ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) PROJECT REPORT FOR THE PROPOSED WATER DISTRIBUTION MEDIUM TERM WORKS FOR MOMBASA SOUTH MAINLAND

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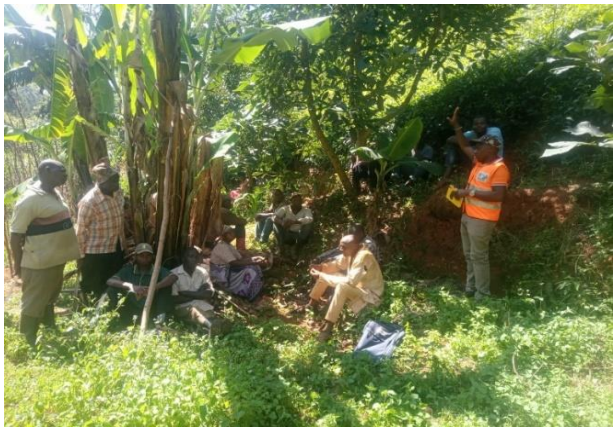

Report Prepared By

FRANCISALLEN CONSULTING LTD

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ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) PROJECT REPORT FOR THE PROPOSED WATER DISTRIBUTION MEDIUM TERM WORKS FOR MOMBASA SOUTH MAINLAND

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CONSULTANT

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REVISION RECORD

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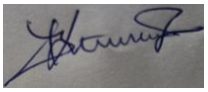
01	MARCH 2024	ENVIRONMENTAL AND SOCIAL ASSESMENT REPORT (MARCH 2024)	FRANCIS ALLEN CONSULTING LTD	BONIFACE MWANIKI	PATRICK KITUTA
02	APRIL 2024	ENVIRONMENTAL AND SOCIAL ASSESMENT REPORT (APRIL, 2024)	FRANCIS ALLEN CONSULTING LTD	BONIFACE MWANIKI	PATRICK KITUTA

SUBMISSION DETAILS

Certificate of Declaration and Document Authentication

This document has been prepared in accordance with the Environmental Management and Coordination Act 2015 and Environmental Impact Assessment and Audit Regulations.

1.1.1.1.1.1.1.1 This report is prepared for and on behalf of:

LEAD EXPERT	**PROPONENT**
Name: Patrick Kyalo Kituta **Designation: Environmentalist** **NEMA Reg: 1275** **Signed:**  **Date: 27th April, 2024**	Coast Water Works Development Agency Physical Adresss: Mikindani Street, Off Nkurumah Road, Mombasa Postal Address: P.O. BOX 90417-80100, Mombasa, Telephone: 041-2315230 Email: info@cwwda.go.ke **Name: Eng. Martin Tsuma** **Designation: Ag. Chief Executive Officer** **Signed:**  **Date: 8thMay, 2024**
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DISCLAIMER:

This Environmental Impact Assessment Comprehensive Project Report is based on literature review and findings from field assessment. It is however, subject to conditions in the Environmental Management and Coordination Act 2015 Environmental Impact Assessment and Audit Regulations, 2013 ISS, 2019

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AfDB	African Development Bank
CWWDA	Coast Water Works Development Agency
CESMP	Construction Environmental and Social Management Plan
COC	Code of Conduct
CPR	Comprehensive Project Report
EHS	Environment Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMMP	Environment and Social Management and Monitoring Plan
EMCA	Environmental Management & Coordination Act
GBV	Gender Based Violence
LRCC	Locational Resettlement Compensation Committee
MOWASSCO	Mombasa Water Supply and Sanitation Company
NEMA	National Environment Management Authority
OSHA	Occupational Health and Safety
PAPs	Project Affected Persons
PPEs	Personal Protective Equipment
SDGs	Sustainable Development Goals
SEA	Sexual Exploitation and Abuse
SCRCC	Sub County Resettlement Compensation Committee
STD	Sexually Transmitted Diseases
VCT	Voluntary Counselling and Testing
WIBA	Workplace Injuries and Benefits Act

WSTF	Water Services Trust Fund
WSP	Water Services Provider
WTP	Water Treatment Plant
WRUA	Water Resources Users Authority
WRA	Water Resources Authority

EXECUTIVE SUMMARY

E-1 Project Overview

The Government of Kenya (GoK) and Coast Water Works Development Agency (CWWDA) with funding from African Development Bank (AfDB) has undertaken to prepare Detailed Designs, ESIA/RAP and Bid Documents for Water Distribution Works for Mombasa and three (3) Water Service Providers (WSPs) under the Water and Sanitation Service improvement Project-Additional Financing (WaSSIP-AF).

The 4 WSPs targeted under the assignment cover the Counties of Mombasa, Kilifi and Taita Taveta and include:

- Mombasa Water Supply & Sanitation Co. Ltd. (MOWASSCO)
- Malindi Water & Sewerage Co. Ltd. (MAWASCO)
- Kilifi-Mariakani Water & Sewerage Co. Ltd. (KIMAWASCO)
- TAVEVO Water and Sewerage Co. Ltd. (TAVEVO)

This Report presents the Environmental & Social Impact Assessment (ESIA) Report for the Proposed Distribution Network Medium-Term Investments for Mombasa South Mainland.

The following represents summary for the proposed works;

Table E1:1 Summary of Lengths of Proposed Water Distribution Network Works for Mombasa South Mainland (km)

Service Area	Category of Works	Short-Term Phase (2017 – 2020)	Medium-Term Phase (2021 – 2030)	Long-Term Phase (2031 – 2040)
South Mainland	Replacement:110 - 350 dia	-	-	-
	Augmentation:110 - 350 dia	3.43	1.65	3.60
	Extension:110 - 250 dia	19.11	28.50	31.55
	Total (km)	**22.54**	**30.16**	**35.15**

E1-1 Project Goal:

Provision of Sustainable Water Distribution Infrastructure: The overarching goal of the project is to enhance the water distribution infrastructure in Mombasa and three other counties to ensure the provision of sustainable water supply to the residents. This encompasses improving the efficiency and effectiveness of water service delivery.

E1-2 Objectives:

1. Improved Water Service Delivery: The project aims to improve the efficiency and effectiveness of water service delivery by implementing detailed designs and bid documents for water distribution works. This includes ensuring reliable water supply to households, businesses, and other consumers within the service areas.

2. Environmental and Social Responsibility: The project is committed to conducting Environmental and Social Impact Assessments (ESIA) to minimize adverse impacts on the environment and local communities. It seeks to adhere to environmental regulations and social standards while implementing water distribution infrastructure projects.
3. Meeting Medium to Long-Term Water Demand: Another objective is to plan for medium to long-term water demand by implementing distribution network investments in phases. This involves anticipating future water needs and designing infrastructure that can accommodate population growth and urban development over the coming decades.
4. Enhancing Water Accessibility: The project aims to enhance water accessibility by extending distribution networks to underserved areas. By expanding the coverage of water distribution infrastructure, it seeks to ensure equitable access to clean water across the target service areas.
5. Compliance with Funding Requirements: With funding from the African Development Bank (AfDB), the project aims to meet the requirements and standards set by the funding institution. This involves preparing detailed designs, ESIA/RAP, and bid documents in accordance with AfDB guidelines to ensure the successful implementation of the Water and Sanitation Service Improvement Project.
6. Benefiting Water Service Providers: The project aims to benefit the four Water Service Providers (WSPs) targeted under the assignment by providing them with the necessary support and infrastructure to improve their service delivery capabilities. This includes Mombasa Water Supply & Sanitation Co. Ltd. (MOWASSCO), Malindi Water & Sewerage Co. Ltd. (MAWASCO), Kilifi-Mariakani Water & Sewerage Co. Ltd. (KIMAWASCO), and TAVEVO Water and Sewerage Co. Ltd. (TAVEVO).

E1-3 Alternatives to the project

The project explores various alternatives to ensure the most effective and sustainable implementation. These alternatives are evaluated based on criteria such as project site, technology, environmental and social impacts, costs, suitability under local conditions, and acceptability by neighboring land users.

1. **Project Resettlement Impacts:** Efforts are made to minimize resettlement by utilizing available public land and existing way-leaves. The design prioritizes the avoidance of resettlement to reduce project costs associated with compensation.
2. **Analysis of Alternative Materials:** Modern, locally and internationally accepted materials are chosen to meet health, safety, security, and environmental requirements. Energy and water-saving equipment are prioritized without compromising cost or availability.
3. **Location Alternative:** Consideration is given to locating the project in areas designated for development or where preservation of species is necessary. Compatibility with

adjacent facilities is ensured, but if relocation is required, it involves significant time, cost, and planning efforts.

4. **No Project Alternative:** Halting the project would maintain existing conditions but result in significant economic losses, missed job opportunities, and continued inadequate water and sanitation conditions for residents.
5. **Proposed Project Option:** The proposed project option is identified as the most feasible, considering its minimal negative impacts and significant positive implications. It promises stable water supply, improved sanitation, enhanced public health, employment opportunities, aesthetic improvements, and economic growth.

E-2 Description of the Project site and Major Environmental and Social Challenges

E2-1 Baseline Conditions of the Project Area

The project area, encompassing Mombasa South Mainland, including Likoni Division (Likoni Sub County), is characterized by diverse geographical features, climatic conditions, soil types, and vegetation zones. The area is vital, hosting residential neighborhoods like Likoni and Mtongwe, along with high-class tourist hotels and resorts. Currently, transportation and growth are constrained by limited access, which is anticipated to improve with the development of the Dongo Kundu Bypass, connecting the South Mainland to the West Mainland.

E2-2 Geographical and Climatic Characteristics

The project area experiences a tropical wet and dry climate typical of the coastal region, with rains occurring during the inter-monsoonal periods, namely from March to June (long rains) and October to December (short rains). Temperature ranges between 22°C to 29.5°C, with high humidity levels, especially along the coastal belt. The area is generally hot and humid throughout the year.

E2-3 Physiographic Belts and Soil Types

1. **Coastal Plain:** This zone comprises white sandy beaches next to the Indian Ocean, approximately 6 km wide, including areas like Mombasa Island, Kisauni, and Mtongwe. The land formation consists of eroded reef material, corals, sand, and alluvial deposits.
2. **Foot Plateau:** Found after the coastal plain, it is made up of Jurassic shale rock overlain with residual sandy plateau, mainly in Changamwe.
3. **Nyika Plateau:** Higher areas covered by Duruma Sandstone series and older rocks, located towards the west.

The soils in the project area exhibit a wide range of characteristics, including soils in mangrove swamps, soils developed in shales, soils developed on lagoonal deposits, and soils developed on raised-coral-reef limestone.

E2-4 Vegetation Zones

Despite significant urbanization, five distinct vegetation zones are identified:

1. **Lowland Moist Savanna:** Found in areas like Mombasa Island, Changamwe, and Likoni, characterized by Afzelia-Albizia/Panicum vegetation.
2. **Lowland Cultivation Savanna:** Small area around Mtongwe with Manilkara-Dalbergia/Hyparyhenia vegetation.
3. **Lowland Woodland:** Thrives in the north coast in Kisauni and a small part to the south of Mtongwe, characterized by Brachystegia-Afzelia vegetation.
4. **Lowland Dry Forest on Coral Rag:** Extends along the coastline from Cannon Point through Shelly Beach to Diani Beach in Kwale County, characterized by Combretum Schumanii-Cassipourea vegetation.
5. **Mangrove Thickets:** Found at Port Reitz Creek, Port Tudor Creek, and Mtwapa Creek, covering approximately 3,059.0 ha. Mangroves are protected and managed by the Forest Department due to their ecological importance.

E2-5 Human Impact and Habitat Alteration:

Human habitation and agricultural activities have significantly altered both terrestrial and aquatic habitats. Most natural vegetation on dry land has been cleared for construction purposes, leaving selected areas such as parks with minimal vegetation cover. Mangroves, although protected, face threats due to the demand for mangrove poles in the construction industry.

E2-6 Baseline Conditions and Trends:

The baseline conditions indicate a diverse but increasingly urbanized landscape, with significant alterations to natural habitats and vegetation cover due to human activities. Construction sites and residential quarters continue to expand, further reducing natural vegetation and habitats. Trends suggest ongoing urbanization and habitat degradation, posing challenges for biodiversity conservation and environmental sustainability in the project area.

The major environmental and social stakes/challenges of the project site and its influence area include:

1. **Environmental Stakes/Challenges**:

- Potential disruption to local ecosystems and biodiversity due to construction activities.
- Changes in land use and interruptions with the valued environment.
- Impact on water quality and hydrological systems during construction and implementation stages.
- Generation of construction waste and its disposal.
- Potential increase in energy consumption for water treatment processes.

2. **Social Stakes/Challenges**:

- Displacement and resettlement of communities residing in the project area.
- Loss of livelihoods, particularly for individual's dependent on affected land or resources.
- Social disruption and community cohesion challenges during construction.

- Access to water and sanitation services may remain inadequate for certain marginalized groups.

Valued Environment and Social Compounds (VEC): The valued environment includes:

- Natural water sources, rivers, and associated riparian zones.
- Agricultural lands and forested areas.
- Cultural heritage sites and community landmarks.
- Residential areas and public spaces.
- The valued social compounds comprise:
- Community cohesion and traditional practices.
- Livelihoods dependent on agriculture, fishing, and other natural resources.
- Access to education, healthcare, and other essential services.
- Socio-economic dynamics and local governance structures.
- Mitigating these challenges and preserving valued environments and social compounds are essential components of the project's Environmental and Social Management and Monitoring Plan (ESMMP). This plan aims to minimize adverse impacts, enhance community resilience, and ensure sustainable development outcomes.

E-3 Institutional and legal framework for implementation of the project

The main legislation that governs environmental management in Kenya is the Environmental Management & Coordination (Amended) Act of 2015 typically referred to as EMCA. EMCA calls for environmental impact assessment (EIA) (under Section 58) to guide the implementation of environmentally sound decisions and empowers stakeholders to participate in sustainable management of the natural resources. Part V from Sections 42 – 57 deals with Protection and Conservation of the Environment while Part VI deals with Integrated Environmental Impact Assessment. Projects likely to cause environmental impacts require that an environmental and social impact assessment study to be carried out. It is under this provision that the current study has been undertaken because Legal Notice No, 32 and 34 of April 19, 2019 places the proposed interventions under the Medium-Risk Category requiring the preparation of a comprehensive project report.

The other relevant legislation applied during this assessment are the regulations borne of EMCA Cap 387 namely the Environmental Impact Assessment and Audit Regulations (Amendment)2019, the Environmental Management and Co-ordination (Water Quality) Regulations 2006, the Environmental Management Co-ordination Act (Wetlands, River Banks, Lake Shore and Sea Shoe Management) Regulations 2009; the Environmental Management Coordination (Noise and Excessive Vibration Pollution Control) Regulations 2009; and the Environmental Management and Co-ordination (Conservation of Biological Diversity Resource Access to Genetic Resource and Benefit Sharing l) Regulations2006, (Legal Notice 61), Air quality Regulations 2013 among others.

The other sectorial legislation applicable to this project includes the Constitution of Kenya 2010, Constitution of Kenya 2010, Kenya Vision 2030, National Environment Policy (NEP) 2013, National Climate Change Response Strategy, 2010, The National Environment Policy, 2013, Kenya National Youth Policy 2006, The National Environmental Sanitation and Hygiene Policy-July 2007, The Physical and Land Use Planning Act, 2019, Land Act, 2012, Water Act, 2016, Water Rules 2007, County Government Act No. 17 of 2012, Occupational Health and Safety Act (OSHA 2007), The Public Health Act (CAP.242), Employment Act, HIV and AIDS Prevention and Control Act 2011, Sexual Offences Act 2006, Child Rights Act (Amendment Bill) 2014, Work Injury Benefits Act (WIBA), Labour Relations Act 2012, National Gender and Equality Commission Act 2011, Public Participation Bill of 2016.

Table E3-1: OS

Policy	**Triggered by the project**	**Discussions**
OS 1: Environmental and Social Assessment.	Yes	The project components will trigger EA safeguards and is Category 1 due to the interaction with the physical, biological and social setting within the immediate surroundings.
OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation.	Yes	The STP will be constructed within private land.
OS 3: Biodiversity and Ecosystem Services.	No	Project activities have no direct linkage to biological diversity and ecosystem services OS 1 shall be applied in isolated minor cases of biodiversity and ecosystem services.

OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency.	Yes	The project shall utilize raw materials both during construction and operation phase that could result to pollution of biophysical environment if not handled appropriately. Project activities shall not result to significant amount of greenhouse gases, EMSP has proposed measures of ensuring that any greenhouse gas produced is collected and flared appropriately. The project design has ensured that the both clean water and sewer flows through the distribution lines by gravity hence reducing the need for pumping.
OS 5: Labour Conditions, Health and Safety.	yes	The Project shall involve workers both during construction and operation phases of the project. This policy read together with OSHA 2007 and IFC Performance Standards 2 on Labour and Working Conditions shall form integral instruments to be used in ensuring that health, safety and working conditions of both workers and community is maintained.

The roles and responsibilities of the project implementation entity (PIE), implementing agencies and other stakeholders is highlighted in the table below;

Table E3-2: Roles and Responsibilities

Nos	Name of Institution	Role of Institution
1.	Coast Water Works Development Agency	• Central agency responsible for holding all information on the ESIA and RAP. • Mobilization of financial resources from Government/ County Governments for resettlement and compensation purposes of the approved ESIA and RAP.
2.	County Government of Mombasa	• Responsible for providing land for the project as per the integrated spatial plans and necessary permits and advisory services to the project implementers

Nos	Name of Institution	Role of Institution
3.	Mombasa Water Supply and Sanitation Company Ltd.	• Responsible for contracting the works, supervising and managing the contractor, under the project • Responsible for day-to-day coordination and implementation of the project. • Oversee the contractor's work • Assist in the establishment of the Sub-County Resettlement Compensation Committee and Locational Resettlement and Compensation Committees. • Establish the Sub-County Resettlement Compensation Committee and Locational Resettlement and Compensation Committees operations. • Ensure the grievance committees are established and working. • Monitor the ESMP implementation.
4.	Resettlement and Compensation Committee	• Ensure effective flow of information between the Contractor and public • Coordinate, validate inventories of PAPs and affected assets; monitor the disbursement of compensation funds; guide and monitor the implementation of relocation • Coordinate activities between the various organizations involved in relocation; facilitate grievance and conflict resolution; and provide support and assistance to vulnerable groups. • Conducting extensive public awareness and consultations with the affected people so that they can air their concerns, interests and grievances. • Resolve disputes that may arise relating to resettlement process. If it is unable to resolve any such problems, will channel them through the appropriate formal grievance procedures laid out in this ESIA.
5.	NEMA	• Provide approval of the ESIA report • Review and provide a NEMA license for the ESMP.

Nos	Name of Institution	Role of Institution
		• Be part of the SCRCC and participate in the resolution of grievances. • Escalate unsolvable grievances to the tribunal.
6.	Contractor	• Implementing the project • To ensure strict compliance environmental specifications of this ESMP
7.	Supervision Consultant	• Ensure that the proposed ESMP is up to date and is being used by the contractor. • Periodic audits of the ESMP will have to be done to ensure that its performance is as expected.
8.	KERRA & KURA	• Provide approval to allow laying pipes along the road reserve

E-4 Project Impact

Assessment of project Impacts was based on analysis of the proposed project components and existing environmental conditions. The impacts arising during each of the phases of the proposed development namely construction, operation and decommissioning, can be categorized into:

- Impacts on biophysical environment;
- Health and safety impacts; and
- Social-economic impacts

The impacts are highlighted below for both the Moderate and Major impacts during the three phases;

E-4-1 Positive Impacts

Positive Impacts during Construction Phase:

The project is envisaged to have more impacts that are positive after completion of the civil works and commissioning.

A summary of anticipated positive impacts of the project include:

- **Employment opportunities**

The implementation of the proposed Project will create job opportunities for both skilled and unskilled workers, leading to improved living standards through increased earnings. The workforce will comprise casual laborers, plumbers, and engineers who will be engaged on-site for a specific duration. Additionally, semi-skilled, unskilled laborers, and formal employees will also find gainful employment during the construction phase. The adoption of labour-intensive

construction techniques will not only provide employment opportunities for the youth but also align with the government's initiatives aimed at job creation.

- **Creation of Wealth**

The proposed development brings many opportunities in investment and procurement where the youth and people of Mombasa can compete to provide different goods and services to the proponent during construction of the distribution pipelines. This in turn creates opportunities for entrepreneurship and wealth creation for the residents. The construction phase will attract temporary business such as food vendors who will benefit from the trade by selling the food to the construction workers. This will improve their living standards from their earnings**.**

- **Creation of a market for construction materials**

The project will require materials, some of which will be sourced locally and some internationally. These include plant steel and plastic pipes, valves, cement, sand, hardcore and chemicals. This will provide a ready market for suppliers in and outside the project area.

- **Increased local incomes**

The local community may get extra income from the sale of construction materials from their firms and also renting spaces for camp sites.

- **Economic growth**

Through the use of locally available materials during the construction phase for example pipes and others; the project will contribute towards growth of the country 's economy by contributing to the gross domestic product. The consumption of these materials, oil, fuel and others will attract taxes.

- **Injection of money into the local economy**

A large sum of the Project money shall be released into the local economy due to the construction activities. It is envisaged that during construction a large number of downstream activities shall take place including but not limited to the following:

i. Payments for skilled and unskilled labour;
ii. Purchases of construction materials; and
iii. Payments for local provisions including fuel, foods and accommodation.

Moderate Positive Impacts during Operation Phase:

- **Stable Water Supply:** Continued reliability supporting community and economic needs.
- **Efficient Water Management:** Reduced non-revenue water, contributing to sustainability. The WSPs will have efficient water management and save a lot of water ie non-revenue water.
- **Job Creation**: Opportunities for managing and maintaining waterlines. People will be employed especially at the WSPs. This will also improve living standards of the people.
- **Improved Health**: With the availability of clean and efficient water and systems, there will be reduction in water-borne diseases and improved hygiene.

- **Development of Infrastructure:** Modern infrastructure development within Mombasa. Modern Infrastructure will come up due to availability of clean and efficient water systems.

Moderate Positive Impacts during Decommission Phase:

- Restoration of site to natural condition or better.
- Upgraded Infrastructure: Well-maintained infrastructure with extended lifecycle.
- Legacy of Improved Services: Improved water services benefiting the community.

E-4.4 Negative Impacts and Mitigation Measures during Project Construction Period

	Major Impact
	Minor Impact
	Moderate Impact

Project area	Associated Impacts	Level of Impact	Management Actions
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Vegetation Clearing		Re-plant the indigenous vegetation as much as practicably possible once work is completed. Limit vegetation clearance unless where unavoidable circumstances appear Contain excavated soils so that they will not find their way into nearby water sources; Cement mixing should be done in a designated area away at a safe distance from storm water drains; Spilled cement or concrete should be collected and disposed away from natural water ways or storm water drainage; Sensitize workers and enable them to properly handle concrete spillages or waste cement; Re-vegetation of exposed areas around the site should be carried out rapidly in order to mitigate against soil erosion through surface water runoff and wind erosion.
South Mainland (Likoni Division) – South Mainland covers the whole of	Impact on Soil Resources		Earthworks should be controlled so that land that is not required for the project works is not disturbed; Wherever possible, earthworks should be carried out during the dry season to prevent soil from be Residents will decommission

Project area	Associated Impacts	Level of Impact	Management Actions
Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			pit latrines, which are expensive to construct, and unsustainable due to short fill-up duration being washed away by the rain. Excavated materials and excess earth should be kept at appropriate sites approved by the Supervising Engineer. The Contractor should adhere to specified cut and fill gradients and planting embankments with shrubs and grass to reduce erosion and take care of stability problems of project trenches once reinstated. Areas cleared for improving sight distance should be planted with grass to reduce erosion;
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Air Quality Pollution		Maintain construction equipment at high operational conditions such as to control emissions into the air. Earth moving be done under dump conditions as much as possible to prevent emission of dust into the air, Similarly, piled materials (sand and aggregate) should be maintained dump to prevent dust emissions, Notify the immediate neighborhoods on the potential odours during the excavations. Use of sprinklers to regularly water construction site, this suppresses the dust menace at construction sites People working in the sites with dust emissions to use dust masks to prevent respiratory infections.

Project area	Associated Impacts	Level of Impact	Management Actions
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Excessive Vibration and Noise Pollution		Avoid night time construction when noise is loudest; Conduct periodic noise measuring and monitoring to determine levels and extent of harmful noise; Clearly label the high noise areas; Provide personal protective equipment (PPE) including masks, goggles, scarfs, boots and overalls among other protective clothing to persons operating within or visit identified high noise areas. In order to meet noise level requirements, the equipment should be equipped with standard noise attenuation features. Machines that exceed acceptable noise limits should be equipped with silencers or lagging materials or specially designed acoustic enclosures; Inform local residents when construction activities are likely to generate excessive noise in order to minimize disruption to local residents through posters along construction sites. Sensitize truck drivers to avoid hooting especially when passing through sensitive areas such as churches, residential areas and hospitals
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes	Risks of solid waste mismanagement leading to pollution		The contractor shall develop a comprehensive waste management plan prior to commencement of works Properly labelled and strategically placed waste disposal containers shall be provided at all places of work

Project area	Associated Impacts	Level of Impact	Management Actions
the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			Litter bins should have secured lids to prevent animals and birds from scavenging All personnel shall be instructed to dispose of all waste in a proper manner Recycling of construction material shall be practiced where feasible e.g., containers and cartons Water containing pollutants such as concrete or chemicals should be directed to a conservancy tank for removal from the site where applicable Potential pollutants of any kind and form shall be kept, stored and used in such a manner that any escape can be contained Any chemical or fuel spills shall be cleaned up immediately. The spilt liquid and clean-up material shall be removed, treated and transported to an appropriate site licensed for its disposal. A safety and emergency response plan will need to be developed for all operations with emphasis on the protection of the environment prior to start up.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and	Impact on water Resources		No grey water runoff or uncontrolled discharges from the site/working areas (including wash-down areas) to adjacent Rivers shall be permitted. Water containing such pollutants as cement, concrete, lime, chemicals, and fuels shall be discharged into a conservancy tank for removal from the site where applicable.

Project area	Associated Impacts	Level of Impact	Management Actions
Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to Rivers. Works that are likely to generate silt-laden runoff (e.g., earthworks and excavations) will be undertaken preferentially during the drier months of the year; November to April; Site compounds and stockpiles will be located away from the rivers.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Risks of solid waste mismanagement leading to pollution		Preferably to be located on land already cleared wherever possible. Communities shall be involved in the site location to avoid conflict The need to be more than 20 meters from water courses and in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse Contouring of spoil site to approximate natural topography and drainage and/or reduce erosion impacts on the site The Contractor shall ensure that the placement of spoil is done in such a manner to minimize the spread of materials and the impact on surrounding vegetation and that no materials 'creep' into' no-go 'areas
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub	Resettlement Impacts		Undertake a Livelihood restoration Plan where business located along road reserves are affected.

Project area	Associated Impacts	Level of Impact	Management Actions
County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Labor Influx Impacts		Effective community engagement and strong grievance mechanisms on matters related to labor. Effective contractual obligations for the contractor to adhere to the mitigation of risks against labor influx, the contractor should engage a local community liaison person as provided for in chapter 6. Proper records of the labor force on site while avoiding child and forced labor. Comply with provisions of WIBA 2007. Develop and implement a children Protection Strategy, this strategy will ensure that no child under the legal age of 18 years in employed in the Project. The contractor should give priority to the local people in the project area for employment opportunities.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni	Human Rights and Gender Inclusivity		Mainstream Gender Inclusivity in the hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule.

Project area	Associated Impacts	Level of Impact	Management Actions
Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			The existing community structures headed by location chiefs should be involved in local labor hire, emphasizing the requirement of hiring women, youth, and people with disability. Protecting Human Risk Areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labor Rights.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Child protection		The Contractor will develop and implement a Children's Protection Strategy that will ensure minors are protected against negative impacts associated with the Project including SEA. All staff of the contractor must sign, committing themselves to protecting children, which clearly defines what is and is not acceptable behavior. Children under the age of 18 years should be hired on-site as provided by Child Rights Act (Amendment Bill) 2014. Wherever possible, ensure that another adult is present when working in the proximity of children. Not invite unaccompanied children to workers' home, unless they are at immediate risk of injury or in physical danger. Refrain from physical punishment or discipline of children. Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and

Project area	Associated Impacts	Level of Impact	Management Actions
			recreational activities, or which places them at significant risk of injury. Comply with all relevant local legislation, including labor laws about child labor specifically provisions of Kenya's Employment Act Cap 226 of 2007 Part VII on the protection of children against exploitation.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Sexual Exploitation and Abuse (SEA)		Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the AfDB OS, 2013 for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). The SEA action plan will include how the project will ensure necessary steps are in place for: Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials. Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation, and disciplinary procedures at the project level, including confidential data management. Engagement with the community: including the development of confidential community-based complaints mechanisms discrete

Project area	Associated Impacts	Level of Impact	Management Actions
			from the standard GRM; mainstreaming of Sexual Exploitation and Abuse (SEA) awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their SEA-related rights.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Disruption of amenities, access roads, services lines and driveways) causing inconveniences to the community		Notify all the services providers Open small sections that can be reinstated within the shortest period to avoid public disruption Mark the lines to avoid conflicts with other activities
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi	Community accidents		Provide notices, signage and information to the public for their safety at all locations Install barriers along walkways, crossings and public places affected by the works for public safety Where there is potential for nuisance from dust generation, ensure earth moving is under dump conditions (consider watering where necessary) Inform immediate communities or stakeholders of the activities.

Project area	Associated Impacts	Level of Impact	Management Actions
Areas, with their numerous high-class tourist hotels and resorts.			
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Risks of Accidents, Injuries or death of workers or community member		Provide construction workers with personal protective gear (gloves, gum boots, overalls and helmets), Provide temporary toilets and bathrooms for the construction workers at the work sites Provide onsite first aid kit accessible by the workers on need, Isolate the site for access by the local communities during the construction for their safety and health Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the resident engineer.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their	Hazards of fire outbreak, oil and chemical spills.		Follow specifications of the Occupational Health and Safety Act, EMCA1999 and others in the development and operation of stores.

Project area	Associated Impacts	Level of Impact	Management Actions
numerous high-class tourist hotels and resorts.			
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Risk to health and safety of community and workers		The Contractor shall keep noise level within acceptable limits and construction activities shall, where possible, be confined to normal working hours in the residential areas. Hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity. Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE. The Contractor must adhere to Noise Prevention and Control Rules of April 2005.

E-4 .5 Project Negative Impacts and Mitigation Measures during Operation Phase

Associated Impacts	Level of Impact	Management Actions

Table E-4.6: Negative Impacts and Proposed Mitigation Measures during Decommissioning Phase

Project Area	Associated Impacts	Level of Impact	Management Actions
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Loss of Jobs and Income of employees taking care of the new interventions		Notify the employees in advance of the project closure date and adequately compensate them. Dismissal procedures to be compliant with Employment Act, 2007. Provide counseling and alternative skills for alternative activities. Employers should find alternative means of livelihood for the staff who were employed at to operate the new interventions. Customers are to be notified in advance of the proposed decommissioning.
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni	Noise Pollution		Schedule noisy activities during the day. Use silencers on machines where possible. Ensure machinery is well maintained to reduce the noise emitted.

Project Area	Associated Impacts	Level of Impact	Management Actions
Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.			
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Solid Waste Material		Disposal of solid waste in compliance with EMCA 2006 Waste Management Regulations. Segregation of waste to encourage reuse and recycling. Ensuring that the contracted waste collector is registered with NEMA to collect and dispose of wastes.

Project Area	Associated Impacts	Level of Impact	Management Actions
South Mainland (Likoni Division) – South Mainland covers the whole of Likoni Division (Likoni Sub County). The area includes the Mtongwe Area with the Naval Base and Ukunda, Diani and Tiwi Areas, with their numerous high-class tourist hotels and resorts.	Occupational Health and Safety		Conduct training on health and safety procedures for the workers before the commencement of demolition. Proper plans were made before demolition to contain the raw sewage and other wastewater that poses a health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.

E-5: Highlights of Stakeholder Consultations

Environmental Impact Assessment / Audit Regulations 2019 and AfDB ISS 2013 require that in the process of conducting Scoping, Environmental Impact Assessment, the proponent shall in consultation with the Authority herein referred to as the National Environment Management Authority (NEMA); seek the views of persons who may be affected by the project.

Table E3-1: Public participation meeting schedule

No.	Date	Venue	Location	No. of Participants
1.	13.02.2024	South Mainland PAPs Sensitization meeting in Likoni	Likoni	Male 11 Female 22 TOTAL 33
2.	22nd March 2024	Shika Adabu Location Chiefs Camp	Shika Adabu	35
3.	25th March 2024	Tibwani Location Chiefs Camp	Tibwani	38

The following stakeholders were present in the meetings;

Table E4-1: Stakeholder Inventory

Institution	**Stakeholder**
Mombasa County Government	• Representative of MOWASSCO • Lands and Physical Planning Department • Mombasa County Public Health Officer
National Government	• Deputy County Commissioner for Likoni. • Local Administration (Chiefs and Village Elders) • National Environment Management Authority (NEMA)
Institutions	• Education and Health Institution
Other Interested Parties	• Project Affected Persons (PAPs) • Landlords and tenants • Business Community • Traders

Table E4-3 below presents a summary of the outcome from the 3 No. public participation meetings that were held;

Table E4-3: Summary of Comments and Responses from the Public Sensitization Meetings

Town	Summary of Issues Discussed	Response
Focused Groups Meeting with PAPs in Likoni	PAPs wanted to know size of water easement required; they preferred the width to be reduced to the minimum acceptable size so as to reduce likely potential social adverse impacts to private property	They were advised that the minimum required easement is 3m for the pipe and 2m for working space which makes a total of 5m.
	A section of the PAPs requested for facilitation to be considered by the Government as they were unable to remove the affected assets by themselves.	They were informed that adequate compensation will be provided prior to removal of the structures The ARAP has proposed adequate mechanism of assisting and compensation for all loses identified by the PAPs
	The PAPS requested to know if they could be allowed to remove their structures and salvage construction material after compensation.	PAPs were advised that, self-removal of structures was appropriate because it allows the PAPs to salvage materials for construction of new structures within their parcels

The main key informants targeted in the consultations were both Government and private Institutions operating within the project area. Listening to stakeholder concerns and feedback is a valuable source of information that can improve project design and outcomes and help in identifying any impacts.

E-5 Environmental and Social Management Plan

An ESMP has been developed whose pursuit can greatly improve the overall net effect of the project. This report observes that the bulk of adverse impacts will manifest at the Construction stage in which case, the core effort in mitigation will be concentrated in the contract for construction. The contract for construction should bear clauses binding the Contractor to implement impact mitigation as part of the civil works.

