TANA WATER WORKS DEVELOPMENT AGENCY

National Urban Water Supply and Sanitation Program

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT(ESIA) REPORT FOR KERUGOYA –KUTUS WATER SUPPLY LAST MILE CONNECTIVITY (LMC) IN KIRINYAGA COUNTY

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24 APRIL 2024

DECLARATION BY THE PROPONENT

TANA WATER WORKS DEVELOPMENT AGENCY

I certify that this Environmental and Social Impact Assessment (ESIA) study report for **Kerugoya Kutus Water Supply Project Last Mile Connectivity** was conducted under my direction.

Signature..... Date 22/04/2024

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CERTIFICATION

I hereby certify that the content of this Environmental and Social Management (ESIA) study report for the proposed construction of Kerugoya-Kutus Water Project Last Mile Connectivity, Kirinyaga County is factual and all the information is accurate and truthful representation of all findings as relating to the proposed project.

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Table of Contents

LIST OF TABLES

FIGURES

PLATES

LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation/Acronyms	Description
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
CIDP	County Integrated Development Plan
CPP	Consultation and Public Participation
COC	Code of Conduct
EA	Environmental Audit
EMCA	Environmental Management & Coordination Act, Cap 387
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
GHG	Green House Gases
HDPE	High Density Polyethylene
HIV	Human Immuno-deficiency Virus
ISS	Integrated Safeguards System
KENHA	Kenya National Highway Authority
KERRA	Kenya Rural Roads Authority
KES	Kenyan Shillings
KURA	Kenya Urban Roads Authority
KWS	Kenyan Wildlife Service
KICOWASCO PLC	Kirinyaga County Water and Sanitation PLC
LMC	Last Mile Connectivity
NRW	Non-revenue Water
NEMA	National Environmental Management Authority
OHS	Occupation Health and Safety
O&M	Operation &Maintenance
OS	Operational Safeguards

OSHA	Occupational Safety and Health Act
PAPs	Project Affected Persons
PPE	Personal Protective Equipment
RAP	Ressetlement Action Plan
SDG	Sustainable Development Goals
STIs	Sexually Transmitted Infections
TWWDA	Tana Water Works Development Agency
UfW	Unaccounted for water
UNFCC	United Nations Framework Convention on Climate Change
WIBA	Work Injury Benefits Act
WRA	Water Resources Authority
WSP	Water Services Providers
WTP	Water Treatment Plant

EXECUTIVE SUMMARY

Overview of the Project

Tana Water Works Development Agency (TWWDA) has proposed to construct Kerugoya Kutus Water Supply Project Last Mile Connectivity in Kirinyaga County, under the **National Urban Water Supply and Sanitation Program** with funding from the African Development Bank (AfDB)**.**

Kerugoya Kutus Water Supply Project was a bulk water supply project with notable beneficiaries who are the residents of Kerugoya, Kutus and its environs. The Ministry of Water, Irrigation, and Sanitation through TWWDA aims to increase connections to more than 160,000 people

The Project is situated in Kirinyaga County in the Central part of Kenya. The total area of the county is approximately 1,478.1 KM^2 and lies between latitudes 0^0 1' and 0^0 40' south and 37^0 and 38^0 East. The county lies between 1,158 metres and 5,380 metres above sea level. The project covers Kirinyaga West and Kirinyaga Central sub counties. Specifically, the water supply infrastructure will supply water to the towns of Kerugoya, Kutus, Kagio and Sagana.

In complying with the Kenyan development regulations and AfDB Operational Safeguards the client (TWWDA) commissioned Aquagreen Enterprises Limited to carry out consultancy services of Environmental and Social Impact Assessment (ESIA) studies and update the existing ESIA done in 2017 for Kirinyaga County Bulk water supply and Sewerage. This report provides the project background as well an assessment of the associated beneficial and adverse environmental and social impacts of the Proposed Water Project.

Project Goal

The overall goal of the project is to improve the health, quality of life and reduce poverty levels of the population of Kenya through provision of reliable and sustainable supply of safe and clean drinking water to more than 10,000 households. This endeavour stands as a pivotal component of TWWDA's broader strategy to address the pressing water needs of communities nestled along the foothills of Mount Kenya. It also harmonizes seamlessly with TWWDA's ongoing endeavours to provide sustainable water solutions within its designated service region.

Project Objective

The project's objective is to improve the provision of potable water supply system coverage for Kerugoya, Kutus, Kagio and Sagana towns

Components

The main components of the proposed water supply distribution – Last Mile Connectivity (LMC) project for Kerugoya Kutus Bulk Water supply in Kariti, Kerugoya/ Kanyakine, Nyagati, Mutithi, Wamumu wards will include;

Water Lines

a) Sagana-Mayas Line - 4.46km of OD 110mm-90mm
b) Kiamwenja Spenzer Line -5.46km of OD 90mm
c) Kimicha- Ngoka -14.22km of OD 110mm
d) Mutithi- Kandongu -7.8km OD 140mm
e) Kutus Kimbimbi -7.86km OD 160mm

Break Pressure Tank

1 No Pressure tank will be constructed. 2No along the Kutus Kimbimbi Mainline.

Main activities are:

Pre-construction and Project Design

The proponent developed a comprehensive proposal justifying the need and to determine its suitability to meet the water demand of Kerugoya-Kutus residents as described in this report. The ESIA is part of this process and it establishes areas of environmental and social issues and proposes the appropriate mitigation measures to be undertaken at all project phases.

Design Work

The design of the project entailed significant ground activities including reconnaissance survey, topographical survey, hydrology of the water offtake source, identification of the water demand, development of design layout and associates BoQs and tender documents.

Construction Activities

Site Clearing and Trenching

Considering that the proposed pipeline will traverse the project site within the established road reserve, vegetation clearing will be done to pave way for laying of the pipeline. Along the reserve, the predominant vegetation is grass and short bushes that prevents soil erosion along the road drainage

Pipe Laying

This shall involve pipeline transportation, placement of the pipes in the dug trenches, pipe joining works and backfilling.

Restoration Activities

On completion of the project construction, there will be restoration of all the damaged road sections and road reserve areas. Landscaping of the backfilled areas through re-vegetation and/or leveling to encourage growth of natural grass will be undertaken as a means of environmental conservation and aesthetics

Commissioning

This shall be the formal hand-over and operationalization of the supply pipeline upon completion by the contractor. To achieve successful hand-over process, the proponent shall ensure that there are no unresolved social concerns and that the facility has been completed as per the design details, affected sites have been well rehabilitated and that all components of the pipeline are operational.

Operation activities

Pipeline Operation

The water supply will be monitored to ensure that it conveys the designed flows and at the same time relieving allowable volumes from the abstraction sources. The process shall be continuous with regular checks along the pipeline to check for leakages and illegal connections that may occur over time

Project Cost

The total project cost has been estimated at Two Hundred Forty-Six Million, Seven Hundred and Fifty-Four thousand, Three Hundred and Fifty-Eight Kenya Shillings (**KES 246,754,358**).

Brief Description of the Project site

The project area is served by several water supply schemes that area operated by KICOWASCO PLC and rural Communities.The existing water supply systems are faced by a myriad of problems including inadequate system capacity, low yields at source, low revenue collection and cost recovery, manual billing, inadequate investment in Operation and maintenance (O&M), poor water quality and high amounts of unaccounted for water (UfW).

Baseline conditions

A socio-economic survey targeting the affected persons was undertaken 22nd February, 2024 to 3rd March, 2024. Data was collected among 119 respondents in Kerugoya town, Ngaru location, Kathare

area and Kutus town. The males predominate the project area, but the females were well represented in the exercise.

Age Distribution: Majority of the population are aged between 18-47years with the highest age group being those between 28-55years.

Income: Most of the respondents earned below KES 10,000 monthly salary with a majority of them being self-employed.

Education Level: The highest level of education for most respondents is Secondary School, but 13.4% also reported to have no formal education.

Sources of Water: The main sources of water for the residents is community schemes, KICOWASCO PLC piped water into households that was deemed unreliable during the dry season.

Human Waste Disposal: 99.9% of the respondents rely on Pit latrines for disposal of human waste and about 4.8% use flush toilets.

Biodiversity

Biodiversity of the project location is highly influenced by the Mt Kenya forest ecosystem with respect to indigenous plant cover species. However, due to human activities, the indigenous plant species have been displaced by exotic species that have also acquired economic values among the communities. Such plant species include tea, coffee, Eucalyptus spp, Cypress ssp., Caussurina spp. and Graveria ssp.

Land Ownership: land is a very treasured resource for rural households like the ones residing in the proposed area with 73% of households owning some agricultural land. The mean land holding in the reservoir area is 1.5 acres.

Policy, Legal and Regulatory framework

A detailed review of relevant institutional and legal as well as policy framework that bears significance or implication to Kerugoya-Kutus Water supply LMC project have been analyzed. The AfDB Operational safeguards applicable to the project as well as the international laws and conventions that bear relevance to the implementation of this project have also been highlighted.

In Kenya, The Environmental Management and Co-ordination Act, No.8 of 1999(amendments) provides for the establishment of an appropriate legal and institutional framework for the management of the environment and associated matters.

The TWWDA is committed to complying with all applicable legal requirements as well as the AfDB Integrated Safeguards System(ISS) Operational Safeguards(OS) ;OS1: Assessment and Management of Environmental and Social Risks and Impacts, OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation, OS 3: Biodiversity and Ecosystem Services, OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency and OS 5: Labour Conditions, and other international standards for environmental and social governance and management.

Some of the national policy, legal and institutional framework governing this project are:

- The Constitution of Kenya, 2010
- The Environmental Management and Coordination Act (EMCA) Cap 387
- The Water Act (2016)
- The Environmental (Impact Assessment and Audit) Regulation (LN 101 of June 2003)
- The Environmental Management and Co-ordination (Waste Management) Regulations 2006
- The Environmental Management and Coordination, (Water Quality) Regulations 2006
- The Environmental Management and Co-ordination (Wetlands, River Banks, Lake Shores and Sea shore Management) Regulations 2009
- The Occupational Safety and Health Act, (OSHA) 2007
- The Work Injury Benefits Act (WIBA) 2007
- Land Laws (Amendment) Act 2016
- The Physical and Land Use Planning Act, 2019
- Penal Code cap 63
- Employment Act 2007

Stakeholders Consultations and Feedback

Public consultation involved extensive discussions with key stakeholders in water resource management which include: Department of water and Irrigation, Water Resources Authority, National Environmental Management Authority, Kerugoya prisons, Kirinyaga County Water and sanitation PLC (KICOWASCO PLC) and the general public including project affected persons. This was facilitated by the relevant National Government Administration Offices (NGAOs).

