8) established WSBs namely: Athi Water Services Board, Tana Water Services Board, Coast Water Services Board, Lake Victoria South Water Services Board, Lake Victoria North Water Services Board, Northern Water Services Board, Rift Valley Water Services Board and Tanathi Water Services Board.

4.3.7 Water Service Providers (WSP)

Water supply and sewerage services are delivered through municipally owned WSPs acting as agents of eight regional Water Services Boards (WSBs). WSBs own and develop infrastructure used in the production and delivery of water services, and contract WSPs to operate the systems in demarcated service areas. The majority of urban WSPs are incorporated under the companies act by their respective city, municipal or town councils, which are currently the shareholders of

the WSPs. The WASREB licenses WSBs who in turn engage WSPs as agents through service provision agreements (SPAs). The WASREB also monitors the performance of WSBs and WSPs. The corporate governance guidelines stipulate, amongst other things, that the board of directors of a WSP should be made up of members drawn from local authorities, the business and manufacturing community, and local professional and women's organizations. This is to support increased transparency and accountability and to reduce conflict of interest.

5 DESCRIPTION OF WORLD BANK ENVIRONMENTAL & SOCIAL SAFEGUARDS POLICIES AND TRIGGERS

This ESMF has been designed so that all investments under the **Kenya Urban Water and Sanitation OBA Fund for Low Income Project** will comply with the relevant laws of Kenya's Environmental and Social Safeguard Policies of the World Bank. In this chapter, the Bank's safeguards policies and their applicability are discussed. The World Bank Safeguard Policies are;

1) *Environmental Assessment (OP 4.01)*
2) *Natural Habitats (OP 4.04)*
3) *Forestry (OP 4.36)*
4) *Pest Management (OP 4.09)*
5) *Physical Cultural Resources (OP 4.11)*
6) *Indigenous Peoples (OP 4.10)*
7) *Involuntary Resettlement (OP 4.12)*
8) *Safety of Dams (OP 4.37)*
9) *Projects on International Waterways (OP 7.50)*
10) *Projects in Disputed Areas (OP 7.60)*

In preparing this ESMF, a consideration of the type of future investments planned vis-à-vis the baseline data presented in Chapter 4 and the requirements of the Bank Safeguard policies, as described in the project Integrated Safeguards Datasheet (available on the Bank InfoShop website), has led to the determination that the following Bank policies are triggered.

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP 4.01)	X	
Natural Habitats (OP 4.04)		X
Pest Management (OP 4.09)		X
Physical Cultural Resources (OP 4.11)		X
Involuntary Resettlement (OP 4.12)	X	
Indigenous Peoples (OP 4.10)		X
Forests (OP 4.36)		X
Safety of Dams (OP 4.37)		X
Projects in Disputed Areas (OP 7.60)*		X
Projects on International Waterways (OP 7.50)		X

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Notwithstanding, since the exact location of the investments was not known at the time of preparation of this OBA Project, the level of environmental and social risk and a set of applicable mitigation measures will be determined as part of the screening.

A complete description of the bank safeguards and their triggers for applicability can be found on the World Bank's official web site www.worldbank.org and summarized in this chapter, to be used as part of the Environmental and Social Management process presented in chapter 6 of this ESMF.

5.1 Environmental Assessment (OP4.01)

This policy requires Environmental Assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed investments under the Kenya Urban Water and Sanitation OBA Fund for Low Income Project. The EA process takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property) relevant to the project scope.

The environmental and social impacts of the OBA Project will come from the proposed investment activities. However, since the exact location of almost all these investments will not be identified before World Bank appraisal of the project, the EA process calls for the GoK to prepare an Environmental and Social Management Framework (ESMF).

This report which will establish a mechanism to determine and assess future potential environmental and social impacts during implementation of OBA Project activities, and then to set out mitigation, monitoring and institutional measures to be taken during operations of these activities, to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

Operational Policy 4.01 further requires that the ESMF report must be disclosed as a separate and stand-alone document by the Government of Kenya and the World Bank. The disclosure should be both in Kenya where it can be accessed by the general public and local communities and at the InfoShop of the World Bank and the date for disclosure, in case of this OBA Project, must precede the date for approval of this program.

The policy further calls for the Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project as a whole to be environmentally screened to determine the extent and type of the EA process. The World Bank system assigns a project to one of three project categories, as defined below:

5.1.1 Category "A" Projects

An ESIA is always required for projects that are in this category. Impacts are expected to be 'adverse, sensitive, irreversible and diverse with attributes such as pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbance of the site or surroundings; extraction, consumption or conversion of substantial amounts of forests and other natural resources; measurable modification of hydrological cycles; use of hazardous materials in more than incidental quantities; and involuntary displacement of people and other significant social disturbances.

5.1.2 Category "B" Projects

Although an ESIA is not always required, some environmental analysis is necessary. Category B projects have impacts that are 'less significant, not as sensitive, numerous, major or diverse. Few, if any, impacts are irreversible, and remedial measures can be more easily designed.' Typical projects include rehabilitation, maintenance, or upgrades, rather than new construction.

5.1.3 Category "C" Projects

No ESIA or other analysis is required. Category C projects result in negligible or minimal direct disturbance of the physical environment. Typical projects include education, family planning, health, and human resource development.

5.1.4 EA Categorization for this OBA Project

The OBA Project has been screened and assigned an EA Category B, due to the nature of the proposed activities which include: household water connections, household sewer connections, public water points, public sewer connections, public sanitation facilities and small scale water treatment facility. The project activities will have site-specific risks, none of which are irreversible and can be avoided or mitigated based on the site-specific ESA/ESMP.

Therefore, this ESMF sets out to establish the EA process to be undertaken for implementation of project activities in the proposed the OBA Project when they are being identified and implemented. This ESMF also conforms to the World Bank Group's Environmental, Health and Safety Guidelines.

5.2 Involuntary Resettlement (OP 4.12)

The objective of this policy to avoid where feasible, or minimize, exploring all viable alternative project designs, to avoid resettlement. This policy is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts.

This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets, or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.

For project activities that impact people and livelihoods in this way, the Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project will have to comply with the requirements of the disclosed RPF and RAPs to comply with this policy.

The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to project appraisal of proposed projects. The objective of this policy to avoid where feasible, or minimize, exploring all viable alternative project designs, to avoid resettlement.

The policy requires the displaced persons and their communities, and any host communities receiving them, are provided timely and relevant information, consulted on resettlement options, and offered opportunities to participate in planning, implementing, and monitoring resettlement.

Appropriate and accessible grievance mechanisms are established for these groups. In new resettlement sites or host communities, infrastructure and public services are provided as necessary to improve, restore, or maintain accessibility and levels of service for the displaced persons and host communities.

A separate Resettlement Policy Framework (RPF) was thus prepared to establish standards and procedures for the preparation of Resettlement Action Plans (RAPs), as required, although unlikely for the proposed project activities. The RAPs would be prepared by the Project and its implementing partners should the project activities require temporary access to resources, loss of shelter or loss of income sources or means of livelihood, whether or not the affected persons must move to another location. No land acquisition is envisioned as part of the project activities.

In a case of RAP preparation for any of the subprojects, the World Bank reserves the right to also approve such a RAP as a condition for that particular project investment to be financed.

Table 2: Summary of World Bank Safeguards Policies

Safeguard policy	Description
OP 4.01 Environmental Assessment	The environmental assessment process provides insights to ascertain the applicability of other WB safeguard policies to specific projects. This is especially the case for the policies on natural habitats, pest management, and physical cultural resources that are typically considered within the EA process. The policy describes an environmental assessment (EA) process for the proposed project. The breadth, depth, and type of analysis of the EA process depend on the nature, scale, and potential environmental impact of the proposed project. The policy favors preventive measures over mitigatory or compensatory measures, whenever feasible. The operational principles of the policy require the environmental assessment process to undertake the following: ▪ Evaluate adequacy of existing legal and institution frameworks, including applicable international environmental agreements. This policy aims to ensure that projects contravening the agreements are not financed. ▪ Stakeholder consultation before and during project implementation. ▪ Engage service of independent experts to undertake the environmental assessment. ▪ Provide measures to link the environmental process and findings with studies of economics, financial, institutional, social and technical analysis of the proposed project. ▪ Develop programmes for strengthening of institutional capacity in environmental management. ▪ The requirements of the policy are similar to those of EMCA, which aim to ensure sustainable project implementation. Most of the requirements of this safeguard policy have been responded to in this report, by evaluating the impact of the project, its alternatives, existing legislative framework and, conducting public consultations and by proposing mitigation measures for the potential impacts identified
OP 4.36 Forests	**All projects** must avoid significant damage to **Critical Forests** (= forested Critical Natural Habitats), same as under the Natural Habitats OP 4.04. **All projects** must minimize and mitigate damage to other (non-critical) natural forests, same as OP 4.04.
OP 4.04 Natural Habitats	This operational policy requires that the study use a precautionary approach to natural resource management, to ensure environmental sustainability. The