E5-1 Estimated overall budget for the ESMP

ESMP COST	7,100,000 Kshs

The following represents the ESMP matrix;

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
1.	Excessive Vibration and Noise Pollution	• Access roads should be cut that are exclusively used for the transportation of workers, goods and materials. These roads should be sited in such a way that the noise from this movement affects as few of the existing residents as possible. • Where possible silenced machinery and instruments should be employed to reduce the impact of noise on the existing residents and workers. • Machinery, vehicles and instruments that emit high levels of noise should be used on a phased basis to reduce the overall impact.	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	• Reported complaints from neighbour community and institutions	500,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		These pieces of equipment such as drills, graders and cement mixers should also be used when the least number of residents can be expected to be affected, for example during periods where most residents are at work or school. • Construction hours should be limited to the hours of 8:00 a.m. and 6:00 p.m. daily. • The delivery of raw materials must be limited to 8:00 a.m. and 6:00 p.m. daily. • Provision of appropriate personnel protective equipment to the workers.				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
2.	General rules of Hygiene health and safety (HHS)	• Training and Education: Conduct comprehensive training sessions for all workers on HHS regulations, procedures, and best practices before starting work on the construction site. • Personal Protective Equipment (PPE): Provide appropriate PPE such as hard hats, safety glasses, gloves, and steel-toed boots to all workers. Ensure that PPE is worn correctly and consistently throughout the workday. • Hygiene Facilities: Establish adequate hygiene facilities, including clean and accessible toilets,	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	Reported complaints from the workers and the Community	500,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		handwashing stations with soap and water, and facilities for storing and disposing of personal hygiene items. • Regular Site Inspections: Conduct regular inspections of the construction site to identify potential hazards, ensure compliance with HHS regulations, and address any safety concerns promptly. • Emergency Preparedness: Develop and communicate emergency response procedures for incidents such as accidents, injuries, fires, and hazardous material spills. Ensure that all				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		workers are familiar with these procedures and know how to respond effectively in emergencies. • Safe Handling of Materials: Provide training on the safe handling, storage, and disposal of construction materials, including hazardous substances. Implement measures to prevent exposure to harmful chemicals and minimize the risk of accidents during material handling. • Fall Protection: Implement fall protection measures, such as guardrails, safety nets, and personal fall arrest				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		systems, to prevent falls from elevated work areas such as scaffolds, ladders, and roofs. • Site Security: Control access to the construction site to prevent unauthorized entry and ensure the safety of workers and visitors. Install barriers, signage, and lighting as needed to enhance site security and visibility. • Health Monitoring: Implement a health monitoring program to monitor the health status of workers and detect any occupational health issues early. Provide access to medical services and counselling as needed to				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		support the well-being of workers. • Regular Maintenance: Conduct regular maintenance of equipment, machinery, and infrastructure to ensure their safe and efficient operation. Promptly repair or replace any faulty equipment to minimize the risk of accidents and injuries. •				
3.	Dust Emission	• Wet all active construction areas as and when necessary to lay dust; • Use of dust control methods, such as covers, water suppression, or	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	• Cases of respiratory complication at nearby health centre	200,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		increased moisture content for open materials storage piles, or controls, including air extraction and treatment through a bug house or cyclone for material handling sources, such as conveyors and bins. • Ensure that all material (sand and aggregate) stockpiled on the site to be used in construction activities are regularly sprayed to reduce the effects of wind whipping • Ensure that all trucks carrying aggregate and sand are covered during delivery to the site. • Earth moving be done under dump conditions as much as possible to				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		prevent emission of dust into the air. • Strict measures are to be applied for the handling of construction materials in powder form such as cement, lime, concrete additives, etc. and for the disposal of the packaging • Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. • Minimizing the number of motorized vehicles on use.				
4.	Vegetation Clearing	• Only clear vegetation that is absolutely	All work areas <u>Responsibility</u>	Consultant/Client	• Number of treees cut	KShs. 50,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		necessary for the construction activities; • Retain all mature trees (> 25 cm diameter at breast height during this phase of the development if possible; • Avoid the use of Invasive Alien Species in the landscaping activities • Determine access roads which are to be used by machinery used in the construction and site clearance phase of the development to avoid the unnecessary trampling of vegetation that will be maintained within the development area. • Cement mixing should be done in a designated area away at a safe	Contractor(s)		• Demarcated project area during the training's sessions • No of Claims done on reinstatement	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		distance from storm water drains; • Spilled cement or concrete should be collected and disposed away from natural water ways or storm water drainage; • Re-vegetation of exposed areas around the site should be carried out rapidly in order to mitigate against erosion of soil through surface water runoff and wind erosion.				
5.	Risks of solid waste mismanagement leading to pollution	• All solid waste will be collected at a central location at each site and will be stored temporarily until removal to an appropriately permitted	All work areas <u>Responsibility</u> Contractor(s) Supervision	Consultant/Client	• Number of complaints from community not happy with waste management	400,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		disposal site in the vicinity of the site. • No dumping within the surrounding area is to be permitted. Where potentially hazardous substances are being disposed of, a chain of custody document should be kept with the environmental register as proof of final disposal. • Waste generated at the site should be segregated and disposed of in NEMA designated dumping site • Wherever possible reusing and recycling should be carried out. • A site waste management plan should be prepared by			of spoil material	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		the contractor prior to commencement of construction works. This should include designation of appropriate waste storage areas, collection and removal schedule and identification of approved disposal site; • Proper solid waste receptacles and storage containers should be provided, particularly for the disposal of lunch and drink boxes so as to prevent littering of the site.				
6.	Occupation safety and health impact	• Sensitize the migrant workers on risky sexual behaviour. • Have VCT services on site and encourage	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Accidents occurrence incidences	Kshs.500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		workers to undergo the same. • Provision of protective devices such as condoms. • Provision of hand washing points/ sanitizers • Encourage wearing of masks • Keeping social distance as recommended by the ministry of health of safety gear and enforcement of application				
7.	Site Related Oil Spills	• The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks;	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Availability of spill lit • Availability of impermeable containers for storage of fuels, oils,	Ksh 100,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications and stored in an area approved by the Resident Engineer/Supervising Consultant; • Ensure spill kits are provided at the construction sites • Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains			lubricants and chemicals are stored	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
8.	Impact on existing water Resources	• Areas dedicated for hazardous material storage shall provide spill containment and facilitate clean up through measures such as: maximum separation from sensitive features (water bodies); clear identification of the materials present; access restricted to authorized personnel and vehicles only and dedicated spill response equipment • Provide solid and liquid waste disposal system - a waste collector, NEMA recommended waste disposal manual and a waste collection bin for each housing unit,	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• No of complaints received • Availably of solid and liquid waste disposal system • Designated areas for vehicular servicing	Kshs 1,000,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		workshop, plant, structural shelter. • Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains • Ensure that the machines are serviced in specific locations off-site to avoid spillage of oils and grease into the surface runoff channels.				
9.	Fire outbreak	• Label all inflammable materials and store them appropriately • Provision of adequate firefighting equipment capable of fighting all classes of fire	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Incidence of reported cases of fuel leaks and fire incidences	Kshs 500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Put — 'No Smoking' Signs in areas where inflammables are stored • Train workers on the use of firefighting equipment				
10.	Soil related Impacts	• The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna should be excavated separately and piled in an adequate manner for re-use where applicable. • Minimise compaction during stockpiling by working with the soil in a dry state. The stockpiling should be done in specific locations subject to the engineer's approval.	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Restoration of site after construction • Availability of drainage channels	Ksh 500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Plan emergency response measures in case of accidental oil spills. • In cases where it is identified that during construction there is a danger of increased run-off or at the project site, drainage channels with stone pitching or holding ponds can be employed • After completion of the construction works, restoration of the ground by sowing adequate grass cover and planting of trees will be followed, therefore the impact is temporary and reversible. • In areas prone to erosion, provision of soil				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		stabilization in form of a retaining wall or planting of trees, subject to approval by the Resident Engineer				
11.	Fire outbreak	• Label all inflammable materials and store them appropriately • Provision of adequate fire fighting equipment capable of fighting all classes of fire • Put — 'No Smoking' Signs in areas where inflammables are stored • Train workers on the use of fire fighting equipment	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Incidence of reported cases of fuel leaks and fire incidences	No direct cost associated
12.	Demolition of Structures and Loss of livelihood	• Implement RAP before commencement of civil works at the affected sites	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• No of compensated PAPs • No of grievances	As per the RAP

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Limit damage to property by observing construction area limits • The contractor to communicate with the owners of the potential structures to be demolished that are within the project sites. • Ensure that solid waste generated from the demolitions is properly disposed to suitable locations. • Provide training, skills development, work experience, and employment opportunities, with first preference being extended to project-affected persons.			recorded and resolved	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Consult local and higher-level government officers in the implementation of the RAP and its monitoring. • Coordinate closely with local and higher levels of government. Many aspects of livelihood restoration overlap with responsibilities of government, and interaction with government is key. • Train affected persons in skills that relate to real opportunities outside of the employment provided on the construction sites. This is a transitional support measure not a sustainable livelihood activity. It is meant to				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		equip affected person with skills beyond the temporary construction jobs provided by the project				
13.	Liability for loss of life, injury to private property	• Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel responsible for safety inspections and controls. • Provision of requisite PPE as established from risk assessment in the safety action plan and enforcing their usage. • The workers should receive requisite training especially on the operation of the	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Available operator/driver licences • Appropriate signage's erected on site	Kshs 2,000,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		machinery and equipment. • There should be adequate warning and directional signs. • Ensuring that the prepared code of conduct for staff is followed to prevent accidents. • Provide First Aid Kit within the construction sites and ensure that at any moment during the works, there is a trained first aider on site. The ration of trained first aiders to worker will be as per defined by the OSHA First Aid Rules. • Recording of all injuries that occur on site in the incident register, corrective actions for				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		their prevention are instigated as appropriate. • Contractor to ensure compliance with the Workmen's Compensation Act, ordinance regulations and union agreements and maintain insurance cover throughout the construction period. • The Contractor to promptly repair any damage done to private property. • Limit damage to property by observing construction area limits by clear demarcation				
14.	Crime incidences	• Fencing off the Contractor's camp with plant and materials.	All work areas	Consultant/Client	• Fencing of the campsite and	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Working with local committees (e.g. "Nyumba Kumi") to provide security within the site in addition to the Contractor's own security. • Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment. • Taking all reasonable precautions to prevent unlawful, riotous or disorderly conduct by or	Responsibility Contractor(s) Supervision team		barricading active sites • No of crime cases reported	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		amongst the contractor's personnel, and to preserve peace and protection of persons and property on and near the site				
15.	Spread of HIV and AIDS	• Develop HIV/AIDS awareness programs or initiatives to target the construction workers, community, institutions and the general members of the community, particularly the youth; with the objective of reducing the risks of exposure and the spread of HIV/AIDS within the project area. • Sensitize the migrant workers on risky sexual behaviour.	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• HIV AIDs Programme • Condom dispense • No of sensitization meeting held, attendance sheet	Ksh 250,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Provide VCT services on site and encourage workers to undergo the same. • Provision of protective devices such as condoms. • Maximize hiring skilled and unskilled workers from the host community				
	Traffic and access	• Provide diversion routes where possible. • Give a construction itinerary in advance so that the potentially affected population can use alternative routes and start early to get to their destinations on time. • Erect warning signs of on-going works.	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of adequate signages • Availability of a traffic management plan on site • Availability of temporary bridges • Trained traffic marshals	Ksh 300,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Expedite construction works so as to reduce the times where roads are blocked. • Traffic department should approve crossing plan prior to construction, and should approve obstruction times during construction. • Access of residents should be facilitated by installing appropriate temporary bridges over trenches. • Suitable warning signs should be placed at near locations and should be visible at night. • A guard should be available 24 hours to				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		help people access across trenches. • Alternatives access ways should be communicated to the community.				
16.	Interruption of existing amenities	• Ensure dissemination of relevant information to each of the affected parties; • A work plan with clear responsibilities for each party should be developed to ensure smooth execution of the construction	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of a work plan showing scheduled days for affected utilities • Letter informing utility owners on the anticipated interruptions	Kshs 100,000
17.	Labour Influx	• Reduce labour influx by tapping into the local workforce. Depending on the size and the skill level of the local	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of labour management plan	Kshs 50,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		workforce, a share of the workers required for the project may be recruited locally. This may be easier for unskilled workmen. Specialised workmen may be hired from elsewhere. Local workers may also be trained especially if they are required for the operation of the project. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. Depending on the risk factor, appropriate mitigation measures may be deployed. These may range from engagement with a local			• Availability of Contracts	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		community liaison to the use of the local elders. • The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law as well as to the AfDB OS, 2013 guidelines where applicable. • The contractor should prepare and implement a gender action plan				
18.	Child labour and Protection	• Ensure no children are employed on site in accordance with national labour laws. • Ensure that any child sexual relations offenses	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of identification cards for all workers on site • Complains received by	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		among contractors' workers are promptly reported to the police.			residents in regard to child labour	
19.	Gender Equity & Sexual Harassment	• The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law where applicable. • Strive for an equitable distribution of employment opportunities between men and women. Mainstream Gender Inclusivity in hiring of workers as required by Gender Policy 2011 and 2/3 gender rule;	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• No of complaints received • Availability of gender action plan	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• The contractor should prepare and implement a gender action plan • Provide toilets and bathrooms for both male and female workers on site				
20.	Increased GBV	• Develop and implement provisions that ensure that gender-based violence at the community level is not triggered by the Project e.g. effective and on-going community engagement and consultation, particularly with women and girls; • Ensure adequate referral mechanisms are in place if a case of GBV at the community level	Responsibility Contractor(s) Supervision team	Consultant/Client	• Availability of trained materials, photographs and attendance sheet • Signed CoC	200,00O

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		is reported related to project implementation • Sensitization of workers and the community. • Training on GBV. • Having workers sign a code of conduct.				
21.	Sexual Exploitation and Abuse (SEA)	• Develop and implement an SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the AfDB OS, 2013 for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).	<u>Responsibility</u> Contractor(s) Supervision team	•	• Availability of a SEA action plan • No of complaints received in regard to SEA	No additional cost

E 6-2 Grievance Redress Mechanism

The following represents the GRM during the Project implementation phase;

GRIEVANCE RESOLUTION MECHANISM

1. **Steps in dealing with grievances**
   - Complaint received in writing from affected person
   - Recording of grievance in standard form
   - Reconnaissance site visit with the complainant.
   - Submission of detailed complaint to Resident Engineer for resolution by negotiation.
   - Submission of detailed complaint to the Grievance Committee for resolution by mediation.
   - Submission of complaint to AWWDA for resolution.
2. **Composition of grievance committee**

No	Designation	Organization	Position
1.	EHS officer	CWWDA	Chair
2.	Resident Engineer	Consultant	Committee Secretary
3.	EHS officer	Consultant	Committee Assistant Secretary
4.	Site Administrator	Contractor	Member
5.	EHS officer	Contractor	Member
6.	Chief	Community Representative	Member

E-7 Findings

The project is anticipated to yield substantial positive impacts, encompassing advancements in health, air quality, employment opportunities, economic growth, technology and knowledge transfer, alongside effective mitigation of associated adverse effects; however, it is acknowledged that project activities may entail, albeit on a minor scale, traffic disruptions, accident risks, dust emissions, waste generation, and increased noise and vibration. The study recommends various measures for minimizing negative impacts, encompassing the alleviation of social repercussions, noise control, waste management, reduction of soil erosion, and prevention of accidents and health hazards, with monitoring recognized as a crucial process for safeguarding the project area's environment by detecting changes and trends primarily induced by construction activities

E-8 Conclusion

The proposed project aligns with environmental, legal, and social standards. The potential significant environmental impacts outlined can be effectively mitigated through the proposed measures, and it remains the duty of the proponent and all stakeholders to ensure the diligent implementation of these measures. This concerted effort will contribute to the reduction of environmental threats to acceptable levels.

E 9 Recommendations

The Bid documents prepared for the project incorporate the Environment, Social Health, and Safety Provisions discussed under Chapter 7 (Environment and Social Impact Assessment and Mitigation Measures).

The proponent should be given all the available support to implement the project.

- Necessary permits should be issued by the licensing authority so that the work can commence.
- All mitigation measures need to be specified in tender and contract documents and must be included in the engineering drawings, specifications and bills of quantities.
- Diligence on the part of the contractor and proper supervision by the project Engineer during construction and the initial operation phase is crucial for mitigating impacts.
- Periodic environmental and social monitoring is required by the project Proponent to ensure that mitigation measures have been implemented to prevent or avert any negative impacts of the project.
- The Contractor will be required to prepare a Construction Environment & Social Management Plan (CESMP) which shall be approved by the proponent before the beginning of works;
- The proponent should set up a proper and applicable Grievance Redress Mechanism (GRM) for the project to deal with grievances and issues on the project.
- Contractor will be required to commit to implementing the Environment, Social Health and Safety (ESHS) Provisions by developing site-specific (ESHS) plans.
- At project implementation stage, the Contractor to report to the project management team comprising of the Consultant and the project proponent on a monthly basis on how ESHS provision detailed in this ESIA are addressed at each project Site.
- On completion, CWWDA to commission an independent Consultant to undertake an initial Environment, Social, Health and Safety Audit as required by and Environmental (Impact Assessment and Audit) (amendment) Regulations, 2019. The audit will identify nonconformities which the Contractor together with CWWDA will address through the defect's liability period of the project. This audit will also form basis of annual project self-audits by CWWDA.

CHAPTER 1 INTRODUCTION

1.1 Project Background

1.1.2 Project Brief

The Government of Kenya (GoK) and Coast Water Works Development Agency (CWWDA) with funding from African Development Bank (AfDB) has undertaken to prepare Detailed Designs, ESIA/RAP and Bid Documents for Water Distribution Works for Mombasa and three (3) Water Service Providers (WSPs) under the Water and Sanitation Service improvement Project- Additional Financing (WaSSIP-AF).

The 4 WSPs targeted under the assignment cover the Counties of Mombasa, Kilifi and Taita Taveta and include:

- Mombasa Water Supply & Sanitation Co. Ltd. (MOWASSCO)
- Malindi Water & Sewerage Co. Ltd. (MAWASCO)
- Kilifi-Mariakani Water & Sewerage Co. Ltd. (KIMAWASCO)
- TAVEVO Water and Sewerage Co. Ltd. (TAVEVO)

The Targeted Areas for each WSPs include the following Urban Centres:

- MOWASSCO: Mombasa Island, North Mainland, South Mainland and West Mainland
- MAWASCO: Malindi, Watamu, Gongoni and Mazrui
- KIMAWASCO: Kilifi, Mtwapa, Mariakani, Mazeras and Kaloleni
- TAVEVO: Taveta, Voi, Mwatate and Wundanyi

Figure 1.1 shows the respective Areas of jurisdiction for the 4 WSPs.

This Report presents the Environmental & Social Impact Assessment (ESIA) Report for the Proposed Distribution Network – Medium -Term Investments for Mombasa South Mainland.

Stand Alone Environmental & Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) Reports have been prepared for the other 3Nr Water Services Providers (WSP) namely, KIMAWASCO, MAWASCO and TAVEVO.

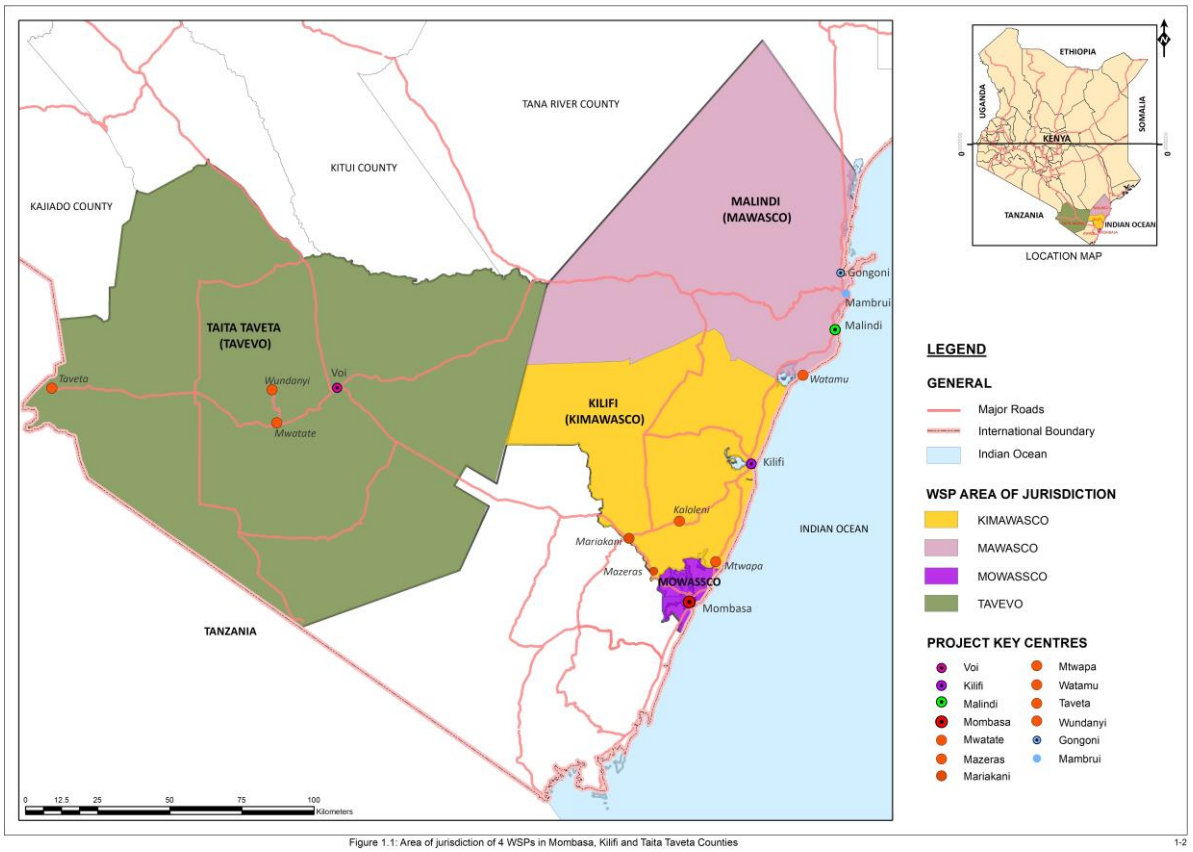


Figure 1.1: Area of jurisdiction of 4 WSPs in Mombasa, Kilifi and Taita Taveta Counties 1-2

Figure 1-1: Jurisdiction areas

1.1.3 Project Implementing Agency

Coast Water Works Development Agency (CWWDA)/Mombasa Water Supply and Sanitation Company Limited (MOWASSCO) are the Project Implementing Agencies.

Mombasa Water Supply and Sanitation Company Limited (MOWASSCO) is the Water Service Provider mandated to provide Cost effective and Affordable Quality water to residents of Mombasa County. It was incorporated on 1st September 2005, and later reincorporated in March 2011 under the Companies Act.

The estimated area of jurisdiction is 230 km^2, excluding 65km^2 of water mass; with a population of approximately 939,370 (National Housing and Population Census).

The service area for the WSP is Mombasa County, which is classified into four Geographical Regions; Mombasa Island, North Mainland, South Mainland and West Mainland.

MOWASSCO head offices are in Mikindani Street off Nkrumah Road, Mombasa Island and the branch offices are as follows:

- Nyali & Kisauni Branch Offices serves Kisauni Division, North Mainland
- Changamwe Branch Office serves Changamwe Division, West Mainland
- Likoni Branch Offices serves Likoni Division, South Mainland

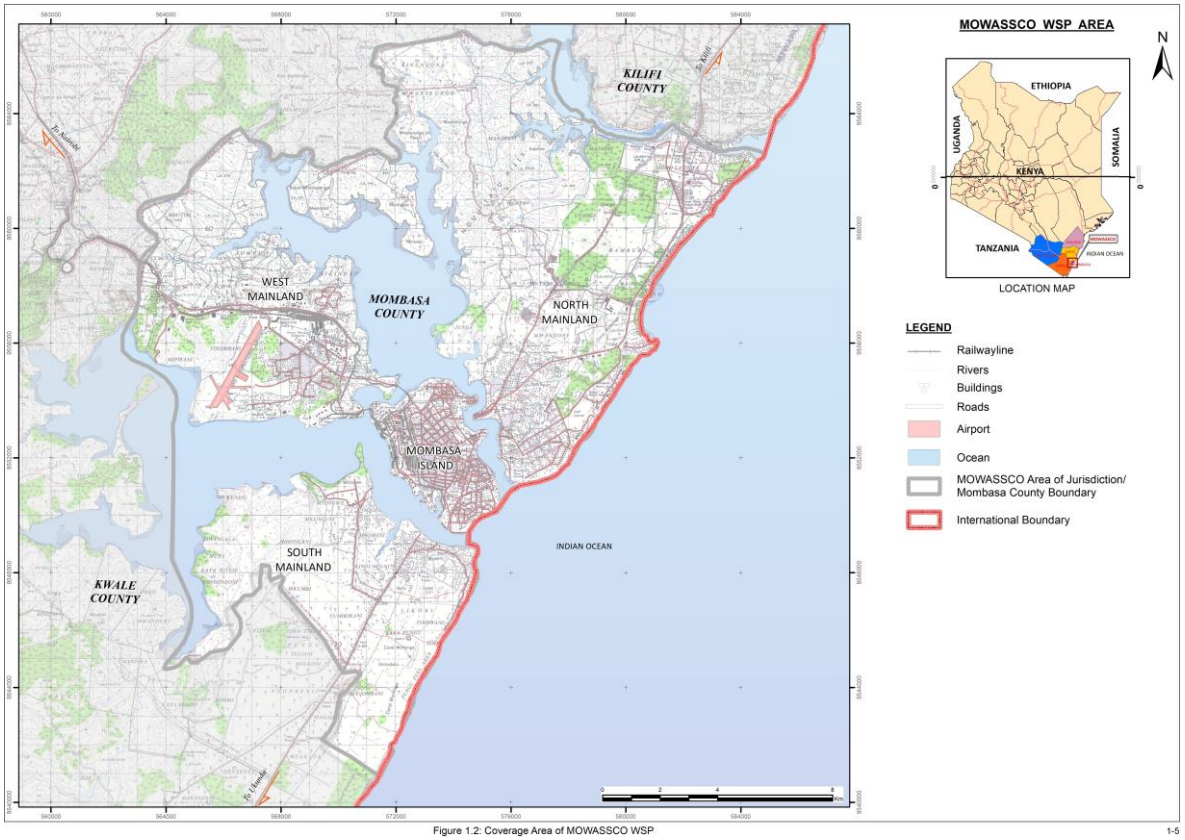


Figure 1-2 : Coverage Area of MOWASSCO WSP

1.1.4 Program objective

The Government of Kenya has prioritized attainment of universal access to Water Services and Sanitation by the year 2030. The sector goal is to contribute to the health and quality of life and reduce poverty levels through spurring private sector growth as a result of investment in water and sanitation services on a sustainable basis.

The specific objective of the program is to implement water supply and sewerage projects in various towns in Kenya with a view to catalyzing commercial activities, driving economic growth, improving quality of life of the people and building resilience against climate variability and change. It will increase both water and sewerage coverage in the country and contribute to promotion of private sector growth.

1.2 Objectives of the ESIA

1.1.5 General Objective

The objective of the ESIA study was to carry out a systematic examination of the present environmental and social situation within the project area to determine whether the proposed project will have adverse environmental and social impacts to the surrounding area. The study included collection and analysis of environmental baseline data, identification of impacts (both positive and negative) analyses and evaluation of impacts, formulation of mitigation measures for significant negative impacts, analysis of project alternatives and development of environmental management and monitoring plans

The purpose of an environmental assessment (EA) is to aid decision making and to ensure that the project under consideration is environmentally and socially sound and sustainable. This ESIA assessment has been conducted in compliance with EMCA 2015 and subsequent Environmental (Impact Assessment and Audit) (amendment) Regulations, 2019

1.1.6 Specific Objectives of ESIA Investigations

This Environmental & Social Impact Assessment (ESIA) is expected to achieve the following objectives:

- To determine the compatibility of the proposed development with the neighboring land uses.
- To identify and evaluate the significant environmental and social impacts of the proposed project
- To assess and analyze the environmental and social costs and benefits associated with the proposed project
- To evaluate and select the best project alternative from the various options available
- To incorporate environmental management plans and monitoring mechanisms during implementation, operation and decommissioning phases of the project
- To incorporate stakeholder consultations into the environmental management process.
- To analyze the project alternatives available

1.1.7 ESIA Approach and Methodology

The ESIA was carried out in line with the provisions of the Environmental Management and Coordination 2015 and the Environmental (Impact Assessment and Audit) Regulations 2003 emended in 2019. An Environmental and Social Management Plan comprising of an impact mitigation plan and modalities for monitoring and evaluation were then developed to guide environmental management during all phases of project development. The assessment involved the following:

1.1.8 Literature Review

Relevant documents were reviewed including the previous ESIA report and Design report to determine the level of impacts.

1.1.9 Environmental and Social Screening

Screening process was undertaken to decide whether the proposed water and sanitation Project needed to be subjected to an ESIA study or not. The Environmental Management and Coordination Act (EMCA) 1999 and the Amendment Act of 2015 specifies the projects for which should be subjected to an Environmental and Impact Assessment (EIA) before the commencement of project activities. In this Schedule waste disposal, including waste transfer station facilities are classified under medium risk projects requiring preparation of ESIA Comprehensive Project Report consisting of the likely environmental effects before implementation.
Based on this classification the proposed project was therefore subjected to an Environmental and social impact Assessment. CRVWWDA, herewith referred to as the proponent, appointed Francis Allen Consulting Limited to undertake the ESIA assessment in fulfilment of the EMCA 1999 with 2015 amendments and Environmental (Impact Assessment and Audit) (amendment) Regulations, 2019.

1.1.10 Environmental and Social Scoping

Scoping process involved the identification of significant environmental and social issues associated with the proposed Works. The impacts of the proposed project were assessed through project site visits through the following;

- Evaluation of the location, extent of the sewer connections and the current land use of the affected area.
- Evaluation of the design and proposed construction activities, materials and methodology
- One on one interviews with key stakeholders and proposed project beneficiaries were applied in the determining location of sewer line available way leaves
- Discussion with the area residents on the potential impacts related to project implementation activities and corresponding mitigation measures.

1.1.11 Baseline Data Collection

The data collected was on aspects such as: topography, local flora and fauna, soils and geology, socioeconomics, existing and past activities including human settlements, local surface and ground

water resources, ambient air quality and noise levels (qualitative), waste management practices, and natural resources and cultural heritage aspects of the project areas.

1.1.12 Identification, Prediction and Determination of Environmental Impacts

A systematic approach was used to rank identified impacts according to their significance determined by consideration of project activity **event magnitude** and **receptor sensitivity**. The expected significance of environmental impacts was assessed considering:

- **Extent**: An area of influence covered by the impact. In this sense, if the action produces a much-localized effect within the space, it is considered that the impact is low (1). If, however, the effect does not support a precise location within the project environment, having a pervasive influence beyond the project footprint, the impact will be at location level (3) or could be County (5)
- **Timing:** Refers to the moment of occurrence, the time lag between the onset of action and effect on the appearance of the corresponding factor. We consider five categories according to this time period is zero, up to 1 year (short term), or more than two years, which are called respectively medium term (3), long-term (4), and permanent (5).
- **Intensity:** refers to the degree of impact on the factor, in the specific area in which it operates, ranked from low (1) to high (5).
- **Probability:** Refers to the likelihood of the impact occurring during the project implementation, this is also ranked as Probable (1) to highly probable.

Receptor Sensitivity determined by:

- **Presence** – whether biological species present are unique, threatened, protected or not vulnerable and are present during a period of high sensitivity (e.g. breeding, spawning or nesting). For human receptors, whether they are permanently present to uncommon in the area of impact and for physical features whether those present are highly valued or of limited or no value. For physical receptors/features, whether they are national or international value (e.g., state protected monument), local or regional value and is sensitive to disturbance or none of the above; and
- **Resilience** – how vulnerable people and/or species and/or features are to the change or disturbance associated with the environmental interaction with reference to existing baseline conditions and trends (such as trends in ecological abundance/diversity/status, ambient air quality etc.) and their capacity to absorb or adapt to the change. For physical receptors/features, highly vulnerable, undergoes moderate but sustainable change which stabilizes under constant presence of impact source or unaffected or marginally affected.

1.1.13 Stakeholder Consultations

Stakeholder consultations were carried out to: inform project stakeholders of the proposed project; to explain the likely impacts (positive/negative) of implementing the project; and to obtain views, concerns, comments and suggestions from interested and affected parties regarding the proposed project.

Stakeholder identification and analysis was carried to determine project affected persons (PAPs) and the most appropriate means of engagement. Public barazas together with one-on-one interviews were undertaken. Detailed outcome of consultation including stakeholders interviewed is discussed in chapter 6 of this report

Meetings were conducted as shown in the table below;

Table 1-1: Meetings held, venue location and number of participants

No.	Date	Venue	Location	No. of Participants
4.	13.02.2024	South Mainland PAPs Sensitization meeting in Likoni	Likoni	Male 11 Female 22 TOTAL 33
5.	22nd March 2024	Shika Adabu Location Chiefs Camp	Shika Adabu	35
6.	25th March 2024	Tibwani Location Chiefs Camp	Tibwani	38

There was different type of stakeholders who formulated the Key Informant Interviews namely

Table 1-2: Stakeholder Involved

Institution	Stakeholder
Mombasa County Government	• Representative of MOWASSCO • Lands and Physical Planning Department • Mombasa County Public Health Officer
National Government	• Deputy County Commissioner for Likoni. • Local Administration (Chiefs and Village Elders) • National Environment Management Authority (NEMA)
Institutions	• Education and Health Institution (Technical University of Mombasa) others as identified in Section 8.4
Other Interested Parties	• Project Affected Persons (PAPs) • Landlords and tenants • Business Community • Traders

Table 1-3: Stakeholder Involved

Date	Officer consulted	Institution
31st October 2023	Mwalimu Cristom K	Environmental and Safeguards Officer-MOWASSCO

31st October 2023	Naima T. Yusuf	Ag General Manager Business Commercial - MOWASSCO
31st October 2023	Mark Mwambota	Ag General Manager Engineering
6th November 2023	Ronald U. Randu	Business Unit Manager- South Mainland (Likoni)
6th November 2023	Dismas M. Kirangu	Technical Officer – Likoni (MOWASSCO)
6th November 2023	Said J. Kandy	Chief – Likoni
8th November 2023	Felix Maiya	Assistant County Commissioner- Mtongwe
8th November 2023	Abdalla Rashid	Assistant Chief - Mtongwe

CHAPTER 2 : PROJECT DESCRIPTION

2.1 Location and Scope of the Project

The project spans across Vijiweni, Likoni, Timbwani, and Vyemani, aiming to install new water mains. These areas are targeted for enhanced water distribution through the installation of HDPE and Ferrous pipes of varying diameters to meet specific infrastructure needs.

2.2 Pipeline Details and Construction Activities

The project will utilize HDPE pipes with diameters ranging from 110mm to 800mm for most sections, supplemented by Ferrous pipes in select areas with diameters from 300mm to 700mm. Construction activities will involve extensive excavation, trenching, and pipe laying using specialized equipment like excavators, trenchers, welding machines, and cranes. Additionally, manhole construction, backfilling, compaction, and rigorous pipeline testing will be integral to ensuring the network's integrity and functionality.

2.3 Resources Required

To execute the project efficiently, a range of resources will be required. This includes a fleet of equipment such as excavators, trenchers, cranes, and trucks, along with materials like HDPE and Ferrous pipes, concrete, backfill materials, and welding materials. Energy sources such as electricity, generators and possibly solar panels, as well as raw materials like steel, cement, and chemicals, are essential. Skilled labor will comprise of pipe fitters, welders, engineers, supervisors, safety officers, and administrative staff is also crucial for project success.

2.4 Project Management and Quality Control:

The project will call for effective project management entailing a well-defined timeline, stringent quality control measures through regular inspections, adherence to environmental regulations, and the implementation of safety protocols. These measures will ensure compliance with standards, mitigate risks, and promote a sustainable construction approach.

2.5 Project Objectives and Community Impact

Overall, the project's objective is to establish a robust and reliable water distribution network in the targeted areas. By improving access to clean water and supporting community development, the project will play a vital role in enhancing the quality of life for residents while prioritizing environmental sustainability and safety standards.

2.6 Delineation of MOWASSCO Area

The total area under the jurisdiction of Mombasa Water Supply and Sanitation Company Ltd. (MOWASSCO) is the whole of Mombasa County and is approximately 230 km² (Land Mass) and 65 km2 (Inshore Waters).

The Terms of Reference (ToR) of the Assignment specified that the Project Area for the Detailed Design of the Water Distribution Network covers the Urban Centres and the Peri- urban areas only.

The Kenya National Bureau of Statistics (KNBS) defines an "Urban Centre" as an "area with an increased density of human created structures in comparison to the areas surrounding it and has a population of 2,000 and above". In this definition, KNBS includes Cities, Municipalities, Town Councils and Urban Councils as Urban Centres.

Therefore, the entire area within Mombasa County is classified as Urban by the Kenya National Bureau of Statistics (KNBS) as per the 2009 Population Census. Mombasa County comprises of four distinct Geographical Areas which also correspond to Administrative Divisions, namely:

- Island (Island Division)
- North Mainland (Kisauni Division)
- South Mainland (Likoni Division)
- West Mainland (Changamwe Division)

The four Administrative Divisions are subdivided into thirty Wards. A brief description of Mombasa South Mainland is given below.

2.6.1 Mombasa South Mainland

Mombasa South Mainland covers the whole of Likoni Division (Likoni Sub County) and includes residential areas such as Likoni, Mtongwe (with the Naval Base), etc. The area is also inherent of high-class tourist hotels and resorts.

Mombasa South Mainland is currently served by Likoni Ferry. Growth of South Mainland is currently constrained by the limited access. This is however going to change with the development of the Dongo Kundu Bypass which will connect South Mainland to West Mainland.

2.7 Existing Water Supply System

The Existing Water Supply System for MOWASSCO consists of the Bulk Water Supply System and Local Storage and Distribution Networks as detailed in the following sub- sections;

2.7.1 Bulk Water Supply System

At present, Mombasa County is supplied with water from the following four Bulk Water Supply sources;

- Marere springs: Current estimated supply to MOWASSCO is 2,500 m^3/d
- Tiwi Well Field: Current estimated supply to MOWASSCO is 2,000 m^3/d
- Baricho Well Field: Current estimated supply to MOWASSCO is 27,000 m^3/d
- Mzima Springs: Current estimated supply to MOWASSCO is 15,000 m^3/d

Figure 2.1 below shows the schematic diagram of the Existing Bulk Water Supply System serving MOWASSCO Area of jurisdiction.