Detailed Consultation and Public Participation (CPP)/community engagement for Kerugoya Kutus water supply LMC project was carried out in 2 Sub - Counties Kirinyaga Central and East between 22nd of February to 3rd March 2024. A total of 119 participants were engaged comprising of 78 males

and 41 females. During consultation, stakeholders were asked of their views and concerns about the project. This helped to identify salient issues and concerns that affect different stakeholders and reach agreement on the understanding of these issues and grievances.

The safeguards team ensured a favourable environment free of coercion and intimidation, gender inclusive and inclusive to vulnerable and disadvantaged groups. All stakeholders were supportive of the project since it will provide communities with a number of advantages with minimum impacts. The stakeholders also appreciated that the importance of the proposed project in the enhancement of household incomes and availability of clean water. During the consultation with stakeholders' participants raised specific project benefits, impacts, mitigation measures and concerns.

Risks /Impacts presented

The proposed project is classified as a medium risk based on NEMA Public Notice on ESIA and Legal Notice No. 31 thus requiring Comprehensive project report (CPR) and also categorized by AfDB as category 2 with moderate risk operations likely to cause adverse environmental and social impacts and readily minimized by applying appropriate management and mitigation measures.

Positive Environmental and Social Impacts of the project presented

- The project will provide employment creation for the youth and women during construction and operational phase
- Incidences of water-borne diseases will be reduced since clean treated water will be available
- Through construction of the proposed project, there will be reduction of poverty level in the area and the livelihood will improve.
- Improved household income for the community that will lead to improved standards of living at community level.
- Short distances of travel in search of water
- Time-saving for other activities
- The proposed Kerugoya Kutus water LMC project will have a spill-over effect of attracting other developments in the area
- Any leakages from the water supply pipeline might overflow to neighbouring farm holdings thus leading to destruction of crops
- Poor disposal of construction wastes will lead to pollution of the environment
- Trenching activities will lead to soil erosion within the road drains thus the risk of siltation into the existing water ways

Isseus raised and responses

Issues/Concerns	Responses by the Developer
Water cost	During consumption of water the consumer will bear the cost paid to water service provider for sustainability of the project
Loss of assets and businesses during construction	Compensation to be done after assessment and valuation
Wayleave and Compensation	Most of the pipes will be along existing roads. In case of land acquisition, the affected land owners will be compensated.
Maintaining the water supply during low flow seasons	Have some storage to capture and store excess water during flooding so that during low flow there is enough water to be supplied
Low Water Quality	Water quality will be monitored on quarterly basis by KICOWASCO PLC to ensure that the standard for water consumption is maintained
Additional Distribution lines to cover both sides of the road at Kirimunge area	The proposed design covers one side of the road, but KICOWASCO PLC can assist in future connection.

Potential Project Impacts and Mitigation measures

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 pre-construction, construction, operation and decommissioning will be analyzed. Successful implementation of the project will have high socio-economic benefits to the people and will contribute to the health and wellbeing.

Positive Impacts During Construction Phase

A summary of anticipated positive impacts of the Project include:

- Employment opportunities during construction, the design report has provided for unskilled labour to be sourced from the local community.
- Provision of ready market for construction materials such as sand, ballast and cement that will be sourced from local market, this will lead to injection of money into the local economy

- Technological and knowledge transfer to the local sector, this will be through the artisan who will be employed and trained by the Project.

Positive Impacts During Operation Phase

The Project shall result to both direct and indirect benefits to the residents of Kerugoya Kutus LMC Water Project Area as summarized below:

- Improve affordable, clean, reliable water supply within Project area leading to improved health and hygiene.
- Reduce exposure to health risks posed by consumption of untreated water from existing community water schemes.
- Improve health and nutrition of Kirinyaga people through consumption of treated safe water.
- Provision of clean reliable safe water supply will eliminate water burden to women and girl child, this will allow women to engage in other economic activities while girl child concentrate on education.
- Provision of affordable water to residents because the water will be billed at Water Services Regulatory Authority recommended tariffs as opposed to the current exorbitant tariffs posed by local community water schemes.

Overall, expected negative impacts are related to pipeline and associated works such as construction of the tanks, treatment works and transmission lines. These impacts are localized and not considered significant and long-lasting and can be mitigated through appropriate mitigation measures.

Impacts Negative Impacts during Construction phase

a) Environmental

- Losses of vegetation cover at the project site
- Contamination of surface water and their sources by waste water
- Soil erosion resulting to loss of top soil
- Generation of solid waste from construction activities
- Noise and Excessive Vibrations
- Air Pollution and dust generation

b) Social impacts

Increased transmission of HIV/AIDS

Risk of traffic accidents along the pipeline route

Interference of public utilities and blocking access to property adjacent to the road

Human rights and gender inclusivity

Labour influx and sexual offences increased crime and insecurity

Loss of temporary assets and sources of livelihood

Operation Phase

a) Environmental negative Impacts

- Landslides causing damage of the Pipeline
- Contamination of water source
- Noise pollution
- Occupational safety and health risks from exposure to chemicals
- Air pollution

b) Social Impacts

- Risk of Encroachment and Construction of Structures on the Pipeline Way Leave
- Risk of Pipeline Bursts leading to water loss (Non-Revenue Water).
- Risk of Illegal Connections and Vandalism of the Pipeline.

Decommissioning Phase

- Exposure to occupational health and safety risks during pipe removal process and likely landslides.
- Loss of assets & sources of livelihood
- Generation of solid waste from decommissioning activities
- Human Rights and gender inclusivity
- Labour influx and sexual offences
- Interruption of public utilities & blocking access to property adjacent to the road
- Increased transmission of HIV/AIDS.

Mitigation Measures

- Involvement of local leaders in project planning.
- Ensure the environmental assessment report and the RAP are validated.
- Rehabilitate disturbed areas.
- Demarcate construction areas and routes these sites.
- Establish standard procedures for skilled and non-skilled employment.

- Adopt occupational health and safety guidelines.
- Institute a grievance and redress committee.
- Community sensitization on security and moral issues that may result from the project.

For the environmental and Social impacts identified, adequate mitigation measures have been proposed in order to alleviate the expected negative impacts and to make the project environmentally and socially acceptable.

Environmental and Social Management Plan (ESMP)

The purpose of the ESMP is to ensure proper management of environmental and social impacts and risks identified during the assessment. The ESMP specifies the mitigation and management measures for each impact/ risk, party allocated responsibility, means of monitoring and frequency, objective verifiable indicators and an indicative budget.

A summary of ESMP of the proposed water project is presented in the table below:

Table 0-1:Summary of ESMP

Environmental and social impact	Mitigation measures	**Cost (KES)**
Construction Phase		
Loss of productive land and assets	• RAP study shall be undertaken prior to commencement of the project in order to compensate the project affected persons.	Cost RAP implementation
Soil erosion and disposal of excavated soil	• Excavated soil will be used in the proposed project sites for development of impounding structures, re-spreading in areas to be landscaped to enhance aesthetics along the wayleave area and the development of access roads; and • Works program should be in line with Kerugoya Kutus weather pattern so as to avoid such works during rainy seasons;	20,000

Soil and river water contamination	• Plan emergency response measures in case of accidental spills of hydrocarbons, cement and any foreign materials; • Maintenance of construction equipment to be done on designated purpose-built surfaces; • Placing of sand bags along drainage channels and the river bank to prevent siltation of the river; • Any on site/camp storage areas for fuels, oils or other liquid chemicals would be sited away from surface water drains, and on impermeable base.	42,000
Loss of flora and fauna	• Construction zone limits should be identified and physically marked, to avoid or minimize unnecessary damage of existing vegetation • Where clearance of vegetation is unavoidable, incorporate landscaping with local tree species and plants approved by KFS.	21,000
Noise and vibrations pollution	• Noise levels at the construction site boundary should be kept within acceptable limits of 60 dB(A) during the day and 35 dB(A) during the night as stipulated in the EMCA (Noise & Excessive Vibration Pollution) (Control) Regulations, 2009; • Workers to use ear plugs for noisy operations; • Regular maintenance of equipment; and • Noisy operation to be scheduled outside school learning hours.	50,000
Air pollution by dust and greenhouse gases	• Stabilize unpaved access roads, parking areas and staging areas at construction sites by soil compacting, and regular sprinkling of water to reduce on dust; • Minimizing number of motorized vehicles in use and number of trips through a traffic management plan;	70,000

Spread of HIV / AIDS and STI related diseases	• Awareness campaigns on HIV/AIDS and STIs; • Provision of condoms to the workforce; and • As much as possible, unskilled labour to be recruited from the project area.	400,000
Waste disposal	• Contractor to put in place well labelled solid waste segregation bins and ensure final disposal of the waste stream at designated dump sites • Provision of appropriate sanitation facilities for use by workers. • Sale of waste such as cartons and cement bags to waste paper recyclers.	20,000
Occupational and public health and safety	• Contractor to implement requirements of Occupational Safety and Health Act 2007 including provision of personal protective equipment (PPE), and carrying out frequent toolbox talks and safety trainings for workers.	924,000
Security	• The project site should be enclosed using suitable walls with 24-hour security guards to beef-up security and to control movement in and out of the site.	120,000
Shortage in water supply due to construction works	• Provision of an alternative access to portable water for the community during construction of the pipeline • Awareness should be carried out early in advance to inform the people on the major works.	50,000
Employment	• The contractor should as much as possible hire the local unskilled labour • At end of construction phase, the contractor should notify the employees in advance on the project closure date and adequately compensate them; • Dismissal procedures to be compliant with Employment Act, 2007;	10,000
Noise and air pollution from	• Schedule noisy activities during the day time period; • Use silencers on machines where possible; • Maintenance of machinery so as to reduce noise;	40,000

decommissioning of the contractor's camp	• Practice dust management techniques, including watering down during drier period; • Set up dust barriers/ screens at strategic locations; • Provide and enforce the appropriate use of PPE against dust. • Further follow ups should be done.	
OPERATION PHASE		
Contamination of water source	• Continuous monitoring of water treatment effluent to ensure adherence to the EMCA (Water Quality) Regulations, 2006 and EMCA (Waste Management) Regulations, 2006; • Notification of downstream community in case of unprecedented overflow of wastes from water treatment sludge lagoons. A communication protocol should be developed for this.	800,000
Noise pollution	• Suitable mounting is done at the installation stage incorporating noise and vibration abatement; and • Generators to be equipped with standard noise attenuation features including silencers or lagging materials or specially designed acoustic enclosures;	10,000
Occupational safety and health risks from. exposure to chemicals and electricity hazards	• Provision of appropriate personal protective equipment (PPEs) for the operation & maintenance • staff including safety glasses, hard hats, safety shoes, insulating (rubber) gloves with leather protectors, insulating sleeves, and flame-resistant clothing. • Scheduled staff training on handling of hazardous chemicals, tool box talks, and general health and safety training as per Occupational Safety & Health Act, 2007	144,000

The proponent, TWWDA is staffed by environmental experts who will oversee the mainstreaming environmental and social sustainability of the project, supervising ESMP implementation by the contractor and KICOWASCO PLC is responsible for monitoring during project's operation.