	policy requires conservation of critical habitat during project development. To ensure conservation and project sustainability the policy requires that: ▪ Project alternative be sought when working in fragile environment areas; ▪ Key stakeholders are engaged in project design, implementation, monitoring and evaluation including mitigation planning.
OP 4.09 Pest Management	This policy promotes the use of ecological based pest management practices. The policy requires that procured pesticides should meet the WHO recommendations and not be among those on the restricted list of formulated products found in the WHO Classes IA and IB or Class II. This policy is not triggered by the proposed project as it shall not involve use of pesticides use of pesticides despite the fact that the project will involve bush clearing to pave way for development of various project components and landscaping of project area on completion using trees, grasses and other vegetation to improve aesthetic value of the area, control soil erosion and, act as windbreakers among other functions. All activities involving handling of vegetation will be manual labor based thus not necessitate use of pesticides. It is recommended that plant enrichment will be done using organic manure if necessary which can be locally found.
OP/ 4.12 Involuntary Resettlement	Details involuntary resettlement, emphasizing the severe economic, social and environmental risks, if unmitigated. It ensures that the population displaced by a project receives benefits from it and also covers those with usufruct or customary rights to land or other resources taken for the project. The Operational Policy is specifically inclusive, ensuring that all those affected both directly and indirectly by project developments are compensated as part of the project. Affected populations include those with income derived from informal sector and non-farm activities, and from common property resources. The absence of legal title does not limit rights to compensation. The World Bank's Policy objectives urge that involuntary resettlement be avoided whenever possible. If unavoidable, displaced persons need to: • Share in project benefits, • Participate in planning and implementation of resettlement programs, and • Be assisted in their efforts to improve their livelihoods or standard of livings or at least to restore them, in real terms, to pre-displacement levels or levels prevailing prior to the beginning of project implementation, whichever is higher.
OP 4.10 Indigenous Peoples	Indigenous peoples in particular geographical areas are identified by having: a close attachment to ancestral territories and to the natural resources in these areas; self-identification and identification by others as members of a distinct cultural group; an indigenous language, often different from the natural language; presence of customary social and political institutions; and primarily subsistence-oriented production. The Bank's objective is to ensure that indigenous peoples do not suffer adverse effects from Bank financed projects and that they receive culturally compatible social and economic benefits. Effectively the World Bank requires a project to develop a program for addressing issues based on the informed participation of the indigenous people themselves. Any project that affects indigenous peoples is expected to include components or provisions that incorporate an "Indigenous Peoples Plan".
OP 4.11 Cultural Property	Cultural property is defined to include both remains left by previous human

	inhabitants (e.g. graves, shrines) and unique natural environmental features such as canyons and waterfalls. The Bank does not support projects that will significantly damage non-replicable cultural property and assists only those projects that are sited or designed so as to prevent such damage.
Op 4.37 Dam Safety	This policy is triggered if the Project involves construction of new dam(s), or is dependent on an existing dam, or a dam under construction. In the case of new dams, experienced and competent professionals to design and supervise construction; borrower adopts and implement dam safety measures for the design, bid tendering, construction, operation and maintenance. In the case of existing dams, any dam that can influence the performance of the project must be identified and its safety assessed. Necessary dam safety measures or remedial work are implemented. Dams over 15 metres in height are classified as large dams. High hazard dams are those under 15 metres but which are in a zone of high seismicity and /or where foundations and other design features are complex.
OP BP 7.50 International Waterways	Ascertain whether international riparian agreements are in place, and ensure that riparian states are informed of and do not object to project interventions.
OP 7.60 Disputed areas	Ensure that claimants to internationally disputed areas have no objection to proposed project.

5.3 Alignment of WB and GOK Polices relevant to this ESMF

Both the World Bank safeguards and GoK laws are generally aligned in principle and objective:

- Both require Environmental Assessment before project design and implementation (which also includes an assessment of social impacts).
- Both require public disclosure of EIA reports and stakeholder consultation during preparation.
- While OP 4.01 of World Bank stipulates different scales of EIA for different category of projects, EMCA requires EIA for all sizes of projects, which require to be scoped as applicable.
- Where EMCA requires Strategic Environmental Assessments, OP 4.01 requires that an Environmental Assessment be conducted depending on the project category while an ESMF should be prepared for municipal projects.
- EMCA recognizes other sectoral laws while WB has safeguards for specific interests.
- The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project which is equivalent to the EMCA requirements.
- Additionally, statutory annual environmental audits are required by EMCA.

In Kenya, it is a mandatory requirement under EMCA 1999 for all development projects (Schedule Two) to be preceded by an EIA study. Thus, under the Laws of Kenya, environmental assessment is fully mainstreamed in all development process consistent with World Bank policies. It is anticipated that projects to be supported under this OBA project will be quite small in scale. However since EMCA provides no minimum size threshold, all projects will be screened at identification stage so as to determine level of environmental assessment required under EMCA. Further, in order to fully insure against triggers to WB safeguard policies, individual investments will be screened against each policy as part of an EIA Study.

5.4 Requirements for Public Disclosure

This ESMF will be disclosed in line with both Kenyan and WB requirements. The draft output has gone through the first round of local disclosure through posting on the website for Ministry of Environment, Water and Natural Resources (http://www.environment.go.ke) and on the World

Bank's external website (http://www.worldbank.org). The final version will be publicly disclosed through the WB's Infoshop, and be published on the WB external website: http://documents.worldbank.org.

6 DETERMINATION OF POTENTIAL ENVIRONMENT AND SOCIAL IMPACTS

Typical project activities to be implemented under the OBA Project are broadly categorized into:

- Planning and design;
- Construction and rehabilitation;
- Operation and maintenance; and
- Decommissioning and closure phases.

The project has a number of positive environmental and social impacts; however, some negative impacts have also been identified. Environmental and social impacts of the proposed project are expected of to be site-specific and manageable with implementation of appropriate mitigation measures, because the project activities include minor civil works for the construction of new/or rehabilitation of water treatment works, extension of already existing water and sewerage distribution lines at the household level, construction of water points and public toilets.

However, impacts like decline in water quality and quantity, soil erosion, noise, dust, land degradation, pollution, loss of biodiversity, loss of access to roads and other assets, solid waste from construction debris, oil spill from motorized construction equipment and vehicles, and impacts on public health may occur.

6.1 Positive Impacts

Potential positive impacts include local employment opportunities and the creation of a local market for materials and consumables that can be sourced locally. Construction of access roads may also provide positive impacts to local communities. Positive impacts from pipeline construction include the creation of job opportunities, as well as the potential for improved habitats for local wildlife species along the way-leave if this strip of land is managed appropriately, including habitat restoration. Other positive impacts include:

a) Increased access to reliable, affordable and sustainable water supply and sanitation services; and
b) Improved water and wastewater services in the areas served by selected WSPs.
c) Poverty Alleviation
d) Improved access to water for domestic purposes
e) Improved access to sanitation facilities
f) Improved public health

6.2 Potential Adverse impacts

6.2.1 Environmental Impacts

Highlighted in summary below are the potential adverse impacts that could occur when the sub projects under Kenya Urban Water and Sanitation OBA Fund for Low Income Areas are implemented. Outlines for subproject ESIA and ESMP have been prepared, which should guide

development of these reports, which will investigate the details the potential adverse impacts for each of the proposed activities and describe mitigation measures associated with each of these impacts.

a) *Water quality and quantity degradation (both surface & ground water) by discharges of treated waste water*
b) *Vibration, Noise, air pollution, and dust generation by traffic and machinery during construction*
c) *Soil run off and erosion*
d) *Surface water sedimentation*
e) *Sanitation and waste management problems*
f) *Increased levels of pollution due to an increase in motorized traffic during construction and emissions from construction processes.*

6.2.2 Socio-cultural and Economic Impacts;

a) *Temporary restriction of access for local inhabitants*
b) *Damage to property*
c) *Water use conflicts*
d) *Camp construction related impacts*
e) *Traffic congestion*

6.2.3 Health Impacts

a) *Spread of water borne diseases*
b) *Spread of HIV/AIDS due to influx of workers during construction*
c) *Dust impacts*
d) *Noise impacts*

6.3 Description of potential adverse environmental and social impacts

6.3.1 Impacts on Ecosystems

Potential environmental impacts will result from the creation of the diversion sites and structures themselves, and from operational management of diversion sites and the impacts on downstream riverine ecosystems, including maintenance of in stream and riparian habitats. Downstream impacts on riverine and coastal ecosystems are considered above under downstream environmental flows and these are considered to be the primary environmental impacts associated with the development of these water supply abstraction sites. The most important mitigation measures are the release of good quality Reserve Flows capable of maintaining important environmental services, and satisfying downstream water requirements.