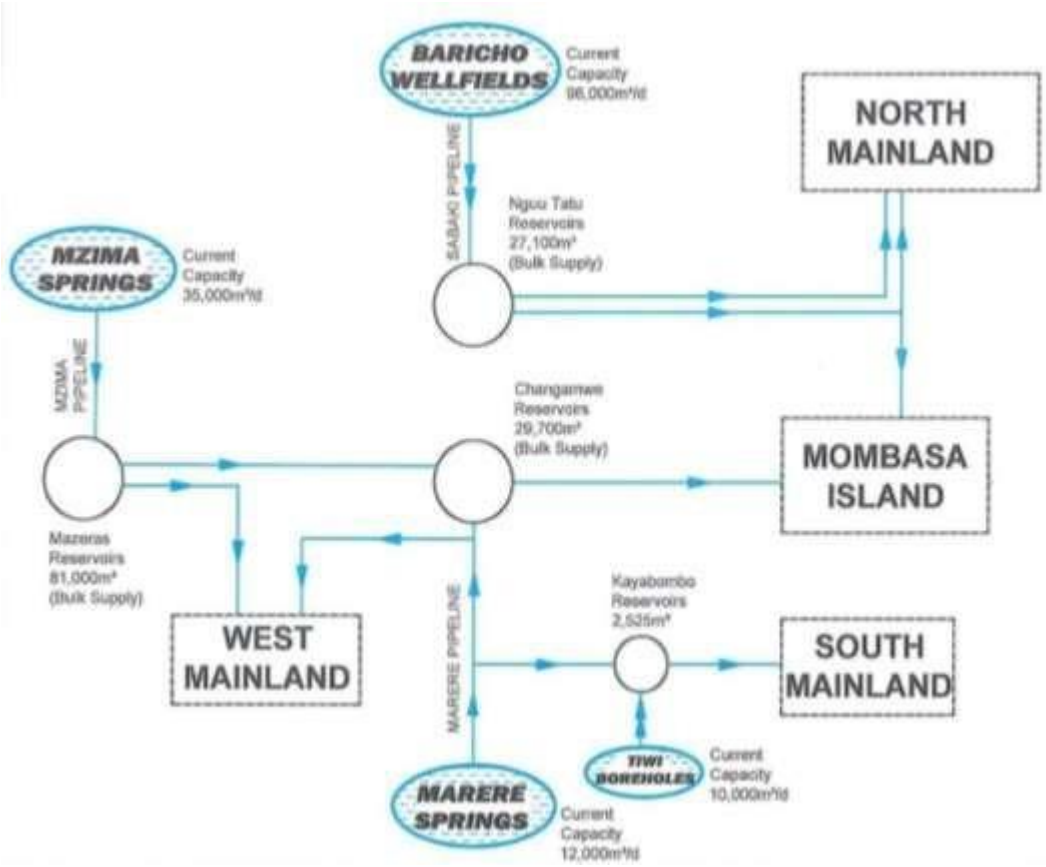


Figure 2-1 :Schematic Diagram of Existing Bulk Water Supply Sources for Mombasa County

The Bulk Water Supply Sources serve en-route Service Areas of Kilifi, Mtwapa, Voi and Kwale besides Mombasa County. Because of the rapid population growth in the en-route urban centres of Mtwapa and Kilifi, the abstraction along the transmission pipelines has significantly increased to satisfy the resulting water demand. This has led to reduced water supply to Mombasa County even with the aid of storage at Nguu Tatu and Changamwe Reservoirs. For instance, Mombasa Island with sufficient Water Distribution Network experiences acute water shortages. The water demand for Mombasa County for the Year 2016 and 2040 was estimated to be **187,496 m^3/d** and **395,407 m^3/d** respectively. Considering the unsatisfied current demand and the current water supply status, development of new Water Sources is necessary for regular water supply in the county (Refer to **Section 3.2** of this Report).

The Water Supply Master Plan (Tahal/Bhundia 2014) identified Mwache Dam (to be completed by 2020) as a potential new Bulk Water Source for Mombasa County with four new Transmission pipelines from Mwache Dam planned for construction (Feasibility Study on Water Transmission Facilities for Kenya Coast Province Water Supply, Hankuk- 2016).

Baricho Wellfields is also another existing Bulk Water Supply Source for Mombasa County. With the laying of new dedicated Pipeline to serve Kilifi Town from Kakuyuni reservoirs as planned in

the Immediate Phase of the Water Supply Master Plan (2014), it is expected that off-takes on Sabaki Pipeline which serve Kilifi Town will be disconnected and more water from Baricho Wellfields conveyed to Mombasa County.

A schematic illustration of the four Proposed Transmission Pipelines from Mwache Dam is given in **Figure 2.2** below.

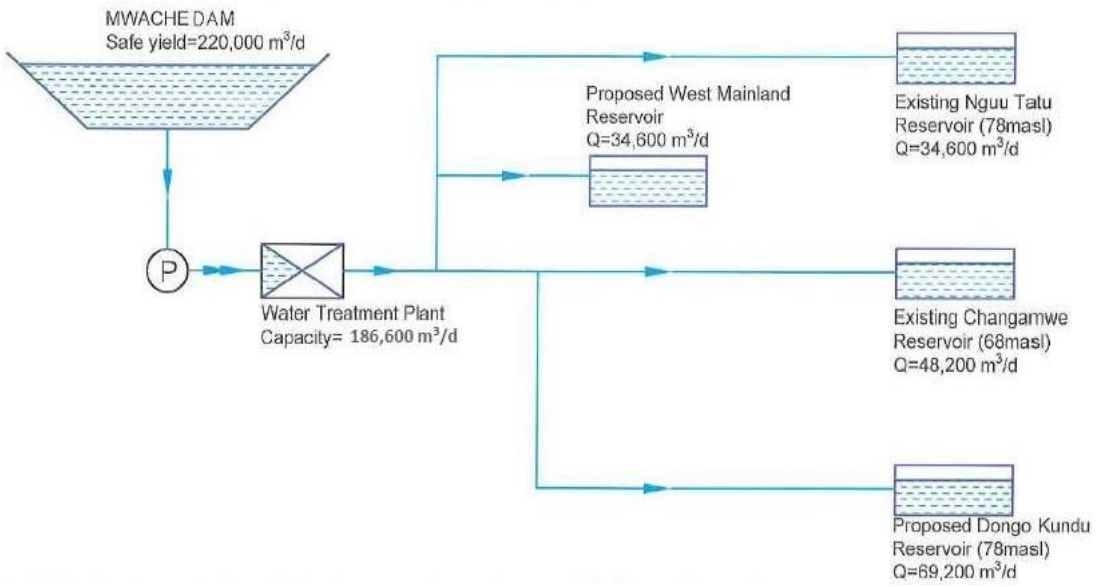


Figure 2-2 :Schematic Diagram of the Proposed Transmission Pipelines from Mwache Dam

2.7.2 Water Supply to Mombasa South Mainland

Mombasa South Mainland is mainly supplied from Marere Springs and Tiwi Boreholes through Kaya Bombo Reservoirs (storage capacity 1,140m^3 at elevation 78 m asl). Water is transmitted to the South Mainland Service Area from Kaya Bombo Reservoirs via DN 300/200 AC Trunk Mains.

The Distribution Network is about 74 km long and consists mainly of AC pipes. A break- down of the Distribution Network is given below:

- 9.69 km of AC pipes ranging from 50 to 100 mm diameter
- 6.2 km of AC pipes ranging from 150 to 200 mm diameter
- 7.5 km of Ferrous pipes ranging from 50 to 100 mm diameter
- 2.8 km of Ferrous pipes ranging from 150 to 200 mm diameter
- 6 km of Ferrous pipes ranging from 250 to 350 mm diameter
- 1.3 km of Ferrous pipes ranging from 400 to 500 mm diameter
- 14.2 km of uPVC pipes ranging from 50 to 110 mm diameter
- 13 km of uPVC pipes ranging from 160 to 200 mm diameter
- 10.8 km of uPVC pipes ranging from 250 to 355 mm diameter
- 2 km of HDPE pipes ranging from 50 to 110 mm

The Water Supply Network in the South Mainland is relatively old (pipes laid in 1970's). Pipeline bursts are frequent on sections of the Water Mains along the Likoni - Ukunda Road.

2.8 Proposed works for MOWASSCO water distribution network

2.8.1 Planning Horizons

The Water Distribution Master Plan prepared by MIBP/NIPPON (2017) proposed Distribution Network Investment Plans with an Implementation Schedule of 3 Phases:

- Short Term Phase (Immediate Interventions) :2017 - 2020
- Medium Term Phase : 2021 - 2030
- Long Term Phase : 2031 - 2040

This Report covers the Medium-Term Works for Mombasa South Mainland. A separate Report has also been prepared for the Short-Term Works. The Long-Term Works ESIA Report will be prepared when ready for implementation.

1.2 Categorization of Proposed Works

The Works to be carried out have been grouped into 3 categories:

- **Replacements**-This includes gradual replacement of Asbestos Cement (AC) pipelines and any other pipelines which are currently in a dilapidated state. Priority has been given to the pipelines with reported frequent leaks/ bursts under the Short-Term Phase (2017-2020). Replacement of remaining AC pipelines will be carried out during the Medium-Term Phase such that by year 2030 all the AC pipelines will have been phased out. Due to Environmental, Health and Safety concerns associated with handling and disposal of AC Mains, the Mains will be decommissioned and left in the ground.
- **Extensions**-Some Areas that are currently not served by the existing Distribution Network require extensions to take care of the rising water demands. Under Short Term Phase (2017-2020), priority has been given to the Areas which are already built up but lack Water Distribution Network. Other Areas with potential for faster developments have been considered in the Medium-Term and Long-Term Phases.

- **Augmentation**-Where the existing Distribution Pipelines have been found to be inadequate, new pipelines have been proposed to augment the existing pipelines. For economic and space considerations, priority has been given to implementing pipelines with capacities adequate to meet the year 2040 water demand with a phased development under the Short-Term, Medium-Term and Long-Term Phases.

Layout Plan showing the Proposed Water Distribution Network Work for Mombasa South Mainland Area under the respective Planning Horizons are given in **Figure 3.1.**

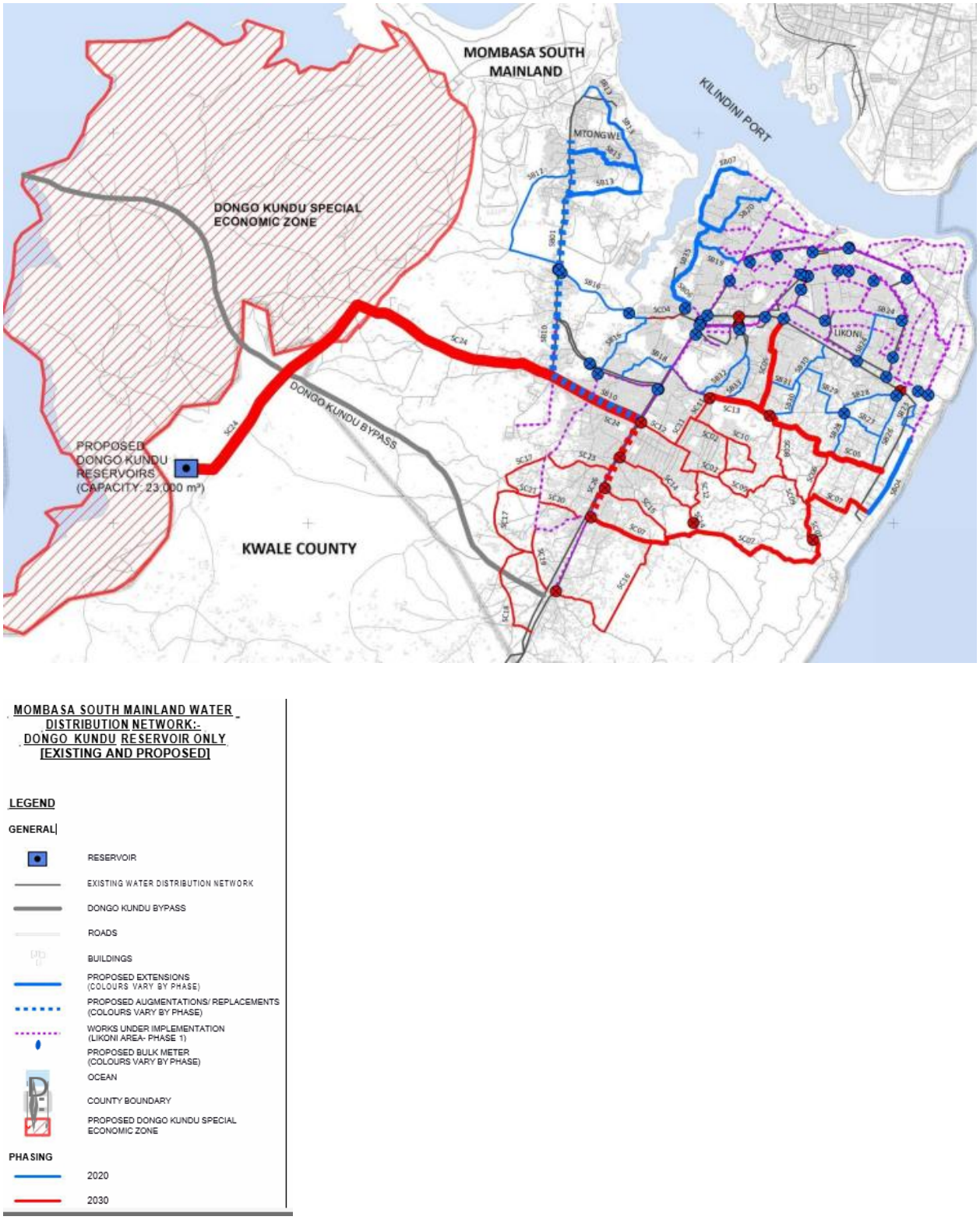


Figure 2-3: Water Distribution Network Work for Mombasa South Mainland Area

1.3 Proposed Works

Hydraulic Network Modelling results show that the existing Distribution Network is made up of pipes of sizes that are adequate to distribute the Water Demand estimated for year 2016 and will require Augmentation and Extension works for future water demands.

A summary of the proposed Network Improvements/Extensions for Mombasa South Mainland's Project area at the different Planning Horizons is given in **Table 3.1** below.

Table 2-1: Summary of Lengths of Proposed Water Distribution Network Works for Mombasa South Mainland (km)

Service Area	Category of Works	Short-Term Phase (2017 – 2020)	Medium-Term Phase (2021 – 2030)	Long-Term Phase (2031 – 2040)
South Mainland	Replacement:110 - 350 dia	-	-	-
	Augmentation:110 - 350 dia	3.43	1.65	3.60
	Extension:110 - 250 dia	19.11	28.50	31.55
	Total (km)	**22.54**	**30.16**	**35.15**

The required Network Improvements / Extensions for Mombasa South Mainland's Service Area with respect to the Planning Horizon (2021 to 2030) under which this ESIA is prepared is detailed in **Table below.**

Table 2-2: Mombasa South Mainland: Proposed Works for Medium Term Phase (2021-2030)

Design Horizon	Water Mains (Layout Map)	Pipe Name (Hydraulic Model)	Diameter (mm)	Length (m)	Material	Remarks
2030	SC02	P-179/210/176/ 278/280	110	1,079	HDPE	Laying of a new Pipeline in Vijiweni
	SC04	P-159	110	493	HDPE	Laying of a new Pipeline in Likoni
	SC05	P-392/391/ 182/ 385/184/ 389/388/275	300	2,604	Ferrous	Laying of a new Pipeline in Timbwani
	SC06	P-84	110	506	HDPE	
	SC07	P-54/224/289/ 285/ 195/218/ 387/250/361	200	4,169	HDPE	
	SC08	P-183	110	587	HDPE	
	SC09	P-390/186	110	1,767	HDPE	Laying of a new Pipeline in Timbwani/ Vijiweni
	SC10	P-279	110	849	HDPE	
	SC11	P-281/270	110	656	HDPE	
	SC12	P-189/283/154	110	1,426	HDPE	Laying of a new Pipeline

						in Vijiweni
	SC13	P-262/132	350	518	Ferrous	Laying of a new Pipeline in Timbwani
	SC14	P-287/286	110	1,224	HDPE	Laying of a new Pipeline in Vijiweni
	SC15	P-284	110	902	HDPE	
	SC16	P-46/613/621	110	1,835	HDPE	
	SC17	P-305/267/271	110	1,644	HDPE	Laying of a new Pipeline in Vyemani
	SC18	P-273/302/263	110	1,223	HDPE	
	SC19	P-238/295	110	651	HDPE	
	SC20	P-298	110	447	HDPE	
	SC21	P-396	110	246	HDPE	
	SC23	P-307	110	758	HDPE	
	SC26	P-382/352/332/329	450	1,138	Ferrous	
	SC24	P-242	800	4,089	Ferrous	Laying of a new Pipeline from Dongo Kundu Tank
		P-414/420	700	1,677	Ferrous	

2.9 Land requirement and ownership

The proposed construction of the distribution water lines will be laid within the road reserves.

2.10 Project cost for Mombasa South Mainland

A summary of the Investment Requirements for Mombasa South Mainland in the Medium- Term under which this ESIA is prepared are given in **Table** below.

Table 2-3: Mombasa South Mainland Investment Requirements (Medium-Term)

	Description		**Amount (Ksh)**	**Amount (USD)**
1	Preliminaries & General		105,374,612	1,053,746
2	Primary and Secondary Mains:		425,846,633	4,258,466
3	Tertiary and Service Mains		78,781,751	787,818
4	Consumer Connections		43,868,535	438,685
5	Bulk Water Meters		19,347,935	193,479
6	Schedule of Dayworks		1,360,205	13,602
	Bills Total Exclusive of VAT	**(A)**	674,579,672	6,745,797
	Add 10% of (A) for Contingencies	(B)	67,457,967	674,580
	Bill Total Inclusive of Contingencies	**(C)**	742,037,639	7,420,376
	Value Added Tax (VAT) - 16% of (C)	(D)	118,726,022	1,187,260
	GRAND TOTAL [(C) + (D)]		**860,763,661**	**8,607,637**

Note: 1USD=Kshs.100

CHAPTER 3 ENVIRONMENTAL AND SOCIAL BASELINE CONDITION

3.1 Introduction

Baseline conditions entail the sum-total of all biophysical and geo-physical condition of the project area. Gathering of baseline data is necessary to meet the following objectives:

- To understand key social, cultural, economic, and political conditions in areas potentially affected by the proposed project;
- To provide data to predict, explain and substantiate possible impacts;
- To understand the expectations and concerns of a range of stakeholders on the proposed development;
- To inform the development of mitigation measures; and
- To benchmark future socio-economic changes/impacts and assess the effectiveness of mitigation measures.

3.2 Geographical characteristic of the project area

3.2.1 Location of the Project

The Project is located in Mombasa South Mainland, Likoni Sub - county which includes Shika Adabu (Vyemani and Vijiweni Sub locations) and Tibwani location. The area is predominantly a residential area with several commercial shopping centres and densely populated population. Located at latitude -4.09113 and Longitude 39.65073E.

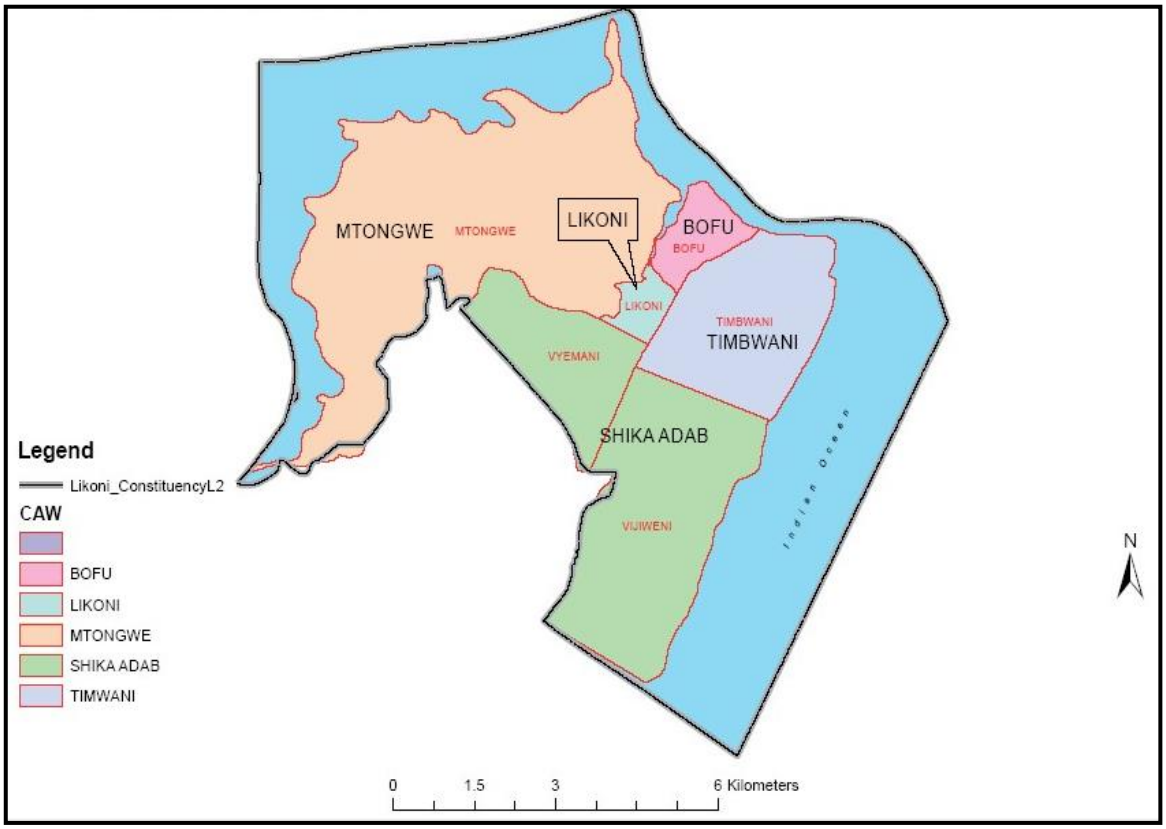


Figure 4: Location map of the proposed project areas

(Source: Independent Electoral Boundaries Commission, 2011)

3.3 Physical Environment

3.3.1 Climate

The project area experiences a tropical maritime climate with distinct wet and dry seasons. Rainfall follows a bimodal pattern, with the long rainy season from April to June and a shorter rainy season from October to December, contributing to an average annual rainfall ranging from 800 to 1,200 millimeters. Temperatures are consistently warm throughout the year, with average daily temperatures between 25 to 30 degrees Celsius, occasionally rising above 30 degrees Celsius in the hottest months from January to March. These climatic conditions are vital for agriculture, water management, and infrastructure design, guiding practices such as crop cultivation timing, irrigation needs, water resource planning, flood risk assessment, and infrastructure resilience strategies.

3.3.2 Topography and Geology

The topography and geology of the project area plays a significant roles in shaping the landscape, land use patterns, and environmental considerations. Here are the key aspects of the topography and geology:

- Topography: The topography of the area is diverse, encompassing coastal plains, low-lying areas, and occasional undulating terrain. Coastal plains are characteristic of areas near the shoreline, offering relatively flat expanses that are suitable for various activities such as urban development, agriculture, and infrastructure projects. Low-lying areas may be prone to flooding, especially during heavy rains or high tides, requiring appropriate drainage systems and flood management measures. Undulating terrain, although less common in coastal regions, can impact land use planning and construction activities, particularly in terms of slope stability and erosion control.
- Geology: The geological composition of the project area includes sedimentary formations typical of coastal regions. This may include layers of sandstone, limestone, and shale, formed over millions of years through geological processes such as sediment deposition, compaction, and uplift. These sedimentary rocks can vary in hardness, porosity, and composition, influencing factors like soil formation, groundwater flow, and land stability.
- Coastal Features: Being in close proximity to the coastline, the project area exhibit coastal features such as beaches, dunes, and mangrove ecosystems. Coastal beaches provide recreational opportunities and require erosion control measures to protect against wave action and sea-level rise. Dunes play a role in coastal protection and habitat for dune vegetation. Mangrove ecosystems, if present, contribute to biodiversity, shoreline stabilization, and water quality improvement.

- Human Impact: Human activities such as urbanization, land development, and infrastructure projects have altered the natural topography and geological features. Land reclamation, excavation, and construction activities have modified the landscape, leading to changes in drainage patterns, erosion susceptibility, and ecological dynamics. Proper land use planning and environmental management practices are required to minimize adverse impacts and promote sustainable development within the project area.
- Environmental Considerations: The topography and geology of the project area also influence environmental considerations such as habitat preservation, water management, and geological hazard mitigation. Protecting sensitive coastal ecosystems, managing storm water runoff, and conducting geological surveys for infrastructure projects are integral parts of sustainable development in the region.

3.3.3 Soils

The soil characteristics of the project area in Likoni Sub-county, Mombasa South Mainland, are influenced by several factors, including geological formations, climate, and land use practices. Generally, the soil in this region exhibits the following characteristics:

- Sandy and Silty Texture: The soil in coastal areas like Likoni tends to be sandy and silty due to the proximity to the coastline. Sandy soils have larger particles, providing good drainage but often requiring additional nutrients for plant growth. Silty soils, on the other hand, have smaller particles and can retain moisture better.
- Low Organic Matter Content: Coastal soils may have lower organic matter content compared to inland areas. This can affect soil fertility and nutrient availability, necessitating soil amendments and fertilization for agricultural activities.
- Salinity: Coastal soils may experience varying degrees of salinity, especially in areas close to the sea. Saline soils can pose challenges for agriculture, requiring salt-tolerant crops or soil management practices to mitigate the effects of salinity.
- pH Levels: The pH levels of the soil can vary but are generally influenced by factors such as vegetation cover, drainage patterns, and human activities. Coastal soils may exhibit slightly acidic to neutral pH levels, impacting nutrient availability and plant growth.
- Erosion Risk: Sandy soils are susceptible to erosion, particularly in areas with steep slopes or poor vegetation cover. Erosion risk can affect soil stability, water quality, and land productivity, necessitating erosion control measures and soil conservation practices.
- Land Use Impact: Human activities such as agriculture, construction, and urbanization can further modify soil characteristics. Intensive farming practices, improper land management, and land development can alter soil structure, fertility, and resilience.
- Potential for Water Retention: Silty soils in the area have the potential to retain water, which can be beneficial for agriculture, landscaping, and groundwater recharge. However, proper soil management practices are required to optimize water retention and prevent waterlogging.

The soil characteristics of the project area in Likoni Sub-county reflect a coastal environment with sandy and silty soils, varying levels of salinity, and considerations for erosion control and soil fertility management in agricultural and land development activities.

3.3.4 Hydrology

The hydrology of Likoni Sub-county is intricately shaped by its coastal setting, rainfall patterns, surface water features like rivers and streams, and groundwater reservoirs. With a bimodal rainfall distribution, the area experiences intense rain during the wet seasons, leading to surface runoff that feeds into the Likoni River and other water bodies. Groundwater, accessed through wells and aquifers, supplements surface water sources, crucial for sustaining various water demands across domestic, agricultural, and industrial sectors. However, the hydrological balance faces challenges such as salinity intrusion in coastal aquifers and potential impacts from human activities like urbanization and land use changes. Monitoring water quality and implementing sustainable water management practices are vital for ensuring water security and preserving the ecological integrity of Likoni's hydrological systems.

3.4 Biological Environment

3.4.1 Vegetation and Flora

The land along the distribution line in Likoni exhibits a distinct pattern of vegetation cover. Scattered trees and shrubs dot the landscape, particularly in areas where development is less dense. However, in heavily built-up areas, the vegetation cover is significantly reduced, reflecting the urbanization and infrastructure development in these zones. The presence of scattered trees and shrubs adds a natural element to the surroundings, contributing to the area's biodiversity and ecological balance.

In contrast, other parts of Likoni showcase grass cover with patches, influenced by the region's climatic conditions. The grass cover may vary in density and distribution, reflecting seasonal changes and local environmental factors. These patches of grassland contribute to the overall landscape diversity, providing habitats for various plant and animal species. The combination of scattered trees, shrubs, and grass cover adds visual interest and ecological value to the distribution line corridor, blending urban development with natural elements.

It's essential to consider the existing vegetation cover and land characteristics during the construction and implementation of the water distribution network. Preserving and managing the vegetation along the distribution line can have environmental benefits, such as soil stabilization, habitat conservation, and aesthetic enhancement. Additionally, incorporating green infrastructure practices, such as planting native species and implementing sustainable landscaping techniques, can further promote biodiversity and environmental resilience in Likoni's urban landscape.

Figure 5: Distribution of vegetation in the project area

3.4.2 Fauna

Human habitation and agricultural activities have also significantly interfered with both terrestrial and aquatic habitats in the Project areas. There is no terrestrial wildlife observed in the Project areas since most land is already developed.

However, limited rodents like squirrels, moles and different bird and insect species among others are found in the area (specific habitats characteristics will be established during the detailed assessment). Among the aquatic species present include frogs, freshwater fishes are found naturally in the rivers. Livestock keeping is significant with cattle livestock, goats, sheep, bees, poultry, rabbit and pigs.

3.5 Social Economic Setting

3.5.1 Population

The population of Likoni Subcounty has seen significant growth over the years, according to census data. In 2009, the population was recorded at 166,008, and by 2019, it had increased to 250,358. The area covers approximately 40.50 square kilometers, resulting in a population density of 6,182 people per square kilometer as of 2019. The annual population change from 2009 to 2019 was 4.2%, indicating steady growth.

Breaking down the population by gender, males accounted for 49.3% of the population, with 126,962 individuals, while females made up 50.7%, totaling 123,392 persons. The age distribution reveals that the majority of the population falls within the 15-64 years age group, comprising 64.5% of the population. The 0-14 years age group accounted for 34.2%, while those aged 65 years and above constituted a smaller percentage.

Looking at the age distribution in more detail, Likoni has a diverse population across different age brackets. The largest age group in 2019 was the 20-29 years category, with 63,156 individuals, followed by the 30-39 years and 10-19 years groups. The older age brackets, such as 50-59 years and 40-49 years, also had substantial populations, reflecting a balanced age distribution in the area.

3.5.2 Land Ownership

Land ownership within Likoni Sub-county exhibits a diverse mix of private, public, communal, and informal tenure systems. Privately owned land encompasses residential, commercial, and industrial properties, held by individuals or entities with formal titles or deeds. Public land, under government ownership, is allocated for public infrastructure, amenities, and institutional purposes. Communal land ownership is prevalent in certain rural and traditional areas, managed collectively by local communities. In urban settings, a blend of private, public, and communal ownership creates a dynamic land tenure landscape, influencing land use planning and development initiatives. Informal settlements, characterized by informal land use arrangements and tenure insecurity, add complexity to the overall land ownership framework in the project area.

3.5.3 Land Use

In the project area, land use is diverse and reflects the multifaceted needs of the community. The predominant land use is residential, with a significant portion of the land dedicated to housing for the local population, comprising both formal and informal settlements. Commercial activities thrive along major roads and in town centers like Likoni town, hosting various businesses, markets, and services. Institutional areas include schools, health facilities such as Likoni Sub-county Hospital, religious institutions, and community centers. Agricultural zones support subsistence farming and small-scale agriculture, while open spaces like parks and recreational areas provide opportunities for leisure and social activities. This blend of residential, commercial, institutional, agricultural, and recreational land uses contributes to the functional and social dynamics of Likoni Sub-county.

Figure 6: Land Use Pictorial representation

3.5.4 Settlement Patterns

The settlement pattern in Likoni Sub-county, Mombasa South Mainland, is diverse and dynamic, encompassing a mix of residential, commercial, and industrial areas. Residential neighborhoods like Vyemani, Vijiweni, and Tibwani feature clustered housing units ranging from apartments to single-family homes, supported by basic amenities. Commercial centers are prominent, offering a variety of retail, dining, and service options, while industrial zones contribute to economic activity with manufacturing and logistics facilities. Mixed-use areas have integrated residential and commercial functions, promoting a lively urban environment. However, challenges exist in informal settlements, requiring targeted interventions for improved infrastructure and services. Overall, the settlement pattern reflects a vibrant and evolving community landscape in Likoni Sub-county.

3.5.5 Education

In Likoni Sub-county, education plays a crucial role in the community, with varying education levels and proximity to educational institutions. Primary education is widely accessible, with several primary schools such as Likoni Primary School, Vijiweni Primary School, and Tibwani Primary School serving the local population. Secondary education is also available, although access to secondary schools like Likoni Secondary School and Vyemani Secondary School may vary depending on the specific locality within Likoni Sub-county. Tertiary education options include technical colleges and universities, providing opportunities for higher learning and skill development. Residents in Likoni Sub-county generally have access to primary schools within reasonable proximity to their residential areas. However, the proximity to secondary and tertiary level institutions may vary, with some areas having closer access to these institutions than others. Transportation infrastructure, such as roads and public transport services, also influences the accessibility of educational facilities.

3.5.6 Health Care

In Likoni Sub-county, residents face various health challenges that necessitate access to adequate healthcare facilities. Malaria is a prevalent concern due to the tropical climate, with facilities like Likoni Sub-county Hospital and Kwale District Hospital providing treatments and interventions to combat the disease through mosquito control measures and the distribution of mosquito nets. Respiratory infections, including pneumonia and bronchitis, are common ailments addressed by healthcare facilities like Port Reitz Hospital and Bomu Hospital, emphasizing the need for clean air and proper medical care. Waterborne diseases such as cholera and typhoid are mitigated by facilities like Kikowani Maternity Hospital and Majengo Dispensary, focusing on improving water quality and sanitation practices. HIV/AIDS management and prevention services are available

at Likoni AIDS Control Programme (LACP) Clinic and Bomu Medical Centre, reflecting ongoing efforts in education, prevention, and treatment within the community. Maternal and child health services, including prenatal care and immunizations, are provided by facilities like Likoni Maternity Hospital and Mariakani Sub-county Hospital, highlighting the importance of addressing maternal and infant mortality rates. Collaborative efforts by local authorities, healthcare providers, and NGOs continue to enhance healthcare infrastructure, implement health education programs, conduct vaccination campaigns, and initiate community health initiatives to improve overall health outcomes in Likoni Sub-county.

3.5.7 Gender Based Violence (Situational Analysis)

The Sexual and Gender Based Violence (2017) defines Sexual and gender-based violence (SGBV) as violence inflicted or suffered on the basis of gender differences. This form of violence mostly impacts women who are considered generally vulnerable. The National Crime Research Centre data on SGBV provides a grim image of instances of SGBV. It is indicated in their report that the Centre has so far supported over 21,341 survivors of SGBV, of whom 56% were women, 36% girls, 3% men and 5% boys. A study conducted by Dimovitz, Kirsten on GBV management in Nairobi revealed that male victims of SGBV were a smaller compared to women which ratio stood at 14:86.

The study further revealed that medical facilities are not accessible to victims and in most instances are at least 40-90 minutes from near bus stations. Police were also indicated to be a puzzle in the long line of bureaucratic processes, and which is compounded by outside of legal services which have their own barriers in seeking services and help. These factors are said to create high attrition rates in access to justice, because survivors do not have the time, resources, or willpower to navigate the system.

Coastal region similarly experiences its own forms of SGBV which is said to be compounded by the fact that most culprits go scot free due to lack of evidence as most residents are not aware of how to preserve evidence. It is in fact more severe that a majority of child sexual abuse cases go unreported because of fear of stigmatization in the region.

An organization known as Sauti ya Mwanamke have been on the forefront trying to fight SGBV within the Coastal region. With support from the Peace Initiative Kenya, the group has engaged with Coastal region resulting into passing of a policy to establish a GBV kitty to support victims and survivors of GBV. Essentially therefore, Counties are seen as a great actor in aiding the fight against SGBV. Despite the existing data on SGBV in Kenya, reporting has been a challenge due to underlying infrastructural impediments and lack of one national SGBV monitoring and evaluation framework that can consistently collate and present data on SGBV for analysis.

3.5.8 Source of Water

In the project area, water supply sources are diverse, comprising groundwater extracted from wells and boreholes tapping into aquifers, which serves as a supplementary source alongside surface water. This groundwater undergoes treatment to meet quality standards before distribution. Additionally, the municipal water supply system, interconnected with treatment plants, stands as a significant source of potable water for residential, commercial, and industrial purposes, ensuring a reliable and regulated water supply. Moreover, residents often resort to water vendors as an alternative means to source water, especially in areas where municipal supply or groundwater access may be limited or intermittent. Rainwater harvesting systems also play a role, primarily for non-potable uses like irrigation or non-drinking water applications, showcasing a multifaceted approach to water sourcing and management in the project area.