For closer supervision of the construction ESMP, the supervision consultant shall also be required to have an environmentalist to oversee ESMP implementation by the contractor and periodically report to the TWWDA.

In order to guarantee the effective implementation of the ESMP, the responsibilities and authority of the various persons/ institutions which will be involved in the project need to be clearly defined. The roles of and responsibilities of each party in administering the ESMP are provided in Table 0-2;

Table 0-2:Roles and Responsibilities of key stakeholders

Party	Roles and Responsibilities
Tana Water works Development Agency (TWWDA)	• Drafting of comprehensive tender documents that include environmental specifications in the tender specifications • Selection of qualified, environmentally conscious contractors • Supervision to ensure that objectives of this ESMMP are met
Construction Consultant	• Ensure that the proposed ESMMP is up to date and is being used by the contractor • Conduct periodic audits of the ESMMP to ensure that its performance is as expected
Construction Contractor	• Ensure compliance environmental specifications of the ESMMP • Engage a competent Environment Safety Health and Safety Advisor/officer to advise them on the ESMP compliance; • Undertake risk assessments and prepare project specific Construction ESMPs for review and approval.
NEMA	• Exercise general supervision and co-ordination over all matters relating to the environment • Conduct periodic visits to ensure that the terms of the project license are being observed.
Water Resources Authority	• Give water permits • Protection of riparian zones
County Government	• The County Governments have powers to control or prohibit all businesses, factories and other activities including new projects which maybe or become a source of danger, discomfort or

	annoyance to the neighbourhood and to prescribe conditions subject to which such activities shall be carried.
DOSH	• Inspecting workplaces to ensure compliance with safety and health laws, including: • Examination and testing of regulated equipment; • Measurements of workplace pollutants for purposes of their control; • Investigation of occupational accidents and diseases with a view to preventing recurrence; • Medical examinations of workers; • Training on OSH, first aid and fire safety; and • Disseminating information on occupational safety and health to beneficiaries • Workplace registration
KICOWASCO PLC	• Oversee the mainstreaming environmental and social sustainability of the project. • Supervising ESMP implementation by the contractor and responsible for monitoring during project's operation.

The total cost of implementing the ESM&MP is **Ksh. 2,870,000. The ESMMP should be shared with the selected contractor(C-ESMMP) for implementation.**

The African development bank as the financier will be involved in:

- Reviewing and clearance of ESIAs
- Providing technical support including safeguards compliance, and supervision of the project through periodic implementation support missions and supervision missions to monitor progress of implementation.
- Monitors compliance with E&S standards

Conclusion

The assessment and evaluation of the environmental and social impacts of the proposed Kerugoya – Kutus LMC Water Supply project by TWWDA has revealed that the project will bring a net

environmental, social, health and economic benefits to all living within the Project area and its environs.

Recommendation

Its recommended that for the negative environmental impacts identified, adequate mitigation measures have been proposed in order to alleviate the expected negative impacts and to make the project environmentally and socially acceptable. An ESMP has been prepared, and it includes: the mitigation plan; the monitoring and enforcement requirements; and the responsible persons/organizations.

CHAPTER 1: INTRODUCTION

1.1. Background information

Tana Water Works Development Agency (TWWDA), herein referred to as the proponent has proposed to implement the Kerugoya-Kutus Last Mile Connectivity water supply Project under **the National Urban Water Supply and Sanitation Program** to improve and increase water supply to the residents of Mutira, Kanyekine, Kutus, Kerugoya, Inoi, Koroma, Mukure, Kiine, Mwerua and Kariti of Kirinyaga County.

In complying with the Kenyan development regulations and AfDB Integrated safeguards systems (ISS) operational safeguards, the proponent commissioned Aqua green consultant to review and update the ESIA report prepared in 2017 to incorporate the project components and prepare an Environmental and Social Impact (ESMP).

1.2 Project Justification

Kerugoya, Kutus towns and environs have significant water shortages, all the systems in these towns were built in the 1970s and the capacity has been outstripped by demand. Initial assessments by KICOWASCO PLC, County government have been done to determine the production capacity of the existing Kerugoya Kutus system.

The existing Kerugoya Kutus water supply infrastructure is dilapidated, high levels of network breakdowns, high levels of non-revenue water, have UFW as high a s 60% and consequent escalation of the operation and maintenance costs.

Kerugoya Kutus Water Supply LMC intends to address this situation by improving access to safe, reliable, sustainable, and affordable water supply services through increased connectivity of consumers to the existing Kerugoya-Kutus Supply and Sewerage Network in Kerugoya Kutus. The project targeted to benefit 180,780 people in Kerugoya Kutus and environs.

1.3 Justification for ESIA

The proposed project is classified as a medium risk based on NEMA Public Notice on ESIA and Legal Notice No. 31 thus requiring Comprehensive project report (CPR) and also categorized by AfDB as category 2 with moderate risk operations likely to cause adverse environmental and social impacts and readily minimized by applying appropriate management and mitigation measures. It is against this backdrop that this ESIA was undertaken in accordance with the regulations and guidelines set out by the National Environmental Management Authority

(NEMA), and AfDB Operational safeguard OS1. The ESIA done was to determine the current status of the environment, environmental considerations for the project in the design phase, operation phase and the decommissioning phase

1.4 Objectives of ESIA

This ESIA in accordance with EMCA 1999 and subsequent amendments and the requirements of the African bank Development(AfDB)integrated Safeguards Systems ISS Operational Safeguards.. As part of the project planning, the ESIA process is meant to identify significant environmental and social impacts associated with the design, construction, commissioning and decommissioning of the proposed project and recommend appropriate enhancement and mitigation measures for the positive and negative impacts respectively. The ESIA will generate an Environmental Management Plan that describes in detail the mitigation measures to be carried out, costing, scheduling and responsibility of such measures, and a detailed monitoring process and its schedule.

1.5 Scope of Activities

The scope of activities for this assessment entailed;

1. Description of the proposed project
2. Description of the physical, biological and social environment
3. Description of the health and safety situation and social safeguards
4. Description of pertinent Legislative and Regulatory Considerations:
5. Determination of the Potential Environmentaland Social Impacts of the Proposed Project:
6. Analysis of the occupational health and safety concerns
7. Development of environmental and social management plan to mitigate negative impacts
8. Development of the ESIA monitoring plan

1.6 Methods used to conduct ESIA

1.6.1. Approach

The Assessment process adopted a participatory and collaborative approach in the course of the assignment. These approaches encouraged active involvement of the stakeholders, who had crucial perspectives and knowledge of the areas' conditions, traditions and social structure. It also assisted

the personnel to acquire reliable data, using a variety of formal and informal techniques that could were employed within a short timescale.

The assignment was conducted in line with the NEMA guidelines for an ESIA outlined in Environmental Management and Coordination Act (EMCA) 1999, and in consideration of international guidelines on environmental and social policies, guidelines and assessment procedures.

1.6.2 Methodology

The assessment was guided by the methodology described by the EMCA 1999 and the Environmental (Impact assessment/ Audit Regulations (2003).and World Bank's safeguard policies. The various amendments to the Act, notably, the EMCA (amendments) 2015 and Legislative Supplement No. 63 of 19 August 2016 were also consulted extensively during the assessment.

The ESIA study was carried out through a mix of methods namely; desk review, field assessments and public consultations with the communities of possible project beneficiaries, the project affected persons and relevant County and National Government institutions and agencies. The method followed is as described in the following sections;

i. Desk review

A desktop study was conducted to review available published and unpublished reports, development plans and maps to compile relevant baseline biophysical and socio-economic information about the study area.

The biophysical information was compiled on environmental aspects such as Topography, Climate, Soils, Water Resources, land use and flora and fauna. On the socio-economic environment, the study compiled information on aspects such as population, access to water, and health.

ii. Field visits

Field visits were conducted to assess the project area, collect environmental data and site-specific information on the biophysical and socio-economic environment. The exercise was meant to verify and supplement secondary data. Specific key feature were captured in photographs.

While at the site, environmental data were recorded and potential impacts identified. In addition, environmental features relevant to the study were noted and photographs taken as record of key features.

iii. Public Consultations

Public consultations were undertaken through key informant interviews and public meetings (barazas). The consultations were meant to create awareness of the proposed project, assess the reaction of the affected communities and identify any potential adverse social and environmental effects.

- Public Consultations meetings

Consultations with the communities were conducted in the project area with the help of the local administration especially the chiefs and assistant chiefs. The discussions during these public meetings were centered on key emerging issues relating to the project as well as the communities.

- Key Informant Interviews (KII)

One-on-one interviews with county and national government agencies and institutions in the project area were undertaken i.e. from Kerugoya, the water departments, the roads department, NEMA, Public Health Offices in Kerugoya and the County Environment Departments.

These interviews were conducted to augment and confirm data and information obtained using the other tools and methodologies.

iv. Impact assessment and analysis

The assessment and analyses methodologies for ESIA studies were based on multi- disciplinary approaches and structured to allow for holistic study and assessment of the following key components of the environment in relation to the proposed Project:

- Physical/chemical component;
- Biological/ecological component;
- Sociological/cultural component; and
- Economic/operational component.

The anticipated project impacts were then classified as either positive or adverse and appropriate mitigation measures assessed before recommendation.