6.3.2 Environmental Impacts

Impacts that can be expected from construction include: potential soil erosion resulting from site preparation and construction activities, including pipelines for local water and sewerage connections; construction of toilets and water kiosks; pollution from machinery and construction activities; and workmen's camps, where needed. Potential positive impacts include mitigation measures on environmental effects need to be included. For WSPs close to wetlands and riparian areas to it is a key outcome to help counter waste water and other waste that will emanate as a by-product of the project. The overall levels of impact experienced as a result of construction under the different development scenarios are expected to be similar for each scenario. The overall

impacts from construction are considered to be manageable with appropriate mitigation measures. Scenarios with less overall construction can be expected to have reduced impacts.

Due diligence and monitoring during construction activities can be expected to mitigate the majority of potential negative impacts due to construction and operational activities. Restriction of access to roads or any loss of property due to construction activities would need to be covered by compensation.

Construction of local pipeline connections can be expected to include the following negative impacts:

- *Improper location of well sites in relation to pit latrines, waste burial sites, waste dumps and other sources of contaminants may lead into ground water pollution.*
- *Production of drilling wastes and construction spoils like oil spillage may occur. However, that is not expected to have significant impact on land and ground or surface water sources.*
- *Accidents, health & safety of workers may be at risk during construction.*
- *Incidence of STD & HIV/AIDS is likely to increase due to presence of construction workforce in the rural communities.*
- *Noise and dust during the construction may be nuisance to the neighborhood.*
- *Temporary construction camps,*
- *Disposal of material from excavation and earthworks,*
- *Increased water demand during construction,*
- *Solid waste generation and inadequate conditions for disposal,*
- *Impacts on roads where transmission pipelines cross roads.*

6.3.3 Impacts during Operation

- *Water abundance at the homestead without a corresponding sewerage system to evacuate it will lead to cross contamination and water logged conditions.*
- *Stagnant water may cause cross contamination leading to water borne diseases like typhoid and cholera or breeding ground for mosquitoes which cause malaria.*
- *Occupational health and safety of workers of the WSPs like exposure to hazardous water treatment chemicals and accidents that are associated with operation and maintenance.*

6.3.4 Decommissioning impacts

- *Decommissioned of the distribution lines may generate a lot of construction spoils, metal, wood and plastics.*
- *Noise, dust and the unsightly feature of the demolished infrastructure will be a nuisance to neighbours and the aesthetic beauty of the location will be lost.*
- *Public safety due to proximity to open demolition/construction site.*
- *Incidence of STD & HIV/AIDS is likely to increase due to presence of construction workforce in the rural communities.*
- *Noise and dust during the construction may be nuisance to the neighborhood.*
- *Temporary construction camps,*
- *Disposal of material from excavation and earthworks.*

6.3.5 Public Health Impacts

Permanent low, or extreme low flows, are known to have an impact on the populations of a number of disease vectors. This includes the invertebrate hosts of malaria and schistosomiasis (bilharzia).

A change in faecal bacteria concentrations and associated waterborne pathogens as a result of runoff and inflow of contaminants is possible and needs to be monitored on a regular basis. A sample Monitoring Plan is provided in Annex C.

The potential impacts on vector control and disease transmission further reinforces the requirements for a Reserve Flow that includes regular high flow pulses and other periods of higher flows. In particular, it is recommended that regular high flow pulses from reservoirs are adopted as a standard management practice.

6.3.6 Chance Finds Procedures

Chance finds procedures should be incorporated into each sub-project EMP and civil works contracts. The following wording is proposed:

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- 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 Ministry of State for National Heritage and Culture take over;
- Notify the supervisory Project Environmental Officer and Project Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less);

Responsible local authorities and the Ministry of State for National Heritage and Culture would then 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 archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.

Decisions on how to handle the finding shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.

-Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.

6.3.7 Social Impacts

The main positive social impact arising from the project will be a possible increase in the social economic status of the people living within the selected project areas - arising from increased access to safe water and better hygiene and sanitation. Like many parts of Kenya, an increase in access to safe water has the attendant benefits of:

Reducing the incidences of disease associated with the consumption of unsafe water. The successful execution of the proposed sub projects will contribute to improved hygienic practices and sanitation as a key to reduction of infant mortality. This in turn will translate to:

- Reduction of the burden to health services and national expenditure on health.

- Reduction of the time spent on collection of water and thereby allowing women and children, more time to engage in other productive activities. The girl child will particularly be liberated from the associated risks of collecting water far away from home and enabling them to attend school.

- Reduction in inadequacy in school sanitation, a big concern for girl pupils, and is one of the major reasons many of them drop out early. The outputs of this project will be able to add value to education, by enabling the girl child to main in school longer.

In spite of the positive impacts, the following effects are likely to impact on the population in varying but insignificant proportions. Water supply systems are associated with few installations that do not place considerable demand on space and land. Considering the average size of land each of these requires occupying, an insignificant proportion of land within a target Low-Income Area may be required for construction of water kiosks and public toilets. It is therefore quite unlikely that several households will be affected or that large portions of land will be affected.

While this may cause loss of land for other productive activities, these demands cannot cause a significant effect on the need for resettlement or compensation. The mechanism to handle potential compensation and resettlement of Project Affected People is described in the OBA Fund Project Resettlement Policy Framework (RPF).

6.4 Localized Impacts

Most of the developments or subprojects planned under the OBA Project will vary from medium to small in scale. Consequently the significance of the direct negative environmental and social impacts is likely to be moderately significant, but can be reduced or eliminated with diligent implementation of the recommendation of subproject ESIA/ESMPs.

6.5 Environmental and Social Management Process

The Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) outlined below provide analysis of subproject impacts, positive and negative and define a set of measures to be undertaken during planning, design, procurement, construction and post-construction stages of the activities to be financed in this OBA Fund, to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. Refer to *Annex A* for outline of ESIA and *Annex B* for ESMP outline to be used in the project.

Table 4: Generic Mitigation Measures Negative Impacts Associated with Subprojects under Kenya Urban Water and Sanitation OBA Fund for Low Income Areas

Issue	Nature of Impact	Mitigation Measure(s)
Issues Loss of land	Land will have to be purchased to enable construction of pipeline wayleave, workmen's camps and working areas.	Compensation for loss of household income
Soil erosion	Exposed earthworks required for site preparation and construction are likely to result in soil erosion, especially after heavy rainfall.	Erosion control measures Due diligence during construction
Siltation	Siltation created during construction will pass downstream, with potential negative impacts on the environment and on water quality.	Due diligence during construction
Pollution	Construction activities will create air, dust and noise pollution. Contamination from wastes and oil/fuel spills may occur. Contamination may spread to adjacent agricultural land, e.g. tea, thereby reducing its value.	Pollution control measures • Due diligence during construction
Solid waste disposal	Disposal of spoil may have a negative impact unless carefully planned, or used for other activities such as road construction.	Careful planning of spoil disposal
Workmen's camps and Settlements	Camps required for construction workers may overburden local services. Problems may occur in relation to disposal of waste and sewage, and surface waters may be contaminated, with associated dangers to public health. Induced settlement is likely to occur as a result of construction. This may be beneficial to local communities, but will also stress local resources, including water supplies and household fuel. There may also be health risks and increased requirements for health services. The construction phase may also provide local employment opportunities, but these must be scheduled to avoid teak tea picking activities.	Careful planning and location of campsites • Provision of adequate sewage and waste disposal facilities • Provision of adequate services • Provide local employment