Figure 7: Raised water storage tanks

3.5.9 Source of Energy

The sources of energy in the project area of influence iencompass a mix of traditional and modern energy sources to meet the diverse energy needs of the community and infrastructure. Here are the main sources of energy:

- Electricity Grid: The primary source of modern energy is the national electricity grid, which supplies power to residential, commercial, and industrial establishments. Electricity is used for lighting, appliances, machinery, and other electrical needs. The grid is supplied by power generation facilities such as hydroelectric dams, thermal power plants, and renewable energy sources like wind and solar farms.
- Renewable Energy: Likoni also harness renewable energy sources to supplement the grid and promote sustainability. Solar energy, in particular, is abundant in coastal regions and is harnessed through solar panels for electricity generation.
- Fossil Fuels: While efforts towards renewable energy are growing, fossil fuels such as diesel and petrol still play a role, especially in transportation and backup power generation. Diesel

generators are commonly used as backup power sources during electricity outages or in areas with limited grid connectivity. Petrol is used in vehicles for transportation within the project area and surrounding areas.

- Traditional Fuels: Traditional fuels like firewood, charcoal, and biomass are used for cooking and heating in residential households, particularly in the informal settlements.

3.5.10 General Infrastructure

In Mombasa County, 71% of homes have either brick or stone walls. 24% of homes have mud/wood or mud/cement walls. Less than 1% has wood walls. 1% has corrugated iron walls. less than 1% has grass/thatched walls, 5% have tin or other walls.
77% of residents have homes with cement floors, while 14% have earth floors. Less than 1%has wood and 5% have tile floors.9% of residents have homes with concrete roofs, while 75% have corrugated iron roofs. Grass and makuti roofs constitute 4% of homes and less than 1% has mud/dung roofs.

82% of residents in Mombasa County use improved sanitation, while the rest use unimproved sanitation.
There are a total of 257.17Km of bitumen surface roads, 127Km of gravel surface roads and 91.29 Km of earth surface roads in the county. The Dongo-Kundu by-pass is expected to ease congestion at the central Business district, as traffic from Nairobi to South coast shall be diverted at Miritini towards Likoni and Diani.
All the major banks operating in Kenya have a presence in Mombasa County. The Central Bank of Kenya has a branch in the city which offers financial services to commercial Banks.

3.5.11 HIV and AIDS

Due to the location of the county as a seaport, cases of drugs and substance abuse and trafficking have been on the increase. HIV/AIDS prevalence at the county was at 8.1% against a national average of 6.35 (KNBS, 2013). AIDS related deaths are common and those mainly affected are within the productive age group of 15-49 years of age, leaving minors and the elderly people to take care of households. It was also noted that the number of HIV/AIDS orphans is on the increase.
Drug abuse is viewed as a major cause of HIV/AIDS. Poverty also increases vulnerability of people with HIV, hence there is need to redirect resources towards support services to poor households. Progressive gains on poverty reduction may be reversed if concerted efforts are not urgently put in place to bring the HIV/AIDS pandemic under control. Implementation of the project thus needs to create comprehensive HIV/AIDS awareness among the workers along the project area.

3.6 Sensitive Receptors

Sensitive receptors along the transmission line route include various institutions and areas that are vulnerable to the potential impacts of the project. These receptors encompass educational institutions such as Denyenye Primary School, Madibwani Primary School, Waab Primary School, Brilliant Academy, St. John First Baptist Primary School, Shika Adabu Primary and Secondary School, Maji Safi Primary School, Timbwani Secondary School, and Vijiweni Shopping Center. Additionally, community centers and religious sites like Ngombeni Shopping Center, Jamia Mosque, The Church of Jesus Christ of Latter, Vijiweni Grounds, and Zamaria Grounds are considered sensitive receptors. Healthcare facilities such as Shelly Beach Hospital, Likoni Sub-county Hospital, Diani Beach Hospital, and Mrima Maternity Hospital are also included. Natural features like Peleleza Mini Beach, and Mtongwe Military Barracks are part of the sensitive receptors due to their environmental and social significance in the project area. Identifying and addressing the potential impacts on these receptors is essential to ensure the project's development is sustainable and respects the well-being of the communities and environments involved.

To address the potential impacts on these sensitive receptors, various strategies will be implemented. For educational institutions, measures include establishing buffer zones, conducting regular monitoring of water quality, and implementing awareness programs on water conservation and hygiene. Community centers and religious sites will benefit from infrastructure upgrades to ensure uninterrupted water supply and minimize disruptions during construction activities. Healthcare facilities will require contingency plans for water supply during maintenance or emergencies, along with proper waste management practices to prevent pollution. Natural features will necessitate erosion control measures, and habitat restoration initiatives to safeguard their integrity. Engaging with local communities, stakeholders, and environmental experts throughout the project's lifecycle can ensure proactive mitigation strategies and sustainable management practices, promoting resilience and harmonious coexistence with the project's surroundings.

CHAPTER 4 ANALYSIS OF PROJECT ALTERNATIVES

4.1 Project Alternatives

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study / Project Report subsequent to which, subsection (i) requires an analysis of alternatives. Analysis of project Alternatives requires comparison of feasible alternatives for the proposed project in terms of: project site, project technology, Potential Environmental and Social Impacts, capital and recurrent costs, suitability under local conditions, and acceptability by neighboring land users.

This chapter describes and examines the various alternatives considered during the design of the project. The consideration of alternatives is one of the proactive sides of environmental and social assessment required to enhance project design. This is achieved through examining options instead of only focusing on the more defensive task of reducing adverse impacts of a single design option. The alternative that was considered for the project was focused on:

- Project Resettlement Impacts
- Analysis of Alternative Materials
- Relocation Alternative
- Proposed Project Option
- No Project Alternative

4.2 Project Resettlement Impacts

The design team has ensured as much as possible that the project shall be constructed within available public land and existing way-leaves. This shall eliminate cases of resettlement and reduce project costs that are usually related to compensation. Acquisition of easement for laying water pipe lines, construction of water intake and chambers were considered as the main criteria that was in identifying the areas in which these amenities are to be placed. However, there are sections that will require RAP and a report will be available.

4.3 Analysis of Alternative Materials

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The use of local stones, cement, sand (washed and clean), metal bars, pipes and fittings that meet the Kenya Bureau of Standards requirements is recommended.

4.4 Location Alternative

This option is contingent upon certain criteria. Firstly, the proposed development must be located in a zone designated for other developments or in an area where the preservation of

threatened, endangered, rare, or unique species of plants and animals is necessary. Additionally, the site must be in close proximity to an ecologically sensitive area. It is important to note that there are already similar facilities established in the surrounding neighbourhood. Consequently, the proposed development should not hinder the progress of other projects as it is designed to be compatible with adjacent facilities.

Moreover, the site itself does not possess any physical, biological, cultural, or socio-economic features of special concern. If this option is chosen, the proponent is obligated to search for an alternative site either within or outside the current zone. This means that the proponent will need to purchase or lease another piece of land elsewhere since they currently do not possess any alternative site. It is essential to acknowledge that this process may take a significant amount of time as finding a suitable location similar to Mombasa County and completing all official transactions relating to the change of land ownership can be quite time-consuming. The entire design and planning process will need to be restarted, necessitating the involvement of various professionals such as engineers, EIA lead experts, land surveyors, and physical planners to assess the feasibility of the new site. As a result, additional costs will be incurred for developing and obtaining approval for the plans related to the new location. This will lead to an additional financial burden for the proponent.

Furthermore, due to the dynamic nature of the market, the prices and availability of materials required for the project may not be favourable for the proponent when the proposal is eventually approved by the authorities. This uncertainty could discourage not only the proponent but also potential local and international investors from investing in the water and sanitation project.

4.5 No Project Alternative.

Opting for the "No Project" alternative would mean halting project designs and maintaining the site in its current state. This choice is the most environmentally sound alternative as it ensures no disruption to the existing conditions. However, from an economic perspective, this option would result in significant losses for the proponent, as well as the local and national economies. If the site remains undeveloped, the proponent would incur financial losses from the funds already invested in project design and planning, including fees paid to engineers and other experts. Additionally, the option would lead to the loss of job opportunities that the project was expected to create. Consequently, the water and sanitation conditions for the residents of Mombasa would continue to be inadequate.

Moreover, both the local and central governments would miss potential tax revenue that the project would generate if it were implemented. Furthermore, this alternative would further strain the already limited water supply in the area, given the increasing demand. Based on the analysis above, it is evident that the "No Project" alternative is not a feasible option for the community.

4.6 Proposed Project Sites

The impacts and mitigation measures for this alternative are discussed in detail throughout this report. The positive impacts have been identified. This alternative will have minimal impacts on the physical environment and has considered the necessary measures to eliminate the identified issues of concern. The alternative is likely to have the greatest implications on socio-economic environment of the area and surrounding communities. Due to the proposed quality of the development, it is anticipated that it would provide a major opportunity for area development, employment opportunities via business environment and accessibility to services to both the residents and non-residents of the area. In addition, a development of this caliber will add to the locality's ability to fuel the growth and development of the wider environment.

The Merits of this alternative are as follows:

- There will be stable and reliable water supply
- Sanitation services will be available, ensuring a clean and healthy environment;
- Public health standards of the community will improve;
- Employment opportunities will arise;
- Visual and aesthetic amenities will be improved;
- The community will have potential source of income through the supply of materials at the site, self- sustainability, employment opportunities and better service delivery in the long run;
- The local and national economies will improve from the revenue collected from the sale of water.

From the above analysis of alternatives, the 'Proposed Project Option' is the most valid option that should be adopted since it has more positive impacts to the environment and the community in the project area as a whole with minimal negative impacts that can be minimized or avoided with the implementation of the proposed mitigation measures in the ESMMP.

CHAPTER 5 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

5.1 Overview

This chapter outlines the policy, legal, regulatory and institutional framework in Kenya particularly for environmental management, protection and assessment applicable to the proposed Project.

The development of infrastructure projects involves various laws, by-laws, regulations, Acts of parliament, and policy documents. These statutes cannot be encompassed under a single heading.

The project will be subject to laws, regulations, guidelines and standards of the Government of Kenya the African Development Bank (sectoral Intervention Framework on water and sanitation 2014-2018). Note that wherever any of the laws contradict each other, the Environmental Management and Coordination Act (EMCA) prevail.

5.2 International Conventions and Treaties

Table 5-1: Compliance with International Guidelines

Convention/Treaty	Summary Description	Compliance/Comments
Sustainable Development Goals	Also referred to as Agenda 2030, is a universal call to action to end poverty, protect the planet and ensure peace and prosperity by 2030. **Relevance** The implementation of the project will contribute to ensuring sustainable income and alleviating rural poverty.	
United Nations Framework Convention on Climate Change	The UNFCCC sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. **Relevance** The project proponent should observe the convention in all its operations throughout the project cycle.	
Convention on Biological Diversity	This global convention was held to foster conservation and sustainable use of biological resources, to preserve their diversity for posterity. **Relevance** There is a need to integrate biodiversity consideration into the project as the associated activities may impact the wildlife species in the area.	
African Convention on the Conservation of Nature and Natural Resources	The convention sought to awaken the continent on the need to preserve natural ecosystems and employ sustainable use of natural resources of economic importance, particularly the soil, water, flora, and fauna. **Relevance** The water distribution project should be carried out in conformity with the inter-governmental agreement at the	

	convention, of which Kenya is a signatory.
Kyoto Protocol	The Kyoto Protocol is an agreement under which industrialized countries will reduce their collective emissions of six greenhouse gases - carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, HFCs, and PFCs. **Relevance** Compliance with this convention will largely inform the technical and environmental evaluation of the project. There is thus a necessity that proper adherence to minimal carbon emission levels be ensured during the continued operation of the Mall
IFCs Performance Standards	The safeguards ensure that environmental and social issues are evaluated in decision making, help reduce and manage the risks associated with a project or program, and provide a mechanism for consultation and disclosure of information. **Relevance** The proponent should adhere to OPs by subjecting the project to screening and proper documentation to be carried out, that consultation was carried, that the EMP will be implemented accordingly.

5.3 Environmental Policy Framework

The proposed investments will be implemented within provisions of various government policies as summarized in Table 5-1 below

Table 5-2: Environmental Policy Framework

No	Policy	Applicability
1.	Constitution of Kenya 2010	The CoK at Article 43 (1) provides that every person has the right – (b) to accessible and adequate housing, to reasonable standards or sanitation; and, (d) to clean and safe water in adequate quantities. These provisions cover oblige state organs and bind them to provide not just the high quality or clean and safe water but also adequate quantities to all people that they will serve.

No	Policy	Applicability
		In addition, the Constitution of Kenya provides for sound management and sustainable development of all of Kenya's Projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II. **Relevance** The constitution of Kenya provides for sound management and sustainable development of all of Kenya's projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.
2.	Kenya Vision 2030	This is the current national development blueprint for the period 2008 to 2030. The vision has three pillars – economic, social, and political. It is recognized that Kenya is a water-scarce country but stated (Kenya, 2007: 115) that the Vision for the water and sanitation sector is "to ensure water and improved sanitation services availability. **Relevance** The project will directly contribute towards the achievement of the objectives of the vision under the environment and social pillar through the provision of the planned water and sanitation services.
3.	National Land Policy 2003,	Chapter 2 of the policy is linked to constitutional reforms; regulation of property rights is vested in the government by the Constitution with powers to regulate how private land is used to protect the public interest. The Government exercises these powers through compulsory acquisition and development control. Compulsory acquisition is the power of the State to take over land owned privately for a public purpose. However, the Government must make prompt payment of compensation. Chapter 4 of the land policy under Environmental Management Principles, the policy provides actions for addressing environmental problems such as the degradation of natural resources, soil erosion, and pollution. For the management of the urban environment, it provides guidelines to prohibit the discharge of untreated

No	Policy	Applicability
		waste into water sources by industries and local authorities; it also recommends appropriate waste management systems and procedures, including waste and waste water treatment, reuse, and recycling. The policy goes further to advocate for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Public participation has been indicated as key in the monitoring and protection of the environment. Chapter 4 further advocates for the Implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause, and encourages industries to use cleaner production technologies. **Relevance** The project proponent shall implement the ESMP to ensure that the environment within the project area and adjacent areas are not polluted by the subsequent activities during the construction and operational phases. Health and safety measures will have to be maintained with the proximity to affected rivers. The proponent will also ensure that any affected land owner is promptly compensated
4.	National Climate Change Response Strategy, 2010	The strategy paper recognizes that Kenya is a water-scarce Country and offers a variety of strategies for ensuring that the resource is utilized in ways that recognize that it is a finite resource. The paper also argues that interventions in the water sector should take a participatory approach involving different water users including gender groups, socioeconomic groups, planners, and policy makers in water resource management (Kenya, 2010: 53). **Relevance** These principles will also apply to the sanitation initiatives discussed in this ESIA.
5.	The National Environment Policy, 2013	The goal of the policy is to ensure a better quality of life for present and future generations through sustainable management and the use of the environment and natural resources. The objectives of the Policy are *inter alia*: Provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources;

No	Policy	Applicability
		Strengthen the legal and institutional framework for good governance, effective coordination, and management of the environment and natural resources; and Ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods. Some of the guiding principles in the implementation of the policy include: **Environmental Right**: Every person in Kenya has a right to a clean and healthy environment and a duty to safeguard and enhance the environment; **Right to Development**: The right to development will be exercised taking into consideration sustainability, resource efficiency, and economic, social, and environmental needs; **Sustainable Resource Use**: Environmental resources will be utilized in a manner that does not compromise the quality and value of the resource or decrease the carrying capacity of supporting ecosystems; and **Public Participation**: A coordinated and participatory approach to environmental protection and management will be enhanced to ensure that the relevant government agencies, county governments, private sector, civil society, and communities are involved in planning, implementation, and decision-making processes. ***Relevance*** In chapter 8 an ESMMP is provided, the proponent and contractor should ensure it is implemented to ensure that the ecosystems are not destabilized by the subsequent Project activities.
6.	Kenya National Youth Policy 2006	This Policy aims at ensuring that the youth play their role alongside adults in the development of the Country. The National Youth Policy visualizes a society where youth have an equal opportunity as other citizens to realize their fullest potential. ***Relevance*** Proposed Sanitation Projects will provide direct employment to the youth as required by the Policy.
7.	The National Environmental	The Policy envisions a clean, healthy and economically prosperous Kenya free from sanitation and hygiene related diseases and seeks to ensure universal access to improved sanitation, clean and healthy environment

No	Policy	Applicability
	Sanitation and Hygiene Policy-2016-2030	by 2030. It is the outcome of reviews to address limitations of the National Environmental Sanitation and Hygiene Policy published in 2007. The Policy takes a rights-based approach and redirects efforts of the government at national and county level towards achieving the Kenya Vision 2030 and the global Sustainable Development Goals (SDGs). The strategy developed in the Policy that will not only enable all in Kenya to enjoy their right to highest attainable standards of sanitation but also to a clean and healthy environment as guaranteed by the Constitution of Kenya 2010. It puts emphasis on increasing public and private sector investment through public-private partnerships. The Policy is divided into seven Chapters: Introduction and Background (1); Situation Analysis (2); The Policy Context (3); Policy Direction and Principles (4); Policy Strategies and Measures (5); Institutional Framework (6); Implementation Framework (7). The Policy articulates and clarifies the roles and responsibilities of the many stakeholders and agencies involved in the sanitation sector, spelling out the national and county Governments commitments to increasing investment in sanitation and creating an enabling environment. To address institutional fragmentation and financing bottlenecks, the Policy provides for the establishment of the National Environmental Sanitation Coordination and Regulatory Authority (NESCRA) and the National Sanitation Fund (NASF). To ensure its effective implementation, a national environmental sanitation and hygiene strategy (NESHS), National Environmental Health and Sanitation Bill and county environmental sanitation and hygiene strategic and investment plans (CESHSIPs) will be prepared. ***Relevance*** Implementing the Project will directly contribute to the achievement of the Policy

5.4 Overview of the relevant Legislation

The Legislation are presented in the Table below:

Table 5-3: Overview of the Legislation

No	Policy	Applicability
1.	The Environmental Management and Coordination Act Amendment 2015	The Act provides for the establishment of a legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Just as in the new constitution, Part II of EMCA confers to every person the right to a clean and healthy environment and to its judicial enforcement. The new Constitution and EMCA therefore obligates the project's Executing Agency and Contractor to work in a clean environment and not to contravene the right of any person within its zone of influence, to this entitlement. EMCA has provided for the development of several subsidiary legislations and guidelines which govern environmental management and are relevant to the project implementation. These include: **The Environmental (Impact Assessment and Audit) Regulations, 2009 Legal Notice No. 101** The Environmental Impact Assessment and Audit Regulations state in Regulation 3 states that "*the Regulations should apply to all policies, plans, programmes, projects and activities specified in Part IV, Part V and the Second Schedule of the Act*. Part III of the Regulations indicates the procedures to be taken during preparation, submission and approval of the environmental project report. Part 4(1) of the Regulation further states that: "no Proponent shall implement a project")Likely to have a negative environmental impact; or)For which an environmental impact assessment is required under the Act or these Regulations, unless an environmental impact assessment has been concluded and approved in accordance with these Regulation. **Relevance**

No	Policy	Applicability
		This EIA report has been compiled to comply with EMCA and the Environmental (Impact Assessment and Audit) Regulations, 2003. **The Environmental Management and Coordination (Waste Management) Regulations, 2006 Legal Notice No. 121** These Regulations were published in the Kenya Gazette Supplement No. 69, Legislative Supplement No. 37, and Legal Notice No. 121 of 29th September, 2006. The regulations provide details on management (handling, storage, transportation, treatment and disposal) of various waste streams including: Domestic waste; Industrial waste; Hazardous and toxic waste; Pesticides and toxic substances; Biomedical wastes; and Radioactive waste. Regulation No. 4 (1) makes it an offence for any person to dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle. Regulation 5 (1) provides categories of cleaner production methods that should be adopted by waste generators in order to minimize the amount of waste generated and they include: Improvement of production process through Conserving raw materials and energy; Eliminating the use of toxic raw materials and wastes; Reducing toxic emissions and wastes. Monitoring the product cycle from beginning to end by Identifying and eliminating potential negative impacts of the product; Enabling the recovery and re-use of the product where possible, Reclamation and recycling and

No	Policy	Applicability
		Incorporating environmental concerns in the design and disposal of a product. Regulation 6 requires waste generators to segregate waste by separating hazardous waste from non-hazardous waste for appropriate disposal. Regulation 15 prohibits any industry from discharging or disposing of any untreated waste in any state into the environment. Regulation 17 (1) makes it an offence for any person to engage in any activity likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by NEMA. **Relevance** The proposed project, during construction phases will generate wastes, which will need to be disposed of as per the guidelines in the regulations. **The Environmental Management and Coordination (Water Quality) Regulations, 2006 Legal Notice No. 120** These Regulations were published in the Kenya Gazette Supplement No. 68, Legislative Supplement No. 36, and Legal Notice No. 120 of 29th September 2006. The Regulations provides for sustainable management of water resources including prevention of water pollution and protection of water sources (lakes, rivers, streams, springs, wells and other water sources). It is an offence under Regulation No. 4 (2), for any person to throw or cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution. Regulation No. 11 further makes it an offence for any person to discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit the dumping or discharge of such matter into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards for effluent discharge into the environment. **Relevance** The proponent should ensure that waste is handled, stored, transported and disposed as per this regulation.

No	Policy	Applicability
		The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61 These regulations were published as legal Notice No. 61 being a subsidiary legislation to the Environmental Management and Co-ordination Act, 1999. The regulations provide information on the following: Prohibition of excessive noise and vibration; Provisions relating to noise from certain sources; Provisions relating to licensing procedures for certain activities with a potential of emitting excessive noise and/or vibrations and Noise and excessive vibrations mapping. According to regulation 3 (1), no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Regulation 4 prohibits any person to (a) make or cause to be made excessive vibrations which annoy, disturb, injure or endanger the comfort, repose, health or safety of others and the environment; or (b) cause to be made excessive vibrations which exceed 0.5 centimeters per second beyond any source property boundary or 30 meters from any moving source. Regulation 5 further makes it an offence for any person to make, continue or cause to be made or continued any noise in excess of the noise levels set in the First Schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property. Regulation 12 (1) makes it an offence for any person to operate a motor vehicle which (a) produces any loud and unusual sound; and (b) exceeds 84 dB(A) when accelerating. According to sub-regulation 2 of this regulation, No person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident. Regulation 13 (1) provides that except for the purposes specified in sub-Regulation (2) there under, no person shall operate construction equipment (including but not limited to any pile driver, steam shovel, pneumatic hammer, derrick or steam or electric hoist) or

No	Policy	Applicability
		perform any outside construction or repair work so as to emit noise in excess of the permissible levels as set out in the Second Schedule to these Regulations. Regulation 19 (1) prohibits any person to carry out activities relating to fireworks, demolitions, firing ranges or specific heavy industry without a valid permit issued by the Authority. According to sub-regulation 4, such permit shall be valid for a period not exceeding three months. **Relevance** The contractor for civil works will be required to ensure compliance with the above regulations in order to promote a healthy and safe working environment throughout the construction phase. This shall include regular inspection and maintenance of equipment and prohibition of unnecessary hooting of vehicles. **The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160** Part II of Regulations, section 4 states that no person shall engage in any activity that may have adverse impacts on ecosystems, lead to introduction of exotic species or lead to unsustainable use of natural resources without an EIA license. The regulation puts in place measures to control and regulate access and utilization of biological diversity that include among others banning and restricting access to threatened species for regeneration purposes. It also provides for protection of land, sea. Lake or river declared to be a protected natural environmental system in accordance to section 54 of EMCA, 1999. **Relevance** During the construction phase of proposed project, there will be removal of the existing natural vegetation. For this to occur, the relevant authority, NEMA in this case, will require a detailed EIA on the proposed project and projected impacts before issuing a license for commencement. **Other relevant EMCA 1999 to be considered during construction and operation of the project are;** Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009. Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations, 2006

No	Policy	Applicability
		The Environmental Management and Coordination (Controlled Substances) Regulations, 2007 Legal Notice No. 73. **Relevance to the Project** EMCA 2015 and above listed regulations shall form the main statutory instruments which will guide the implementation of the project so that any likely adverse impacts that could be caused by the project are promptly mitigated as recommended in this assessment. This report is also in compliance with the requirement of the EIA/EA regulations.
2.	Water Act 2016	The Act vests the responsibility of developing water and Sanitation infrastructure (sewerage and water supply) to Water Works Development Agency, in this case represented by Athi Water Works Development Agency. Section 73 of the Act allows a person with a license to supply water (licensee) to make regulations for purposes of protecting against degradation of sources of water, which he is authorized to take. Under the Act, the licensee could be a local authority, a private Trust or an individual and the law will apply accordingly under the supervision of the Regulatory Board. Section 75 and sub-section 1 allows a licensee for water supply to construct and maintain drains and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing water belonging to the licensee or which the is authorized to take for supply from being polluted. However, if the proposed works will affect or is likely to affect any body of water in the catchment, the licensee shall obtain consent from the Water Resources Management Authority. **Relevance to the Project** This Act shall be relevant during both construction and operation phases of the project whereby the contractor and proponent shall ensure that all relevant water resources are not polluted from both liquid and solid wastes.
3.	Water Resources	The regulation has set prescription of water use activities; issue of approvals, permits and authorizations for water use and waterworks; guidelines on surface water, including declaration of a watercourse, wetlands, land reclamation, water use for irrigation and Works Associated for protection and control of fish;

No	Policy	Applicability
	Regulations, 2021	groundwater development, including borehole and issue of specific permits and authorizations; water quality monitoring and liquid waste disposal, including control of water pollution, water quality monitoring; inspection and controls concerning waterworks; water use charges, including penalties for misuse or for over-abstraction; roles and powers of water resource users associations and basin water resources committees; identification of protected and designated groundwater conservation areas; composition of reserve; categories of water sector professionals and contractors and issue of related permits and licenses. A water resource user association shall have a gender mainstreaming and environmental approach. **Relevance** The project will ensure that the river riparian areas are respected and are not interfered with.
4.	County Government Act No. 17 of 2012	Part II of the Act empowers the county government to be in charge of functions described in Article 186 of the constitution, (county roads, water and Sanitation, Health). Part XI of the Act vest the responsibility of planning and development facilitation to the county government with collaboration with national government. This arrangement has been adopted for interventions in order not to conflict with provisions of the Kenyan Constitution. **Relevance** The project once commissioned shall be handed over to WSPS which is a water utility company.
6.	Occupational Health and Safety Act (OSHA 2007)	This legislation provides for protection of workers during construction and operation phases. It is tailored at implementation of the EHS plan in compliance with the relevant sections of this Act. The EMP prepared under this assessment has provided for specific health and safety aspects to be complied with during implementation of the project. **Subsection 18 - Sanitary conveniences** Sufficient and suitable sanitary conveniences for persons employed in the factory/ work places shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences and where persons of both sexes are, such conveniences shall afford proper separate accommodation for persons of each sex.

No	Policy	Applicability
		Subsection 21 – Prime movers Every flywheel directly connected to any prime mover and every moving part of any prime mover, shall be securely fenced, whether the flywheel or prime mover is to be situated in an engine –house or not . Head and tailrace of every water wheel and of every water turbine shall be securely fenced. Every part of electric generators, motors and rotary converters and every flywheel directly connected thereto shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises as it would be if securely fenced. **Subsection 22 -Transmission Machinery** Every part of transmission machinery shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises, as it would be if securely fenced. Efficient devices or appliances shall be provided and maintained in every room or place where work is carried on by which the power can promptly be cut-off from transmission machinery in that room or place. Every machine intended to be driven by mechanical power shall be provided with an efficient starting and stopping appliance, the control of which shall be in such a position as to be readily and conveniently operated by the person operating the machine. **Subsection 25 - Construction and maintenance of fencing** All fencing or other safeguards provided in pursuance of the foregoing provisions shall be of substantial construction, constantly maintained, and kept in position while the parts required to be fenced or safe guarded are in motion or in use except when any such parts are necessarily exposed for examination and for any lubrication or adjustments shown by such examination to be immediately necessary. **Subsection 13 – Cleanliness** Every factory/work place shall be kept in a clean state and free from effluent arising from any drain, sanitary convenience or nuisance. **Subsection 14 – Overcrowding**

No	Policy	Applicability
		A factory/ work place shall not while work is carried on be so overcrowded as to cause risk of injury to the health of the persons employed therein. Standard cubic space allowed for every person in a workroom should not be less than three hundred and fifty cubic feet. **Section 51- Air pollution** Preventive measures shall be put in place during operation of the project to prevent fumes and exhaust gases from entering into the atmosphere. **Relevance to the Project** The Act provides Occupational Health and Safety guidelines which shall be followed by both the contractor and supervising consultant during implementation of the project in order to avoid injuries and even loss of life to workers and neighboring community.
7.	The Public Health Act (Cap.242)	Part IX section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 and include nuisances caused by accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbor rats or other vermin. **Relevance to the Project** The Act provides guidelines to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA 1999 for utmost compliance. The Act also shall be applied to ensure that the food that is provided to the workers during construction of the project meets the safety requirements.
8.	The Penal Code (Cap. 63)	Section 191 of the Penal Code makes it an offence for any person or institution that voluntarily corrupts, or foils water for public springs or reservoirs rendering it less fit for its ordinary use. Similarly, section 192 of the same act prohibits making the atmosphere in any place to make it noxious to health of

No	Policy	Applicability
		persons/institution in dwellings or business premises in the neighborhood or those passing along a public way. **Relevance** The Contractor and the project proponent will be required to ensure strict adherence to the Environmental Management Plan throughout the project cycle in order to mitigate against any possible negative impacts associated with dust, noise and effluent discharge. This code is also applicable during the operation phase of the project.
9.	Employment Act	This is an Act of parliament that applies to all employees employed by any employer under a contract of service. The Act came in operation in June 2008. Employment of children in the following forms is prohibited in the following sections of the Act: 53. (1) notwithstanding any provision of any written law, no person shall employ a child in any activity that constitutes worst form of child labour. 56. (1) No person shall employ a child who has not attained the age of thirteen years whether gainfully or otherwise in any undertaking. (2) A child of between thirteen years of age and sixteen years of age may be employed to perform light work which is Not likely to be harmful to the child's health or development; and Not such as to prejudice the child's attendance at school, his participation in vocational orientation or training Programs approved by Minister or his capacity to benefit from the instructions received. **Relevance** CWWDA and the contractor will need to understand the requirements of the Act during employment. Equal opportunity should be given to all both men and women so as to ensure equity.
10.	Work Injury Benefits Act (WIBA)	It is an act of Parliament to provide for compensation to workers for injuries suffered in the course of their employment. It outlines the following: Employer's liability for compensation for death or incapacity resulting from accident;

No	Policy	Applicability
		Compensation in fatal cases; Compensation in case of permanent partial incapacity; Compensation in case of temporary incapacity; Persons entitled to compensation and methods of calculating the earnings; No compensation shall be payable under this Act in respect of any incapacity or death resulting from a deliberate self-injury; Notice of an accident, causing injury to a workman, of such a nature as would entitle him for compensation shall be given in the prescribed form to the director. **Relevance** The Contractor will need to abide by all the provisions of WIBA.
11.	Sustainable Waste Management Act, 2022	The Act aims at fulfilling the following; **Promote Sustainable Waste Management:** The primary goal of the act is to establish a framework for waste management that is environmentally sustainable and socially responsible, ensuring the proper handling and disposal of waste. **Improve Public Health:** By ensuring a clean and healthy environment, the act seeks to enhance the overall health and well-being of all Kenyan citizens. Proper waste management reduces the risk of diseases and environmental contamination. **Reduce Pollution:** The act targets the reduction of pollution in various forms, including air, land, freshwater, and marine pollution. This helps protect natural ecosystems and preserves the quality of air, water, and soil. **Effective Waste Service Delivery:** It aims to promote and ensure efficient and effective delivery of waste services to all Kenyan communities, making waste management more accessible and reliable. **Green Economy and Employment:** By creating an enabling environment for employment in the green economy related to waste management, recycling, and recovery, the act contributes to job creation and economic growth in these sectors.

No	Policy	Applicability
		Environmentally Sound Infrastructure: It establishes an environmentally sound infrastructure and system for sustainable waste management, which includes the development of waste disposal facilities and recycling centers with minimal negative impacts on the environment. **Circular Economy Practices:** The act promotes circular economy practices, which emphasize recycling, reusing, and reducing waste, leading to more sustainable and resource-efficient methods of production and consumption. **Resource Efficiency:** By mainstreaming resource efficiency principles in sustainable consumption and production practices, the act encourages responsible and efficient use of resources, reducing waste and conserving raw materials. **Responsible Public Behavior:** Finally, the act seeks to inculcate responsible public behavior in waste management and environmental stewardship. It emphasizes the importance of individual and community responsibility in ensuring a cleaner and more sustainable environment. The Sustainable Waste Management Act of 2022 in Kenya is a comprehensive policy framework that aims to transform the waste management landscape in the country. It focuses on sustainability, public health, pollution reduction, economic growth, and environmental responsibility to create a cleaner, healthier, and more sustainable future for all Kenyan citizens. **Relevance to the Project** The Act provides guidelines to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA 1999 for utmost compliance.

5.5 African Development Bank Operation Safeguards

5.5.1 African Development Bank Polices on Environment and Social Operational Safeguards

The African Development Bank's environmental policy framework is strongly anchored in the concept of sustainable development. This concept defines sustainability as "development that meets the needs of the present without compromising the needs of the future".

The AfDB Operational Safeguards (OS) include:

OS 1: Environmental and Social Assessment.

This OS governs the process of determining a project 's environmental and social category and the resulting Environmental and Social Assessment requirements. The requirements cover the scope of application, categorization, use of Strategic Environmental and Social Assessment (SESA) and Environmental and Social Impact Assessment (ESIA) where appropriate, Environmental and Social Management Plans, climate- change vulnerability, public consultation, community impacts, treatment of vulnerable groups, including indigenous peoples, and grievance procedures.

The OS requires:

- Screening of the project for environmental and social impacts including climate change impacts, potential adaptation and mitigation measures, and the vulnerability of populations and their livelihoods—to determine the specific type and level of environmental and social assessment;
- Scoping of the project's components, including delineating the project's geographic and temporal area of influence, consideration of alternatives, and assessment of cumulative impacts, where relevant. Scoping activities also determine the range of likely potential risks and impacts and also determines whether specific requirements of the Bank's OSs apply. All relevant direct and indirect environmental and social risks and impacts, including those specifically covered the other Operational Safeguards would be addressed in an integrated manner;
- Consideration of real alternatives to the project's location and/or design to avoid adverse impacts. The mitigation hierarchy to be applied includes: if avoidance is not possible, reduce and minimize potential adverse impacts; if reduction or minimization is not sufficient, mitigate and/or restore; and as a last resort compensate for and offset;
- Assessment to comply with the relevant legislation and standards applicable in the local jurisdiction, bearing in mind the equivalence of standards with those of the Bank. Assessment to also take into consideration national or regional- level programming documents that are under implementation or in preparation;
- Assessment process to support and strengthen existing country systems for environmental, climate, and social risk management, including those specifically related to OSs 2-5, such as systems and institutions covering resettlement, biodiversity protection, pollution control, and labor standards;
- The assessment to be conducted according to the principles of proportionality and adaptive management. The level of assessment and management required should be proportionate to the

level of risk that the project poses as identified during categorization and scoping—and the management measures adopted should be capable of being adapted to changing circumstances during the full project cycle;

- Assessment to include the development of a comprehensive and implementable ESMP with a realistic timeframe, incorporating the necessary organizational capacity (including further training requirements) and financial resources to address and manage the environmental and social risks that may occur during the full project cycle;
- Categorization of projects following the principle of using the appropriate type and level of environmental and social assessment for the type of operation. The categories include:
    - **Category 1**- projects likely to induce significant and/or irreversible adverse environmental and/or social impacts, or to significantly affect environmental or social components that the Bank or the borrowing country considers sensitive
    - **Category 2:** Projects likely to have detrimental site-specific environmental and/or social impacts that are less adverse than those of Category 1 projects. Likely impacts are few in number, site specific, largely reversible, and readily minimized by applying appropriate management and mitigation measures or incorporating internationally recognized design criteria and standards
    - **Category 3:** Projects which do not directly or indirectly affect the environment adversely and are unlikely to induce adverse social impacts. They do not require an environmental and social assessment. Beyond categorization, no action is required.
    - **Category 4:** Projects which involve Bank lending to financial intermediaries that on-lend or invest in subprojects that may produce adverse environmental and social impacts

➢ The Proposed Project component will trigger this safeguard. The Project is Category 1 due to the interaction with the physical, biological and social setting within the immediate surroundings. It also leads to resettlement.

OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation.