CHAPTER 2: PROJECT DESCRIPTION AND LOCATION

2.1 Project Location

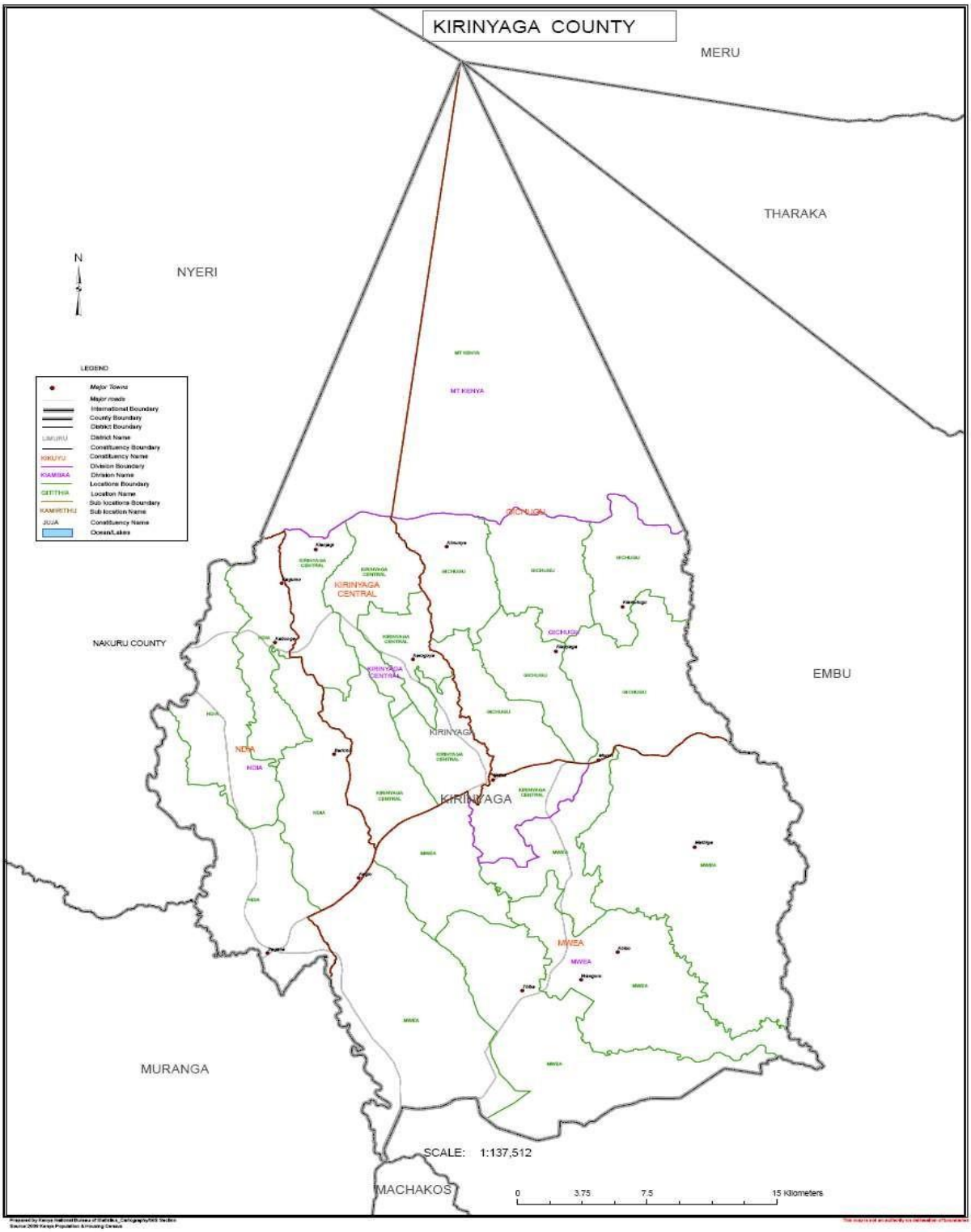
The Tana Water Works Development Agency (TWWDA) established under the Water Act, 2016 jurisdiction areas cover Nyeri, Meru, Embu, Kirinyaga, and Tharaka Nithi County. The agency's mandates include the development, maintenance, and management of public water works. In response to the pressing need for water services in Kerugoya Kutus town and environs, TWWDA has proposed to implement Kerugoya Kutus water project LMC Project. in Kirinyaga County. The total area of the county is approximately 1,478.1 km2 and lies between latitudes 0^0 1' and 0^0 40' south and 37^0 and 38^0 East.

The county lies between 1,158 metres and 5,380 metres above sea level. Kerugoya Town lies between latitude 0^0 30' South and 37^0 16' East and is located about 124km Northwest of Nairobi,10 kilometres east of Karatina and 40 kilometres west of Embu towns. The town of Kutus is the capital Town of Kirinyaga County and is located about 10.5 km South West of Kerugoya town. Sagana town is on the South-Eastern part of the Kirinyaga county and about 20 km from Kutus while Kagio Town is 18 km south of Kerugoya town and about 12 km from Kutus town.

The Proposed Kerugoya Kutus water supply LMC pipelines will serve the following wards;

- Kariti
- Kerugoya/ Kanyakine
- Nyagati
- Mutithi
- Wamumu

Figure 2-1:Kirinyaga County



2.2 Description of existing Kerugoya Kutus water supply

The project area is served by several water supply schemes that area operated by KIRIWASCO and Rural Communities. These systems include; Ndia Water Supply, Sagana Water supply, Mukengeria Water supply, Baricho water Supply schemes and Kerugoya Kutus Water supply. After an assessment of the existing infrastructure, only Ndia Water supply system was found to be in good condition and supplying what can be qualified as potable water and with a production capacity of **11,700m^3/day** and Kerugoya Kutus with a production of 30,000**m$^{3/}$day**. Kerugoya Kutus currently have a sewerage system in place and currently under the planning for last mile connectivity too. The project targeted to benefit 180,780 people.

Kerugoya and Kutus Water Supply project consist of:

I. Construction of Intake Works across Thiba River and Kiringa River; the Weir locationsare both within the Mt. Kenya Forest. The Intakes Works Comprise of: 24 m wide Weir and sedimentation tanks for Kiringa Intake and 11 m wide Weir and sedimentation tanks for Thiba Intake.

II. 2No Raw Water Main, Length 1620m Steel Pipe of nominal diameter 450mm. for Kiringa Raw water Main and 4240m long Steel Pipe of nominal diameter 300mm. for Thiba Raw water Main.

III. New Treatment Works located in Muratiri within the Nyayo Tea Zone area, with a design capacity 30,000m3/d comprising of:Stilling well of 5.8 m X 4.4 m x 1.2 and inlet channel 45m x1mx1.2m complete with a Parshall flume

- Chemical Store and Dosing Building
- 4No. Flocculation basin (11.5m x 8.9m)
- Horizontal Flow Sedimentation Tanks – 4N0 each 36 x 11m
- Rapid Gravity Sand Filters – 8Nr each 7.6m x 5.1m
- Filter Gallery and Pipe work
- Gravity Sludge Thickener and Sludge Drying Beds
- Pumping Station for Backwash pumps – floor area 80m^2
- 2No. Reinforced Concrete Clear Water Tank – capacity 2000m^3
- Chlorine Store and Mixing Room
- Administration Building – floor area 180m^2

- Generator Room – floor area 45m^2
- Elevated Backwash tank – capacity 300m^3
- Site Works including access road, fencing and staff housing etc.
- Water Mains: Varying in diameter from 160mm to 500mm consisting of .49.6km and 6.3km lengths for epoxy coated cement lined steel and HDPE respectively. Associated works include installation of valves, fire hydrants, flow meters, construction of chambers, etc.

IV. Storage Tanks 2 No. Clear Water Tank at the T/Works of 2000m^3 each, 2000m^3 Kianjogu Tank, 3000m^3 GakoigoTank, 2000m3 Kiamuthambi Tank and 1,500m^3 Sagana Tank.

2.3 Description Proposed Project

To resolve the problem of inadequate water supply and water quality TWWDA has proposed a sustainable and feasible solution by establishing Kerugoya Kutus Water Supply Last Mile Project.

Kerugoya Kutus water supply last mile project will include construction of:

Kiamwenja Spenza Line

Kutus Aquaculture Line

Affordable Housing Line

Nyaga Line Line

Kianjogu Line

Kiamuthambi Line

Kianguenyi Line and Ancilliary Works.

2.3.1 Project components

The proposed Kerugoya-Kutus Water Supply Last Mile Connectivity project shall consist of:

I. Water Lines

This entails Supply and Installation of various sizes of distribution network pipelines to about 830 households through laying of pipelines of varying diameter of 0D 50-110mm complete with all fittings, the proposed distribution lines are:

- Sagana-Mayas Line - 4.46km of OD 110mm-90mm
- Kiamwenja Spenzer Line- 5.46km of OD 90mm
- Kimicha- Ngoka- 14.22km of OD 110mm
- Mutithi- Kandongu- 7.8km OD 140mm
- Kutus Kimbimbi- 7.86km OD 160mm

II. Break Pressure Tank

1 No Pressure tank will be constructed. 2No along the Kutus Kimbimbi Mainline.

2.3.2 Layout of Distribution system

he Agency identified priority pipeline routes that best suit the terrain and intended goal of reaching as many people as possible through individual connections as well as communal water points where necessary. This was driven by expressed demand of services and poor coverage or absence of it, this was achieved using the most recent road network maps, Urban development plans and Settlement patterns/plans, building layouts, satellite imagery and walkover surveys.

Through field visits and the use of topographic maps and ground truthing, the following was adhered to in aligning distribution lines:

- The distribution pipelines located within roadways or public open spaces in order to ensure easy accessibility for maintenance;
- The adopted layout permits easy access to the pipelines and does not interfere with the existing infrastructure;
- The pipelines aligned in order to avoid other utilities' surface and sub-surface infrastructure as much as possible to minimize relocation of services;
- The distribution pipeline depths determined to allow for connections with ease;