Impact from presence of pipelines	Long-term access to the pipelines will be required for routine checking and maintenance. Assuming that most of the pipeline length is buried with limited surface structures, the overall impacts will be relatively low.	Careful management and location of pipelines
Leakage from pipelines and contamination of supply lines	Leaks are likely to occur along tunnels, along transmission and distribution pipelines, and at treatment works. Leakage may result in health risks, e.g. Malaria, Cholera and other water-related diseases.	Regular monitoring and maintenance is essential • Early detection of leaks reduces the possibility of public health risks
Public health risks	A change in faecal bacterial concentrations and waterborne pathogens, especially in reservoirs, as a result of inflow of contaminants from upstream is possible and needs to be monitored. Influx of construction workers from outside of the beneficiary community may increase incidents of HIV/AIDS	Conduct pathogen monitoring and assessment of risks of waterborne disease Develop sensitization training program for communities and the workers. Maximize the use of local staff for construction activities.
Chance finds	Cultural or religious artefacts or graves may be unearthed during excavation.	Work will be stopped, and "chance finds" procedures will be followed.
. General Conditions for environmental management of Office Construction at the Water Boards.	Notification and Worker safety	a) The local construction and environmental inspectorate and communities will be notified of upcoming activities b) The public will be notified of the works through at publicly accessible sites (including the site of the works) c) All legally required permits will be acquired for construction d) The contractor will ensure that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighbouring residents and environment e) Workers' PPE will comply with good international practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) Appropriate signposting of the sites will inform workers of key rules and regulations to follow
General rehabilitation and/ or construction activities	Air Quantity	a) The surrounding environment (side walks, roads) shall be kept free of debris to minimize dust. b) There will be no open burning of construction / waste materials at the site c) There will be no excessive idling of construction

		vehicles at sites.
	Noise	a) Construction noise will be limited to restricted times agreed to in the permit b) During operations the engine covers of generators , air compressors and other powered mechanical equipment shall be closed and equipment placed as far away from residential areas as possible
	Water Quality	▪ The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and /or silt fences to prevent sediment from moving off site.
	Waste Management	a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from construction activities. b) Mineral construction waste will be separated from general refuse, organic, liquid and chemical wastes by onsite-sorting and stored in appropriate containers. c) Construction waste will be collected and disposed properly by licensed collectors d) The records of waste disposal will be maintained as proof for proper management as designed. e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
Toxic/hazardous materials		a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition , properties and handling information b) The containers of hazardous substances shall be placed in a leak-proof container to prevent leaching and leaking. c) The waste shall be transported by specially licensed carriers and disposed in a licensed facility. d) Paints with toxic ingredients or solvents or lead-based paints will not be used

Traffic and pedestrian safety	Direct and indirect hazards to public traffic and pedestrians by construction activities	a) In compliance with national regulations, the contractor will ensure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to: ▪ Signposting. Warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.

6.6 Monitoring Plan

The objective of monitoring is two-fold;

1) *To alert project authorities (i.e. primarily) by providing timely information about the success or otherwise of the environmental management process outlined in this ESMF in such a manner that changes can be made as required to ensure continuous improvement to OBA Project's environmental management process (even beyond the project's life).*

2) *to make a final evaluation in order to determine whether the mitigation measures incorporated in the technical designs and the ESMP have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.*

This section sets out requirements for the monitoring of the environmental and social impacts of the Kenya OBA Fund projects. Monitoring of environmental and social indicators will be mainstreamed into the overall monitoring and evaluation system for the project. In addition, monitoring of the implementation of this ESMF will be carried out by NEMA and the key implementing institutions of OBA Fund Project. A sample list of monitoring indicators is provided in Annex C; however, each subproject will develop an appropriate Monitoring Plan as part of the ESIA.

In addition, Construction Environmental Management Plans and Waste Management Plans will be required to deliver a practical and achievable plan of management and to ensure that any environmental impacts during the construction phases are minimised. Plans will need to be developed prior to construction, but can only be proposed once sites are finalised and full design and construction details are available. The following issues will need to be included:

- *Prevention of interruption to existing infrastructure installations and services, including the building of alternative access routes as required;*
- *Ensure that noise and vibrations are kept to acceptable standards;*
- *Ensure that the environmental, health, and safety aspects are properly addressed and implemented;*
- *Include wording on chance finds procedures in all construction contracts*
- *Water quality management, dust and air quality, soil and groundwater contamination control, and*
- *Waste management,*
- *Public Health issues*
- *Overall Environmental Performance Monitoring and adherence of the project to the ESIA/ESMP Recommendations.*

6.6.1 Monitoring of participation process

The following are indicators for monitoring of the participation process involved in the project activities.

Number and percentage of affected households consulted during the planning stage;

- *Levels of decision-making of affected people;*
- *Level of understanding of project impacts and mitigation;*
- *Effectiveness of local authorities to make decisions;*
- *Frequency and quality of public meetings;*

- *Degree of involvement of women or disadvantaged groups in discussions.*

Monitoring of implementation of mitigation plans lists the recommended indicators for monitoring the implementation of mitigation plans.

6.6.2 Evaluation of Results

The evaluation of results of environmental and social mitigation can be carried out by comparing baseline data collected in the planning phases with targets and post-project situations.

A number of indicators would be used in order to determine the status of affected people and their environment (land being used compared to before, how many clean water sources than before, etc). In order to assess whether these goals are met, the OBA Fund ESMP will define parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities.

The following are some pertinent parameters and verifiable indicators/questions to be used to measure the ESMF process, mitigation plans and performance;

- *Have the WSP allocated staff responsible for monitoring of environmental and social performance of the project?*
- *Have the Environment and Social consultants trained WSP staff?*
- *Have the ESMPs and Final Designs been cleared by the NEMA and WSTF??*
- *Have the Civil Works Contractors got considerable legal support to enforce the ESMP?*
- *At what rate are the civil works been monitored by WSPs and by the NEMA?*
- *Have violations of the contractors/transporters have been recorded and at what rate are they occurring.*
- *How many recorded grievance cases have been settled within one year?*

7 PROJECT COORDINATION AND IMPLEMENTATION ARRANGEMENTS

7.1 Projects and Sub-Project Preparation, Approval and Reporting

This section of the ESMF describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval and implementation of subprojects. This section sets out the reporting systems and responsibilities of the institutions in implementing the ESMF including the details to be addressed by the ESMF and the specific steps to be undertaken to ensure adherence to the ESMF.

7.2 Subproject Review

Subprojects and activities will each need to be reviewed for potential environmental and social impacts. The projects under this OBA Fund are expected to produce net benefits. However certain project activities may have environmental and social impacts that will require mitigation. For this reason, this project has been classified as Category B under the World Bank Policy on Environmental Assessment (OP 4.01), requiring Environmental Assessment.

7.3 Subproject Screening and Screening Checklist for Sub projects

Subprojects activities, including domestic water connections and sewer connections, construction of water kiosks and public toilets. , will each need to be reviewed for potential environmental and social impacts. Using the screening and review process for subproject identification presented here, will, therefore help determine which of the safeguard policies are triggered and what measures will need to be taken to address the potential adverse impacts.

The screening will further ensure that smaller subprojects that may have potential adverse impacts are studied in greater detail including need for subproject specific ESIA. As part of the identification of sub-projects, the project proponent will prepare a screening checklist (*Format 1.0*).

The staff in charge of environmental and social management within the WSPs will complete the Environmental and Social Screening Form. Completion of this screening form will facilitate the identification of potential environmental and social impacts, determination of their significance, assignment of the appropriate environmental category, proposal of appropriate environmental mitigation measures, or recommend the execution of an Environmental Impact Assessment (EIA), if necessary.

The screening checklist/form will be submitted to NEMA for review and approval. If NEMA determines that the impacts will be significant a project report will be required.
In the eventuality that a subproject cannot be approved by NEMA on the basis of a Project Report, the proponent will be advised to undertake an environmental assessment and prepare an ESMP. Project reports will be prepared by independent consultants registered by NEMA, who will be paid by the WSPs with funding from OBA Project.

7.3.1 Screening and sub project preparation

The screening will begin right at the time that the sub project has been identified including proposed location, scope and nature. The idea is to have the screening occur at the time of

conducting feasibility studies so that any potential impacts identified through screening are immediately incorporated into the feasibility study hence ensuring that environmental sound design of the sub projects occurs right at the project design phase. This procedure will also apply when preparing the project report.

7.4 Screening Checklist Review Form

Based on this application, the proposal will be reviewed and selection for the next stage of evaluation undertaken. At this selection stage, a first level of environmental screening takes place on the basis of the screening checklist completed by the proponent in this case of Kenya OBA Fund and done by the environmental specialist within the WSPs.

The screening checklist will be reviewed using the Review Form, to be completed either by the county environment officer. Where there are social impacts indicated, the form will have to be reviewed in addition by Social Specialist in the WSPs. The form prompts the reviewer to verify the information provided by the proponent, and confirm the best course of action. The reviewer must consider the nature and location of the project and the anticipated impacts, and based on his/her judgment, confirm or propose the best course of action.