This safeguard consolidates the policy commitments and requirements set out in the Bank's policy on involuntary resettlement, and incorporates a number of refinements designed to improve the operational effectiveness of those requirements. In particular, the OS embraces comprehensive and forward-looking notions of livelihood and assets, to account for their social and cultural dimensions, as well as their economic ones. It also adopts a progressive understanding of community and common property that emphasizes the crucial need to maintain social cohesion, community structures and the social inter- linkages that common property provides.

➢ The Proposed Project will utilize existing road reserves and riparian land for trunk and reticulation sewers. However, the STP proposed site is private owned and would be acquired prior to commencement of work. This policy is therefore triggered.

OS 3: Biodiversity and ecosystem services

This safeguard aims to conserve biological diversity and promote the sustainable use of natural resources. It also translates the commitments in the Bank's policy on integrated water resources management into operational requirements. It reflects the importance of biodiversity in the African continent and the value to the population of key ecosystems. Its content has benefited from recent joint work among the MDBs to improve their approach to assessing how the potential impacts of projects on different types of habitats can be avoided, minimized or offset.

- Project activities have no direct linkage to biological diversity and ecosystem services. OS 3 shall be applied in isolated minor cases of biodiversity and ecosystem services.

OS 4: Pollution prevention and control, hazardous materials and resource efficiency.

This safeguard covers the range of key impacts of pollution, waste, and hazardous materials for which there are agreed international conventions, as well as comprehensive industry-specific and regional standards, including greenhouse gas accounting, that other multilateral development banks follow. It also introduces a GHG emission threshold for projects to trigger a detailed analysis of feasible reduction or offset measures and reporting on emission levels. Borrowers or clients are required to consider measures to improve resource efficiency.

- The project shall utilize raw materials both during construction and operation phase that could result to pollution of biophysical environment if not handled appropriately. Project activities shall not result to significant amount of greenhouse gases. The EMSP has proposed measures of ensuring that any greenhouse gas generated shall be collected and flared appropriately. The project triggers OS 4.

OS 5: Labour conditions, health and safety

This safeguard establishes the Bank's requirements for its borrowers or clients concerning workers' conditions, rights and protection from abuse or exploitation. It also ensures greater harmonization with most other multilateral development. It also covers workers' organizations, and avoidance of child or forced labour and occupational health and safety.

- The Project shall involve workers both during construction and operation phases of the project. This policy reads together with OSHA 2007 and IFC Performance Standards. Labour and Working Conditions shall form integral instruments to be used in ensuring that health, safety and working conditions of both workers and community is maintained. The project triggers OS 5.

The following table summarizes the project activities checked against the operational safeguards, and how the project activities are likely to trigger each of the operational safeguards.

Table 5-4: Summary of operational safeguards and whether it's being triggered

Policy	Triggered by the project	Discussions
OS 1: Environmental and Social Assessment.	Yes	The project components will trigger EA safeguards and is Category 1 due to the interaction with the physical, biological and social setting within the immediate surroundings.
OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation.	Yes	The STP will be constructed within private land.
OS 3: Biodiversity and Ecosystem Services.	No	Project activities have no direct linkage to biological diversity and ecosystem services OS 1 shall be applied in isolated minor cases of biodiversity and ecosystem services.
OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency.	Yes	The project shall utilize raw materials both during construction and operation phase that could result to pollution of biophysical environment if not handled appropriately. Project activities shall not result to significant amount of greenhouse gases, EMSP has proposed measures of ensuring that any greenhouse gas produced is collected and flared appropriately. The project design has ensured that the both clean water and sewer flows through the distribution lines by gravity hence reducing the need for pumping.

OS 5: Labour Conditions, Health and Safety.	yes	The Project shall involve workers both during construction and operation phases of the project. This policy read together with OSHA 2007 and IFC Performance Standards 2 on Labour and Working Conditions shall form integral instruments to be used in ensuring that health, safety and working conditions of both workers and community is maintained.

5.6 Project Implementation Institutional Structure

CWWDA has established implementation units for the project with project engineers in charge for various county projects, the Agency hires on case-by-case basis the services of environment specialist to oversee implementation of the EMSP developed for projects.

I. **The Contractor**

The contractor will be required to establish an environmental office to continuously advise on environmental components of the project implementation. Elements in the environmental and social management plan are expected to be integrated in the project with appropriate consultations with CWWDA through the supervising environmental expert. The environmental officer of the contractor is also expected to fully understand the engineering and management aspects of the project for effective coordination of relevant issues.

II. **The Supervisor**

The supervisor will be engaged by CWWDA (as the project proponent) to ensure effective implementation of the environmental management plan. It is expected that supervisor engages the services of an environmental expert who should in return understand the details of the recommendations on environment management and especially the proposed action plans, timeframes and expected targets of the management plan. The environmental supervisor expert should also be the liaison person between the contractor and CWWDA on the implementation of environmental concerns as well as issues of social nature associated with the Project.

5.7 Institutional Structure of the Water Sector

The National Policy on Water Resources Management and Development and the Water Act 2016, presently guides water resources management. The Water Act 2016 has realigned this arrangement slightly to comply with the requirements of the new constitution 2010.The overall goal of the National Water Development Policy is to facilitate the provision of water in sufficient quantity and quality and within a reasonable distance to meet all competing uses in a sustainable, rational and economical way.

The Ministry of Water & Sanitation and Irrigation is responsible for policy development, sector co-ordination, monitoring and supervision to ensure effective Water and Sewerage Services in the Country, sustainability of Water Resources and development of Water resources for domestic, irrigation, commercial, industrial, power generation and other uses. The Ministry executes its mandate through the following sector institutions:

5.7.1 Water Services Regulatory Board (WASREB)

The regulatory Board is responsible for the regulation of the water and sewerage services in partnership with the people of Kenya. The mandate of the regulator covers the following key areas:

- Regulating the provision of water and sewerage services including licensing, quality assurance, and issuance of guidelines for tariffs, prices and disputes resolution.
- Overseeing the implementation of policies and strategies relating to provision of water services licensing of Water Services Boards and approving their appointed Water Services Providers,
- Monitoring the performance of the Water Services Boards and Water Services Providers,
- Establish the procedure of customer complaints,
- Inform the public on the sector performance,
- Gives advice to the Minister in charge of water affairs.

5.7.2 Water Resources Authority (WRA)

The authority is responsible for sustainable management of the Nations Water Resources:

- Implementation of policies and strategies relating to management of water resources, Develop principles, guidelines and procedures for the allocation of water,
- Development of Catchments level management strategies including appointment of catchments area advisory committees,
- Regulate and protect water resources quality from adverse impact
- Classify, monitor and allocate water resources.

5.7.3 Water Sector Trust Fund (WSTF)

This body assists in the financing of the provision of Water Services to areas of Kenya which are without adequate water services. This shall include providing financing support to improved water services towards:

- Capital investment to community water schemes in underserved areas
- Capacity building activities and initiative among communities
- Water services activities outlined in the Water Services Strategic Plan as prioritized by the Government

- Awareness creation and information dissemination regarding community management of water services
- Active community participation in the management of water service

5.7.4 Water Works Development Agencies

The WWDAs are responsible for the efficient and economical provision of water services in their areas of jurisdiction. CWWDA is among the eight catchment Boards established under the Water Act, 2016 and is mandated to:

- Plan and develop National Public Water Works for bulk water supply;
- Formulate Development and Investment Plans in liaison with county governments;
- Provide input to the national development and financing plan; and
- Provide technical assistance to Water Service Providers for county asset development CWWDA is the implementing Agency in this proposed project.

5.7.5 Water Services Providers

Water Service Providers are the utilities or water companies. They are state owned but have been commercialized to improve performance and run like business within a context of efficiency, operational and financial autonomy, accountability and strategic, but minor investment. MOWASSCO is the WSP that will be in charge of the proposed project.

5.7.6 National Environment Management Authority (NEMA)

The government established the National Environmental Management Authority (NEMA) as the supreme regulatory and advisory bodies on environmental management in Kenya under EMCA 1999. NEMA is charged with the responsibility of coordinating and supervising the various environmental management activities being undertaken by other statutory organs. NEMA also ensures that environmental management is integrated into development policies, programs, plans and projects.

CHAPTER 6 STAKEHOLDER CONSULTATION

6.1 Introduction

Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation plans.

Public consultation process for the Project took place at the scoping stage and the ESIA stage. The main objective for the consultation process was to involve the community at the very early stages so as to identify likely negative impacts and find ways to minimize negative impacts and enhance positive impacts of the project.

6.2 stakeholder engagement plan

The overall purpose of this Stakeholders Engagement Plan is to ensure that a consistent, comprehensive and coordinated approach is taken in stakeholder engagement and Project disclosure throughout the project implementation phase. It is further intended to demonstrate the commitment to engage each stakeholder during the implementation phase of the Project. This is in line with the financier African Development Bank (AfDB) Principles on Stakeholder Engagement (2015).

In line with Stakeholders Engagement Plan best practice, stakeholder engagement is conducted on the basis of timely, relevant, and accessible information. In this way, the Stakeholders Engagement Plan seeks to ensure that stakeholders are given sufficient opportunity to voice their opinions and concerns, and that these concerns influence project decisions. The Stakeholders Engagement Plan therefore:

- Provides the approach to stakeholder engagement, showing how this will be fulfilled throughout the project cycle;
- Identifies the main categories of stakeholders and how they will be included in the implementation of the Project; and
- Identifies the ways to document engagement undertaken with the stakeholders throughout the project.

Objectives of Stakeholder Engagement

The objectives of engaging stakeholders during project Implementation phase include:

- **Ensuring Understanding:** An open, inclusive and transparent process of engagement and communication will be undertaken by to ensure that stakeholders are well informed about the proposed Project. Information will be communicated early and as detailed as possible.

- **Involving Stakeholders in the Assessment**: Stakeholders were included in the scoping of issues and identification of sampling points especially in areas that had high pollution. They also played an important role in providing local knowledge and information for the baseline survey of sampling points and community involvement in the Project.
- **Building Relationships**: Through supporting open dialogue, engagement will help to establish and maintain a productive relationship between the implementation team and stakeholders.
- **Managing Expectations**: It is important to ensure that the proposed Project does not create, or allow, unrealistic expectations to develop amongst stakeholders about potential Project benefits. The engagement process will serve as a mechanism for understanding and managing stakeholder and community expectations, by disseminating accurate information in an easily understandable manner. The exercise will not involve handing over money during implementation. The Stakeholders will be made to understand that the Project is for their own benefit and falls within the mandate of Stakeholder.
- **Ensuring Compliance**: The process is designed to ensure compliance with both local laws requirements and international best practice.

6.3 Regulatory context

6.3.1 Policy, Legal and Institutional Framework for Public Participation

The Republic of Kenya has the following polices and legislations related to citizen/stakeholder engagement which covers both the right to access information and participation in policy development and decision-making.

The Constitution entrenches a wide range of social, political, economic and cultural rights and revolutionizes the entire system of political governance by devolving authority to county governments and decreeing the need for citizen participation in decision making. It enshrines the right to access information and makes principles of international laws and treaties ratified by Kenya an integral part of the country's municipal law. The Constitution in Article 232 further outlines transparency and timely provision to the public of accurate information as one of the values and principles of public service, going further to bind all state agencies at both national and county government levels and state corporations to these values and principles.

Moreover, Article 69 outlines the obligations of the government in respect to the environment, asserting that "The State shall ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources and ensure the equitable sharing of the accruing benefits". Under its sixth chapter on leadership and integrity, the constitution has entrenched values and principles that should govern the operations of all entities and public officers within the state and called for adherence of the same. The Constitution introduces

changes in the public finance management framework in Kenya, outlining principles of public finance such as equity, openness and accountability through public participation in financial matters.

Under the Social Pillar of Vision 2030, i.e., the Country's commitment to invest in the people of Kenya, Kenya's journey towards prosperity is envisioned to involve the building of a just and cohesive society, which enjoys equitable social development in a clean and secure environment. The Political Pillar, -Moving to the Future as One Nation, states in part that Kenya is committed to "adherence to the rule of law as applicable to a modern, market-based economy in a human rights-respecting state" (emphasis in italics, added). Furthermore, Vision 2030 is anchored on aspirations to better define and clarify land tenure rights and perhaps by extension facilitate the identification of carbon rights and associated equity in accruing benefits.

The Climate Change Act (2016) provides guidance for application of public participation, access to information and representation in all sectors of the economy, at both national and country level for climate change adaptation and mitigation Environmental Impact Assessment (EIA), Review Guide for Communities, Dec. (2014). The Environmental, Management and Coordination Act (1999, 2015) has mandatory requirements on public participation. This review guide seeks to enhance public participation in the project cycle management under the Environmental (Impact Assessment and Audit) Regulations, (2003). The guide targets communities falling within the project areas to assist them in reviewing and commenting on Environmental Impact Assessment (EIA) reports. It gives a step-by-step guidance and direction on how communities can actively participate in the EIA process through provision of clear responses to public participation calls to ensure that their needs and aspirations are taken into account.

Environmental Management and Coordination Act (EMCA) 2009 set out general principles, and the principle of public participation in the development of policies, plans and processes for the management of the environment is made mandatory in the Act.

Environment Impact Assessment Guidelines and Administrative Procedures required public participation and disclosure of project information during EIA procedure in the development of projects, policies, plans and programmes.

6.3.2 International Requirements

AfDB Operation Safeguards of 2013 states that the Project implementer shall be responsible for carrying out and providing evidence of meaningful consultation (i.e. consultation that is free, prior and informed) with Stakeholders/communities likely to be affected by the Project impacts, and with other local stakeholders. The key focus of meaningful consultation is inclusivity; namely, the approach taken needs to ensure that all groups that are directly or indirectly affected by the Project are embraced within the consultation process on equal terms, and that all groups are given the capacity to express their views with the knowledge that these views will be put into

consideration. OS 1 also states that the implementer of the Project shall be responsible for ensuring that all Stakeholders are engaged and satisfied.

The AfDB operation safeguard requires that stakeholder engagement starts at an early stage during project preparation and that it should continue throughout. The results of such engagement should be adequately reflected in project during the Project implementation, as well as in the preparation of project documentation. In all cases, consultation should be carried out after, or in conjunction with, the relevant Stakeholders.

Once all stakeholders are identified, the developer should develop and implement a Stakeholder Engagement Plan (SEP) that is proportionate to the project risks, impacts and development stage, and that is tailored to the characteristics and interests of the affected Stakeholders. The advantage of having a SEP is;

a.) That it provides a formal commitment,
b.) Defines responsibilities
c.) Ensures that adequate funds are made available to carry out the program of consultation.

A Stakeholders Engagement Plan typically describes measures to allow the effective consultation and participation of all affected parties, a description of any consultations that have already taken place, and a definition of the reporting procedures. A Grievance Mechanism should also be developed by the implementer, and it will detail the procedures that a project will establish for managing complaints and grievances especially from the stakeholders involved in the implementation of the Project.

6.4 Stakeholders' identification and analysis

6.4.1 Identification of Project Stakeholders

Project stakeholders are defined are persons or groups who are directly or indirectly interact with the project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively (IFC's Handbook on Stakeholder Engagement (2007)). Stakeholder identification and analysis is an essential component of effective and meaningful stakeholder engagement activities. The objective of this step was to provide a general overview of all stakeholders.

Key stakeholders' groups that were identified are parties were directly interlinked and have a stake in the Project. A participatory and consultative approach that involves all stakeholders was adopted, to ensure optimal participation of key stakeholders at all stages of the assignment and enrich the outcomes of the study. The identified stakeholders were divided into Primary, Secondary and Tertiary. This is shown in the table below;

Table 6-1: Stakeholder Categories

Institution	Stakeholder

Mombasa County Government	• Representative of MOWASSCO • Lands and Physical Planning Department • Mombasa County Public Health Officer
National Government	• Deputy County Commissioner for Likoni. • Local Administration (Chiefs and Village Elders) • National Environment Management Authority (NEMA)
Institutions	• Education and Health Institution (Technical University of Mombasa) others as identified in Section 8.4
Other Interested Parties	• Project Affected Persons (PAPs) • Landlords and tenants • Business Community • Traders

6.4.2 The methodology for stakeholder analysis

This stakeholder analysis was conducted as follows:

1. **Identification of Stakeholders**

The first stage in stakeholder relations involved researching individuals and third-party organizations that may be relevant to the project. This included groups/organizations that are directly affected by the Project (positively or negatively), have influence or power over its success, and have an interest in its successful or unsuccessful conclusion. This was done through search in traditional media and industry reports and analysing online conversations occurring in the digital space to identify individuals, groups or organizations that that have interest in water and sewerage within the basin.

2. **Analyzing Stakeholders**

Once potential stakeholders were identified the consultant analysed them to establish their interest, involvement in the project, their points of intersection with our objectives, their level of activity in the project or their key points of contact. The consultant also did a network with others through phone and in-person meetings to gain more insight.

3. **Prioritize Stakeholders**

Having achieved a better understanding of the stakeholder ecosystem, the next step for the contractor was to prioritize the actors. The following was considered:

- Relevance
- Visibility
- Credibility
- Influence
- Reach

4. **Contacting Stakeholders**

Once the stakeholders had been identified, researched, and prioritized, the final step involved making contact with them and exploring their interest in potential future collaboration and to build opportunities that will demonstrate a win/win proposition for both organizations. Efforts were made to identify the contact person within the organization.

6.4.3 Stakeholder engagement program

The Stakeholder Engagement Program is a formal document which outlines the plan to communicate with stakeholders who have interest or potential interest in a project. It helps engage all the stakeholders in the project and, by doing so, help the project become sustainable and inclusive. It is important to keep in mind that SEP implementation is a dynamic process and some stakeholders and their interests might change over time or new stakeholders and information emerges, and hence the SEP will be updated accordingly.

6.4.4 Engagement Methods and Tools to be used

The Project intend to utilize various methods of engagement that will be used by as part of its continuous interaction with the stakeholders. For the engagement process to be effective and meaningful, a range of various techniques need to be applied that are specifically tailored to the identified stakeholders. Methods used for consulting with statutory officials may be different from a format of liaising with the local communities.

The suggested methods would be used to communicate and consult with the stakeholders:

- **Online Platform**: A dedicated webpage/platform will be created for the project to enable users to find all the information about the project. The goal of the platform is to provide core information about the project and to ensure accessible online feedback project stakeholders and to support several stakeholder engagement activities. The platform will be used to support face-to-face consultations through digital feedback surveys at regular intervals and will provide a dedicated portal for the identified sub-projects to inform the population and engage them in providing feedback and support monitoring through the implementation cycle. All stakeholder consultations events will be advertised through this platform.
- **Stakeholder consultations/virtual consultations**: Consultations will be organized during the project design stage and project implementation. Stakeholder consultations will be organized for water monitoring reports. Moreover, public consultations will be held on quarterly basis as part of the stakeholder engagement process during the project cycle.
- **Workshops:** The workshops with stakeholders will be carried out. The main topics of these workshops will include disseminating water quality monitoring results and project progress.

- **In-depth interviews with relevant experts:** Expert's views and recommendations on various project issues will be conducted as part of the social assessment. They will continue to be used as part of specific project activities.
- **Leaflets/ informative notes:** Leaflets with information that might present more interest for stakeholders will be developed and distributed in the meetings/ stakeholder consultations.
- **Letters:** introduction letters, invitation letter during stakeholder meetings will be an instrument used in order to facilitate the Project implementation process through good collaboration between the implementing entity and other stakeholders.
- **Reports:** periodic reports will be distributed to keep informed the main stakeholders of the Project.
- **E-mails:** To facilitate communication between implementing entity and the stakeholders.

The format of every consultation activity should meet general requirements on accessibility, i.e., should be held at venues that are easily reachable and inclusiveness, i.e., engaging all segments of the stakeholders. If necessary, logistical assistance should be provided to enable participants to attend public meetings scheduled by the project. All the meetings and consultations will be taken while ensuring an observation of MOH and World Bank guidance on hand washing.

6.5 AfDB Operational Safeguard 1 – Environmental and social assessment

The AfDB Environmental and Social Assessment safeguard policy, provides for stakeholders' participation during the consultation process so that affected communities and stakeholders have timely access to information in suitable forms about the Bank operations, and are consulted meaningfully about issues that may affect them. In line with this, the ESIA for the project is mandatory and it is regulated in line with the Banks policy OS 1.

6.6 Benefits of Public Consultation

6.6.1 Benefit to the Developer

- The developer is likely to benefit from local knowledge
- Costs may be saved as key issues are identified by the public and studies are focused on key issues as opposed to a broad range of issues;
- Measures to reduce adverse impacts and enhance benefits will be identified with stakeholders;
- Relations with the communities in the vicinity of the development are likely to be improved;
- Delays in decision making may be reduced because of good participation early in the process;
- The public are unlikely to raise objections to the project; and
- The developer's image and reputation is likely to be enhanced.

6.6.2 Benefit to Public

- Capacity is built through people playing an active role during the process. The skills learnt can be used in other community projects;
- Public rights are exercised and protected in participating; and
- Inputs are likely to influence the form and nature of the development and are likely to lead to better development that takes society's needs into account.

6.6.3 Benefit to Decision Makers

- Public participation is likely to improve decisions since there is access to a broader range of perspectives and opinion on the proposed rehabilitation/augmentation;
- The development is likely to be more sustainable as it takes people's needs and views into account; and
- The legitimacy of project commencement and implementation is likely to be improved.

6.7 Approach to Public Participation and Consultation

The Public consultation process involved visiting the project area and its environs. Project stakeholders were identified and consulted with the aim of informing them about the proposed project, collect their views on anticipated positive and/or negative impacts, get recommendations on how the adverse impacts can be mitigated or avoided, and gather local knowledge that would be useful to the proposed project.

6.8 Aims and Objectives of Stakeholders Consultation and Public Participation (CPP)

The aims and objectives of public involvement and consultation include:

- Informing stakeholders and members of public
- Gaining their views, concerns and values
- Taking account of public inputs in decision making
- Influencing project design
- Obtaining local knowledge
- Increasing public confidence
- Improving transparency and accountability in decision making
- Reducing conflict in the community

6.9 Stakeholder and Public Consultation

The main Key informants targeted in the consultations were both Government and private Institutions operating within the project area. Listening to stakeholder concerns and feedback is a valuable source of information that can improve project design and outcomes and help in identifying any impacts. Consultations and interviews are still in progress with various

stakeholders in the proposed project areas. The stakeholders were grouped into Primary and Secondary groups as shown in the Table 6-1 below

Table 6-2: Stakeholder Categories

Institution	Stakeholder
Mombasa County Government	• Representative of MOWASSCO • Lands and Physical Planning Department • Mombasa County Public Health Officer
National Government	• Deputy County Commissioner for Likoni. • Local Administration (Chiefs and Village Elders) • National Environment Management Authority (NEMA)
Institutions	• Education and Health Institution (Technical University of Mombasa) others as identified in Section 8.4
Other Interested Parties	• Project Affected Persons (PAPs) • Landlords and tenants • Business Community • Traders

The key stakeholders included the Chiefs, DCCs and ACCS, Public sensitization meetings were held within the project area. A Grievance Redress Mechanism has been formulated and is attached at Annex 4.

Therefore, to comply with the above discussed statues, consultations were done with relevant stakeholders within the Project area during preparation of the ESIA Report. **Table 7.4** below provides schedule of institutional consultations.

Table 6-3: Schedule of Institutional Consultations

Date	Officer consulted	Institution
31st October 2023	Mwalimu Cristom K	Environmental and Safeguards Officer- MOWASSCO
31st October 2023	Naima T. Yusuf	Ag General Manager Business Commercial - MOWASSCO
31st October 2023	Mark Mwambota	Ag General Manager Engineering
6th November 2023	Ronald U. Randu	Business Unit Manager- South Mainland (Likoni)
6th November 2023	Dismas M. Kirangu	Technical Officer – Likoni (MOWASSCO)
6th November 2023	Said J. Kandy	Chief – Likoni
8th November 2023	Felix Maiya	Assistant County Commissioner- Mtongwe

8th November 2023	Abdalla Rashid	Assistant Chief - Mtongwe

More consultations were done with the Public and other interested parties through Public Meetings. Mobilisation for such meetings was done through the area chiefs in the target area

Table 6-4: Summary of Public Meetings Held

No.	Date	Venue	Location	No. of Participants
7.	13.02.2024	South Mainland PAPs Sensitization meeting in Likoni	Likoni	Male 11 Female 22 TOTAL 33
8.	22nd March 2024	Shika Adabu Location Chiefs Camp	Shika Adabu	35
9.	25th March 2024	Tibwani Location Chiefs Camp	Tibwani	38

6.10 Summary of Comments and Responses from the Public Sensitization Meetings and KII Meetings

Error! Reference source not found. Tables below present comments/ concerns that were raised during the public meetings and the responses that were given.

Table 6-5: Comments/ concerns raised during public meetings and the responses given

Town	Summary of Issues Discussed	Response
Focused Groups Meeting with PAPs in Likoni	PAPs wanted to know size of water easement required, they preferred the width to be reduced to the minimum acceptable size so as to reduce likely potential social adverse impacts to private property	They were advised that the minimum required easement is 3m for the pipe and 2m for working space which makes a total of 5m.
	A section of the PAPs requested for facilitation to be considered by the Government as they were unable to remove the affected assets by themselves.	They were informed that adequate compensation will be provided prior to removal of the structures. The ARAP has proposed adequate mechanism of assisting and compensation for all loses identified by the PAPs

	The PAPS requested to know if they could be allowed to remove their structures and salvage construction material after compensation.	PAPs were advised that, self-removal of structures was appropriate because it allows the PAPs to salvage materials for construction of new structures within their parcels

6.11 Photo log

Below are the Photographs taken during the preceding of the meetings and land owners' engagements:

Figure 6-1: Public participation meetings and PAP engagement meetings

Source: Consultant

6.12 Interviews

A structured questionnaire was also administered to solicit views regarding the project as well as its design. The respondents included;

- Representative of MOWASSCO
- Lands and Physical Planning Department
- Mombasa County Public Health Officer
- Deputy County Commissioner for Likoni.
- Local Administration (Chiefs and Village Elders)

- National Environment Management Authority (NEMA)
- Education and Health Institution (Technical University of
- Mombasa) others as identified in Section 8.4
- Project Affected Persons (PAPs)
- Landlords and tenants
- Business Community
- Traders

The questionnaire initially gave introduction and created awareness to the respondents regarding the project. Afterwards, questionnaire enquired on acceptance of the project and rating of the current water supply and anticipated negative impacts and suggested mitigation measures as well as any suggestions and recommendations. The questionnaire had a total of 10No. of respondent's representation 100% response rate.

Below is a summary of the analysis.

a) Status of Water

Majority (56%) of the respondents indicated that the water status in the areas was fair, thirty three percent (33%) stated that the status of water in the areas was poor while the rest (11%) stated that the water status was good. The distribution is shown in the figure below.

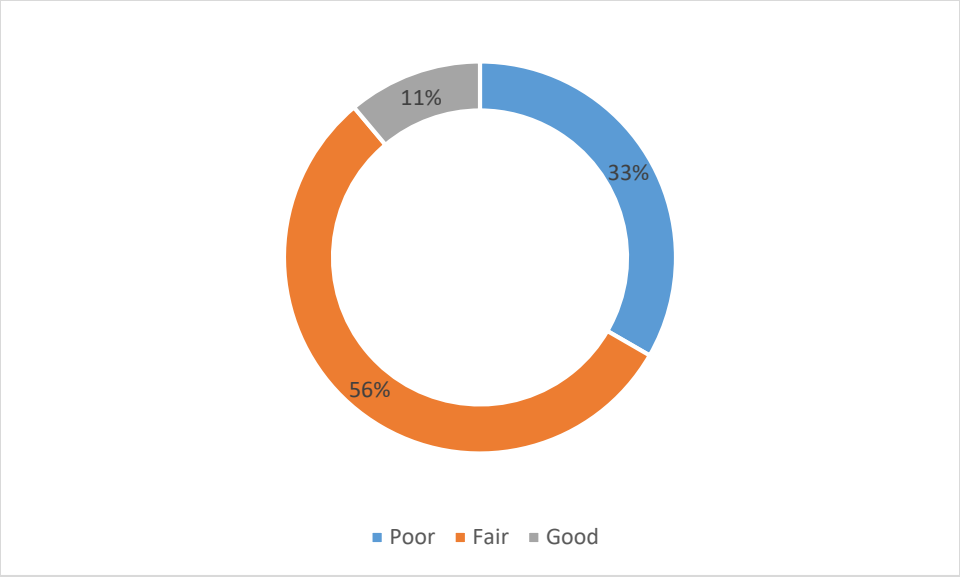


Figure 6-2: Status of Water

b) Status of Sanitation

Majority (95%) of the respondents showed that the sanitation status in the area was poor, five percent (5%) stated that the status of sanitation in the Proposed Project was fair while none of

the respondent stated that the water status was good. The distribution is shown in the figure below.

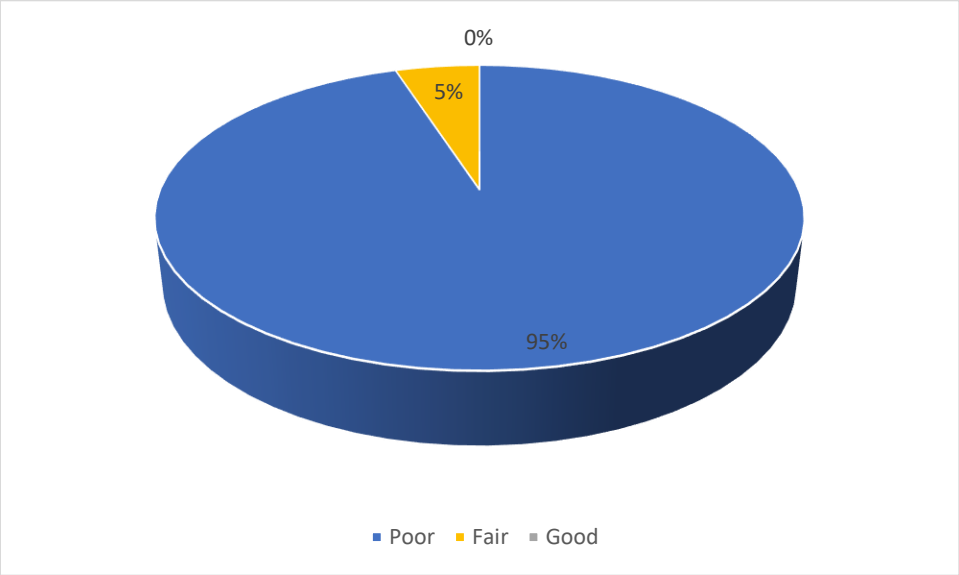


Figure 6-3: Status of Sanitation

c) Anticipated Positive impacts;

A significance portion of twenty six percent (26%) of the questionnaires highlighted that the Project would not only ensure clean and sufficient water but also create employment opportunities for the Project area residents. Approximately a quarter (20%) of the responses emphasized the anticipated enhancement of sanitation in the area due to the project. A minority (8%) of the respondents suggested that the Project could have a positive impact on the local economy, as money circulates from employment and food vending around the Project area. Similarly, a small fraction (8%) believed that the Project might contribute to reducing waterborne diseases like Diarrhoea. The distribution is shown in the figure below.

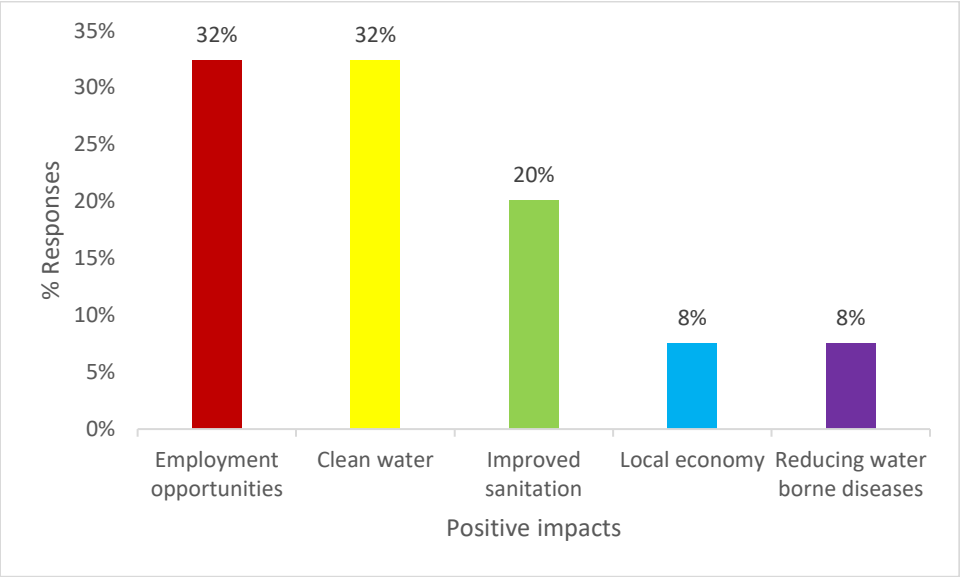


Figure 6-4: Positive Impacts

d) Anticipated Negative Impacts

Fifty percent (50%) of the respondent said that blockage of water pipes was the major challenge. Additionally, twelve percent (12%) respondents highlighted concerns about the failure to compensate for the impact on business that will be affected during Project Implementation, ten percent (10%) of the respondents expressed worries regarding the size of pipe used for the water pipes leading to blockages. Twenty-eight (28%) respondents did not identify any negative impacts. The distribution of these findings is illustrated in the figure provided below.

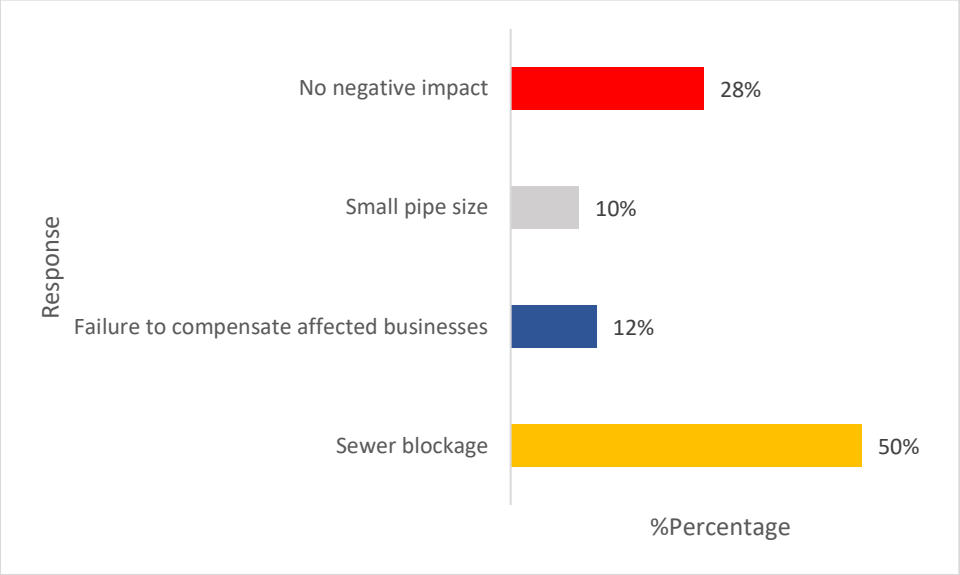


Figure 6-5: Negative Impacts

e) Mitigation measures for the negative impacts

For addressing the concerns raised by the respondents, the following mitigation measures can be considered:

1. **Compensation for affected land parcels:**
   - Develop a transparent and fair compensation mechanism in consultation with affected landowners and relevant authorities.
   - Establish clear communication channels to address concerns and grievances related to compensation promptly.
   - Conduct regular meetings with stakeholders to ensure that their concerns are heard and addressed adequately.
2. **Non-Identification of Negative Impacts:**
   - Continue engaging with the Key Informant Interviews who did not identify any negative impacts to ensure their perspectives are consistently taken into account.
   - Monitor the situation and gather ongoing feedback from these interviewees to proactively address any emerging concerns.

These mitigation measures aim to address the specific concerns identified during the residents who participated in the public participation meeting and create a more positive and effective environment for the implementation of the Project.

f) Project Support and Awareness

Every respondent acknowledged their awareness of the water and sanitation Project and expressed their commitment to supporting the Project throughout its implementation phase.

The implementation of the project received unanimous support from all the residents. The analysis is shown in the figure below;

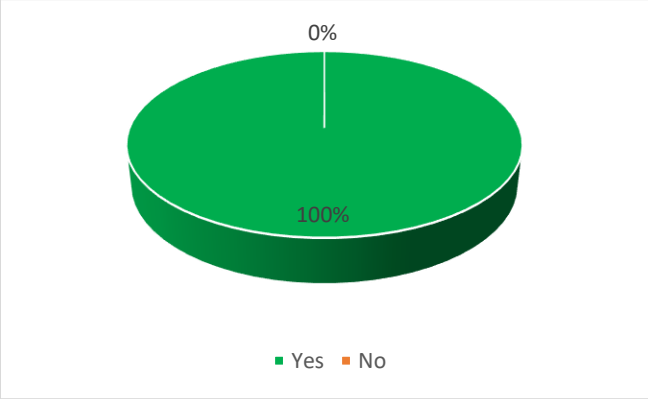


Figure 6-6: Project Support and awareness

Recommendations

All the respondents expressed a positive perspective on the Project, emphasizing its positive impact on the water and sanitation situation in the Project area.