Figure 2-2: Kerugoya Kutus LMC Layout

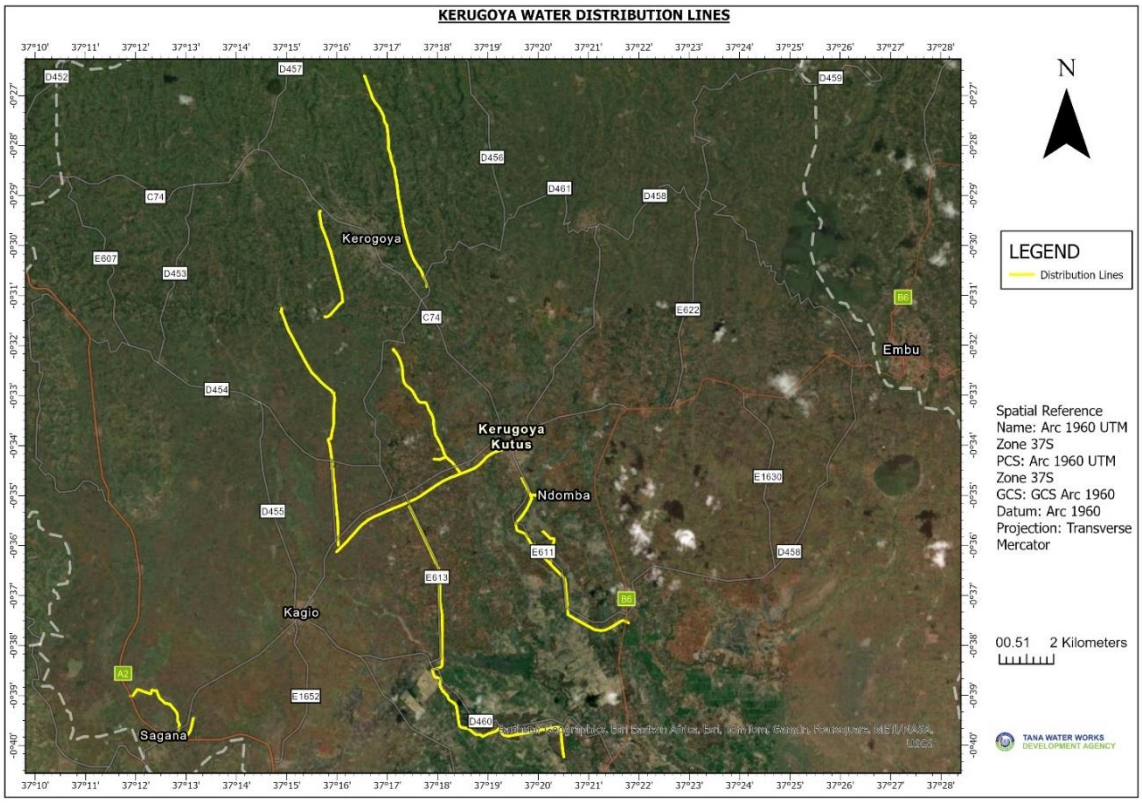


Figure 2-3 distribution Layout 2

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2.4. Pipeline

2.4.1 Spacing of Primary and Secondary Pipelines

The Pipeline network has been designed to follow roads and streets as shown in the Kerugoya-Kutus towns. In the peri-urban areas the distance of 90% of residential houses to the nearest secondary or primary line has been kept at 1km where possible in compliance with Water Design Manual 2005.

2.4.2 Pipeline Material

HDPE and PPR pipes we selected for the project based on ease of installation and availability and other factors such as:

- maximum and minimum depth of pipe cover,
- length and weight for handling and storage,
- resistance to corrosion and chemical action,
- permissible longitudinal and diametric deflection,
- pipe embedment and support conditions,
- ease of making repairs and future connections,
- pipe flexibility to be laid in a curved trench,
- pipe length with respect to the number of joints required,
- risk of damage from third parties,

2.4.3 Air Valves and wash out

The number of high and low points within the pipeline were kept at minimum in the pipeline profile design to keep the number of air-valves and washout as low as possible.A number of air-valves and wash-outs are proposed for incorporation within the existing network to mitigate the issue of rampant air-locks.

2.4.4 Section Valves

Section valves were designed to be placed on all gravity mains greater than 75mm at a distance of 500m within town and at 2.5 km within the peri-urban areas of Kerugoya Kutus towns.

2.5 Distribution Points

Consumer Mapping

The agency shall prepare a GIS based database of all new and old consumers and incorporate the same of the pipeline network layout developed in this report.

2.5.1Individual Consumer Connections

To improve the connectivity of the system, 3000 units of individual connection kits for both Kerugoya and Kutus towns. These units consist of; a Water Meter, HDPE Saddle Clamp, 500mm of 12.5mm diameter HDPE or PPR pipe and other connection fittings and sundries. The Individual Consumer Connections are expected to be connected by the Contractor during the course of the project.

2.5.2 Meters

Zonal Meters NO.12 have been provided within the networks. Further, 1000 Individual connection meters has also been provided under this Contract in consultation with Kirinyaga County Water Water and Sanitation Company Ltd for future consumer connections.

2.6 Operations, Maintenance and Management

2.6.1 Organization of Operation and Maintenance

Overview

The proposed last mile system is projected to cover the gaps in the service delivery chain between first mile infrastructure and the users of water and sanitation services in Kerugoya-Kutus town. The Water Service Provider(WSP) is the Kirinyaga County Water and Sanitation Company - KICOWASCO PLC.

The overall performance is dependent on how well the last mile design will be synchronized to the existing first mile/bulk water supply system while the performance of installed components hinges on the mode of management adopted by KICOWASCO PLC across the supply chain. The type of ultimate organizational arrangements to be implemented in water services provision should be one that promotes effectiveness and operational efficiency. Operational efficiency of a water service provider is the direct reflection of management autonomy to supply sufficient water of good quality at a reasonable price.

The objective of supplying sufficient water to all at an affordable tariff is very popular in the minds of many. Water is a scarce commodity as well as an economic good and therefore water has price. The implication of this then will be:

- That the consumers will have to pay the full cost of service for its provision;
- That on the other hand the water supply utility will have to keep their costs as low as possible (affordability) through improved operational efficiency.
- Management autonomy in turn depends on the mode of WSP management.

The objectives of the desired Water and Sanitation Service will need to be defined. Consistently a functional organizational structure for the type of the mode of the utility management chosen will have to be drawn and the required staffing has to be determined for the organization to be operational.

2.7 Project Activities

2.7.1. Pre construction and Project Design

The proponent developed a comprehensive proposal justifying the need and to determine its suitability to meet the water demand of Kerugoya Kutus residents as described in this report. The ESIA is part of this process and it establishes areas of environmental and social issues and proposes the appropriate mitigation measures to be undertaken at the construction, commissioning, operation and decommissioning phases

2.7.2. Design Work

The design of the project entailed significant ground activities including reconnaissance survey, topographical survey, hydrology of the water offtake source, identification of the water demand, development of design layout and associates BoQs and tender documents. Moreover, interaction with the local communities to gather first-hand information with respect to physical features and desired design considerations is also undertaken at this stage, implementation schedules are also prepared at this stage The environmental and social impact assessment study utilizes the design outputs to determine the quantifiable impacts and recommend the appropriate management plan to eliminate or reduce them.

2.7.3. Construction Phase

Site Clearing and Trenching

Considering that the proposed pipeline will traverse the project site within the established road reserve, vegetation clearing will be done to pave way for campsite establishment and laying of the pipeline. Along the reserve, the predominant vegetation is grass and short bushes that prevents soil erosion along the road drainage

Moreover, site clearance and trenching will disturb top soil material rich in organic and humic content. The excavated material should be appropriately used for backfilling and land reclamation -where in excess.

Public Amenities

The proposed pipeline is anticipated to cross public roads, private farms and run next to power lines and an existing water pipelines. These are likely to be disrupted during the construction and thus need to be appropriately managed in collaboration with the relevant services providers and authorities.

Pipe Laying

This shall involve pipeline transportation, placement of the pipes in the dug trenches, pipe joining works and backfilling. This shall be undertaken by the contractor with nvolvement of casual workers preferably from the surrounding community members.

Restoration Activities

On completion of the project construction, there will be restoration of all the damaged road sections and road reserve areas. Landscaping of the backfilled areas through re-vegetation and/or leveling to encourage growth of natural grass will be undertaken as a means of environmental conservation and aesthetics

2.7.4. Commissioning

This shall be the formal hand-over and operationalization of the supply pipeline upon completion by the contractor. To achieve successful hand-over process, the proponent shall ensure that there are no unresolved social concerns and that the facility has been completed as per the design details, affected sites have been well rehabilitated and that all components of the pipeline are operational On top of the paperwork submitted it will be appropriate for the proponent to conduct physical evaluation of the installation together with the contractor, KICOWASCO PLC, relevant County Executive Members and Government Departments and the design consultant.

2.7.5. Pipeline Operation

The water supply will be monitored to ensure that it conveys the designed flows and at the same time relieving allowable volumes from the abstraction sources. The process shall be continuous with regular checks along the pipeline to check for leakages and illegal connections that may occur over time.

2.7.6 Decommissioning Phase

While it is not envisaged that the water supply pipeline will be decommissioned in the near future, the need may arise at some point. Should the need arise, a decommissioning audit of the water pipeline and its components will need to be undertaken at least twelve (12) months prior to the

exercise and be approved by NEMA. The decommissioning audit report will include a comprehensive decommissioning plan to guide the process.

2.8 Project Cost

The total project cost has been estimated at Two Sity Million, Seven Hundred and Ninety Thousand, Three Hundred and Fifty-Eight Kenya Shillings (**KES. 260,790,358.25).**

Table 2-0-1: Project Cost Estimates

PROPOSED WATER SUPPLY DISTRIBUTION - LAST MILE CONNECTIVITY FOR KERUGOYA - KUTUS WATER SUPPLY PROJECT		
GRAND SUMMARY		
Bill No	**DESCRIPTION**	**Amount (Kshs)**
1.	PRELIMINARY AND GENERAL ITEMS	50,121,536.00
2.	ANCILLIARY WORKS LINE	7,487,000.00
3.	KIAMWENJA SPENZA LINE	28,485,444.50
4.	KUTUS AQUACULTURE LINE	18,926,190.00
5.	AFFORDABLE HOUSING LINE	18,951,190.00
6.	NYAGA LINE LINE	16,066,264.50
7.	KIANJOGU LINE	23,588,644.50
8.	KIAMUTHAMBI LINE	20,377,444.50
9.	KIANGUENYI LINE	20,377,444.50
	SUB TOTAL [A]	**204,381,158.50**
	ADD 10% OF SUBTOTAL (A) FOR CONTINGENCIES [B]	**20,438,115.85**
	BILL TOTAL INCLUSIVE OF CONTIGENCIES - Exclusive of 16% V.A.T [C]	**224,819,274.35**
	VALUE ADDED TAX [V.A.T] - 16% of C [D]	**35,971,083.90**
	GRAND TOTAL INCLUDING DUTIES AND TAXES CARRIED TO FORM OF BID	**260,790,358.25**

CHAPTER 3: LEGAL, POLICY AND INSTITUTIONAL FRAMEWORKS

3.1 Introduction

The primary aim of this chapter is to evaluate the existing relevant national environmental policies, legislative frameworks, relevant Africa Development Bank (AfDB) Environmental and Social safeguards, economic tools, and enforcement mechanisms that govern infrastructure projects at various stages of development. The legal and policy framework for the Proposed Kerugoya- Kutus LMC Water Supply project holds immense significance in ensuring its successful and environmentally responsible execution.

3.2 Policy Provisions

3.2.1 National Environmental Policy, 2014

The National Environmental Policy is an outcome of the Sessional Paper No. 10 of 2014.The overall goal of the policy is better quality of life for present and future generations through sustainable management and use of the environment and natural resources. One of the objectives of the policy is to promote and support research and capacity development as well use of innovative environmental management tools such as Environmental Impact Assessments (EIAs) and Environmental Audits (EA) that is necessary to ensure environmental quality and resource productivity on long term basis. The policy among other important objectives calls for promotion of domestication, coordination and maximization of benefits from Strategic Multilateral Environmental Agreements (MEAs). The policy further calls for integration of environmental concerns into development policies, plans and activities. The National Environmental Policy proposes a broad range of measures and actions responding to key environmental issues and challenges. It seeks to provide the framework for an integrated approach to planning and sustainable management of natural resources in the country. It recognises the various vulnerable ecosystems and proposes various policy measures not only to mainstream sound environmental management practices in all sectors of society throughout the country but also recommends strong institutional and governance measures to support the achievement of the desired objectives and goal.