Format 1.0: **SUBPROJECT SCREENING CHECKLIST (Filled by environmental experts in the WSPs)**

Kenya OBA Fund for Low Income Areas Project:

Sub-project name	[type here]
Location	[type here]
Estimated cost (USD)	[type here]

TYPE OF PROJECT OR ACTIVITY

Sub Project Type

- □ Construction of public water kiosks
- □ Construction of public toilets
- □ Construction of domestic water supply
- □ Construction of domestic sewerage connections

Please give more details: [type here]

For all projects, an Environmental and Social Management Plan (ESMP) will be required.
In addition, the following studies may be required:

	Yes	**No**
Will the project require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries or forests, even, whether on a permanent or temporary basis. If yes, a Resettlement Action Plan will be required	□	□
Will the Project:	**Yes**	**No**
Adversely affect natural habitats nearby, including forests, rivers or wetlands?	□	□
Require large volumes of construction materials (e.g. gravel, stone, water, timber, firewood)?	□	□
Use water during or after construction, which will reduce the local availability of groundwater and surface water?	□	□
Lead to soil degradation, soil erosion in the area?	□	□
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater	□	□
Create pools of water that provide breeding grounds for disease vectors (for example malaria or bilharzia)?	□	□
Involve significant excavations, demolition, movement of earth, flooding, or other environmental changes?	□	□
Affect historically-important or culturally-important site nearby?	□	□
Require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries, forests or cultural resources, whether on a permanent or temporary basis?	□	□
Result in human health or safety risks during construction or later?	□	□
Involve inward migration of people from outside the area for employment or other purposes?	□	□
Will the Project:	**Yes**	**No**
Result in conflict or disputes among communities?	□	□
Result in a significant change/loss in livelihood of individuals?	□	□
Adversely affect the livelihoods and /or the rights of women?	□	□

If you have answered Yes to any of the above, please describe the measures that the project will take to avoid or mitigate environmental and social impacts

[type here]

What measures will the project take to ensure that it is technically and financially sustainable?

[type here]

CONCLUSION

Which course of action do you recommend?

□ **ESMP** □ **RAP**
□ There are no environmental or social risks

[Type here]

If a RAP is required, will the project Displace or restrict access for less than 200 individuals, or if over 200, are losses for all individuals less than 10% of their assets?

If Yes, Prepare an abbreviated RAP □
If No, Prepare a full RAP □

Full details of resettlement requirements are provided in the accompanying Resettlement policy Framework.

Completed by: [type here]
Name: [type here]
Position: [type here]
Date: [type here]

Format 2.0: SCREENING CHECKLIST REVIEW FORM

	Yes	No
Based on the location and the type of project, please explain whether the Proponent's responses are satisfactory.	□	□
Their description of the compliance of the project with relevant planning Documents	□	□
If 'No', please explain: **[type here]**		
Their responses to the questions on environmental and social impacts	□	□
If 'No', please explain: **[type here]**		
Their proposed mitigation measures	□	□
If 'No', please explain: **[type here]**		
Their proposed measures to ensure sustainability	□	□
If 'No', please explain: **[type here]**		

REVIEWER'S CONCLUSION
Which course of action do you recommend?

Based on the screening the project falls under the following environmental category:
□ **A** □ **B** □ **C**
NOTE: Category A subprojects cannot be financed under this Fund, as the overall project was authorized as a Category B operation.

□ **ESMP**; □ **RAP**
□ There are no environmental or social risks

[Type here]

If a RAP is required, will the project displace or restrict access for less than 200 Individuals, or if over 200, are losses for all individuals less than 10% of their assets?

If Yes, Prepare an abbreviated RAP ☐
If No, Prepare a full RAP ☐

Full details of resettlement requirements are provided in the accompanying Resettlement Policy Framework. If this differs from the Proponent's recommended course of action, please explain:

[Type here]

☐ Preparation of a project Report, based on field appraisal by NEMA County Officer, is required to investigate further, specifically to investigate:

[Type here]

☐ **Reject**

Review form completed by: [type here]
Name: [type here]
Position / Community: [type here]

Project Reports are normally prepared as a means of informing NEMA of the proposed development such that after review of the report, NEMA advises on the need or otherwise for a full EIA. The EIA regulations allow for approval of proposed projects at the Project Report Stage and have been effectively used by NEMA to grant Environmental Licenses to small projects without requiring a full EIA.

Table 5: The NEMA Process for Approving Project Reports

Steps	Action	Actor	Time requirement
1	Submission of PR to NEMA. NEMA receives PR, issues a receipt and acknowledgement.	WSP	To be undertaken by WSTF environmental and social specialists with input from the Safeguards Advisor
2	NEMA mails PR to Lead Agencies	NEMA	7 days assuming all requirements are fulfilled
3	Lead agencies review PR and issue comments	Lead Agencies	21 days (minimum) after receipt of PR from NEMA.
4	Review of PR by NEMA	NEMA	30 days after receipt of PR.
5	Communication of findings from NEMA review	NEMA	45 days after receipt of PR.

Typical outcomes of review of Project Reports from NEMA are likely to be as shown in **Table 6** below. These are as follows:

Project is approved. Where NEMA and Lead Agencies ascertain that a project report has disclosed adequate mitigation for identified impacts, the project is approved by NEMA upon which, conditions attached to grant of an Environmental License are issued. Once these are fulfilled, an Environmental License is also issued subject to conditions which will be specific to the scheme in question. Among these is the requirement that the scheme design should not be

altered without approval by NEMA. As well, an audit report is required of each project after the first year of completion.

Project Report discloses potential for major irreversible adverse impacts. In this case, NEMA may not approve the project.

Table 6: Possible Outcomes of NEMA Review of Project Reports

Outcome	Recommendation	Important precautions
Project found to have no significant Social and Environmental Impacts or Project report discloses sufficient mitigation measures	An Environmental License will be issued by the Authority	Project report must disclose adequate mitigation measures and show proof of comprehensive consultations within the area of influence.
Significant adverse social and environmental impacts found or Project Report fails to disclose adequate mitigation measures.	Project with significant adverse social and environmental impacts cannot be supported under the Kenya OBA fund.	As above
A proponent is dissatisfied with the outcome of the NEMA review.	An Appeal is provided for	

Format 3.0: **PROJECT REPORT FORM**

WaSSIP AF	**Select relevant project**
Sub-project name	**[type here]**
Estimated cost (USD)	**[type here]**
What are the project objectives and Activities	**[type here]**
Reason for field appraisal, based on Issues in screening checklist	**[type here]**
Approximate size of the project in land area	**[type here]**
Approximately size of the project in terms of affected individuals	**[type here]**
How was the site of the sub-project chosen?	**[type here]**
Does the project comply with the most Relevant planning document, for example the Development Plan?	**[type here]**

Will the Project:	**Yes**	**No**
Adversely affect natural habitats nearby, including forests, rivers or wetlands?	☐	☐
If 'Yes,' give details: **[type here]**		
Is the project sited within a strict protected area, national park, nature reserve, natural/historical monument or area of cultural heritage?	☐	☐
If 'Yes,' give details: **[type here]**		
Require large volumes of construction materials e.g. grave, stones, water, timber, firewood)?	☐	☐
If 'Yes,' give details: **[type here]**		
Use water during construction, which will reduce the local availability of ground water and	☐	☐

Will the Project:	**Yes**	**No**
surface water?		
If 'Yes,' give details: **[type here]**		
Lead to soil degradation, soil erosion or soil salinity in the area?	☐	☐
If 'Yes,' give details: **[type here]**		
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater?	☐	☐
If 'Yes,' give details: **[type here]**		
Create pools of water that provide breeding grounds for diseases vectors (for example malaria or bilharzia)?	☐	☐
If 'Yes,' give details: **[type here]**		
Involve significant excavations, demolition, and movement of earth, flooding, or other environmental changes?	☐	☐
If 'Yes,' give details: **[type here]**		
Affect historically-important or culturally-important site nearby?	☐	☐
If 'Yes,' give details: **[type here]**		
Require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries, forests or cultural resources, whether on a permanent or temporary basis?	☐	☐
If 'Yes,' give details: **[type here]**		
Result in human health or safety risks during construction or later?	☐	☐
If 'Yes,' give details: **[type here]**		
Involve inward migration of people from outside the area for employment or other purposes?	☐	☐
If 'Yes,' give details: **[type here]**		
Result in conflict or disputes among communities?	☐	☐
If 'Yes,' give details: **[type here]**		
Affect indigenous people, or be located in an area occupied by indigenous people?	☐	☐
If 'Yes,' give details: **[type here]**		
Result in a significant change/loss in livelihood of individuals?	☐	☐
If 'Yes,' give details: **[type here]**		
Adversely affect the livelihoods and /or the rights of women?	☐	☐
If 'Yes,' give details: **[type here]**		

MITIGATION MEASURES

If you have answered **Yes** to any of the above, please propose adequate mitigation measures.