CHAPTER 7 ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES

7.1 Introduction

This chapter identifies the potential environmental impacts as a result of the proposed project. Once the potential impacts of the proposed project were identified, the team went further to predict the nature of the impacts. Predictions are normally based on explicit assumptions about environmental processes, professional judgment and different value judgments expressed by various stakeholders during consultations. Determination of the significance of the potential impacts was based on the three broad categories of determining impact significance. Environmental impacts manifest at all stages of a project. This is because of the different project activities that inform particular actions which in turn act on environmental factors. The significance of these impacts is also varied. Impacts are categorized into;

- Impacts on biophysical environment;
- Health and safety impacts; and
- Social-economic impacts.

7.2 Definition and Classification of Environmental Impact

An environmental or social impact is any change to the existing condition of the environment caused by human activity or an external influence. Impacts may be:

- Positive (beneficial) or negative (adverse);
- Direct or indirect, long-term or short-term in duration, and widespread or local in the extent of their effect.

Impacts are termed cumulative when they add incrementally to existing impacts. In the case of the Project, potential environmental impacts would arise during the construction and operation phases of the Project and at both stages positive and negative impacts would occur.

7.3 Impact Significance

The purpose of this ESIA CPR is to identify the significant impacts related to the project under consideration and then to determine the appropriate means to avoid or mitigate those which are negative. Significant impacts are defined, not necessarily in order of importance, as being those which:

- Relate to protected areas or to historically and culturally important areas;
- Area of public concern and importance.
- Trigger subsequent secondary impacts.
- Elevate the risk to life threatening circumstances.
- Affect sensitive environmental factors and parameters.

7.4 Impact Scoring and Rating Criteria

Precautionary principle was used to establish the significance of impacts and their management and mitigation i.e., where there is uncertainty or insufficient information, the Environmentalist opted to err on the side of caution.

		Likelihood				
		1 Rare	2 Unlikely	3 Possible	4 Likely	5 Almost Certain
Consequences	5 Catastrophic	5 Moderate	10 High	15 Extreme	20 Extreme	25 Extreme
	4 Major	4 Moderate	8 High	12 High	16 Extreme	20 Extreme
	3 Moderate	3 Low	6 Moderate	9 High	12 High	15 Extreme
	2 Minor	2 Low	2 Moderate	6 Moderate	8 High	10 High
	1 Negligible	1 Low	2 Low	3 Low	4 Moderate	5 Moderate

Figure 7-1: Impact Scoring and Rating Criteria

7.5 Pre-construction phase positive impacts

Documentation and publicity

The project area will benefit significantly in terms of the intensive information gathering during the pre-project feasibility study and the pre-project EIA which will generate useful reports that will create important reference points for the area both for scientific research and planning activities.

Employment

Employment opportunities will be created in the construction of camp sites by the contractor

7.6 Pre-Construction Phase Negative impacts

Influx of workers from other areas

The project area might experience an influx of construction workers from other areas.

Mitigation Measures:

- Effective community engagement and strong grievance mechanisms on matters related to labor

7.7 Construction Phase Positive Impacts

The following are the positive impacts during construction phase of the proposed Project:

7.7.1 Employment opportunities

The implementation of the proposed Project will create job opportunities for both skilled and unskilled workers, leading to improved living standards through increased earnings. The workforce will comprise casual labourers, plumbers, and engineers who will be engaged on-site for a specific duration. Additionally, semi-skilled, unskilled labourers, and formal employees will also find gainful employment during the construction phase. The adoption of labour-intensive construction techniques will not only provide employment opportunities for the youth but also align with the government's initiatives aimed at job creation.

7.7.2 Creation of Wealth

The proposed development brings many opportunities in investment and procurement where the youth and people of Mombasa can compete to provide different goods and services to the proponent during construction of the distribution pipelines. This in turn creates opportunities for entrepreneurship and wealth creation for the residents. The construction phase will attract temporary business such as food vendors who will benefit from the trade by selling the food to the construction workers. This will improve their living standards from their earnings**.**

7.7.3 Creation of a market for construction materials

The project will require materials, some of which will be sourced locally and some internationally. These include plant steel and plastic pipes, valves, cement, sand, hardcore and chemicals. This will provide a ready market for suppliers in and outside the project area.

7.7.4 Increased local incomes

The local community may get extra income from the sale of construction materials from their firms and also renting spaces for camp sites.

7.7.5 Economic growth

Through the use of locally available materials during the construction phase for example pipes and others; the project will contribute towards growth of the country ‘s economy by contributing to the gross domestic product. The consumption of these materials, oil, fuel and others will attract taxes.

7.7.6 Injection of money into the local economy

A large sum of the Project money shall be released into the local economy due to the construction activities. It is envisaged that during construction a large number of downstream activities shall take place including but not limited to the following:

- Payments for skilled and unskilled labour;
- Purchases of construction materials; and
- Payments for local provisions including fuel, foods and accommodation.

7.8 Construction Phase Negative impacts

7.8.1 Noise & vibration

The site preparation and construction phases of the development may likely have the most negative impact to the ambient noise and vibration in the development area. A number of measures may be undertaken by the Contractors to reduce the impact of noise on the existing and potential residents as well as the workers involved in the project. This is temporary, however, and the aim at this point is to make the increase in noise minimal as possible until this phase is complete. The cumulative impact of the construction activities occurring simultaneously may increase the noise and vibration levels in the area significantly.

Mitigation Measures:

- Access roads should be cut that are exclusively used for the transportation of workers, goods and materials. These roads should be sited in such a way that the noise from this movement affects as few of the existing residents as possible.
- Where possible silenced machinery and instruments should be employed to reduce the impact of noise on the existing residents and workers.
- Machinery, vehicles and instruments that emit high levels of noise should be used on a phased basis to reduce the overall impact. These pieces of equipment such as drills, graders and cement mixers should also be used when the least number of residents can be expected to be affected, for example during periods where most residents are at work or school.
- Construction hours should be limited to the hours of 8:00 a.m. and 6:00 p.m. daily.
- The delivery of raw materials must be limited to 8:00 a.m. and 6:00 p.m. daily.
- Provision of appropriate personnel protective equipment to the workers.

7.8.2 Dust Emissions

Dust will be emitted during excavation and related earthworks. Air borne particulate matter pollution is likely to occur during the route clearance, excavation and during the transport of construction materials. This is likely to affect site workers and the residents, in extreme situations leading to respiratory problems.

Mitigation Measures:

- Wet all active construction areas as and when necessary to lay dust;
- Use of dust control methods, such as covers, water suppression, or increased moisture content for open materials storage piles, or controls, including air extraction and treatment through a bug house or cyclone for material handling sources, such as conveyors and bins.
- Ensure that all material (sand and aggregate) stockpiled on the site to be used in construction activities are regularly sprayed to reduce the effects of wind whipping
- Ensure that all trucks carrying aggregate and sand are covered during delivery to the site.
- Earth moving be done under dump conditions as much as possible to prevent emission of dust into the air.
- Strict measures are to be applied for the handling of construction materials in powder form such as cement, lime, concrete additives, etc. and for the disposal of the packaging
- Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present.
- Minimizing the number of motorized vehicles on use;

7.8.3 Vegetation Clearing, Soil Erosion and Sedimentation

Construction activities have the potential to clear vegetation and, loosen soils particularly on slopes which can then be washed down into the lower areas (streams and valleys) and soil quality degradation is also likely to occur during construction as a result of disposal of construction materials on the adjacent lands. It is worth noting that the potential significant impact on flora in the area will be short term and reversible. No rare, threatened, critically endangered or endemic plant or animal species were observed.

Mitigation Measures

- Only clear vegetation that is absolutely necessary for the construction activities;
- Retain all mature trees (> 25 cm diameter at breast height during this phase of the development if possible;
- Avoid the use of Invasive Alien Species in the landscaping activities
- Determine access roads which are to be used by machinery used in the construction and site clearance phase of the development to avoid the unnecessary trampling of vegetation that will be maintained within the development area.
- Cement mixing should be done in a designated area away at a safe distance from storm water drains;
- Spilled cement or concrete should be collected and disposed away from natural water ways or storm water drainage;
- Re-vegetation of exposed areas around the site should be carried out rapidly in order to mitigate against erosion of soil through surface water runoff and wind erosion.

7.8.4 Solid Waste Generation

Solid waste generated during construction include papers used for packing, plastics, cuttings and trimmings off materials among others. Dumping around the site will interfere with the aesthetic status on the surrounding environment. This impact is short term. However, the disposal mechanism of the waste can have long term consequences. It is expected that the contractor should ensure full compliance with the EMCA Waste Management Regulations of 2006 as well as the following measures: -

Mitigation measures

- All solid waste will be collected at a central location at each site and will be stored temporarily until removal to an appropriately permitted disposal site in the vicinity of the site.
- No dumping within the surrounding area is to be permitted. Where potentially hazardous substances are being disposed of, a chain of custody document should be kept with the environmental register as proof of final disposal.
- Waste generated at the site should be segregated and disposed of in NEMA designated dumping site
- Wherever possible reusing and recycling should be carried out.
- A site waste management plan should be prepared by the contractor prior to commencement of construction works. This should include designation of appropriate waste storage areas, collection and removal schedule and identification of approved disposal site;
- Proper solid waste receptacles and storage containers should be provided, particularly for the disposal of lunch and drink boxes so as to prevent littering of the site.

7.8.5 Occupational safety and health impacts

Labour camps including workers' living and eating areas; grounds where equipment will be stored and serviced; and where construction materials will be stockpiled is likely to bring a temporary influx of migrant workers. This may stimulate business in the project area and also propagate the spread of STI's including, HIV/AIDS. There could also be cases of unwanted pregnancies as the migrant workers interact and get into relationships with the local communities. Local services such as medical, water supplies sanitation and waste disposal can be over stretched by the sudden increase in population. Improper sanitation arrangements at the camps can cause contamination of groundwater and pose a major health hazard, and outbreaks of diseases such as diarrhoea, cholera and typhoid.

Mitigation measures

Minimizing spread of the Corona virus, HIV/AIDS and other STI's due to the presence of migrant workers is meant to reduce the increase of HIV among the host community and among the project workers. The following measures should be put in place

- Sensitize the migrant workers on risky sexual behaviour.
- Have VCT services on site and encourage workers to undergo the same.
- Provision of protective devices such as condoms.
- Provision of hand washing points/ sanitizers
- Encourage wearing of masks
- Keeping social distance as recommended by the ministry of health
- Provision shall be made for employee facilities including shelter, toilets and washing facilities.
- Toilet facilities supplied by the contractor for the workers shall occur at a minimum ratio of Toilet per 30 workers (preferred 1:15).
- The exact location of the toilets shall be approved by the Public Health Department prior to establishment.
- Sanitation facilities shall be located within 100m from any point of work, but not closer than 50 m to any water body.
- All temporary/portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause.
- The contractor shall ensure that the entrances to toilets are adequately screened from public view.
- These facilities shall be maintained in a hygienic state and serviced regularly.
- Toilet paper shall be provided
- The contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from site to an approved disposal site.
- Discharge of waste from toilets into the environment and burying of waste is strictly prohibited.
- Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted.

7.8.6 Site Related Oil Spills

During construction, oil spills may result from construction site equipment and storage, which may affect the flora, fauna, soils, and surface as well as underground water ways in the area after being swept by rain water into water courses and seeping into the soil.

If the machinery yard, workshops and labour camps are not properly protected, the roaming animals and birds could be poisoned if they drink contaminated water caused by accidental spillage of oil, petroleum products, solvents and similar category of materials.

Mitigation measures

- The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks e.g. using dispersants or adding biological agents to speed up the oil breakdown for the construction machinery though induction and safety training (the contractor will propose a method of clean-up which will be subject to approval);
- All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications and stored in an area approved by the Resident Engineer/Supervising Consultant;
- Ensure spill kits are provided at the construction sites
- Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains

7.8.7 Soil Related Impacts

Accidental oil spills, and petroleum products (amongst other liquid waste) particularly in areas of concentrated activities, may infiltrate into soils and cause soil pollution. This is only possible during the construction phase of the project and the impact is expected to be minor and highly localized, hence the impact is considered insignificant.

All construction activities have some minor impacts on the soil. It is expected that these impacts are also short-lived during construction and mitigation measures are recommended. The key impacts will revolve around soil erosion, contamination, disturbance of the natural soil structure and thus reducing the ecological function of the soil

Mitigation measures

- The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna should be excavated separately and piled in an adequate manner for re-use where applicable.
- Minimise compaction during stockpiling by working with the soil in a dry state. The stockpiling should be done in specific locations subject to the engineer's approval.
- Plan emergency response measures in case of accidental oil spills.
- In cases where it is identified that during construction there is a danger of increased run-off or at the project site, drainage channels with stone pitching or holding ponds can be employed
- After completion of the construction works, restoration of the ground by sowing adequate grass cover and planting of trees will be followed, therefore the impact is temporary and reversible.
- In areas prone to erosion, provision of soil stabilization in form of a retaining wall or planting of trees, subject to approval by the Resident Engineer

7.8.8 Impact on Existing Water Resources (Water Quality)

Oil spills, bitumen and grease generation by construction traffic as well as traffic during operation could lead to pollution by altering the chemical and biological characteristics of surface and ground water resources. This may occur when spilled compounds are swept by rain water from the construction sites, traffic routes and contractor's camp and into water courses.

There is potential for contamination of water resources as a result of improper disposal of liquid and solid waste from construction activities and construction camps. No sources of water, shallow wells or otherwise were identified near the ablution block sites. The impacts on water sources are therefore expected to be minimal.

Mitigation measure

- Areas dedicated for hazardous material storage shall provide spill containment and facilitate clean up through measures such as: maximum separation from sensitive features (water bodies); clear identification of the materials present; access restricted to authorized personnel and vehicles only and dedicated spill response equipment
- Provide solid and liquid waste disposal system - a waste collector, NEMA recommended waste disposal manual and a waste collection bin for each housing unit, workshop, plant, structural shelter.
- Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains
- Ensure that the machines are serviced in specific locations off-site to avoid spillage of oils and grease into the surface runoff channels.

7.8.9 Fire outbreak

Fire outbreak in the construction camp or in the machinery being used is always a risk. This is because there are flammable substances in use. Depending on the severity, fire can cause loss of life, disability, or property damage. Thus, precautions are necessary.

Mitigation measures

- Label all inflammable materials and store them appropriately
- Provision of adequate firefighting equipment capable of fighting all classes of fire
- Put — 'No Smoking' Signs in areas where inflammable are stored
- Train workers on the use of firefighting equipment

7.9 Social conflicts and community risks

7.9.1 Demolition of Structures and Loss of livelihood

There is a likelihood of displacement of trading activities at the proposed distribution route. As structures will be removed to allow for excavation, pipe laying and backfilling hence displacement

will occur and steps have to be taken to minimise the impacts of the demolition of the structures and to provide for the restoration of livelihoods.

Mitigation Measure

- Implement RAP before commencement of civil works at the affected sites
- Limit damage to property by observing construction area limits
- The contractor to communicate with the owners of the potential structures to be demolished that are within the project sites.
- Ensure that solid waste generated from the demolitions is properly disposed to suitable locations.
- Provide training, skills development, work experience, and employment opportunities, with first preference being extended to project-affected persons.
- Consult local and higher-level government officers in the implementation of the RAP and its monitoring.
- Coordinate closely with local and higher levels of government. Many aspects of livelihood restoration overlap with responsibilities of government, and interaction with government is key.
- Train affected persons in skills that relate to real opportunities outside of the employment provided on the construction sites. This is a transitional support measure not a sustainable livelihood activity. It is meant to equip affected person with skills beyond the temporary construction jobs provided by the project

7.9.2 Liability for loss of life, injury to private property

Some of the Construction activities may lead to accidents that may be mild or fatal depending on various factors. During the implementation of the proposed project, accidents could be due to negligence on part of the workers, machine failure or breakdown or accidental falls from elevated points of the structure. These incidents can be reduced through proper work safety procedures. In addition, during Construction, there may be damage to private property that may not be foreseen.

Mitigation Measure

- Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel responsible for safety inspections and controls.
- Provision of requisite PPE as established from risk assessment in the safety action plan and enforcing their usage.
- The workers should receive requisite training especially on the operation of the machinery and equipment.
- There should be adequate warning and directional signs.

- Ensuring that the prepared code of conduct for staff is followed to prevent accidents.
- Provide First Aid Kit within the construction sites and ensure that at any moment during the works, there is a trained first aider on site. The ration of trained first aiders to worker will be as per defined by the OSHA First Aid Rules.
- Recording of all injuries that occur on site in the incident register, corrective actions for their prevention are instigated as appropriate.
- Contractor to ensure compliance with the Workmen's Compensation Act, ordinance regulations and union agreements and maintain insurance cover throughout the construction period.
- The Contractor to promptly repair any damage done to private property.
- Limit damage to property by observing construction area limits by clear demarcation

7.9.3 Crime incidences

The facilities will be located in high populated area with idlers hence the construction sites are prone to have a few incidences of crime including, stealing of construction materials or individual property, drug abuse and alcoholism among others, within and without the construction site.

Mitigation measures:

- Fencing off the Contractor's camp with plant and materials.
- Working with local committees (e.g. "Nyumba Kumi") to provide security within the site in addition to the Contractor's own security.
- Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment.
- Taking all reasonable precautions to prevent unlawful, riotous or disorderly conduct by or amongst the contractor's personnel, and to preserve peace and protection of persons and property on and near the site.

7.9.4 Spread of HIV and AIDS

Big projects like the proposed sanitation project do attract migrant workers. These men and women away from their partners can get into sexual liaisons with the host community. Thus, being exposed to HIV/AIDS and other sexually transmitted infections.

Mitigation measures:

- Develop HIV/AIDS awareness programs or initiatives to target the construction workers, community, institutions and the general members of the community, particularly the youth; with the objective of reducing the risks of exposure and the spread of HIV/AIDS within the project area.
- Sensitize the migrant workers on risky sexual behaviour.

- Provide VCT services on site and encourage workers to undergo the same.
- Provision of protective devices such as condoms.
- Maximize hiring skilled and unskilled workers from the host community

7.9.5 Disturbance of traffic and difficulty of access

The main impact on road traffic will be during possible laying of water lines along, or across main roads. Longitudinal excavation will cause narrowing of the road for relatively long periods, while lateral crossing of roads may cause blocking of the road but for a relatively short period, probably few hours. Excavation in residential areas will cause access problems to pedestrians, and possibly to riders of bicycles and motorcycles. This access difficulty will have more impact on elderly people, handicapped and children, who may accidentally fall in open trenches or make tedious long cycles before they reach their targeted locations.

Mitigation measures

- Provide diversion routes where possible.
- Give a construction itinerary in advance so that the potentially affected population can use alternative routes and start early to get to their destinations on time.
- Erect warning signs of on-going works.
- Expedite construction works so as to reduce the times where roads are blocked.
- Traffic department should approve crossing plan prior to construction, and should approve obstruction times during construction.
- Access of residents should be facilitated by installing appropriate temporary bridges over trenches.
- Suitable warning signs should be placed at near locations and should be visible at night.
- A guard should be available 24 hours to help people access across excavated trenches.
- Alternatives access ways should be communicated to the community.

7.9.6 Interruption of existing installations on the specified construction sites

There are various installations which cross on the project sites, among them are underground utilities e.g. electricity, telephone links, data cables and water distribution lines.

These services are critical and have implications with spill over effects on the social and economic performance.

Mitigation Measures:

Formal request for permission should be sought and the relevant institutions such as Kenya Power, data network companies and WSPS;

- Ensure dissemination of relevant information to each of the affected parties;
- A work plan with clear responsibilities for each party should be developed to ensure smooth execution of the construction.

7.9.7 Labour influx

Large construction projects often require labour force and associated goods and services cannot be fully supplied locally for reasons such as worker unavailability and lack of technical skills and capacity. In such cases, the labour force (total or partial) needs to be brought in from outside the project area. This influx is compounded by an influx of other people who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The influx of workers can have adverse social and environmental impacts on local communities, particularly if the communities are rural, remote or small.

Adverse effects include;

- Increased demand and competition for local social and health services, as well as for goods and services, which can lead to price hikes and crowding out of local consumers.
- Increased volume of traffic and higher risk of accidents
- Higher demands on the ecosystem and natural resources
- Increased risk of spread of communicable diseases
- Increase in illicit behaviour and crime.
- Social conflicts within and between communities

Mitigation measures

- Reduce labour influx by tapping into the local workforce. Depending on the size and the skill level of the local workforce, a share of the workers required for the project may be recruited locally. This may be easier for unskilled workmen. Specialised workmen may be hired from elsewhere. Local workers may also be trained especially if they are required for the operation of the project.
- Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. Depending on the risk factor, appropriate mitigation measures may be deployed. These may range from engagement with a local community liaison to the use of the local elders.
- The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law as well as to the AfDB Code of Conduct guidelines where applicable.
- The contractor should prepare and implement a gender action plan, to include at minimum:
- Gender mainstreaming in employment at the worksite with opportunities provided for females to work, in consonance with local laws and customs
- Gender sensitization of workers (this could be done by the HIV/AIDS services provider; see above)
- Provision of gender disaggregated bathing, changing, sanitation facilities
- Grievance redress mechanisms including non-retaliation.

- Effective community engagement and strong grievance mechanisms on matters related to labour
- All workers to sign employment contract including Code of Conduct
- Sensitize workers on community based social behaviour and conduct.
- Efforts to be geared toward instilling attitudes of tolerance, support and understanding of labour immigrates by the local communities

7.9.8 Child labour and protection

The Children Act of Kenya prohibits contractors from "employing children in a manner that is economically exploitative, hazardous, and detrimental to the child's education, harmful to the child's health or physical, mental, spiritual, moral, or social development. It is also important to be vigilant towards potential sexual exploitation of children, especially young girls. The contractor should adopt a 'Child Protection Code of Conduct'; that all staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour

Mitigation measure

- Ensure no children are employed on site in accordance with national labour laws.
- Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.

7.9.9 Gender Equity, Sexual Harassment

Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behaviour, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community. In large scale cases, male labour may also lead to an increase in exploitative sexual relationships and human trafficking whereby women and girls are forced into sex work.

Mitigation measure

- The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law where applicable.
- Provide toilets and bathrooms for both male and female workers on site
- Strive for an equitable distribution of employment opportunities between men and women. Mainstream Gender Inclusivity in hiring of workers as required by Gender Policy 2011 and 2/3 gender rule;
- The contractor should prepare and implement a gender action plan, to include at minimum:

- ✓ Gender mainstreaming in employment at the worksite with opportunities provided for females to work, in consonance with local laws and customs
- ✓ Gender sensitization of workers (this could be done by the HIV/AIDS services provider; see above)
- ✓ Provision of gender disaggregated bathing, changing, sanitation facilities
- ✓ Grievance redress mechanisms including non-retaliation.

7.9.10 Increased GBV

The Mombasa and its environs experiences its own forms of GBV which is said to be compounded by the fact that most culprits go scoot free due to lack of evidence or fear from the victims as most residents are not aware of how to preserve evidence or are afraid of stigmatization respectively. It is in fact more severe that a majority of child sexual abuse cases go unreported because of fear of stigmatization and revenge in the region. This impact refers to gender-based violence that women and girls may experience as a result of project implementation. This includes, for example, an increase in intimate partner violence (IPV) especially when women receive income.

Mitigation measures

- Develop and implement provisions that ensure that gender-based violence at the community level is not triggered by the Project e.g. effective and on-going community engagement and consultation, particularly with women and girls;
- Ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation
- Sensitization of workers and the community.
- Training on GBV.
- Having workers sign a code of conduct.

7.9.11 Sexual Exploitation and Abuse (SEA)

This impact refers to sexual exploitation and abuse committed by Project staff against communities and represents a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.

Mitigation measures

- Develop and implement an SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the AfDB OS, 2013
- The SEA action plan will include how the project will ensure necessary steps are in place for:

✓ Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;

- ✓ Response to SEA: including survivor-centred coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;
- ✓ Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights;
- ✓ Management and Coordination: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

7.10 Operation phase positive impacts

7.10.1 Creation of employment

During operational phase, there will be employment opportunities especially for those who will be employed to manage and maintain the water lines. This will improve the living standards of these employees. WSPS will also employ more staff to assist in connecting its customers to water system.

7.10.2 Creation of Wealth

The proposed project will ultimately provide revenues to the beneficiaries and expand the wealth base for the nation as a whole. It will pump both liquefied and tied up wealth hence making the nation gain. It will also go a long way in uplifting Mombasa County and its neighbourhood as a whole. Once the people will be empowered in the project area, some will invest and develop the nearby towns.

7.10.3 Improved Well-being of Women and Children

At the household level, women and children bear the burden of fetching water. Other than the time spent in getting water from long distances, these practices has far reached consequences on their health and wellbeing. Time saved thus would be invested in other engagements that could bring financial benefits to the family. Children also bear the brunt of water borne diseases while women are tied down to provide nursing care to the sick family members. With proximity of water all these negative impacts will be reversed in the project area.

7.10.4 Improved Accessibility to Clean and Reliable Water Supply

The proposed project is intended to improve the water quality and quantity in the project areas. Water reliability will improve and thus helping the community.

7.10.5 Improved revenue for Water and Sanitation Companies

Improved revenue to Water and Sanitation Companies from increased customer base as the proposed project will increase the number of residents being served by the water companies. It will also make the supply reliable thus increasing the revenue base. Further, this will improve sustainability of the company.

7.10.6 Reduced exposure to health risks and improved nutrition

Improved water and sanitation services will lead to reduced cases of water borne diseases associated with pollution of water resources and drinking water, this will also cause improved water, Health and Sanitation status.

7.11 Operation Phase Negative Impacts

7.11.1 Risk of illegal connection and Vandalism of the Pipeline

Illegal connections and vandalism of Water Pipelines is a common practice especially in the Mombasa; this ultimately results in loss of revenue to WSPS.

Mitigation measures

- This will require constant inspection by the WSPS officials and installation of leak and burst detectors at designated areas along the pipeline.
- Conduct public sensitization programs on importance not interfering with the water pipeline and the need to seek official water connection from WSPS.

7.11.2 Increased domestic wastewater generation

The proposed project will result in increased wastewater generation through the introduction of more water in the system. This may lead pollution of the environment.

Mitigation measures

- All WSPs to encourage people to connect to the existing and proposed new sewer lines.

7.11.3 Risk of water pipeline bursts leading to water wastage

Pipeline bursts may occur as a result of interference with the pipelines during future construction activities e.g. road construction works in the project areas or due to lack of maintenance of the pipelines. Loss of water through such bursts will to revenue loss for WSPS

Mitigation measures

- The risk of pipeline bursts is low as the pipeline design, including the selection of pipe material and pipe pressure classes, has been carried out so as to minimize this risk.
- This risk will be further minimized through regular inspection, repair and maintenance of the pipeline by the Operator: GATAWASCO, MUSWASCO.MUWASCO & MWEWASCO
- Regular check, repair and maintenance of the water pipeline
- Activate a community watch group for information sharing on the status of the water line
- Implement a leak detection and repair program (including records of past leaks and unaccounted- for water to identify potential problem areas)

7.11.4 Risk of Encroachment and Construction of Structures on the Pipeline Way Leave

Encroachment and construction of structures on water pipelines is common in many areas across the county, however, this impact is less significant due to the fact most of the pipework will involve replacement of the already existing pipe on the way leaves

Mitigation measures

- Arrest and prosecution of encroachers as required by Mombasa County Bylaws on Way Leaves and Road Reserves
- WSPs to undertake awareness campaigns aimed at preventing encroachment

7.11.5 Visual and landscape impact management

Once the temporary working areas have been reinstated, much of the landscape will return to its former condition. The only persistent visual impacts will take the form of manholes and inspection chambers. This will have minor visual impacts during its operational life.

Mitigation measures

- Elaborate landscaping and maintenance of these sites can limit the viewpoints to the facilities and thus reduce their visual impact.

7.11.6 Operation Health and Safety Hazard

Potential of exposure to safety events during operation activities such as slipping and tripping, exposure to cleaning chemicals, electrical fire hazards etc. Unhygienic practices in the ablution blocks can lead to potential health hazards and outbreak of diseases such as cholera due to cross contamination among the cleaners and maintenance staff as well as members of the general public using the facility

Mitigation measures

- Formulate and enforce stand operation and maintenance procedures (SOPs) including for cleaning and provide requisite PPE to the cleaners and operations and maintenance staff
- Display hygiene posters to create awareness on good hygiene practices

- Ensure all works and storage areas are tidy, all material deliveries shall be planned to minimize accumulated materials.
- Fire extinguishers should be located at identified fire points around the site. The extinguishers shall be appropriate to the nature of the potential fire.
- First aid kit with adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. shall be made available.
- Undertake workers training and awareness on the occupation safety and health risks and the SOPs

7.11.7 Increase in Social Vices

There is high likelihood of vandalism of the manhole covers and chamber equipment during the operational stage if proper security measures are not put in place.

Mitigation measures

- Proper security measures should be put in place to guard the equipment 24 hours to reduce cases of vandalism.

7.12 Decommissioning Phase Positive Impacts

7.12.1 Employment opportunities

Temporary employment opportunities will be created for the demolition of laid and constructed structures during the decommissioning works.

7.12.2 Environmental rehabilitation

Rehabilitation of site to ensure the site is left as natural as possible close or better than before

7.13 Decommissioning Phase Negative Impacts

7.13.1 Loss of jobs and income

The people that will be employed to operate and maintain the water supply system will lose their jobs immediately after the closure of the project. The loss of jobs will have far reaching impacts as it will lead to loss of income and social stress.

Mitigation measures

- Notify the employees in advance on the project closure date and adequately compensate them;
- Dismissal procedures to be compliant with Employment Act, 2007;
- Provide counselling and alternative skills for alternative activities;
- Employer should find alternative means of livelihood for the staff who were employed to operate and maintain water pipelines and facilities.

7.13.2 Noise Pollution

Activities likely to produce noise during decommissioning include demolition of structures and excavation of pipeline works and structures at the intake areas as well as any staff offices and quarters built on site.

Mitigation measures:

- Schedule noisy activities during the day time period;
- Use silencers on machines where possible;
- Ensure machinery is well maintained to reduce noise emitted.

7.13.3 Solid Waste Material

It is expected that large amounts of solid waste material arising during decommissioning will include: glass panels, stones, pipes, wood, metal, paper, plastic, equipment, vegetation, etc. The proper disposal of these materials is critical. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment.

Mitigation measures:

- Disposal of solid waste in compliance with EMCA 2006 Waste Management Regulations;
- Segregation of waste to encourage reuse and recycling;
- Ensuring that the contracted waste collector is registered with NEMA to collect and dispose wastes.

7.13.4 Occupational health and safety

If not handled with care the demolition may lead to exposure of hazardous chemicals to workers and surrounding communities which poses as health risks to them. Machinery and equipment used for the same also possess as danger to the workers if not handled well and with the correct PPE.

Mitigation measures:

- Provide the correct PPE for the workers when conducting the demolition activities;
- Conduct training on health and safety procedures to the workers prior to commencement of demolition;
- Proper plans should be made prior to demolition so as to contain the raw sewage and other waste water that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.

CHAPTER 8 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

8.1 Introduction

The aim of the environmental and social management and monitoring plan (ESMMP) is to detail the actions required to effectively implement the mitigation measures identified and recommended in the ESIA. These actions are required to minimize negative impacts and enhance positive impacts associated with the proposed water projects in Mombasa. The ESMP actions present the commitments made by the proponent, for addressing the impacts of the project. It is important to note that an ESMMP is a living document since it is to be updated and amended as new information (e.g., environmental data), policies, authority guidelines and technologies develop. The ESMP identifies management actions that need to be implemented in various phases of the proposed water for Mombasa as follows:

8.2 Planning and design phase

Refers to the stage when the feasibility studies are being undertaken, the project description is being developed and proposed water for Mombasa is being designed. During this phase, the ESIA is completed and license is applied for.

8.3 Construction phase

This will commence after the proposed water supply project in Mombasa County license has been issued and CWWDA has taken the decision to implement the project. The construction phase involves the development and construction of the project infrastructure.

8.4 Operations

This is the phase during which the proposed water and sanitation works will be operated. CWWDA will hand over the project to WSPs for operation

8.5 Decommissioning Phase

The decommissioning phase of a project includes restoring the environment to its original form once all the operational activities of the project have ceased. The project has been designed to operate effectively for over 20 years. The necessary activities, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project are outlined in the table below.

Table 8-1: Steps to follow in case of an overhaul for project structures

	Action	Actor
Step 1	**Initiation** Development of an Objective Worksheet and checklist incorporating references, legal, stakeholder engagement and policies Undertake decommissioning audit	**Proponent**
Step 2	**Prepare Road Map for Decommissioning Design** Conduct design review to validate elements of the design and ensure design features are incorporated in the decommissioning design. Public consultations	**Proponent**
Step 3	**Prepare and Award Contract** Prepare a contract that incorporates validated project information and award to a contractor as per the Procurement rules.	**Proponent**
Step 4	**Execute Decommission Works** Implement design elements and criteria on the Project in accordance with specifications and drawings. Inspect during decommissioning and at Project completion to ensure that all design elements are implemented according to design specifications.	**Contractor**
Step 5	**Non-Conformance, Corrective/Preventive Action** Determine root cause Propose corrective measures Propose future preventive measures	**Proponent**

8.6 Auditing of ESSMP

The contractor shall conduct regular audits to the ESMMP to ensure that the system for implementation of the ESMMP is operating effectively. The audit shall check that a procedure is in place to ensure that:

- The ESMMP being used is the up-to-date version;
- Variations to the ESMMP and non-compliance and corrective action are documented;
- Appropriate environmental training of personnel is undertaken;
- Emergency procedures are in place and effectively communicated to personnel;

- A register of major incidents (spills, injuries, complaints) is in place and other documentation related to the ESMMP; and
- Ensure that appropriate corrective and preventive action is taken by the Contractor once instructions have been issued.

8.7 Management Responsibility of ESMMP

In order to ensure the sound development and effective implementation of the ESMMP, it will be necessary to identify and define the responsibilities and authority of the various persons and Organizations which will be involved in the project. The following entities should be involved in the implementation of this ESMMP as presented in the table below:

Table 8-2: Institutional Framework for ESMP

Nos	Name of Institution	Role of Institution
1.	Coast Water Works Development Agency	Central agency responsible for holding all information on the ESIA and RAP. Mobilization of financial resources from Government/ County Governments for resettlement and compensation purposes of the approved ESIA and RAP.
2.	County Government of Mombasa	Responsible for providing land for the project as per the integrated spatial plans and necessary permits and advisory services to the project implementers
3.	MOWASSCO	Responsible for contracting the works, and supervising and managing the contractor, under the project Responsible for day-to-day coordination and implementation of the project. Oversee the contractor's work Assist in the establishment of the SCRCC and LRCCs. Establish the SCRCC and LRCCs operations. Make funding request from MOWS for RAP implementation and compensation through NLC. Ensure the grievance committees are established and working. Monitor the ESMP implementation.
4.	Resettlement and Compensation Committee	Ensure effective flow of information between the Contractor and public

Nos	Name of Institution	Role of Institution
		Coordinate, validate inventories of PAPs and affected assets; monitor the disbursement of compensation funds; guide and monitor the implementation of relocation Coordinate activities between the various organizations involved in relocation; facilitate grievance and conflict resolution; and provide support and assistance to vulnerable groups. Conducting extensive public awareness and consultations with the affected people so that they can air their concerns, interests and grievances. Resolve disputes that may arise relating to resettlement process. If it is unable to resolve any such problems, will channel them through the appropriate formal grievance procedures laid out in this ESIA.
5.	NEMA	Provide approval of the ESIA report Review and provide a NEMA license for the ESMP. Be part of the SCRCC and participate in the resolution of grievances. Escalate unsolvable grievances to the tribunal.
6.	Contractor	Implementing the project To ensure strict compliance environmental specifications of this ESMP
7.	Supervision Consultant	Ensure that the proposed ESMP is up to date and is being used by the contractor. Periodic audits of the ESMP will have to be done to ensure that its performance is as expected.
8.	KERRA & KURA	Provide approval to allow laying pipes along the road reserve

8.8 Emergency procedure during construction and operation phases of the project

An emergency situation means unforeseen happening resulting in serious or fatal injury to employed persons or the neighbouring communities. In the event of an emergency during construction, the workers shall:

1. Alert other persons exposed to danger;
2. Inform the OSHA coordinator;
3. Do a quick assessment on the nature of emergency;
4. Call for ambulance.