Relevance

The policy requires that projects such as the proposed Kerugoya- Kutus LMC Water Supply which are likely to have significant environmental and social impacts should be undertaken with sound Environmental management plan

3.2.2 National Land Policy, 2009

In section 3.2, land 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 in order to protect the public interest. Section 3.6, under land issues requiring special intervention, asserts that "Land rights of minority communities shall be protected through a law to be passed specifically to secure their rights as individuals and groups and recognition of their resource management systems to ensure sustainability." It further states, "Land rights of vulnerable groups (namely subsistence farmers, pastoralists, hunters and gatherers, agricultural labourers, unskilled workers, unemployed youth, persons with disabilities, persons living with HIV and AIDS, orphans, slum and street dwellers and the aged.) shall be addressed by creating a system for identifying, monitoring and assessment, resettling them, facilitating their participation in decision making over land and land based resources, and protecting their land rights". The policy in promotes Environmental Management and Audit as land management tools and encourages public participation in the process.

Relevance

The proposed route for the treated water mains is along an existing road reserves but verification must first be done to ascertain that no private land will be affected. In the case that private land is affected, the proponent will be required to adhere to the principles in the land policy and follow the rightful procedure in the acquisition of these lands. This includes compensating the respective ascertained owners of the land parcels.

3.2.3 Kenya's Vision 2030

Kenya Vision 2030 is the current national development blueprint for the period from 2008 to 2030. It was developed following on the successful implementation of the Economic Recovery Strategy of Wealth and Employment Creation which saw the country's economy back on the path to rapid growth since 2002. The Vision 2030 is based on 3 key pillars; Economic Pillar, Social Pillar, and Political Pillar. The economic, social and political pillars of Kenya Vision 2030 are anchored on the following foundations: macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation, land reform; human resources development; security and public-sector reforms. The objective of the vision 2030 is to "transform Kenya into a middle-income country with a consistent annual growth of 10% by the year 2030". One of these aims is to make Kenya to be a

nation that has a clean, secure and sustainable environment by 2030. This will be achieved through promoting environmental conservation for better support the economic pillar flagship projects.

Relevance

Kenya's transformation in to a middle-income country will be achieved by bringing and improving basic infrastructure and services namely: water and sanitation facilities, roads, street lights, storm water drains and footpaths among others. This project aims at improving water supply to Kerugoya Town and its Environs.

3.2.4 The National Biodiversity Strategy, 2007

The overall objective of the National Biodiversity Strategy and Action Plan (NBSAP) is to address the national and international undertakings elaborated in Article 6 of the Convention on Biological Diversity (CBD). It is a national framework of action to ensure that the present rate of biodiversity loss is reversed and the present levels of biological resources are maintained at sustainable levels for posterity. The general objectives of the strategy are to conserve Kenya's biodiversity to sustainably use its components; to fairly and equitably share the benefits arising from the utilization of biological resources among the stakeholders; and to enhance technical and scientific cooperation nationally and internationally, including the exchange of information in support of biological conservation.

Relevance

Activities during the construction are bound to impact negatively on the flora,as such, the contractor will be required to reinstate the environment to its original state. This will be in order to reverse the loss of biodiversity or to maintain the levels of biological resources at sustainable levels for posterity.

3.2.5 Sustainable Development Goals (SDGs)

The SDGs provide a framework for the entire international community to work together towards a common end making sure that human development reaches everyone, everywhere. If these goals are achieved, world poverty will be cut by half, tens of millions of lives will be saved, and billions more people will have the opportunity to benefit from the global economy. Up to 2015, the development agenda was centred on the Millennium Development Goals (MDGs), which were officially established following the Millennium Summit of the United Nations in 2000. The MDGs were supposed to be achieved by 2015, so a further process was needed to agree and develop development goals from 2015-2030. Discussion on the post 2015 framework for international development began well in advance. On 19 July 2014, the UN General Assembly's Open Working

Group on Sustainable Development Goals (SDGs) forwarded a proposal for the SDGs to the Assembly. The proposal contained 17 goals with 169 targets covering a broad range of sustainable development issues. Goal number 6 in the SDGs ensures availability and sustainable management of water and sanitation for all". Some of the targets of this goal include:

- Achieving universal and equitable access to safe and affordable drinking water for all by 2030; Protection and restoration of water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes by 2020;
- Expanding international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies; and
- Support and strengthen the participation of local communities in improving water and sanitation management.

Relevance

The proposed project aims at achieving some of the mentioned targets for the SDG goal no 6. In the long run, this moves the country towards the goal of ensuring availability and sustainable management of water and sanitation for all is addressed through this proposed water supply project. The SDG goal number 6 on ensuring healthy lives and promoting the well-being for all at all ages and access to water and sanitation for all can be achieved by this project through reduction of sanitation related diseases which will increase life expectancy and reduce some of the common killers associated with child and maternal mortality.

3.3 Legal Framework

3.3.1 The Constitution of Kenya,2010

Article 42 of Bill of Rights of the Kenyan Constitution provides that every Kenyan has a right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislation and other measures.

Under Chapter 5 (Land and Environment), Part I is devoted to land. It requires that land be used and managed in 'a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles:

- Equitable access to land;
- Security of land rights;
- Sustainable and productive management of land resources;

- Transparent and cost-effective administration of land; and
- Sound conservation and protection of ecological sensitive areas.

In Part II of Chapter 5 of the Constitution (Environment and Natural Resources), (I) the State clearly undertakes to carry out the following:

Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;

- Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
- Encourage public participation in the management, protection and conservation of the environment; Protect genetic resources and biological diversity;
- Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;
- Eliminate processes and activities that are likely to endanger the environment; and
- Utilize the environment and natural resources for the benefit of the people of Kenya.

According to Article 69 (2) "Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. Chapter 5 on Land and Environment emphasizes on the following:

- Land use and management shall by law benefit local communities
- Community land is protected from encroachment by State.
- Law shall protect Rivers, forests and water bodies.
- Equitable access to land.
- All lawful land rights are secured; only someone who has stolen land needs to worry.
- County governments will manage land in trust of the people in accordance with the Proposed Constitution.

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, in this case TWWDA is to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.

3.3.2 The Environmental Management and Coordination Act (EMCA)

The EMCA 1999 and The Environmental management and Co-ordination (Amendment) Act, 2015 provide the main legal and institutional framework under which the environment in general is to be managed. EMCA is implemented by the guiding principle that every person has a right to a clean and healthy environment and can seek redress through the High Court if this right has been, is likely to be or is being contravened. Section 58 of the Act makes it a mandatory requirement for an EIA study to be carried out by proponents intending to implement projects specified in the Second Schedule of the Act. Such projects have a potential of causing significant impacts on the environment. Similarly, section 68 of the same Act requires operators of existing projects or undertakings to carry out Environmental Audits (EA) in order to determine the level of conformance with statements made during the EIA study. The proponent is required to submit the EIA and EA reports to NEMA for review and necessary action.

Relevance

This project has been categorised under Medium Risk Projects in the Second Schedule of the Environmental Management and Coordination (Amendment) Act 2015, which requires for the project to be subjected to an ESIA prior to its implementation.

The following regulations under EMCA are also relevant to the proposed project;

a. Environmental (Impact Assessment and Audit Regulations) 2003 and (Amendment) Regulations, 2016

The EIA and Audit Regulations state in Regulation 3 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 II of the Regulations indicates the procedures to be taken during preparation, submission and approval of the full study report

Relevance

This report has been compiled in compliance with the above regulations. TWWDA will also be expected to carry out Environmental audit of the project during the construction stage and annually thereafter the completion of the project. The project is expected to get clearance from NEMA before commencement.

b. The Environmental Management and Co-ordination (Water Quality) Regulations, 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

During the construction, operation and maintenance phases of the project, there may be waste water and other liquid waste generated from oil spills, machine cleaning and vehicles among other sources. River Thiba will be the primary receptor for such waste due to run off, the contractor should therefore comply to all the requirements of this regulation.

The Environmental Management and Co-ordination (Waste Management) Regulations, 2006

This regulation was 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:

i. Improvement of production process through
   - Conserving raw materials and energy;
   - Eliminating the use of toxic raw materials and wastes; and
   - Reducing toxic emissions and wastes.

ii. 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, and
   - Reclamation and recycling; and
   - 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 phase will generate wastes such as soil debris, cement bags, plastic containers, vehicles spare parts, stripped off vegetation and any other waste which will need to be disposed as per the guidelines in the regulations.

c. The Environmental Management and Coordination Act (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009

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 beyond defined thresholds;
- 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 centimetres per second beyond any source property boundary or 30 metres from any moving source.

Relevance

Noise and vibrations are expected during the construction phase of the project when the excavation is on-going. The contractor /sub-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.

d. Environmental Management and Coordination (Air Quality) Regulations, 2014

These Regulations cover air quality standards that are requisite to protect human health and allow an adequate margin of safety. These Regulations specify priority air pollutants, mobile and stationary sources as well as stipulates emission standards.

Relevance

The emissions generated from construction activities (such as running vehicle and equipment engines) have the potential of polluting the immediate atmospheric environment. Vegetation clearing, earthworks and bulk delivery of construction material, if unmanaged may result in generation of dust. Thus, need for strict adherence to these Regulations and standards therein in preventing possible pollutants and managing sources.

3.3.3 Water Act, 2016

The Water Act No. 43 of 2016 was assented to on 20th September 2016 and repealed the Water Act 2002. The enactment of this law aimed at aligning national water management and water services provision with the requirements of the Constitution of Kenya 2010 particularly on the clauses devolving water and sanitation services to the county governments.

The Water Act 2016 provides for the management, conservation, use and control of water resources and for acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services.

Section 11. (l) states the establishment of the Water Resources Authority (WRA) whose function in section 12 (d) include; to receive water permit applications for water abstraction, water use and recharge and determine, issue, vary water permits; and enforce the conditions of those permits.

Section 143 of the Act makes it an offence an offence to obstruct, interfere with, divert or obstruct water from any watercourse or any water resource, or negligently allow any such obstruction, interference, diversion or abstraction. It also prohibits anyone to throw or convey or cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive or unwholesome matter or thing into or near to water resource in such a manner as to cause, or be likely to cause, pollution of the water resource.