[Type here]

ALTERNATIVES

Is it possible to achieve the objectives above in a different way, with fewer environmental and social impacts? If yes, describe these alternatives, and state why they have been rejected.

[Type here]

OTHER OBSERVATIONS

Please describe any other observations, especially any related to the reason for the field appraisal.

[Type here]

CONCLUSION

□ **Approval**:
□ There are no environmental or social risks
□ Independent preparation of a Detailed Plan is required:
□ **ESMP**□ **RAP**

If a RAP is required, will the project displace or restrict access for less than 200 individuals, or if over 200, are losses for all individuals less than 10% of their assets?

If Yes, prepare an abbreviated RAP □
If No, prepare a full RAP □

Full details of resettlement requirements are provided in the accompanying Resettlement Policy Framework.

□ **Reject**

Review form completed by [type here names of all contributors to the appraisal]

Name: [type here]
Position/ community: [type here]
Date: [type here]

In the eventuality that a Project cannot be approved by NEMA on the basis of a Project Report, the proponent will be advised to undertake full cycle ESIA leading to development of a fully-fledged Environmental and Social Impact Assessment Study Report.

Scoping Report

Firstly, on advice from NEMA, the proponent will prepare a Scoping Report specifying the project's area of influence, the thematic scope and depth of assessments required, the composition of the required EIA team, and the probable budget required to mount the EIA Study.

ESIA Study

Upon review and approval of the Scoping Report, NEMA will advise that an ESIA Study be undertaken. The ESIA Study will entail a systematic investigation of all impact areas as identified in the scoping report, taking care to document the current baseline environment, resource exploitation patterns and ecological pressure points. It is mandatory for the ESIA study to

undertake public consultation with all stakeholders in the project's area of influence. The ESIA Team should note and understand all stakeholder interests so as to cater for them in the ESMP. All accruing information will be written into a Draft ESIA Report prepared in the same format as the project Report and submitted to NEMA for review. Upon review of this report, it will be subjected to public review.

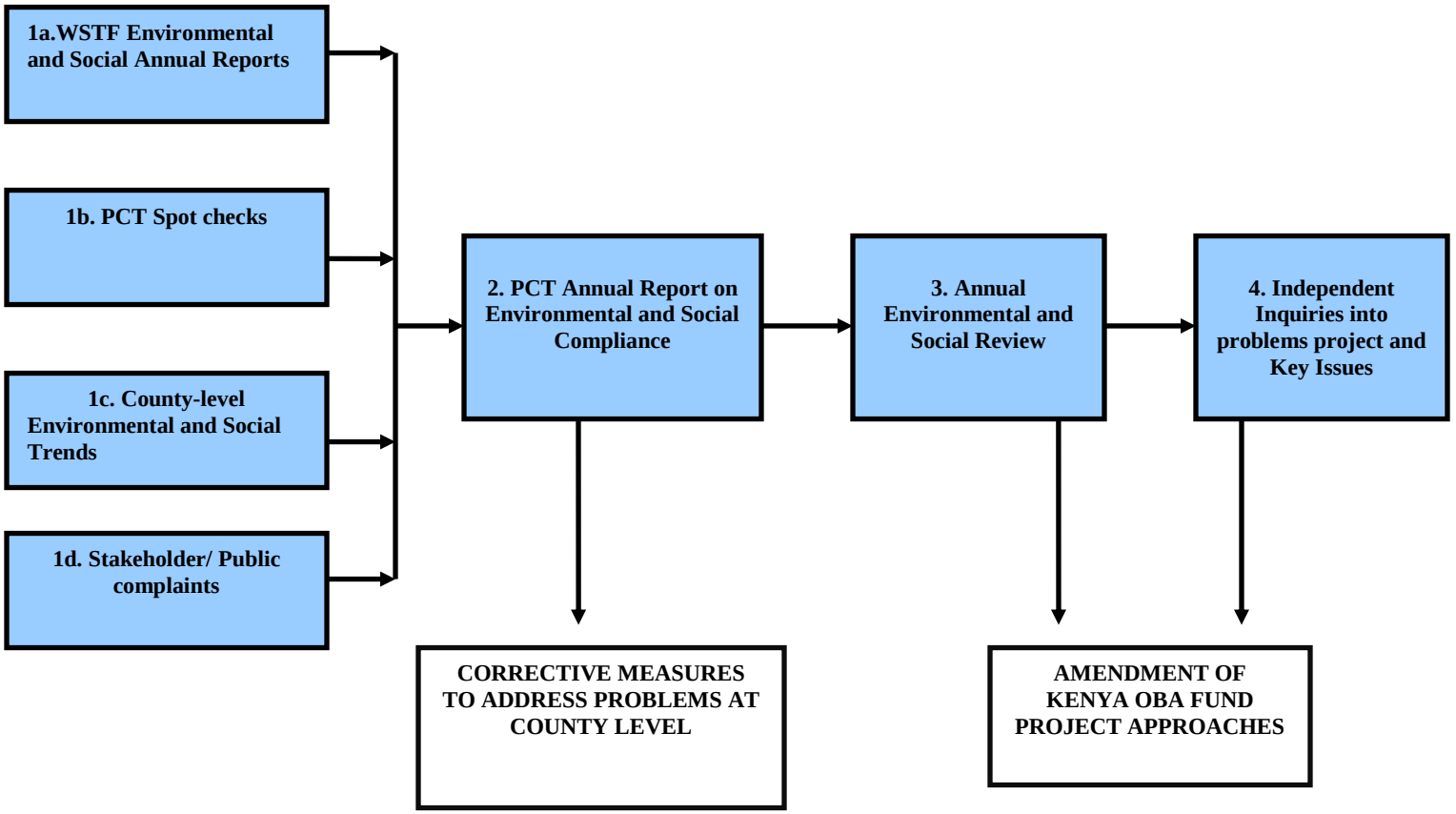
Public Review of the ESIA Report

This will entail exposure of all the EIA documents at strategic points within the project's area of influence so as to allow all stakeholders to read and understand how they stand to be affected by the project. The public review has to be advertised twice in local dailies that are widely read in Kenya, and are often supplemented by public hearings organized by NEMA where the project is explained to local stakeholders. Upon expiry of the public review period, the ESIA team will organize the written comments either into an additional chapter or a volume to the ESIA report. This chapter will clearly explain how each of the comments and concerns have been addressed and resolved. This will be issued under the same conditions as is the case of the project report.

7.5 Overall Project Compliance and Reporting

Owing to the significant nature of some of the project activities, a strict system of compliance monitoring and reporting will be adopted. *Figure 4 sets* out the key reporting lines and triggers.

Figure 4; The key reporting lines and triggers.



7.5.1 Annual Reports

Forms proposed for completion on an annual basis are set out in Formats 4 and 5 below. These will comply with Kenya EIA regulations, and will provide:

- A means of communication between counties and PSC team at national level (i.e. through the Environmental Officer in the PCT), and between the PCT and the relevant government departments;

- A paper trail of experience and issues running from year to year throughout the project;

- Practical information from which the Environmental Officer can assess strategic effectiveness of the proposed plans in achieving project objectives;

- Practical information from which the Environmental Officers in the PCT and the consultant used to carry out the annual performance audit can draw on.

The County-level annual report will be completed with input in the appropriate sections by the County Environment Officer. The objective of the report is to feedback on activities and observations from sub-projects implemented over the review period in the county. The form will be submitted to the County Environment Committee and the PCT.

This national-level annual report is to be completed by the PCT principally by the Environmental Officer. The objective of the report is to consolidate and summarize the feedback from the county, and assess the overall progress of the Kenya OBA Fund subprojects against objectives.

Format 4.0: ANNUAL REPORT FORM FOR THE COUNTY LEVEL

Kenya Urban Water and Sanitation OBA Fund for Low Income Areas: subproject name

County: **[type here]**
Reporting year: **[type here]**
Date of report: **[type here]**

PROJECT SUMMARY

Please enter numbers of sub-projects in the following table:

	Approved this year	Application included a screening checklist	Community carried out mitigation without advice	WSTF provided advice on mitigation	Field Appraisal	ESMP	RAP
CATEGORY B							
Construction of water connections							
Construction of sewer connections							
Construction of water kiosks							
Construction of public toilets							
Total							

CATEGORY B – Results of ESMPs, RAPs etc

Type of projects that have been subjected to ESMP, RAPs etc	Impacts identified included:	Are mitigation or monitoring measures being carried out adequately? If not, why not?
[type here]	**[type here]**	**[type here]**

MANAGEMENT ISSUES

Have you or your predecessor been involved in the targeting or identification of sub-projects?