When emergency is over the OSHA coordinator shall notify the workers by putting a message: "ALL CLEAR".

In the event of such an emergency during operation, the workers shall:

a) Alert other persons exposed to danger;
b) Ring the nearest police station and ambulance services.

The proponent has already put measures to respond to emergencies in their premises like alarms and a fire assembly point. The proponent also has trained first aiders and fire marshals who can assist in case of emergencies.

8.9 Environmental Social Management and Monitoring Plan

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts for the proposed water for Mombasa is provided below for the;

a) Preconstruction stage,
b) construction
c) operational stage, and
d) decommissioning stage respectively

Table 8-3: Construction Environmental and Social Management and Monitoring Plan

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
22.	Excessive Vibration and Noise Pollution	• Access roads should be cut that are exclusively used for the transportation of workers, goods and materials. These roads should be sited in such a way that the noise from this movement affects as few of the existing residents as possible. • Where possible silenced machinery and instruments should be employed to reduce the impact of noise on the existing residents and workers.	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	• Reported complaints from neighbour community and institutions	500,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Machinery, vehicles and instruments that emit high levels of noise should be used on a phased basis to reduce the overall impact. These pieces of equipment such as drills, graders and cement mixers should also be used when the least number of residents can be expected to be affected, for example during periods where most residents are at work or school. • Construction hours should be limited to the hours of 8:00 a.m. and 6:00 p.m. daily.				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• The delivery of raw materials must be limited to 8:00 a.m. and 6:00 p.m. daily. • Provision of appropriate personnel protective equipment to the workers.				
23.	General rules of Hygiene health and safety (HHS)	• Training and Education: Conduct comprehensive training sessions for all workers on HHS regulations, procedures, and best practices before starting work on the construction site. • Personal Protective Equipment (PPE): Provide appropriate PPE such as hard hats, safety glasses,	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	Reported complaints from the workers and the Community	500,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		gloves, and steel-toed boots to all workers. Ensure that PPE is worn correctly and consistently throughout the workday. • Hygiene Facilities: Establish adequate hygiene facilities, including clean and accessible toilets, handwashing stations with soap and water, and facilities for storing and disposing of personal hygiene items. • Regular Site Inspections: Conduct regular inspections of the construction site to identify				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		potential hazards, ensure compliance with HHS regulations, and address any safety concerns promptly. • Emergency Preparedness: Develop and communicate emergency response procedures for incidents such as accidents, injuries, fires, and hazardous material spills. Ensure that all workers are familiar with these procedures and know how to respond effectively in emergencies.				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Safe Handling of Materials: Provide training on the safe handling, storage, and disposal of construction materials, including hazardous substances. Implement measures to prevent exposure to harmful chemicals and minimize the risk of accidents during material handling. • Fall Protection: Implement fall protection measures, such as guardrails, safety nets, and personal fall arrest systems, to prevent falls from				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		elevated work areas such as scaffolds, ladders, and roofs. • Site Security: Control access to the construction site to prevent unauthorized entry and ensure the safety of workers and visitors. Install barriers, signage, and lighting as needed to enhance site security and visibility. • Health Monitoring: Implement a health monitoring program to monitor the health status of workers and detect any occupational health issues early.				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		Provide access to medical services and counselling as needed to support the well-being of workers. • Regular Maintenance: Conduct regular maintenance of equipment, machinery, and infrastructure to ensure their safe and efficient operation. Promptly repair or replace any faulty equipment to minimize the risk of accidents and injuries. •				
24.	Dust Emission	• Wet all active construction areas as	All work areas	Consultant/Client	• Cases of respiratory	200,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		and when necessary to lay dust; • Use of dust control methods, such as covers, water suppression, or increased moisture content for open materials storage piles, or controls, including air extraction and treatment through a bug house or cyclone for material handling sources, such as conveyors and bins. • Ensure that all material (sand and aggregate) stockpiled on the site to be used in construction activities are	<u>Responsibility</u> Contractor(s)		complication at nearby health centre	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		regularly sprayed to reduce the effects of wind whipping • Ensure that all trucks carrying aggregate and sand are covered during delivery to the site. • Earth moving be done under dump conditions as much as possible to prevent emission of dust into the air. • Strict measures are to be applied for the handling of construction materials in powder form such as cement, lime, concrete additives, etc. and for the				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		disposal of the packaging • Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. • Minimizing the number of motorized vehicles on use.				
25.	Vegetation Clearing	• Only clear vegetation that is absolutely necessary for the construction activities; • Retain all mature trees (> 25 cm diameter at breast height during this phase of the	All work areas <u>Responsibility</u> Contractor(s)	Consultant/Client	• Number of treees cut • Demarcated project area during the training's sessions • No of Claims done on	KShs. 50,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		development if possible; • Avoid the use of Invasive Alien Species in the landscaping activities • Determine access roads which are to be used by machinery used in the construction and site clearance phase of the development to avoid the unnecessary trampling of vegetation that will be maintained within the development area. • Cement mixing should be done in a designated area			reinstatement	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		away at a safe distance from storm water drains; • Spilled cement or concrete should be collected and disposed away from natural water ways or storm water drainage; • Re-vegetation of exposed areas around the site should be carried out rapidly in order to mitigate against erosion of soil through surface water runoff and wind erosion.				
26.	Risks of solid waste mismanagemen	• All solid waste will be collected at a central location at each site and will be stored	All work areas	Consultant/Client	• Number of complaints from community	400,000 Kshs

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
	t leading to pollution	temporarily until removal to an appropriately permitted disposal site in the vicinity of the site. • No dumping within the surrounding area is to be permitted. Where potentially hazardous substances are being disposed of, a chain of custody document should be kept with the environmental register as proof of final disposal. • Waste generated at the site should be segregated and disposed of in NEMA designated dumping site	Responsibility Contractor(s) Supervision		not happy with waste management of spoil material	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Wherever possible reusing and recycling should be carried out. • A site waste management plan should be prepared by the contractor prior to commencement of construction works. This should include designation of appropriate waste storage areas, collection and removal schedule and identification of approved disposal site; • Proper solid waste receptacles and storage containers should be provided,				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		particularly for the disposal of lunch and drink boxes so as to prevent littering of the site.				
27.	Occupation safety and health impact	• Sensitize the migrant workers on risky sexual behaviour. • Have VCT services on site and encourage workers to undergo the same. • Provision of protective devices such as condoms. • Provision of hand washing points/ sanitizers • Encourage wearing of masks • Keeping social distance as recommended by the ministry of	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Accidents occurrence incidences	Kshs.500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		health of safety gear and enforcement of application				
28.	Site Related Oil Spills	• The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks; • All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications and stored in an area approved by the Resident Engineer/Supervising Consultant;	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Availability of spill lit • Availability of impermeable containers for storage of fuels, oils, lubricants and chemicals are stored	Ksh 100,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Ensure spill kits are provided at the construction sites • Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains				
29.	Impact on existing water Resources	• Areas dedicated for hazardous material storage shall provide spill containment and facilitate clean up through measures such as: maximum separation from sensitive features (water bodies); clear identification of the materials present; access restricted to	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• No of complaints received • Availably of solid and liquid waste disposal system • Designated areas for vehicular servicing	Kshs 1,000,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		authorized personnel and vehicles only and dedicated spill response equipment • Provide solid and liquid waste disposal system - a waste collector, NEMA recommended waste disposal manual and a waste collection bin for each housing unit, workshop, plant, structural shelter. • Ensure fuels, oils, lubricants and chemicals are stored are stored in impermeable containers and away from surface drains				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Ensure that the machines are serviced in specific locations off-site to avoid spillage of oils and grease into the surface runoff channels.				
30.	Fire outbreak	• Label all inflammable materials and store them appropriately • Provision of adequate firefighting equipment capable of fighting all classes of fire • Put — 'No Smoking' Signs in areas where inflammables are stored • Train workers on the use of firefighting equipment	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Incidence of reported cases of fuel leaks and fire incidences	Kshs 500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
31.	Soil related Impacts	• The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna should be excavated separately and piled in an adequate manner for re-use where applicable. • Minimise compaction during stockpiling by working with the soil in a dry state. The stockpiling should be done in specific locations subject to the engineer's approval. • Plan emergency response measures in case of accidental oil spills.	All work areas <u>Responsibility</u> Contractor(s) Supervision Engineer	Consultant/Client	• Restoration of site after construction • Availability of drainage channels	Ksh 500,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• In cases where it is identified that during construction there is a danger of increased run-off or at the project site, drainage channels with stone pitching or holding ponds can be employed • After completion of the construction works, restoration of the ground by sowing adequate grass cover and planting of trees will be followed, therefore the impact is temporary and reversible. • In areas prone to erosion, provision of soil stabilization in				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		form of a retaining wall or planting of trees, subject to approval by the Resident Engineer				
32.	Fire outbreak	• Label all inflammable materials and store them appropriately • Provision of adequate fire fighting equipment capable of fighting all classes of fire • Put — 'No Smoking' Signs in areas where inflammables are stored • Train workers on the use of fire fighting equipment	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Incidence of reported cases of fuel leaks and fire incidences	No direct cost associated
33.	Demolition of Structures and Loss of livelihood	• Implement RAP before commencement of	All work areas	Consultant/Client	• No of compensated PAPs	As per the RAP

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		civil works at the affected sites • Limit damage to property by observing construction area limits • The contractor to communicate with the owners of the potential structures to be demolished that are within the project sites. • Ensure that solid waste generated from the demolitions is properly disposed to suitable locations. • Provide training, skills development, work experience, and employment opportunities, with	<u>Responsibility</u> Contractor(s) Supervision team		• No of grievances recorded and resolved	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		first preference being extended to project-affected persons. • Consult local and higher-level government officers in the implementation of the RAP and its monitoring. • Coordinate closely with local and higher levels of government. Many aspects of livelihood restoration overlap with responsibilities of government, and interaction with government is key. • Train affected persons in skills that relate to real				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		opportunities outside of the employment provided on the construction sites. This is a transitional support measure not a sustainable livelihood activity. It is meant to equip affected person with skills beyond the temporary construction jobs provided by the project				
34.	Liability for loss of life, injury to private property	• Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Available operator/driver licences • Appropriate signage's erected on site	Kshs 2,000,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		responsible for safety inspections and controls. • Provision of requisite PPE as established from risk assessment in the safety action plan and enforcing their usage. • The workers should receive requisite training especially on the operation of the machinery and equipment. • There should be adequate warning and directional signs. • Ensuring that the prepared code of conduct for staff is followed to prevent accidents.				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Provide First Aid Kit within the construction sites and ensure that at any moment during the works, there is a trained first aider on site. The ration of trained first aiders to worker will be as per defined by the OSHA First Aid Rules. • Recording of all injuries that occur on site in the incident register, corrective actions for their prevention are instigated as appropriate. • Contractor to ensure compliance with the Workmen's Compensation Act,				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		ordinance regulations and union agreements and maintain insurance cover throughout the construction period. • The Contractor to promptly repair any damage done to private property. • Limit damage to property by observing construction area limits by clear demarcation				
35.	Crime incidences	• Fencing off the Contractor's camp with plant and materials. • Working with local committees (e.g. "Nyumba Kumi") to	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Fencing of the campsite and barricading active sites	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		provide security within the site in addition to the Contractor's own security. • Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment. • Taking all reasonable precautions to prevent unlawful,			• No of crime cases reported	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		riotous or disorderly conduct by or amongst the contractor's personnel, and to preserve peace and protection of persons and property on and near the site				
36.	Spread of HIV and AIDS	• Develop HIV/AIDS awareness programs or initiatives to target the construction workers, community, institutions and the general members of the community, particularly the youth; with the objective of reducing the risks of exposure	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• HIV AIDs Programme • Condom dispense • No of sensitization meeting held, attendance sheet	Ksh 250,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		and the spread of HIV/AIDS within the project area. • Sensitize the migrant workers on risky sexual behaviour. • Provide VCT services on site and encourage workers to undergo the same. • Provision of protective devices such as condoms. • Maximize hiring skilled and unskilled workers from the host community				
	Traffic and access	• Provide diversion routes where possible. • Give a construction itinerary in advance so that the	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of adequate signages • Availability of a traffic	Ksh 300,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		potentially affected population can use alternative routes and start early to get to their destinations on time. • Erect warning signs of on-going works. • Expedite construction works so as to reduce the times where roads are blocked. • Traffic department should approve crossing plan prior to construction, and should approve obstruction times during construction. • Access of residents should be facilitated by installing appropriate			management plan on site • Availability of temporary bridges • Trained traffic marshals	

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		temporary bridges over trenches. • Suitable warning signs should be placed at near locations and should be visible at night. • A guard should be available 24 hours to help people access across trenches. • Alternatives access ways should be communicated to the community.				
37.	Interruption of existing amenities	• Ensure dissemination of relevant information to each of the affected parties; • A work plan with clear responsibilities for each party should be developed to	All work areas <u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of a work plan showing scheduled days for affected utilities	Kshs 100,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		ensure smooth execution of the construction			• Letter informing utility owners on the anticipated interruptions	
38.	Labour Influx	• Reduce labour influx by tapping into the local workforce. Depending on the size and the skill level of the local workforce, a share of the workers required for the project may be recruited locally. This may be easier for unskilled workmen. Specialised workmen may be hired from elsewhere. Local	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of labour management plan • Availability of Contracts	Kshs 50,000

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		workers may also be trained especially if they are required for the operation of the project. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. Depending on the risk factor, appropriate mitigation measures may be deployed. These may range from engagement with a local community liaison to the use of the local elders. • The works contractor should be required, under its				

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law as well as to the AfDB OS, 2013 guidelines where applicable. • The contractor should prepare and implement a gender action plan				
39.	Child labour and Protection	• Ensure no children are employed on site in accordance with national labour laws. • Ensure that any child sexual relations offenses among contractors' workers are promptly	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of identification cards for all workers on site • Complains received by residents in	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		reported to the police.			regard to child labour	
40.	Gender Equity & Sexual Harassment	• The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law where applicable. • Strive for an equitable distribution of employment opportunities between men and women. Mainstream Gender Inclusivity in hiring of workers as required by Gender	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• No of complaints received • Availability of gender action plan	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		Policy 2011 and 2/3 gender rule; • The contractor should prepare and implement a gender action plan • Provide toilets and bathrooms for both male and female workers on site				
41.	Increased GBV	• Develop and implement provisions that ensure that gender-based violence at the community level is not triggered by the Project e.g. effective and on-going community engagement and consultation, particularly with women and girls;	<u>Responsibility</u> Contractor(s) Supervision team	Consultant/Client	• Availability of trained materials, photographs and attendance sheet • Signed CoC	200,00O

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		• Ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation • Sensitization of workers and the community. • Training on GBV. • Having workers sign a code of conduct.				
42.	Sexual Exploitation and Abuse (SEA)	• Develop and implement an SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the AfDB OS, 2013	<u>Responsibility</u> Contractor(s) Supervision team	•	• Availability of a SEA action plan • No of complaints received in regard to SEA	No additional cost

S/No.	Associated Impacts	Management Actions	Implementation/ responsibility	Monitoring/oversight	Monitoring Indicator	Budget
		for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).				

Table 8-4:Operational Environment and Social Management Plan

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
Risk of illegal connection and vandalism of pipeline	This will require constant inspection by the WSPS officials and installation of leak and burst detectors at designated areas along the pipeline. Conduct public sensitization programs on importance not interfering with the water pipeline and the need to seek official water connection from WSPS.	WSPs	Number of illegal connection and vandalism cases reported	To be established at operation phase
Increased domestic waste water generation	WSPS to encourage people to use the ablution block or use exhauster to empty septic's and filled pit latrines	WSPs	No of complaints unsatisfied with mode of waste disposal	

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
Risk of water pipeline bursts leading to water wastage	The risk of pipeline bursts is low as the pipeline design, including the selection of pipe material and pipe pressure classes, has been carried out so as to minimize this risk. This risk will be further minimized through regular inspection, repair and maintenance of the pipeline by the Operator, WSPS. Regular check, repair and maintenance of the water pipeline Activate a community watch group for information sharing on the status of the water line Implement a leak detection and repair program (including records of past leaks and unaccounted- for water to identify potential problem areas)	WSPS	Number of reported cases water bursts	
Risk of encroachment and construction of structures on the pipeline way leave	Arrest and prosecution of encroachers as required by Mombasa County Bylaws on Way Leaves and Road Reserves WSPs to undertake awareness campaigns aimed at preventing encroachment		No of awareness campaigns No of encroachers reported/ prosecuted	
Operation Health and safety Hazard	Formulate and enforce stand operation and maintenance procedures (SOPs) including for cleaning and provide requisite PPE to the	WSPs	Record of repairs done Presence of community watch groups	

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
	cleaners and operations and maintenance staff Display hygiene posters to create awareness on good hygiene practices Ensure all works and storage areas are tidy, all material deliveries shall be planned to minimize accumulated materials. Fire extinguishers should be located at identified fire points around the site. The extinguishers shall be appropriate to the nature of the potential fire. First aid kit with adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. shall be made available. Undertake workers training and awareness on the occupation safety and health risks and the SOPs		Marked pipes	
Visual and landscape impact management	Elaborate landscaping and maintenance of these sites can limit the viewpoints to the facilities and thus reduce their visual impact.	WSPs	No of complaints unsatisfied the interventions	
Increase in social vices	Proper security measures should be put in place to guard the equipment 24 hours to reduce cases of vandalism	WSPs	No of reported cases of theft	

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
Risk of clogging	Blockages should be detected and promptly replaced; Regular monitoring and sampling of the waste water at influent and effluent points as well as in the receiving water bodies;	Responsibility Residents WSPS	No of blockages received	
Health and safety risks	Activate a community watch group for information sharing on the status of the water pipe lines Development of an inventory of system components, with information including age, construction materials, and drainage areas served elevations. Design chamber to withstand anticipated loads and ensure that the covers can be readily replaced if broken to minimize entry of garbage and silt into the system.	Responsibility Residents WSPS	No of trainings held Availability of cleaning tools to avoid blockage	

Table 8-5: Decommissioning Phase Environmental and Social Management and Monitoring Plan

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
Loss of jobs and income	Notify the employees in advance on the project closure date and adequately compensate them;	WSPs	Record of counselling session done	To be established at Decommissioning phase

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
	Dismissal procedures to be compliant with Employment Act, 2007; Provide counselling and alternative skills for alternative activities; Customers are to be notified in advance of the proposed decommissioning.		Record of notification made to employees in regard to job losses	
Noise Pollution	Schedule noisy activities during the day time period; Use silencers on machines where possible; Ensure machinery is well maintained to reduce noise emitted.	WSPS	No of complaints due to noise pollution	
Occupation health and Safety	Provide the correct PPE for the workers when conducting the demolition activities; Conduct training on health and safety procedures to the workers prior to commencement of demolition; Proper plans should be made prior to demolition so as to contain the	WSPS	Availability of appropriate PPEs for all workers Training records on occupational health and safety	

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget
	raw sewage and other waste water that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it			

CHAPTER 9 : CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, the Environmental and Social Impact Assessment (ESIA) Comprehensive Project Report (CPR) for the Proposed Project underscores the project's commitment to environmental conservation. The identification of potential adverse impacts and the proposition of feasible mitigation measures demonstrate a thorough understanding of the environmental and social aspects associated with the project. The proposed Environmental and Social Management and Monitoring Plan (ESMMP) not only includes a robust Mitigation Plan but also outlines Monitoring and Enforcement Requirements, as well as the Responsible Persons/Organizations involved.

The project's emphasis on rehabilitating existing infrastructure within designated areas and the low impact on the biological environment aligns with sustainable development principles. Furthermore, the financial allocation of Kenya Shillings 2.25 million for implementing mitigation measures reflects a proactive approach to addressing potential negative environmental impacts. The project's alignment with the National Water Policy (2012) and its contribution to Kenya Vision 2030 goals, particularly universal access to water and sanitation services, positions it as a crucial initiative in the county.

On an international scale, the project aligns with the United Nations Sustainable Development Goal 6 (UNSDG-6) to ensure universal access to safe drinking water by 2030. The project's adherence to the Mombasa County Integrated Development Plan (2023-2027) demonstrates its alignment with local development strategies. Importantly, the ESIA process has confirmed that the project will not be implemented in environmentally sensitive areas (ESAs).

Recommendation

Based on the comprehensive evaluation of the Proposed Project, it is recommended that the project be approved by the National Environment Management Authority (NEMA). The project has been thoroughly assessed from social, economic, and environmental perspectives, demonstrating stable economic benefits and a strong anti-risk capacity. The alternatives analysis affirms the project's indispensability, and as such, it is deemed necessary and should be implemented expeditiously.

The development of a comprehensive Environmental and Social Management Plan (ESMP) and Environmental Monitoring Strategy underscores the proponent's commitment to minimizing environmental damage. The alignment of the project with the National Constitution, the National Water Policy (2012), Kenya Vision 2030 goals, and the National Spatial Plan 2015-2045 further supports its approval.

In light of the environmentally sound nature of the proposed project, and the proponent's commitment to implementing disclosed mitigation measures, it is recommended that NEMA

issue the project proponent with an Environmental Impact Assessment (EIA) license in accordance with Kenya's environmental laws. This approval will not only signify regulatory compliance but also affirm the project's positive contribution to sustainable development goals at local, national, and international levels.

in the project design will be effectively implemented. On the basis of these findings, it is recommended that the proposed project be approved. Further, NEMA should issue the proponent with an EIA license as required by Kenya ‘s environmental laws.

ANNEXES

Annex 1: Lead Expert NEMA License

EAE 23061569

FORM 7 (r.15(2))

nema
Mazingira Yetu | Uhai Wetu | Wajibu Wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No : NEMA/EIA/ERPL/20715

Application Reference No: NEMA/EIA/EL/27398

M/S **PATRICK KYALO KITUTA**
(individual or firm) of address
P.O. Box 76065 - 00508 NAIROBI

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**

General

registration number **1275**

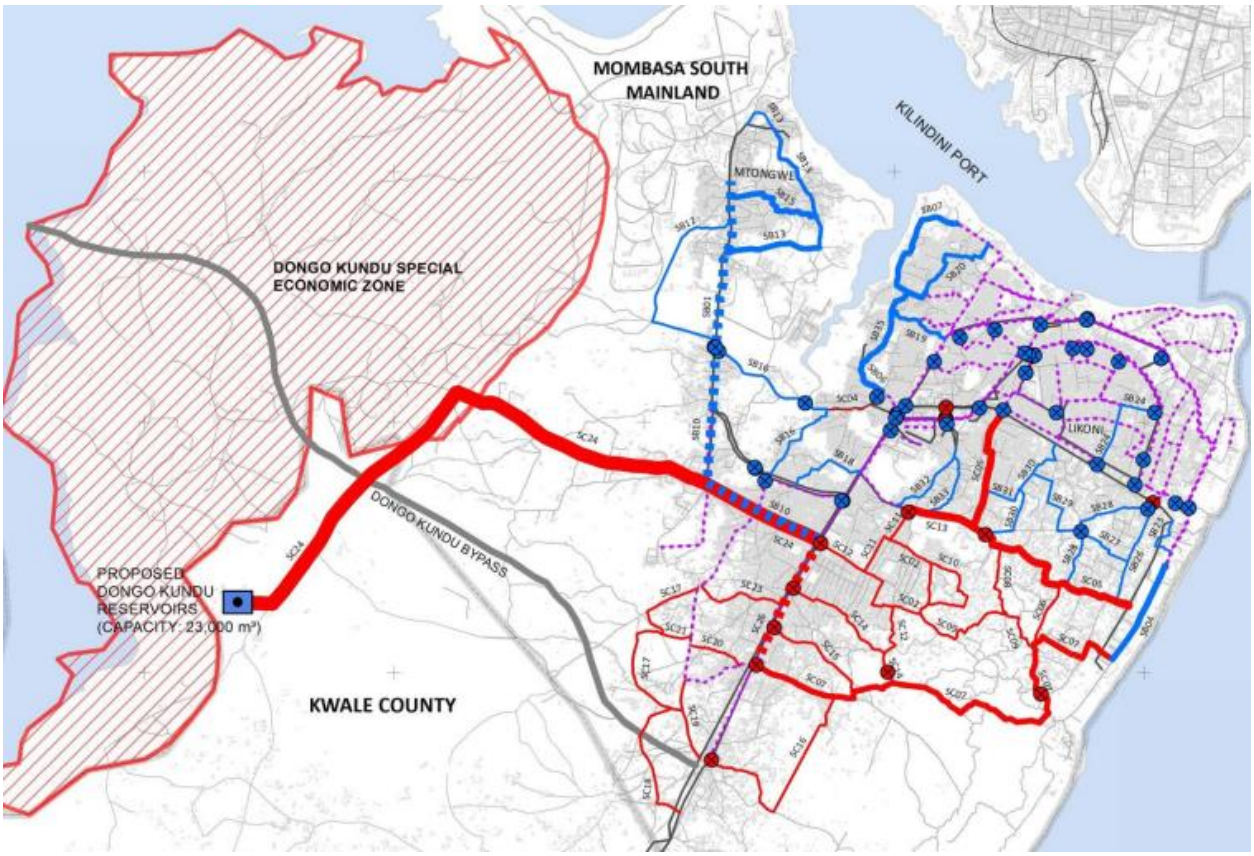
in accordance with the provision of the Environmental Management and Coordination Act Cap 387.

Issued Date: 1/31/2024 Expiry Date: **12/31/2024**

Signature.....

(Seal)
Director General
The National Environment Management Authority

Annex 2: Layout Plan of Proposed Interventions



Annex 3: Consultations

Minutes for the meeting held in Tibwani Location			
CONSULTANCY SERVICES FOR PREPARATION OF FINAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) STUDIES / AND FINAL ABBREVIATED RESETTLEMENT ACTION PLAN (ARAP) / FOR THE PROPOSED WATER DISTRIBUTION WORKS FOR MOMBASA SOUTH MAINLAND MEDIUM-TERM IN LIKONI SUB- COUNTY.			
CONSULTANT		**CLIENT**	
FRANCIS ALLEN CONSULTING Goal Oriented Solutions		COAST WATER WORKS DEVELOPMENT AGENCY WATER FOR GENERATIONS	
Venue: Tibwani Location Chief's Camp	**Date: 22nd March 2024**	**Time: 11:00AM**	**Version: 01**

PARTICIPANTS PRESENT:

As per the attached attendance sheet.

AGENDA

1. Prayers and introductions
2. Project Description
3. Discussion on the ESIA and RAP Process
4. Question and Answer
5. Way forward/ A.O.B

1. INTRODUCTION AND PRELIMINARIES:

The meeting was brought to order by the locational chief Madam Halim at 11:00 am and all participants self-introduced themselves. The Client Representative Mr. Hajj and the Consultant Sociologist highlighted the agenda of the meeting.

2. PROJECT DESCRIPTION:

Coast Water Works Development Agency (Client) proposes to expand the existing water supplies within Mombasa City and specifically Likoni Sub County, through funding from African Development Bank (AfDB).

The main Locations which are targeted are Timbwani, Shika Adabu and Mbuta Locations, both in Likoni Sub County.
The water supply which will be fresh drinking water (maji safi /Marere) will be abstracted from the Mwache Dam through gravity to Dogo Kundu and later pumped to water tanks within Likoni and thereafter distributed to the different areas. The project will commence once the proposed Dam fills up and in the meantime the pipeline network which has been identified will need to be designed and all assets within the corridor identified.

The project is categorized into short term and medium term depending on the urgency of implementation. The pipelines will follow existing rights-of-way on the road reserves that will results to destructions of assets such as business stalls, GCI sheet kiosks, verandah and chain-link fence.

Further, Francis Allen Consulting Limited was mandated to carry out ESIA and RAP activities in the project affected area. The client has identified a consultant to undertake the assets which will be impacted negatively and with that cost estimated will be derived.

3. DISCUSSION ON THE ESIA AND RAP PROCESS

ESIA and RAP Processes, issues of Resettlement, relocation, compensation, environmental and social issues, gender among others were explained to the participants. The community were informed that the consultant will walking around the pipeline routes assessing and identifying likely assets which will impacted. The consultant will be accompanied by a village elder and carry

out valuation of these assets in the presence of the owner, a witness or PAP representative. The community members were informed to give consent to inspect the property, take photographs, provide details such as name, phone, identification number and accent their signatures to the Individual agreement Form.

Community members were informed that the cut - off will on the census and valuation will be undertaken which was the 24th of March 2024.

4. QUESTIONS AND ANSWER

The community members present were urged to give their views on the project, which they did a summary of the consultative issues and concerns are tabled below:

Issues Raised and Comments given:

Item	Issue raised	Response by client and consultant
Benefits of the Project	● The community were supportive of the project in the area and they emphasized that the project to serve all.	● The Client Representative from CWWDA assured the Timbwani residents that the proposed water supply will serve people even beyond their area.
Employment Opportunities	● The community enquired on the job opportunities the project would bring to the area	● The project will employ local people to do both manual and technical works were possible. Considerations will also be availed to locals as first priority as per the AfDB principle on local content.
Compensation	● The community enquired on whether there would be compensation for structures and houses which might be affected during construction.	● Compensation will be done for every affected person as well as there will be a disturbance allowance of 15%. ● Crops will be valued by the Agricultural officer using market rate.

Item	Issue raised	Response by client and consultant
		● Easement rights will be used to acquire land beyond the existing road reserve and where the remaining land is rendered useless there will be full acquisition. ● Owners of structures who have encroached the way leave will be given notice to remove their structures. ● Structures which will be within their rightful land will be valued and compensation awarded as per area affected. ● Interruption of business/livelihood will be compensated where feasible and minimal disturbance will be observed by the contractor.
Road Reserve	● The community pointed out that in some areas communities are not aware of the road reserve as some built where there was vacant space and some physical planning was not done professionally.	● During implementation the department of physical planning will be engaged to demarcate such areas, even though those structures will be mapped in this RAP exercise.
Project commencement	● The community enquired on the when the project will commence/ delay in delivery as some areas have been some pipes are laid	● The community was informed once the dam construction is complete that when the project construction might commence and hence, they

Item	Issue raised	Response by client and consultant
		need to engage the community in advance as well as define the routes. ● Further detailed design studies will be undertaken as well. Actual cost of the project will be achieved once all studies have been done and this information can be assessed from the CWWDA. ● Where pipes were previously laid it was communicated that was still part of the proposed project only that they are implementing in phases.
Willingness to Pay	● Community expressed that they are 100% willinging to pay for the water as they have been waiting for long since some areas are already piped.	● This was noted by the client representative.
Sensitization / PPC	● Community leaders emphasized that the residents be educated and sensitized more on the proposed project	● It was explained that PPC is a continuous process in all stages of development and that there would be several meetings about the proposed project
Health and Safety	● Community expressed a concern on contractors leaving open pites and unfinished works which posses a danger	● The ESIA will address all the concern. ● NEMA office will be involved in periodical inspection of construction areas to ensure contractors compliance.

Item	Issue raised	Response by client and consultant
Grievances	● How will grievance be attended to	● A Grievance Redress Mechanism Committee will be formed at each stage of the project level to ensure issues are solved as efficient as possible. ● This committee will be comprised of community members and local administration, further the RAP/ESIA report will develop as detailed GRM strategy.
Meter Registration /installation	● Community raised an issue where some members registered for metres which were installed and water was never connected.	● Community members were informed that metering was being undertaken in phases and that was Mombasa Water Sewerage Company is in charge.

5. Final Remarks

There being no other business the meeting ended at 12:30pm.

Minutes Recorded by: Iddah Muchena

Sociologist – Francis Allen Consulting Limited

Confirmation 1: _____

Chief – Timbwani Location

Minutes for the meeting held in Shika Adabu Location			
CONSULTANCY SERVICES FOR PREPARATION OF FINAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) STUDIES / AND FINAL ABBREVIATED RESETTLEMENT ACTION PLAN (ARAP) / FOR THE PROPOSED WATER DISTRIBUTION WORKS FOR MOMBASA SOUTH MAINLAND MEDIUM-TERM IN LIKONI SUB- COUNTY.			
CONSULTANT		CLIENT	
FRANCIS ALLEN CONSULTING Goal Oriented Solutions		COAST WATER WORKS DEVELOPMENT AGENCY WATER FOR GENERATIONS	
Venue: Shika Adabu Location Chief's Camp	Date: 22nd March 2024	Time: 3:00PM	Version: 01

PARTICIPANTS PRESENT:

As per the attached attendance sheet.

AGENDA

6. Prayers and introductions
7. Project Description
8. Discussion on the ESIA and RAP Process
9. Question and Answer
10. Way forward/ A.O.B

6. INTRODUCTION AND PRELIMINARIES:

The meeting was brought to order by the area Chief Mr. Mohamed at 11:00 am and all participants self-introduced themselves. The Client Representative Mr. Hajj and the Consultant Sociologist highlighted the agenda of the meeting.

7. PROJECT DESCRIPTION:

Coast Water Works Development Agency (Client) proposes to expand the existing water supplies within Mombasa City and specifically Likoni Sub County, through funding from African Development Bank (AfDB).

The main Locations which are targeted are Timbwani, Shika Adabu and Mbuta Locations, both in Likoni Sub County. The water supply which will be fresh drinking water (maji safi /Marere) will be abstracted from the Mwache Dam through gravity to Dogo Kundu and later pumped to No.4 water tanks in Mazeras and thereafter distributed to the different areas. The project will commence once the proposed Dam fills up and in the meantime the pipeline network which has been identified will need to be designed and all assets within the corridor identified.

The project is categorized into short term and medium term depending on the urgency of implementation. The pipelines will follow existing rights-of-way on the road reserves that will results to destructions of assets such as business stalls, GCI sheet kiosks, verandah and chain-link fence.

Further, Francis Allen Consulting Limited was mandated to carry out ESIA and RAP activities in the project affected area. The client has identified a consultant to undertake the assets which will be impacted negatively and with that cost estimated will be derived.

8. DISCUSSION ON THE ESIA AND RAP PROCESS

ESIA and RAP Processes, issues of Resettlement, relocation, compensation, environmental and social issues, gender among others were explained to the participants.

The community were informed that the consultant will walking around the pipeline routes assessing and identifying likely assets which will impacted. The consultant will be accompanied by a village elder and carry out valuation of these assets in the presence of the owner, a witness or PAP representative. The community members were informed to give consent to inspect the property, take photographs, provide details such as name, phone, identification number and accent their signatures to the Individual Agreement Form.

Community members were informed that the cut - off will on the day census and valuation will be undertaken which was the 24th of March 2024.

9. QUESTIONS AND ANSWER

The community members present were urged to give their views on the project, which they did a summary of the consultative issues and concerns are tabled below:

Issues Raised and Comments given:

Item	Issue raised	Response by client and consultant
Benefits of the Project	• The community were supportive of the project in the area and they emphasized that the project to serve all.	• The Client Representative from CWWDA assured the Shika Adabu residents that the proposed water supply will serve people even beyond their area.
Employment Opportunities	• The community enquired on the job opportunities the project would bring to the area	• The project will employ local people to do both manual and technical works were possible. Considerations will also be availed to locals as first priority as per the AfDB principle on local content.
Compensation	• The community enquired on whether there would be compensation for structures and houses which might be affected during construction.	• Compensation will be done for every affected person as well as there will be a disturbance allowance of 15%. • Crops will be valued by the Agricultural officer using market rate. • Easement rights will be used to acquire land beyond the existing road reserve and where the remaining land is rendered useless there will be full acquisition. • Owners of structures who have encroached the way leave will be given notice to remove their structures.

Item	Issue raised	Response by client and consultant
		• Structures which will be within their rightful land will be valued and compensation awarded as per area affected. • Interruption of business/livelihood will be compensated where feasible and minimal disturbance will be observed by the contractor.
Road Reserve	• The community pointed out that in some areas communities are not aware of the road reserve as some built where there was vacant space and some physical planning was not done professionally.	• During implementation the department of physical planning will be engaged to demarcate such areas, even though those structures will be mapped in this RAP exercise.
Project commencement	• The community enquired on the when the project will commence/ delay in delivery as some areas have been some pipes are laid	• The community was informed once the dam construction is complete that's when the project construction might commence and hence, they need to engage the community in advance as well as define the routes. • Further detailed design studies will be undertaken as well. Actual cost of the project will be achieved once all studies have been done and this information can be assessed from the CWWDA. • Where pipes were previously laid it was communicated that was still part of the proposed project only that they are implementing in phases.