According to the Water Resources management Rules (2007), Fifth schedule Part A Water use activities that require approval by authority (d) Diversion of a water course, ANY PERSON shall obtain approval from the Authority to undertake the activity: In addition Part II-approval, authorisation and permits (2) no water works approval, authorization and permit shall be issued or renewed for the purposes of supplying water for domestic, public, commercial or industrial use within the limits of supply of a water service provider without the applicant having received consent of the licensed water service provider for the area.

Relevance

The proposed Kerugoya Kutus LMC water supply project will abstract water from River Thiba. Before abstraction of water, there must be approval, authorization and issuance of a permit. The proponent shall therefore apply for an abstraction permit from WRA in line with this law. In accordance to WRA water allocation guidelines, for streams and rivers, the Reserve Quantity shall not be less than the flow value that is exceeded 95% of the time as measured by a naturalised flow duration curve at any point along the water course.

3.3.4 The Lands Act, 2012 No. 6 of 2012

Part II Section 8 provides guidelines on management of public land by National Land Commission (NLC) on behalf of both National and County Governments. This law in Section 8(b) stipulates that the Commission shall evaluate all parcels of public land based on land capability classification, land resources mapping consideration, overall potential for use, and resource evaluation data for land use planning.

Section 8(d) stipulates that the Commission may require the land to be used for specified purposes subject to such conditions, covenants, encumbrances or reservations as are specified in the relevant

order or other instrument. In managing public land, the Commission is further required in Section 10(1) to prescribe guidelines for the management of public land by all public agencies, statutory bodies and state corporations in actual occupation or use.

In these guidelines, management priorities and operational principles for the management of public land resources for identified uses shall be stated. This in essence means that the Commission shall take appropriate action to maintain public land. As well the Commission shall identify ecologically sensitive areas that are within public lands and demarcate or take any other justified action on those areas and act to prevent environmental degradation and climate change.

Section 9 (d) it states that community land may be converted to either private or public land in accordance with the law relating to community land enacted pursuant to Article 63(5) of the Constitution. (3) Any substantial transaction involving the conversion of public land to private land shall require approval by the National Assembly or county assembly as the case may be.

Section 110 (1) of the Act provides that land may be acquired compulsorily if the Commission certifies, in writing, that the land is required for public purposes or in the public interest as related to and necessary for fulfilment of the stated public purpose. In such an acquisition, this Act, in section 111(1) provides that just compensation shall be paid promptly in full to all persons whose interests in the land have been determined. The procedure for land acquisition is laid out in Part VIII of the Act.

Relevance

This part of the law seeks to preserve and direct management of fragile public land held by the various public bodies for sustainable development. TWWDA and the contractor will therefore be required to ensure protection of any sensitive habitats and endangered species that have been identified.

3.3.5 Climate Change Act, 2016

This is an Act of Parliament to provide for a regulatory framework for enhanced response to climate change, to provide for mechanism and measures to achieve low carbon climate development, and for connected purposes. One of the main goals of this act is to enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses;

Relevance

During construction, the vehicles and machines to be used may contribute to additional GHG emissions.

3.3.6 The Public Health Act (Cap. 242)

This is an Act of Parliament that makes provision for securing and maintaining health. Section 115 of this Act prohibits causing nuisance or other condition liable to be injurious or dangerous to health. Section 118 provides a list of nuisances which includes any noxious matter or waste water, flowing or disch

arged from any premises, wherever situated, into any public street, or into the gutter or side channel of any watercourse, irrigation channel or bed thereof not approved for the reception of such discharge.

The Public Health (Drainage and Latrine) Rules

Rule 85 provides that every owner or occupier of every workshop, workplace or other premises where persons are employed shall provide proper and sufficient latrines for use by employees.

Rule 87 requires every contractor, builder or other person employing workmen for the demolition, construction, reconstruction or alteration of any building or other work in any way connected with building to provide in approved position sufficient and convenient temporary latrines for use by such workmen.

Rule 91 provides that no person shall construct a latrine in connection with a building other than a water closet or a urinal, where any part of the site of such building is within 200 feet of a sewer belonging to the local authority which is at a suitable level, and where there is sufficient water supply.

Relevance

The contractor for civil works will be required to construct toilets for use by workers and visitors to the site during the construction phase of the proposed project. Sufficient latrines will also be required should there be any staff quarters within the site. During operation, the project is expected not to cause any public nuisance to the public.

3.3.7 The County Governments Act, 2012

The County Governments Act of 2012 repealed the Local Government Act. Section 110 (2) provides for a spatial development framework for the county that indicates;

- Where public and private land development and infrastructure investment should take place;

- Desired patterns of land use within the county,
- address the spatial construction or reconstruction of the county;
- Sets out basic guidelines for a land use management system in the county considering any guidelines, regulations or laws as provided under Article 67 (2) of the Constitution;
- contains a strategic assessment of the environmental impact of the spatial development framework; Identify programs and projects for the development of land within the county

Section 114 of this act, sub sections (1) and (2) require that a project of national significance in a County be preceded by mandatory public hearings for approval. In addition, Section 115, sub section (1) Public participation in the county planning processes shall be mandatory and be facilitated through the mechanism stated under this section.

Relevance

The proposed development should be in line with the Kirinyaga county spatial development framework in section 110 (2) as well as allow for public participation prior to implementation. This ESMP provides a platform for public participation. TWWDA should work in liaison with County Government of Kirinyaga to ensure compliance with land use requirements within the County.

3.3.8 Physical Planning Act, 2019

This is the main Act that governs land planning and all proposed developments must be approved by the respective local authority and certificate of compliance issued accordingly. Under the Act, the director of physical planning advises the commissioner of lands on land alienation issues that fall under Lands Act. The director also advises the commissioner of lands and local authorities on land use, sub-division and or amalgamation of land; prepares regional and local physical development plans. At the County level, the Act has established the County Physical and Land Use Planning Consultative Forum chaired by the County Executive Committee Member responsible for matters related to physical and land use planning. One of the major functions of the consultative forum is to determine development applications for change of user or sub-division of land that could have significant impact on adjacent land and or breach registered conditions in a given title deed; and also, industrial location which could have negative impact on the environment and adjoining land.

Relevance

TWWDA will be required to discuss its development plans with the Kirinyaga County Physical Planning Officers and seek the requisite approvals. For control of future development around the site, the County government shall enforce this law to ensure compatible land uses only are allowed near the water works. Similarly, any temporary contractor's facilities like camps will require development approval from the Kirinyaga County government.

3.3.9 Urban Areas and Cities (Amendment) Act, 2019

This is an Act of Parliament that gives effect to article 184 of the Constitution, to provide for:

- The classification, governance and management of Urban Areas and Cities;
- The criteria of establishing urban areas; and
- The principle of governance and participation of residents and the related purposes.

Section V of the Act on Integrated Development Planning requires that every city and municipality established under this act shall operate within the framework of integrated development planning. The second schedule of the Act outlines the rights and participation by residents in affairs of their city or Urban areas.

Relevance

As water supply is a problem in the project area, the project through this ESIA study collected views of the residents and incorporate them in the designs where feasible, to solve the water shortage problem.

3.3.10 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 which 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

a. Not likely to be harmful to the child's health or development; and

b. Not such as to prejudice the child's attendance at school, his participation in vocational orientation or training programmes approved by Minister for labour or his capacity to benefit from the instructions received.

Relevance

TWWDA and the contractor will need to understand all the requirements of the Act during employment such as ensuring that employees are of the right age, entitlement to leave, protection from discrimination and sexual harassment among others.

3.3.11 Work Injury Benefits Act (WIBA)

It is an Act of Parliament to provide for compensation to workmen 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;
- 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; and
- 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 and TWWDA will be required to comply with all the provisions of the Act throughout the project cycle such as management of hazards, forming health and safety committees and reporting all the accidents and near misses. They will also be required to accord injured persons their dues in terms of shouldering the medical expenses or compensation of the families should there be loss of life.

3.3.12 The Occupational Safety and Health Act, 2007

This is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. It applies to all workplaces where any person is at work, whether temporarily or permanently. The purpose of this Act is to:

- Secure the safety, health and welfare of persons at work; and

- Protect persons other than persons at work against safety and health arising out of, or in connection with the activities of persons at work.

Section 44. (1) Before any person occupies or uses any premises as a workplace, he shall apply for the registration of the premises.

Section 95. Every occupier shall provide and maintain so as to be readily accessible, a first-aid box or cupboard of the prescribed standard.

The Occupational Safety and Health Act 2007 (OSHA 2007) Kenya Gazette Supplement No. 111 (Acts No.15) dated October 26, 2007 revokes the Factories and Other Places of Work Cap.514.

The scope of OSHA 2007 has been expanded to cover all workplaces including offices, schools, academic institutions, factories and plantations. It establishes codes of practices to be approved and issued by the Directorate of Occupational Safety and Health Services (DOSHS) for practical guidance of the various provisions of the Act.

Relevance

The contractor and TWWDA will be required to comply with all the provisions of the Act throughout the project cycle such as registering the construction site as place of work, management of hazards, forming health and safety committees and reporting all the accidents and near misses and provision of First-Aid kits as necessary.

3.3.13 Environment and Land Court Act, 2012

The Court is established under section 4 of the Environment and Land Court Act No. 19 of 2011. It has the jurisdiction to hear any other dispute relating to environment and land. The jurisdiction of the court is provided under section 13 of the Act. The Court has original and appellate jurisdiction to hear and determine all disputes in accordance with Article 162(2)(b) of the Constitution and with the provisions of the Act or any other written law relating to environment and land. The court is also empowered to hear cases relating to public, private and community land and contracts, choses in action or other instruments granting any enforceable interests in land.

Relevance

In matters relating to land and environmental disputes that may arise between and the local community or county government during requisite private land acquisition and environmental management for the development of local material sites. The court has powers to deal with such disputes relating to land administration and management. Nonetheless, alternative grievance resolution mechanisms are also encouraged

3.3.14 Wildlife Conservation and Management Act, 2013 The act established the Kenya Wildlife Service (KWS). The main objective of this service is to ensure that wildlife is managed and conserved so as to yield to the Nation in general and to individual areas in particular, optimum returns in terms of cultural, aesthetic and scientific gains as well as such economic gains as are incidental to proper wildlife management and conservation

Relevance

Contractor shall be responsible for conserving the indigenous flora within the project area. They shall ensure when the land modified but not needed for permanent works is reinstated back to its original condition as far as feasible, the indigenous trees are replanted for their conservation.

3.3.14 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 prohibits making the atmosphere in any place noxious to health of persons/institution in dwellings or business premises in the neighbourhood or those passing along a public way. In addition, section 193 Any person who makes loud noises or offensive or unwholesome smells in a place so as to annoy any considerable number of persons in the exercise of their common rights commits an offence and is liable to be punished as for a common nuisance.