□**Yes** □**No**

If `Yes` ,please describe:
[type here]

Have communities been involved in the targeting or identification of sub-projects?

□**Yes** □**No**

If `Yes`, please describe :
[type here]

Please explain any participatory issues that have impacted ability of communities to identify sub-projects : **[type here]**

Summarise any gaps /non –compliance in environmental and /or social activities:

Key gaps /areas of non – compliance	**Summary of key conclusions**	**Follow up activities recommended**
[type here]	[type here]	[type here]

Have there been any other environmental or social analyses that have been carried out in the county?

Examples of activities reviews or studies	Summary of key conclusions	Levels of success in achieving objectives. If not successful, why not?
[type here]	**[type here]**	**[type here]**

Completed by:
[type here the names of all those who have contributed to completion of the form e.g. County Environmental Officer]

Position:
[type here position of all contributors to the report]

Date: [type here]

Format 5.0: ANNUAL REPORT FORM TO BE COMPLETED BY WSTF ENVIRONMENT SPECIALISTS

Project reference year: **[type here]**
Reporting year: **[type here]**
Date of report: **[type here]**

PROJECT SUMMARY

Please enter numbers of micro-project in the following table (i.e. insert totals from county reports):

Please enter numbers of sub-projects in the following table

	Approved this year	Application included a screening checklist	Community carried out mitigation without advice	WSTF provided advice on mitigation	Field Appraisal	ESMP	RAP
CATEGORY B							
Construction of water connections							
Construction of sewer connections							
Construction of water kiosks							
Construction of public toilets							
Total							

CATEGORY A – Results of ESMPs, RAPs etc

Type of projects that have been subjected to ESMP, RAPs etc	Summary of typical Impacts identified:	Effectiveness of mitigation or monitoring measures carried out. Explain instances where not effective
[type here]	**[type here]**	**[type here]**

Describe key unforeseen environmental and /or social problems associated with any sub-projects:

Problem	Actions taken	Actions to be taken
[type here]	**[type here]**	**[type here]**

MANAGEMENT ISSUES

Summarise, from the county reports, the ways in which County Environment and Development Officers have been involved in the targeting or identification of any sub-projects under the Kenya Kenya Urban Water and Sanitation OBA Fund for Low Income Areas projects.

[type here]

Summarise the extent to which communities have been involved in the targeting or identification of sub-projects.

[type here]

Please summarise key points concerning the activities of the following actors on environmental and social issues in the county

	Activity
Government line agencies working with OBA Fund on environmental and/ or social issues	**[type here]**
NGOs in partnership with OBA Fund to examine environmental and / or social issues	**[type here]**
County Environmental Officer	**[type here]**

Summarise any gaps /non –compliance in environmental and /or social activities:

Key gaps /areas of non – compliance	Summary of key conclusions	Follow up activities recommended
[type here]	**[type here]**	**[type here]**

STRATEGIC IMPACT

Is the project contributing to improved watershed sustainability in project area?

☐ **Yes**, it's contributing to an overall improvement

☐ **No**, it's worsening watershed degradation / it's having a negative impact on the environment

☐ It's contributing to improvements in some micro-catchment areas, and deterioration in others

☐ Too early to say

Please explain:

[type here]

Is the project contributing to increased social benefits (both financial and non-financial) in the project area?

☐ **Yes**, it's contributing to an overall improvement

☐ **No**, it's reducing income generating opportunities / it's having a negative impact on socio development

☐ It's contributing to improvements in social benefits in some areas, and deterioration in others

☐ Too early to say

Please explain

[type here]

Completed by:
[Type here the names of all those who have contributed to completion of the form e.g. Environmental Officer and Monitoring and Evaluation Officer]

Position:
[Type here position of all contributors to the report]

Date:
[Type here]

8 CAPACITY BUILDING, TRAINING AND TECHNICAL ASSISTANCE

Capacity building and training under the Kenya OBA Fund for Low Income Areas will follow the program developed for the related WaSSIP project.

Effective implementation of the Environmental and Social Management Framework (ESMF) will require technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify indicators of these.

The project covers all WSBs and OBA Fund includes the Technical Assistance to support WSTF in implementing and monitoring the ESMF and development and implementation of site-specific ESIAs/ESMPs. The Project manager hired for the OBA Fund will be responsible for project compliance with the safeguards instruments, the ESMF and RPF.

While undertaking this study a capacity needs assessment was inbuilt to identify strengthening needs on social and environmental evaluation, screening, mitigation and monitoring. Capacity enhancement was consolidated into two key areas; human and institutional resources capacity. These are discussed in detail below.

8.1 Technical Capacity Enhancement

Awareness creation, training and sensitization will be required for personnel of the following institutions.

- *National Environment Management Authority*
- *Environmental and Social officers for the 3 WSBs*
- *Local Engineering Contractors who will be contracted or sub contracted to undertake the construction works*
- *Local governments authorities*
- *County Environment Officers,*

8.2 Training Focus

- *Stakeholder engagement, consultation and partnerships;*
- *EIA law, relevant environmental policies;*
- *Development of mitigation measures and Environmental Management Plans*
- *Thorough review of Country EIA procedures, Environmental Management policies & guidelines and WB safeguards as well as their implementation and enforcement.*
- *The group will also be trained on use and application of ESMF tools (Screening checklists, EA), their review, implementation and enforcement.*
- *Participants will be trained on environmental reporting, monitoring and follow-up of ESMF*
- *Significant emphasis will be placed on understanding EIA procedures, Environmental Management policies & guidelines, WB safeguards, implementation and enforcement*
- *Reporting, monitoring and follow-up of ESMF*

In order to reduce costs, minimize duplication of efforts and integrate existing technical expertise, officers with relevant knowledge and experience in particular fields will be used to train the

others. As an example the County Environment Officers can be used to train on requirements of the EMCA and associated guidelines and regulations.

Table 7; Trainings and Target groups

Training Aspect	**Target group**
EIA law, relevant Environment policies and World Bank Safeguard Policy and guidelines	Government agency representatives including county-level officials, NGOs, CBOs.
Relevant social laws and policies	Government agency representatives including county-level officials, Local Government, Private Sector, NGOs, CBOs and community members.

Table 8: Training directly linked to implementation ESMF

	PSC and Central Gov.Agencies	*Local Auth.*	*Private Sector*	*NGO & CBO*	*Community*
Role of ESMF in the Project	A	S	S	S	S
Identification of Indicators and data collection		TS	TS	TS	TS
Identification of environmental and social Impacts		T	T	T	T
Determination of negative and positive projects and sub projects	T	T	T	T	A
Development of mitigation measures and Environmental Management Plan including Institutional Responsibility Framework and Budget.		T	T	T	T
EIA procedures, Environmental Management policies & guidelines, WB safeguards, implementation and enforcement	T	S	S	S	S
Use and application of ESMF tools (Screening checklists, EIA, EA)	T	T	T	T	T
Review of ESMF tools, implementation and enforcement	T	T	S	T	S
Reporting, monitoring and follow-up of ESMF	S	T	T	T	S

* Training of community members at the grassroots level will be undertaken by extension officers on site.
A=Awareness-T=Training-S=Sensitization

The training and capacity building exercises will take into consideration during their development, the integration and fulfilment of the requirements of World Bank social and environmental policies and guidelines, as well as those on Environmental Protection (including relevant policies, regulations and guidelines). Where institutional capacity in terms of availability of human resource is inadequate, the project will engrain support for this through hiring of qualified staff to provide necessary expertise.

Inadequacy in institutional infrastructure, facility resources and equipment will be addressed through an initial needs assessment or the identified implementing institutions and a gap analysis generated. The project will develop a priority list and thereafter provide financial support to purchase necessary equipment and facility strengthening items. The priority list will ensure that key necessities to successful implementation of the ESMF are addressed in order of their strategic importance.

Training directly linked to the implementation of the ESMF should be undertaken first and subsequently followed with regular interval training on aspects influencing success of ESMF. The training program/agenda below provides a sample training outline and course content. The training programmes have been clustered into appropriate groups to facilitate for various target groups. Target groups for training, awareness and sensitization will be as follows.

- County EOs
- NGO & CBO Project Team Leaders
- Contractors managers and personnel

9 PUBLIC CONSULTATION AND DISCLOSURE

The objective of the public consultations with stakeholders is gather information on their concerns, perceptions and fears of the livelihood changes to be brought about as a result/consequence of Kenya Urban Water and Sanitation OBA Fund for Low Income Areas Project.