Item	Issue raised	Response by client and consultant
Willingness to Pay	• Community expressed that they are 100% willinging to pay for the water as they have been waiting for long since some areas are already piped.	• This was noted by the client representative.
Sensitization / PPC	• Community leaders emphasized that the residents be educated and sensitized more on the proposed project	• It was explained that PPC is a continuous process in all stages of development and that there would be several meetings about the proposed project
Health and Safety	• Community expressed a concern on contractors leaving open pits and unfinished works which possess a danger	• The ESIA will address all the concern. • NEMA office will be involved in periodical inspection of construction areas to ensure contractors compliance.
Grievances	• How will grievances be attended to	• A Grievance Redress Mechanism Committee will be formed at each stage of the project level to ensure issues are solved as efficient as possible. • This committee will be comprised of community members and local administration, further the RAP/ESIA report will develop as detailed GRM strategy.
Meter Registration /installation	• Community raised an issue where some members registered for metres which were installed and water was never connected.	• Community members were informed that metering was being undertaken in phases and that was Mombasa Water Sewerage Company is in charge.

Item	Issue raised	Response by client and consultant
Wayleave Area	• How will we know wayleave distance from the road reserve	• It was explained 2 to 3 metres from the edge of the existing road.
Ownership of the Pipeline	• A PAP asked who will own the pipeline	• Mombasa Water and Sewerage Company will fully own the pipeline after installation and will be charge of metering and connection to the household.

10. Final Remarks

There being no other business the meeting ended at 4:30pm.

Minutes Recorded by: Iddah Muchena _____

Sociologist – Francis Allen Consulting Limited

Confirmation 1: _____

Chief – Shika Adabu Location

SUMMARY OF INSTITUTIONAL CONSULTATIONS

Institution	Issues Discussed
Environmental and Safeguards Officer-MOWASSCO	• That all the relevant key stakeholders will be informed of the ESIA and ARAP exercise to be carried out so as to ensure smooth process. • The need to consult all the business unit managers for West Mainland, South Mainland, North Mainland and the Island that is Mombasa Town. • In case the consultant needed to talk to the local administration, he would help with the introductions.
Ag General Manager Business Commercial - MOWASSCO	• The need to contact all the business unit managers and alert them of the coming visitors in their areas, and also the need for cooperation • The issue of public participation to sensitize the locals about the new upcoming project was also discussed with the GM emphasizing on the need to do a proper consultation.
Ag General Manager Engineering -	• Some of the old lines which had been proposed for augmentation would real improve on the service delivery of the company, this idea was welcomed. • The fact that the new lines had been to be laid majorly on road reserve was a huge point to note. He recommended that compensation should be considered in case the lines would affect people's properties.
Business Unit Manager-South Mainland (Likoni)	• That the Likoni area was currently not fully served as it had perennial water shortages due to the population growth factor and due to this, many building owners were drilling boreholes. • A possibility for a stakeholder sit-down was also discussed so as to tell the most affected people about the benefits the project will have once it was completed.
Technical Officer – Likoni (MOWASSCO)	• The need to replace some of the old pipes that over a period of time were becoming worn out and prone to busts leading to non-revenue water loss. • The new lines mostly targeted where there were many houses or settlements and this were appreciated by the technical officer as

	it would mean many new connections upon the project's completion.
Chief – Likoni	• The need for a public participation with the key stakeholders was necessary for the project to succeed and that his office would help in that whenever the consultant needed it. • Job opportunities during the project should be given to the people within the location as currently unemployment was a big issue around • He also appreciated the fact that the proposed lines were placed along existing road reserves and that there would be minimal damages.
Assistant County Commissioner- Mtongwe	• He appreciated that his area of administration had been included in the project as the Mtongwe area generally was facing water issues challenges. • That the public facilities in the area like the Mtongwe Dispensary, Mtongwe Primary School, needed clean and safe water for their usage and hence the project would be timely.
Assistant Chief - Mtongwe	• He assured the team that his cooperation whenever needed as he was there to make sure that such projects would benefit his people. • In addition, he will be sensitizing people of the intended project in his subsequent barazas as the area greatly needed the water. • That a forum where those intended to benefit from the project should be organized where any kinds of recommendations or grievances would be aired.

Institution	**Issues Discussed**
Coastal Region Manager KeNHA	• KeNHA in collaboration with KURA has embarked on a Rapid Results initiative of beaconing all road reserves of all class A and B roads in the coast. • After beaconing the road reservs will be clear and that those who have encroached will be required to move. • CWWDA when implementing the water pipeline project should seek for approvals before laying the water pipes with the road reserves. • Before approval is granted, KeNHA / KURA will assess the request in line with the roads development master plan and advise CWWDA appropriately

WATER AND SANITATION SERVICE IMPROVEMENT PROJECT – ADDITIONAL FINANCING (WASSIP-AF)
Preparation of Water Distribution Master Plans for Water Service Providers (5 WSPs) in Mombasa, Kilifi, Taita Taveta and Kwale Counties
Contract No. CWSB/WaSSIP-AF/C/27/2012

Stakeholder consultation list –ESIA/RAP **DATE:** 31/10/18

No.	Name	Organization/Designation	Phone No	Signature
1.	Mark Mwendwa	Ag GM Engineering MOWASCO 31/10/18	0726513052	[signature]
2.	Naima T. Yusuf	Ag GM Buss (Commercial)	0707 200 400	[signature]
3.	Maldrine Mishai	Ag-BUM – Kisauni	0722 172433	[signature]
4.	Hamisi S. Keti	Chief INTERIOR	0712553703	[signature]
5.	RONALD U. RANDU	Bum-Likoni	0721-286430	[signature]
6.	Dishon M. Kirangu	TECH-OFFICER	0791016957	[signature]
7.	SAID J. KANDY	CHIEF LIKONI / INTERIOR – NGAO	0723 995903	[signature]
8.	Eva Owuor	BUM - ISLAND	0721642888	[signature]
9.	Mohammed Sadik	Chief Aasst	0726542256	[signature]
10.	Omar Kombo Mwinyi	TUDOR DAY	0722121216	[signature]
	NELSON KEMOLI	ARTISAN	0724145330	[signature]

1 | Page

WATER AND SANITATION SERVICE IMPROVEMENT PROJECT – ADDITIONAL FINANCING (WASSIP-AF)
Preparation of Water Distribution Master Plans for Water Service Providers (5 WSPs) in Mombasa, Kilifi, Taita Taveta and Kwale Counties
Contract No. CWSB/WaSSIP-AF/C/27/2012

Stakeholder consultation list –ESIA/RAP **DATE:** 15th November 2018

No.	Name	Organization/Designation	Phone No	Signature
1.	J.R. NDAMBUKI	TECHNICAL OFFICER	0725455696	[signature]
2.	BEN M. VALASA	CHIEF – CHAANI	0724694087	[signature]
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

ANNEX II PUBLIC BARAZA ATENDANCE LIST

Annex 4: Grievance Resolution Mechanism

GRIEVANCE RESOLUTION MECHANISM

3. Steps in dealing with grievances

- Complaint received in writing from affected person
- Recording of grievance in standard form
- Reconnaissance site visit with the complainant.
- Submission of detailed complaint to Resident Engineer for resolution by negotiation.
- Submission of detailed complaint to the Grievance Committee for resolution by mediation.
- Submission of complaint to CWWDA for resolution.

4. Composition of grievance committee

No	Designation	Organization	Position
7.	EHS officer	CWWDA	Chair
8.	Resident Engineer	Consultant	Committee Secretary
9.	EHS officer	Consultant	Committee Assistant Secretary
10.	Site Administrator	Contractor	Member
11.	EHS officer	Contractor	Member
12.	Chief	Community Representative	Member

Annex 5: Consent Letter

Yet to be obtained. Negotiations are still in progress.

Annex 6: Signed BoQs

Annex 7: Pollution Management Plan

Pollution Control Plan

1. **Introduction:**

The pollution control plan for the proposed project aims to mitigate potential environmental impacts associated with the construction and operation phases of the project. This plan is developed in accordance with environmental regulations and best practices to ensure the protection of natural resources and the health of the community.

Project construction activities have the potential to generate a range of pollution sources that require proper planning from the outset to avoid resulting in impacts to human, biological or other environmental receptors. These includes accidental emissions to air, water and soil, amongst others. The Project seeks to proactively manage such potential pollution sources and to this effect has included specific obligations regarding pollution prevention.

This CESMP defines the actions and measures necessary for the overall management of pollution.

2. **Purpose of the Pollution Prevention CESMP**

The potential pollutants that could arise from the Project requires careful management to avoid negative impacts on human health, and environmental factors such as groundwater, soils, surface water and ecology. This CESMP therefore:

This CESMP therefore:

- Outlines the key policies, legislation and standards relating to pollution management;
- Defines roles and responsibilities;
- Outlines actions and measures necessary for the effective prevention of pollution;
- Covers both accidental and intended emissions to air, noise, water and soils;
- Details specific control measures to be
- Incorporates the requirements of the ESIA findings, Supplemental Environmental Assessment, international standards and Project-specific construction permits.

3. **Scope of the pollution prevention CESMP**

This CESMP covers all construction activities and is applicable to all the staff, Contractors and Sub- contractors. Whilst this CESMP will act as a 'framework' to determine what the Contractors will be expected

4. **Key role and responsibilities**

An integrated approach to pollution prevention involves a range of stakeholders, including the Client, Consultant, the Contractors (and subcontractors), local authorities, regulatory agencies and the general public. Such a system therefore requires robust processes regarding information dissemination, training, and designation of responsibility, management actions, monitoring,

control, and remedial actions. The general roles and responsibility are highlighted in the table below;

Activities	Consultant	Contractors	Client
Planning	x	x	
Dissemination of information	x	x	
Management of pollution	x	x	x
Spill response & treatment		x	x
Professional training	x	x	x
Surveillance and control	x	x	
Monitoring and audit	x	x	
Corrective actions	x	x	
Management of cooperation	x	x	

5. **Pollution Sources:**

Identify and categorize potential sources of pollution associated with the project, including construction activities, operational processes, and wastewater discharge.

3. Mitigation Measures:

Construction Phase:

- Implement erosion and sediment control measures, such as silt fences and sediment basins, to prevent soil erosion and sedimentation in water bodies.
- Proper storage and handling of construction materials to prevent spills and contamination of soil and water.
- Regular inspection and maintenance of construction equipment to minimize emissions and leaks of pollutants.
- Proper waste management practices, including segregation, recycling, and disposal of construction waste at designated facilities.
- Implementation of dust control measures, such as watering of construction sites and covering of materials, to minimize air pollution.

Operational Phase:

- Installation of advanced wastewater treatment technologies to ensure the quality of treated effluent meets regulatory standards before discharge.
- Regular inspection and maintenance of sewer infrastructure to prevent leaks and spills of sewage into the environment.
- Implementation of odor control measures, such as biofilters and chemical treatments, to mitigate unpleasant odors from wastewater treatment facilities.

- Monitoring of air and water quality parameters to detect any deviations from the established standards and take corrective actions promptly.
- Public awareness campaigns to educate residents about proper waste disposal practices and the importance of pollution prevention.

4. Contingency Plan: Develop a contingency plan to address emergency situations, such as spills, leaks, or equipment failures, to minimize the potential environmental impact and ensure prompt response and recovery.

5. Monitoring and Reporting:

Establish a monitoring program to assess the effectiveness of pollution control measures and compliance with regulatory requirements. Regular reporting of monitoring data and implementation of corrective actions as necessary.

Conclusion:

The pollution control plan outlined above aims to minimize environmental impacts associated with the proposed project while ensuring compliance with regulatory standards and promoting sustainable development. Implementation of these measures will contribute to the protection of natural resources and the health and well-being of the community.

Appendix 1: Mitigation Measures & Management Actions

Ref.	Topic	Location	Requirement	Responsibility	Verification Process
1.	General pollution prevention	All	The equipment shall be brought to the site in perfect state of operation, the technical revisions and oil exchange being already made	Contractor	Internal audit program
2.	General pollution prevention	All	All plant, vehicles and equipment to be maintained to manufacturers standards and maintained in accordance with the provisions of the Government Decision no. 332/2007. This	Contractor	Internal audit program

			includes regular inspections of plant and equipment to prevent leakage/emissions and technical Continuousal checks of emissions (carbon monoxide and exhaust gases). A plan for this to be created including processes to remedy potential defects.		
3.	General air emissions control	All	All installations to be well maintained with appropriate valves, fittings and flanges.	Contractor	Internal audit program; Continuous inspections
4.	General air emissions control	All	Idling of vehicles or equipment to be restricted to minimize emissions.	Contractor	Internal audit program
5.	General air emissions control	All	Use and maintain effective filters in vehicle cabs to keep air free of dusts and fumes	Contractor	Internal audit program, Visual inspections
6.	General air emissions control	All	The vehicles transporting materials issuing fine particles in the air shall be covered with tarpaulin	Contractor	Continuous inspections
7.	General air emissions control	All areas, but especially areas with large mammals	All powdery/dusty materials to be stored in enclosed containers or covered to avoid wind dispersal. Dust producing activities to	Contractor	Continuous inspections

			be reduced during strong winds or to be controlled by dust suppression techniques e.g. water sprinkling, use speed controls, all-weather surfaces		
8.	General air emissions control	Residential area	An Air quality monitoring program shall be implemented, especially close to the residential areas that determined the impact significance to be "high", in the surroundings of the GCS and site organizations areas	Consultant/Contractor	Analysis reports
9.	General noise control	All	All plant and machinery to be fitted with appropriate noise baffles / silencers to keep noise emissions within normal operating/regulatory limits.	Contractor	Internal audit program, Visual inspections
10.	General noise control	All	Provision of noise barriers for static equipment where appropriate especially when noisy work (eg. hammering) is being conducted.	Contractor	Internal audit program, Continuous inspections
11.	General noise control	All	Generators and water pumps required for 24-hour operation will be	Contractor	Internal audit

			super-silenced or screened/located as appropriate to reduce noise; Crane spindles, pulley wheels, telescopic sections and moving parts of working platforms will be adequately lubricated in order to prevent undue screeching and squealing; and, where possible mains electricity will be used rather than generators.		program, Continuous inspections
12.	General noise control	All	Personnel will be instructed on best practice measures to reduce noise and vibration as part of their site induction training; Shouting and raised voices will be kept to a minimum e.g. in cases where warnings of danger must be given. Use of audio radios in the open environment will be prohibited except where two-way radios are required for reasons of safety and communication; Control of noise introduced into site induction to ensure that	Contractor	Internal audit program, Continuous inspections

			all operators on site, including contractors, are working in such a way to minimize noise;		
13.	General noise control	All	Compliance monitoring of noise to ensure limits are being met.	Contractor	Analysis reports
14.	General noise control	All	All materials will be handled, stored and used in a manner that minimizes noise, this include the preclusion of dropping material which would be placed in all instances; Routes and programming for the transportation associated with the works will be carefully considered in order to minimize the overall noise impact generated by these movements and will conform to the operational hours of the works Provision of temporary acoustic barriers (or other means) for use when operations are exposed or are identified as problem activities; Appropriate complaint procedure to ensure complaints are logged,	Contractor	Internal audit program, Continuous inspections

			investigated and resolved; and, Control of noise introduced into site induction to ensure that all operators on site, including contractors, are working in such a way to minimize noise.		
15.	General noise control	Site establishment platform wash water	Piling and ground stabilization would be suitably controlled on site if necessary (However, due to the large separation distances to the nearest receptors this is not considered an issue); Isolation of pumps and generators when positioned in close proximity to sensitive receptors to prevent direct vibration transfer; Selection of appropriate equipment for the task required; Appropriate training with regard to plant operational techniques so as to minimize vibration generation; Appropriate complaint procedure to ensure complaints are logged, investigated and resolved.	Contractor	Internal audit program, Continuous inspections

16.	General spill prevention	All	Standard industry refueling protocols should be followed. Vehicles maintenance to be undertaken on a purposely provided drip tray. Secondary spill containment to be provided wherever refueling or storage occurs. All materials to be properly contained for decanting with fill areas to contain any spillage during transfer.	Contractor	Internal audit programme, Continuous inspections
17.	General spill prevention	All	The exchange of oils shall be done in specialized workshops	Contractor	Internal audit programme, Continuous inspections
18.	General spill prevention	All	Spill kits should be continually available and all site assemblies will be equipped with specific materials necessary for the intervention in case of accidents (hydrocarbon leaking), so that any possibility for extension of pollution may be avoided	Contractor	Internal audit program, Continuous inspections
19.	General Spill prevention	All	The measures required for the prevention of soil pollution with drilling fluid shall be taken	Contractor	Internal audit

					program, Continuous inspections
20.	General Spill prevention	All	Perform simulations regarding emergency situations in case that an accidental pollution is caused, having impact on the water resources	Consultant/Contractor	Internal audit program
21.	General Spill prevention	All	Fuel handling, especially bulk storage, will take place in secure bounded areas. Similar conditions will apply to lubricant oils, chemicals and liquid wastes. Should a spill occur, polluted soils will be cleaned up or removed for appropriate disposal. All wastes will be handled, stored and disposed of as per local regulations. Diesel and other potentially polluting liquids will be stored in appropriate containers, fitted with secondary containment. Fuel equipment shall be supplied by oil pump, and tanks with automatic alarms and shut off systems to be installed in all refueling areas. All areas to be	Contractor	Continuous inspections

			checked prior to delivery to prevent overfill and spillage.		
22.	General Water resource protection	Activities of record keeping, correspondence, supervision and site inspector.	All working areas to have appropriate ecological toilets to be emptied by authorized operators	Contractor	Continuous inspections
23.	General Water resource protection	Domestic waste from construction camps, pipe deposits and work fronts	Domestic wastewater to be separated from hazardous, oily water discharges at all sites	Contractor	Continuous inspections
24.	General Water resource protection	From activities concerning: - Maintenance of equipment, - Building demolition- Pipelining	Contractors will develop and implement an appropriate plan to prevent accidental water pollution based on the BRUA commitments requirements.	Contractor	Internal audit program
25.	General Water resource protection	Support activities to the shore, packaging, casings, various carpentry works.	Standard pollution control measures will be implemented i.e. to prevent silt contamination by keeping water out of the works area using appropriate isolation techniques, such as coffer dams and by- pass channels.	Contractor	Continuous inspections

26.	General Water resource protection	Pipe trench excavation, foundations, building access roads, land systematization.	Sewage treatment plant at GCS will be carefully maintained strictly respecting the timing of maintenance and emptying	TRANSGAZ	Wastewater plant maintenance manual
27.	General Water resource protection	Pipe cleaning	Demarcation and offsets for camp and storage locations and field activities of at least 50 m from watercourses where possible.	Contractor	Continuous inspections
28.	General Water resource protection	Pipeline preparation	Monitoring the meteorological bulletins meant to take the equipment outside the areas which could be flooded, in case of high waters	Contractor	Internal audit programme, Continuous inspections
29.	General Water resource protection	All	Implement measures against sedimentation. Use of settling ponds, silt fences and screens to prevent sediment transport	Contractor	Continuous inspections
30.	General Water resource protection	All	Wastewater should be prevented from entering surface water bodies without prior assessment and treatment if necessary	Contractor	Continuous inspections
31.	General Water resource protection	Watercourse	The placing of concrete in, or near to, any watercourse must be controlled to minimize the risk of pollution	Contractor	Continuous inspections

32.	General Water resource protection	Site organizations	The adequate collection and treatment of all the used waters which will result from the site organizations so that no impact is caused on the waters	Contractor	Continuous inspections
33.	General Water resource protection	All	Ensure contaminated water from dewatering or cement washing operations is treated prior to discharge, depending on the nature of the contaminants	Contractor	Continuous inspections
34.	General Water resource protection	Access ways	Accomplish polders of small dimensions having a sediment exclusion role, respectively for stilling the leaking force of pluvial waters, to be accomplished along the access ways at distances of approximately 30-50m. The development of polders shall be accomplished on surfaces of up to 10m2 and at a maximum depth of 30cm, being provided with diffuse leaking areas, in steps oriented upstream, in order to avoid the occurrence of erosive phenomena, at distances of 2-3m to the access ways, being used	Contractor	Continuous inspections

			as accumulation areas (aggregation) of the species of amphibians and not only, outside the areas having a potential for negative impact (access ways).		
35.	Traffic	All	Vehicle tyres should be cleaned at the exit from the working areas,in case of use of public roads	Contractor	Continuous inspections
36.	General principles	Works site	Works sites will be subject to legally binding documents that will ensure the transfer of ownership. Based on these documents, environmental responsibilities are specifically defined to be transferred to the entrepreneurs and subsequently to the beneficiary, following the responsibilities for each stage to be clearly defined and assumed.	Contractor/Consultant	Continuous inspections
37.	General principles	All	Works organizations will be established by accurate legal documents that will determine the distinct responsibilities of entrepreneurs, assumed compensation, but also	Contractor/Consultant	Continuous inspections

			the breach to restore them to the initial state. Based on these documents, environmental liabilities will be clearly defined in the protocols of pre-defining environmental tasks undertaken. Thus, the principles underlying the specific legislation in force (especially the principle: the polluter pays), the contractor will undertake to remedy any fault of its negative effects.		
38.	General principles	All	The workforce will be provided with environmental awareness training.	Contractor	Training records
39.	Traffic	On-site Traffic Management	Dust emissions due to road travel shall be minimized by regulating vehicle speed and watering roads (where required).	Contractor	Continuous inspections
40.	Traffic	On-site Traffic Management	Prepare necessary reports, inspection logs and incident records.	Contractor	Records
41.	General pollution prevention	All	Vehicles will be maintained in accordance with manufacturer	Consultant/Contractor	Internal audit programme

			guidelines and Romanian licensing requirements and Continuous verification inspections will be undertaken.		
42.	General principles	All	Reducing exposure times for people working near noisy machinery	Contractor	Internal audit programme
43.	General	All	For the pre-construction stage when work sites will be in place for each sector there will be a protocol that will establish as accurately as possible the environmental load, based on standardized forms (standard-forms), with aerial photographs or photographic images taken from the ground, which will act as control elements. For each site during the growing season (May-September the ecological structure and functions of the site will be accurately determined.	TRANSGAZ	Records
44.	General principles	All	Comply with all mitigation measures included in the Environmental Agreement	Contractor	Internal audit program

45.	General principles	All	Investigate all incidents and identify any necessary corrective actions	Contractor	Internal audit program Records
46.	General	All	Noise and vibration from plant and machinery will be controlled by ensuring that: 1) Engine compartments are closed when equipment is in use 2) Resonance of body panels and cover plates is reduced by the addition of suitable dampening materials 3) Any "rattling noise" is addressed by the tightening of loose parts or the addition of resilient materials if appropriate; 4) Siting of semi-static equipment will be orientated as far as is reasonably practicable from noise-sensitive receptors with localised screening if deemed necessary.	Contractor	Internal audit program
47.	Water resource protection	Water Courses	All pumps, motors and combustion engines to be operated with drip	Contractor	Periodic inspections

			trays underneath and set back from watercourses (minimum of 20m).		

Annex 8: Stakeholder Engagement Plan

5. STAKEHOLDER ENGAGEMENT PLAN

The overall purpose of this Stakeholders Engagement Plan is to ensure that a consistent, comprehensive and coordinated approach is taken in stakeholder engagement and Project disclosure throughout the project implementation phase. It is further intended to demonstrate the commitment to engage each stakeholder during the implementation phase of the Project. This is in line with the financier African Development Bank (AFDB) Principles on Stakeholder Engagement (2015).

In line with Stakeholders Engagement Plan best practice, stakeholder engagement is conducted on the basis of timely, relevant, and accessible information. In this way, the Stakeholders Engagement Plan seeks to ensure that stakeholders are given sufficient opportunity to voice their opinions and concerns, and that these concerns influence project decisions. The Stakeholders Engagement Plan therefore:

- Provides the approach to stakeholder engagement, showing how this will be fulfilled throughout the project cycle;
- Identifies the main categories of stakeholders and how they will be included in the implementation of the Project; and
- Identifies the ways to document engagement undertaken with the stakeholders throughout the project.

Objectives of Stakeholder Engagement

The objectives of engaging stakeholders during project Implementation phase include:

- **Ensuring Understanding:** An open, inclusive and transparent process of engagement and communication will be undertaken by to ensure that stakeholders are well informed about the proposed Project. Information will be communicated early and as detailed as possible.
- **Involving Stakeholders in the Assessment**: Stakeholders were included in the scoping of issues and identification of sampling points especially in areas that had high pollution. They also played an important role in providing local knowledge and information for the baseline survey of sampling points and community involvement in the Project.
- **Building Relationships**: Through supporting open dialogue, engagement will help to establish and maintain a productive relationship between the implementation team and stakeholders.
- **Managing Expectations**: It is important to ensure that the proposed Project does not create, or allow, unrealistic expectations to develop amongst stakeholders about potential Project benefits. The engagement process will serve as a mechanism for understanding and managing stakeholder and community expectations, by disseminating

accurate information in an easily understandable manner. The exercise will not involve handing over money during implementation. The Stakeholders will be made to understand that the Project is for their own benefit and falls within the mandate of Stakeholder.

- **Ensuring Compliance**: The process is designed to ensure compliance with both local laws requirements and international best practice.

6. REGULATORY CONTEXT

Policy, Legal and Institutional Framework for Public Participation

The Republic of Kenya has the following polices and legislations related to citizen/stakeholder engagement which covers both the right to access information and participation in policy development and decision-making.

The Constitution entrenches a wide range of social, political, economic and cultural rights and revolutionizes the entire system of political governance by devolving authority to county governments and decreeing the need for citizen participation in decision making. It enshrines the right to access information and makes principles of international laws and treaties ratified by Kenya an integral part of the country's municipal law. The Constitution in Article 232 further outlines transparency and timely provision to the public of accurate information as one of the values and principles of public service, going further to bind all state agencies at both national and county government levels and state corporations to these values and principles.

Moreover, Article 69 outlines the obligations of the government in respect to the environment, asserting that "The State shall ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources and ensure the equitable sharing of the accruing benefits". Under its sixth chapter on leadership and integrity, the constitution has entrenched values and principles that should govern the operations of all entities and public officers within the state and called for adherence of the same. The Constitution introduces changes in the public finance management framework in Kenya, outlining principles of public finance such as equity, openness and accountability through public participation in financial matters.

Under the Social Pillar of Vision 2030, i.e., the Country's commitment to invest in the people of Kenya, Kenya's journey towards prosperity is envisioned to involve the building of a just and cohesive society, which enjoys equitable social development in a clean and secure environment. The Political Pillar, -Moving to the Future as One Nation, states in part that Kenya is committed to "adherence to the rule of law as applicable to a modern, market-based economy in a human rights-respecting state" (emphasis in italics, added). Furthermore, Vision 2030 is anchored on aspirations to better define and clarify land tenure rights and perhaps by extension facilitate the identification of carbon rights and associated equity in accruing benefits.

The Climate Change Act (2016) provides guidance for application of public participation, access to information and representation in all sectors of the economy, at both national and country level for climate change adaptation and mitigation Environmental Impact Assessment (EIA), Review Guide for Communities, Dec. (2014). The Environmental, Management and Coordination Act (1999, 2015) has mandatory requirements on public participation. This review guide seeks to enhance public participation in the project cycle management under the Environmental (Impact Assessment and Audit) Regulations, (2003). The guide targets communities falling within the project areas to assist them in reviewing and commenting on Environmental Impact Assessment (EIA) reports. It gives a step-by-step guidance and direction on how communities can actively participate in the EIA process through provision of clear responses to public participation calls to ensure that their needs and aspirations are taken into account.

Environmental Management and Coordination Act (EMCA) 2009 set out general principles, and the principle of public participation in the development of policies, plans and processes for the management of the environment is made mandatory in the Act.

Environment Impact Assessment Guidelines and Administrative Procedures required public participation and disclosure of project information during EIA procedure in the development of projects, policies, plans and programmes.

3.2 International Requirements

AfDB Integrated Safeguard System (2023) states that the Project implementer shall be responsible for carrying out and providing evidence of meaningful consultation (i.e. consultation that is free, prior and informed) with Stakeholders/communities likely to be affected by the Project impacts, and with other local stakeholders. The key focus of meaningful consultation is inclusivity; namely, the approach taken needs to ensure that all groups that are directly or indirectly affected by the Project are embraced within the consultation process on equal terms, and that all groups are given the capacity to express their views with the knowledge that these views will be put into consideration. OS 1 also states that the implementer of the Project shall be responsible for ensuring that all Stakeholders are engaged and satisfied.

The AfDB operation safeguard requires that stakeholder engagement starts at an early stage during project preparation and that it should continue throughout. The results of such engagement should be adequately reflected in project during the Project implementation, as well as in the preparation of project documentation. In all cases, consultation should be carried out after, or in conjunction with, the relevant Stakeholders.

Once all stakeholders are identified, the developer should develop and implement a Stakeholder Engagement Plan (SEP) that is proportionate to the project risks, impacts and development stage, and that is tailored to the characteristics and interests of the affected Stakeholders. The advantage of having a SEP is;

d.) That it provides a formal commitment,

e.) Defines responsibilities

f.) Ensures that adequate funds are made available to carry out the program of consultation.

A Stakeholders Engagement Plan typically describes measures to allow the effective consultation and participation of all affected parties, a description of any consultations that have already taken place, and a definition of the reporting procedures. A Grievance Mechanism should also be developed by the implementer, and it will detail the procedures that a project will establish for managing complaints and grievances especially from the stakeholders involved in the implementation of the Project.

3. STAKEHOLDERS IDENTIFICATION AND ANALYSIS

Identification of Project Stakeholders

Project stakeholders are defined are persons or groups who are directly or indirectly interact with the project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively (IFC's Handbook on Stakeholder Engagement (2007)). Stakeholder identification and analysis is an essential component of effective and meaningful stakeholder engagement activities. The objective of this step was to provide a general overview of all stakeholders.

7. Key stakeholders' groups that were identified are parties were directly interlinked and have a stake in the Project. A participatory and consultative approach that involves all stakeholders was adopted, to ensure optimal participation of key stakeholders at all stages of the assignment and enrich the outcomes of the study **The methodology for stakeholder analysis**

This stakeholder analysis was conducted as follows:

8. **Identification of Stakeholders**

The first stage in stakeholder relations involved researching individuals and third-party organizations that may be relevant to the project. This included groups/organizations that are directly affected by the Project (positively or negatively), have influence or power over its success, and have an interest in its successful or unsuccessful conclusion. This was done through search in traditional media and industry reports and analysing online conversations occurring in the digital space to identify individuals, groups or organizations that that have interest in water and sewerage within the basin.

9. **Analyzing Stakeholders**

Once potential stakeholders were identified the consultant analysed them to establish their interest, involvement in the project, their points of intersection with our objectives, their level of activity in the project or their key points of contact. The consultant also did a network with others through phone and in-person meetings to gain more insight.

10. **Prioritize Stakeholders**

Having achieved a better understanding of the stakeholder ecosystem, the next step for the contractor was to prioritize the actors. The following was considered:

- Relevance
- Visibility
- Credibility
- Influence
- Reach

11. Contacting Stakeholders

Once the stakeholders had been identified, researched, and prioritized, the final step involved making contact with them and exploring their interest in potential future collaboration and to build opportunities that will demonstrate a win/win proposition for both organizations. Efforts were made to identify the contact person within the organization.

12. STAKEHOLDER ENGAGEMENT PROGRAM

The Stakeholder Engagement Program is a formal document which outlines the plan to communicate with stakeholders who have interest or potential interest in a project. It helps engage all the stakeholders in the project and, by doing so, help the project become sustainable and inclusive. It is important to keep in mind that SEP implementation is a dynamic process and some stakeholders and their interests might change over time or new stakeholders and information emerges, and hence the SEP will be updated accordingly.

Engagement Methods and Tools to be used

The Project intend to utilize various methods of engagement that will be used by as part of its continuous interaction with the stakeholders. For the engagement process to be effective and meaningful, a range of various techniques need to be applied that are specifically tailored to the identified stakeholders. Methods used for consulting with statutory officials may be different from a format of liaising with the local communities.

The suggested methods would be used to communicate and consult with the stakeholders:

Online Platform: A dedicated webpage/platform will be created for the project to enable users to find all the information about the project. The goal of the platform is to provide core information about the project and to ensure accessible online feedback project stakeholders and to support several stakeholder engagement activities. The platform will be used to support face-to-face consultations through digital feedback surveys at regular intervals and will provide a dedicated portal for the identified sub-projects to inform the population and engage them in providing feedback and support monitoring through the implementation cycle. All stakeholder consultations events will be advertised through this platform.

Stakeholder consultations/virtual consultations: Consultations will be organized during the project design stage and project implementation. Stakeholder consultations will be organized for

water monitoring reports. Moreover, public consultations will be held on quarterly basis as part of the stakeholder engagement process during the project cycle.

Workshops: The workshops with stakeholders will be carried out. The main topics of these workshops will include disseminating water quality monitoring results and project progress.

In-depth interviews with relevant experts: Expert's views and recommendations on various project issues will be conducted as part of the social assessment. They will continue to be used as part of specific project activities.

Leaflets/ informative notes: Leaflets with information that might present more interest for stakeholders will be developed and distributed in the meetings/ stakeholder consultations.

Letters: introduction letters, invitation letter during stakeholder meetings will be an instrument used in order to facilitate the Project implementation process through good collaboration between the implementing entity and other stakeholders.

Reports: periodic reports will be distributed to keep informed the main stakeholders of the Project.

E-mails: To facilitate communication between implementing entity and the stakeholders.

The format of every consultation activity should meet general requirements on accessibility, i.e., should be held at venues that are easily reachable and inclusiveness, i.e., engaging all segments of the stakeholders. If necessary, logistical assistance should be provided to enable participants to attend public meetings scheduled by the project. All the meetings and consultations will be taken while ensuring an observation of MOH and AfDB OS, 2013 guidance on hand washing.

5. Stakeholder Engagement Plan

Stakeholder engagement is an inclusive process that must be conducted throughout the project cycle. The table below presents key stakeholders' engagement activities to take place during the project implementation and closure.

In case of stakeholder consultation "events" (whether virtual and in face -to-face meetings), the CWWDA will strive to provide relevant information to stakeholders with enough advance notice (10-15 business days) so that the stakeholders have enough time to prepare to provide meaningful feedback. CWWDA will gather written and oral comments, review them and report back to stakeholders on how those comments were incorporated, and if not, provide the rationale within 10-15 working days from the stakeholder consultation event. All consultation events will be widened in terms of outreach through the opportunity to use on-line feedback through the platform.

Annex 9: Waste Management Plan

Waste Management Plan

1. Introduction:

This Waste Management Plan outlines the strategies and procedures to effectively manage waste generated during the implementation of the Sewerage project, which is being executed by the

Coast Water Works Development Agency. The plan adheres to environmental regulations and aims to minimize adverse impacts on the environment and public health.

2. Objectives:

- Ensure proper handling, storage, transportation, and disposal of waste generated during project activities.
- Minimize environmental pollution and health hazards associated with improper waste management practices.
- Promote the reuse, recycling, and safe disposal of waste materials.
- Comply with relevant environmental laws and regulations.

3. Waste Categories:

The waste generated during the project activities will be categorized as follows:

1. Construction and Demolition Waste
2. Hazardous Waste
3. Non-Hazardous Waste
4. Biological Waste

4. Waste Management Practices:

- **Segregation:** Waste will be segregated at the source into different categories to facilitate proper disposal and recycling.
- **Storage:** Adequate storage facilities will be provided on-site for each waste category, ensuring segregation and labeling for easy identification.
- **Transportation:** Waste will be transported using authorized vehicles to designated disposal sites or recycling facilities.
- **Disposal:** Waste disposal will be conducted in accordance with local regulations. Non-hazardous waste will be disposed of at approved landfill sites, while hazardous waste will be handled and disposed of by licensed contractors following safety protocols.
- **Recycling and Reuse:** Efforts will be made to maximize recycling and reuse of materials such as concrete, metals, and plastics to reduce the volume of waste sent to landfills.
- **Biodegradable Waste Management:** Organic waste generated during construction activities will be composted or utilized for bioenergy generation, if feasible.

5. Monitoring and Reporting:

- Regular monitoring of waste management practices will be conducted to ensure compliance with the Waste Management Plan.
- Any deviations or incidents related to waste management will be documented and reported to the project management team for appropriate action.
- Progress reports on waste management will be included in project status reports and shared with relevant stakeholders.

6. Training and Awareness:

- All personnel involved in project activities will receive training on proper waste management practices, including segregation, handling, and disposal procedures.
- Awareness campaigns will be conducted among project staff and local communities to promote waste reduction, recycling, and environmental stewardship.

7. Contingency Plan:

- A contingency plan will be developed to address unforeseen circumstances or emergencies related to waste management, ensuring prompt response and mitigation of environmental risks.

8. Annex: This Waste Management Plan serves as an annex to the project documentation and will be referenced and implemented throughout the duration of the proposed project.

9. Review and Updates: The Waste Management Plan will be reviewed periodically to incorporate any changes in project scope, regulations, or best practices. Updates will be communicated to all relevant stakeholders.

10. Conclusion: Effective waste management is essential for minimizing environmental impacts and ensuring the success of the Proposed project.

. By implementing the strategies outlined in this plan, we aim to uphold environmental sustainability and contribute to the overall well-being of the community.