Public consultations will be organized as a way to collect first-hand accounts of benefits and grievances from interested/and affected parties by OBA Fund project. Consultation will involve organized group discussions with purposively selected individuals/stakeholders to gain information on their concerns, perceptions, reactions and experiences as a result/consequence of OBA Fund project.

A stakeholder mapping exercise will be conducted to identify all the stakeholders within and in the surrounding area including local community, local authorities, civil society, government ministries and agencies, government projects and private sector among other stakeholders.

Many stakeholders have already been extensively consulted under the related WASSIP project.

Minutes of consultations on the subprojects under the original WASSIP, and those sub-projects carried forward into WASSIP AF, are included in the EMPs and EIAs for these sub-projects. Because these minutes contain personal information on the stakeholders, they will be re-disclosed on the websites of the Water Boards, and in the Bank Info Shop, once this information has been removed. Consultations will be conducted for the subprojects as they are identified.

During project preparation, the task team met with several WSPs that could benefit from investments supported by the project. Two of these, Ruiru-Juja and Malindi, are implementing projects financed by WaSSIP and were familiar with the Bank's environmental and safeguards policies. Other WSPs that were consulted which are not funded under the WaSSIP project noted that they are obliged to comply with the EMCA 1999 and are familiar with NEMA's environmental regulations, as they are obliged to comply with these. All WSPs participating in the project will adopt this ESMF and its recommendations and will develop ESIA with ESMP as per the World Bank’s Safeguard Policies and Kenya’s Environmental Management and Coordination Act (EMCA) of 1999, both of which require environmental and social assessment prior to any investment.

Consultations on the ESMF will be undertaken on as part of the preparation of the subprojects under OBA Fund, and the conclusions will be provided in the final version of this ESMF.

10 REFERENCE

1. Environmental and Social Management Framework (ESMF) for WaSSIP 2007
2. Government of Kenya Environmental Management and Coordination Act 1999
3. Government of Kenya Land Control Act
4. Government of Kenya Local Government Act
5. Government of Kenya Physical Planning Act
6. Government of Kenya Public Health Act
7. Government of Kenya Vision 2030
8. Government of Kenya Water Act 2002
9. Government of Kenya Wildlife Conservation and Management Act
10. Indigenous People Policy Framework (IPPF) For WaSSIP 2007
11. Project Concept Note for WaSSIP AF
12. Technical Mission Aide Memoire
13. WaSSIP Additional Financing Project Appraisal Document (PAD)
14. WaSSIP Additional Financing Project Information Document (PID)
15. World Bank Group Environmental, Health, and Safety Guidelines (known as the "EHS Guidelines"). <http://www.ifc.org/ifcext/sustainability.nsf/Content/EHSGuidelines>
16. World Bank Project Concept Note and Integrated Data Sheet

ANNEX A. Suggested ESIA Format

An ESIA is developed per guidance provided in this ESMF. The report's scope and level of detail is based on the subproject screening form and should be commensurate with the project's potential impacts and risks, and it should address the issues set out in the international standards applied to the project. The ESIA report typically includes the following items (not necessarily in the order shown):

1. **Executive summary**: concisely discusses significant findings and recommended actions in lay language.
2. **Policy, legal, and administrative framework**: discusses the policy, legal, and administrative framework within which the Assessment is carried out, including host country regulations, including obligations implementing relevant international social and environmental treaties, agreements, and conventions, the international standards applied to the project, as well as any additional priorities and objectives for social or environmental performance identified by the project proponent. Explains the environmental requirements of any co-financiers.
3. **Project description**: concisely describes the proposed project and its geographic, ecological, social, health and temporal context, including any additional project components that may be required (*e.g.* dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Encompasses facilities and activities by third parties that are essential for the successful operation of the project. Normally includes maps showing the project site and the project's area of influence.
4. **Baseline data**: assesses the dimensions of the study area and describes relevant physical, biological, socioeconomic, health and labor conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigation measures. The section indicates the accuracy, reliability, and sources of the data.
5. **Environmental and Social impacts**: predicts and assesses the project's likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for enhancement. Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention. Evaluates impacts and risks from associated facilities and other third party activities. Examines cumulative impacts as appropriate.
6. **Analysis of Alternatives**: compares reasonable alternatives to the proposed project site, technology, design, and operation in terms of their potential environmental and social impacts; the feasibility of mitigating these impacts; their costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. States the basis for selecting the particular project design proposed.
7. **Management Program**: consists of the set of mitigation and management measures to be taken during implementation of the project to avoid, reduce, mitigate, or remedy for adverse social and environmental impacts, in the order of priority, and their timelines. May include multiple policies, procedures, practices, and management plans and actions. Describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets or acceptance criteria that can be tracked over defined time periods, and indicates the resources, including budget, and responsibilities required for implementation. Where the project proponent identifies measures and actions necessary for the project to comply with applicable laws and regulations and to meet the international standards applied to the project.
8. **Appendices**:
   i. List of ESIA report preparers – individuals and organizations.

ii. References – written materials, both published and unpublished, used in study preparation.
iii. Record of stakeholder consultation meetings, including consultations for obtaining the informed views of the affected communities and/or their legitimate representatives and other interested parties, such as civil society organizations. The record specifies any means other than consultations that were used to obtain the views of affected groups.
iv. Description of grievance redress mechanism for the project and proposed record keeping arrangements.
v. Tables presenting the relevant data referred to, or summarized in, the main text.
vi. Associated reports, audits, and plans (*e.g.* Resettlement Action Plan and Community Health Plan).

ANNEX B. Suggested ESMP Format

The ESMF emphasizes that an environmental and social management plan (ESMP) be developed for each project as part of Environmental and Social Impact Assessment and should fit the needs of a subproject and be easy to use. Based on results of subproject screening, for small scale projects with little potential environmental and social impacts a stand-alone ESMP is developed. For projects with greater risks identified, an ESIA is developed, containing an ESMP.

The basic elements of an ESMP are:

- *A description of the subproject activity;*
- *A description of potential environmental impacts;*
- *A description of planned mitigation measures;*
- *An indication of institutional/individual responsibility for implementing mitigation measures (including enforcement and coordination);*
- *A program for monitoring the environmental effects of the subproject both positive and negative (including supervision);*
- *A time frame or schedule; and*
- *A cost estimate and source of funds.*

Subproject Activity	*Potential Environmental Impacts*	*Proposed Mitigation Measures*	*Responsibility (including Enforcement and coordination)*	*Monitoring Requirements (including supervision)*	*Time Frame or Schedule*	*Cost Estimate*
[type here]	[type here]	[type here]	[type here]	[type here]	[type here]	[type here]
[type here]	[type here]	[type here]	[type here]	[type here]	[type here]	[type here]
[type here]	[type here]	[type here]	[type here]	[type here]	[type here]	[type here]

The above matrix should be filled out for each subproject that will have the need for a separate ESMP (the screening process using the screening checklist should determine this).

ANNEX C. Sample Monitoring Plan

Parameter to be monitored	Unit of Measure	Phase in the Project circle	Frequency	Responsibility
Soil erosion	m3	Construction	Monthly	WSTF Environmental Specialist.
Grievances, complaints inquiries submitted to the project	Number of records	Construction	Weekly	WSTF Environmental Specialist
Ground water pollution.	Faecal coliform counts	Construction and Operation	Daily (Weekly during Operation)	WSP
Construction site waste and drilling waste	m3	Construction	Monthly	WSTF Environmental Specialist / County Environmental staff
Accidents, health and safety of workers at both construction and operational phase	No. of accidents or near miss.	Construction and Operation	Weekly	WSP
Increase of STD and HIV/AIDS due to the presence of construction workers	No. of reported STDs and HIV/AIDS cases.	Construction	Monthly	WSTF Environmental Specialist / County Health Authorities
Increase of waterborne diseases	No. of reported cases	Construction and Operation	Monthly	WSP / County Health Authorities
Noise and dust made by vehicles and construction equipment.	bd, kg/m3	Construction	Weekly	WSTF Environmental Specialist / Community monitoring
Groundwater over extraction and excessive river water abstraction	m3/day	Operation	Monthly	WSP /
Toxic waste generated by water treatment	Kg	Operation	Monthly	WSP
Cross contamination of water in the distribution mains	Faecal coliform counts	Operation	Weekly	WSP
Contamination of Reservoirs tanks and tanks at the clients' premises.	Faecal coliform counts	Operation	Weekly	WSP