Relevance

The contractor and proponent will be required to ensure strict adherence to the Environmental Management Plan throughout the project cycle in order to mitigate any possible negative impact associated with dust, noise, and effluent discharge that might likely affect the public.

3.4 Institutional Framework

3.4.1 County Environment Committee

The County Environment Committee is responsible for environmental management at the County level through preparation of County environment action plans for consideration and adoption by the respective County Assemblies.

Relevance

TWWDA should ensure that the project abides by the set County environment action plan for Kirinyaga County.

3.4.2 County Government of Kirinyaga

The Fourth Schedule of the Constitution of Kenya 2010 Part 2 (3) provides for devolved environmental functions to be undertaken by the County Governments and includes; control of air

pollution, noise pollution, and other public nuisances. In addition to development approvals, the county government has some jurisdiction of environmental management including waste management, drainage, noise permit issuance, and enforcing public health act.

3.4.3 The National Environment Management Authority

The responsibility of the National Environment Management Authority (NEMA) is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment. In addition to NEMA, the Act provides for the establishment and enforcement of environmental quality standards to be set by the Cabinet Secretary in consultation with the Authority, which will govern the discharge, limits to the environment by the proposed project.

Relevance

NEMA must approve the project before implementation and also participates is subsequent stages of construction environmental management and annual audits review.

3.4.4 Water Resource Authority (WRA)

WRA is responsible for regulation of water resources issues such as water allocation, source protection and conservation, water quality management and pollution control and international waters. Its roles and responsibilities are as follows:

- Planning, management, protection and conservation of water resources;
- Planning, allocation, apportionment, assessment and monitoring of water resources;
- Issuance of water permits;
- Water rights and enforcement of permit conditions;
- Regulation of conservation and abstraction structures;
- Catchment's and water quality management;
- Regulation and control of water use; and
- Coordination of the Integrated Water Resource Management (IWRM) Plan.

Relevance

The contractor will be required to consult WRA for the best source of water for construction. They will also be required to apply for a permit to abstract water as well as adhere to the rules and regulations stipulated by WRA. The WRA is responsible for protection, conservation and management of the riparian areas. It is their mandate to ensure that there are WRUAs in place to

actively manage the water resource. They are also required to ensure quality management of the water that comes in as surface runoff from the tea farms surrounding the water abstraction points.

3.5 African Development Bank Safeguards

The proposed water Project will be will be financed by African Development Bank (AfDB), through Tana Water Works Development Agency (TWWDA) hence environmental and social safeguards as defined in the Bank's Operational Safeguards (OS) have been considered.

The following Africa Development Bank Environment and Social Safeguards will guide the proposed project.

Table 3-0-1 Analysis of African Development Bank Safeguards Standards

Environmental and Social (E&S) Operational Safeguards	Rationale
OS1: Assessment and Management of Environmental and Social Risks and Impacts,	This safeguard governs the process of determining a project's environmental and social category and the resulting environmental and social assessment requirements. Based on NEMA Public Notice on ESIA and Legal Notice No. 31 the proposed project is identified as medium risk thus requiring ESIA Comprehensive project report (CPR) to be undertaken. Categorized by African Development Bank (AfDB) as category 2 with moderate risk operations likely to cause adverse environmental and social impacts and readily minimized by applying appropriate management and mitigation measures. The potential negative environmental and social risks and impacts associated with the activities include, soil erosion, air and water pollution, generation of solid waste, occupational health and safety risks related to construction activities and requires proposed mitigation measures.

OS2: 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. Although the project is proposed to be done along an existing road reserve as well as the riparian land, the private land may be temporarily acquired during construction. As such, the OS 2 should be applied through consulting affected persons to ensure that they receive a commensurate compensation to package of their loss that will restore their livelihood and living standards, income earning capacity and production levels.
OS3: 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. Based on the screening conducted during project preparation and consideration of the scale of the proposed activities, the project does not pose any danger to the conservation of biodiversity and sustainable management of living resources. However, beneficiary communities shall be sensitized about prohibited practices that interfere with the functioning of ecologically sensitive areas. For the overall project, TWWDA will utilize the AfDB guidelines in the treatment of ecologically and ergonomically sensitive areas.

OS4: 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. Community health risk associated with the project are identified possible mitigation measures recommended in the ESMP.
OS5: Labour conditions, health and safety	This 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 banks. Project implementation involve the use of workers that may include consultants, contracted workers in the construction works and liaison with Government civil servants in the management and supervision of project activities. LMP shall be applied to all project workers and volunteers whether fulltime, part-time, temporary or seasonal. During Implementation of project activities, the respective Contractors shall prepare Occupational Health and Safety Plans (OHS) and the Community Health Management Plans to manage related risks.

3.6 Multilateral Environmental Agreement and Guidelines

Kenya has ratified various international convetions that are related to the protection of the environment that may be directly or indirctily applicable to the proposed project operations and processes in the selected countries. These are discussed as follows:

3.6.1 International Convetion on Biodiversity (CBD) of 1992

This Convention entered into force on 29 December 1993, and its objectives are to: conserve biological diversity; use biological diversity in a sustainable fashion and share the benefits of biological diversity fairly and equitably. This Convention governs Kenya's international obligations regarding biological diversity; This treaty promotes the protection of ecosystems and natural habitats, respects the traditional lifestyles of indigenous communities, and promotes the sustainable use of resources.

Relevance

The project, however, does not envisage any interference with protected ecosystems. Project specific ESMPs shall be implemented to ensure that mitigation measures adequately address potential impacts.

3.6.2 United Nations Framework Convention on Climate Change (UNFCC)

UNFCCC has near universal membership and is the parent treaty of the 1997 Kyoto Protocol. The Kyoto Protocol has been ratified by 192 of the UNFCCC Parties.

The ultimate objective of both treaties is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system.

Relevance

The proposed project should ensure all activities and development plans are undertaken in line with the provisions of the Convention aimed at stabilizing greenhouse gas concentrations in the atmosphere.

3.6.3 Rio Declaration on Environment and Development

The declaration aimed at establishing a new and equitable global partnership through the creation of new levels of co-operation among States, key sectors of societies and people, working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system, recognizing the integral and interdependent nature of the Earth, our home.

The Rio Declaration consisted of 27 principles intended to guide countries in future sustainable development. It was signed by over 170 countries.

Principle 17 of the Rio Declaration provides key relevance to the proposed project; the principle denotes that environmental impact assessment as a national instrument shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision of a competent national authority.

3.6.4 The Ramsar Convention

This is the Convention on Wetlands of International Importance. It was held in Ramsar, in 1971 and came into force in 1975, hence the name Ramsar Convention. This convention aimed to raise in a global context the value of wetlands in our ecosystem and encourage partner states to develop instruments for the conservation and management of wetlands. Kenya ratified the convention in June 1990. The convention defines “Wise use of wetlands” as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development". "Wise use" therefore has at its heart the conservation and sustainable use of wetlands and their resources, for the benefit of humankind.

Relevance: There is no designated Ramsar site within the project area. However, to avoid detrimental effects during the implementation cycle the mitigation measures will be adhered to in the conservation of the river.

CHAPTER 4. ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION

4.1 Geographical Location

The Project is situated in Kirinyaga County in the Central part of Kenya. The total area of the county is approximately 1,478.1 km2 and lies between latitudes 0^O 1' and 0^O 40' south and 37^O and 38^O East. The county lies between 1,158 metres and 5,380 metres above sea level. Kerugoya Town lies between latitude 0^O 30' South and 37^O 16' East and is located about 124km Northwest of Nairobi,20 kilometres east of Karatina and 40 kilometres west of Embu towns. The town of Kutus is the Headquarters of Kirinyaga County and is located about 10.5 km South West of Kerugoya town. Sagana town is on the South-Eastern part of the Kirinyaga county and about 20 km from Kutus while Kagio Town is 18 km south of Kerugoya town and about 12 km from Kutus town.

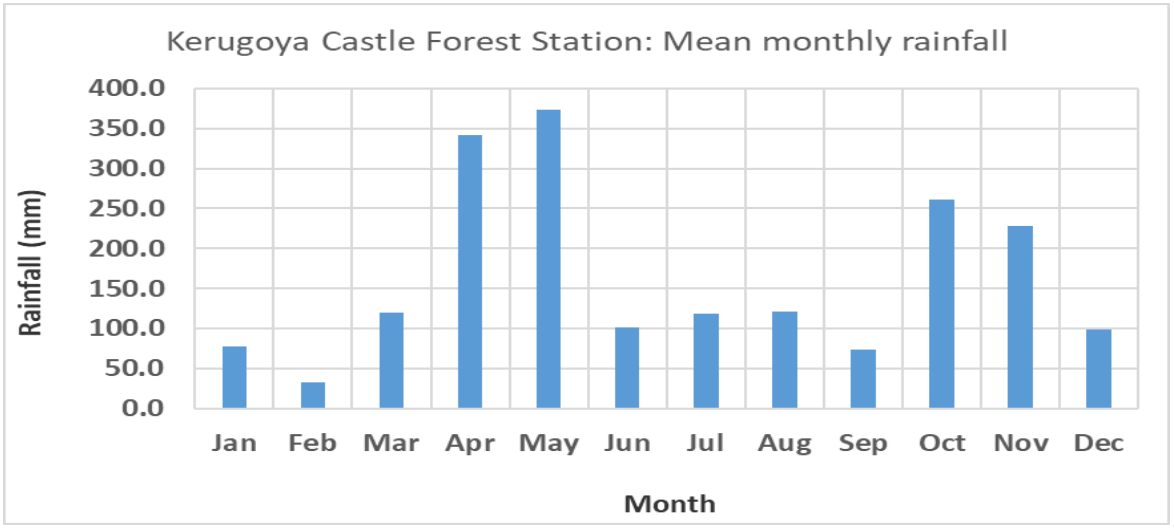
The project covers Kirinyaga West and Kirinyaga Central sub counties and project lines will administratively cover Kariti, Kerugoya/ Kanyakine, Nyagati, Mutithi, Wamumu wards.

4.2 Physical Environmental Conditions

4.2.1 Climatic Conditions

The Kerugoya Kutus water LMC project area is on the windward side of Mt Kenya thus influencing its climatic condition. The average annual temperature is 18.7 °C. The average annual rainfall is 1,412 mm. The municipality has two rainy seasons. The long rains occur between March and May averaging 2,146mm while the short rains occur between October and November averaging 1,212 mm.

Table 4-0-1: Climate of Kirinyaga, Kenya



4.2.2 Topography

The topography of the upper reaches of Kiringa and Thiba Rivers, which are the source-rivers for the proposed project, comprise mountainous topography that is replaced by undulating topography - steep ridges and valleys- in the lower settled areas. However, at an altitude of about 1500m, the topography changes into gently undulating and level topography. The proposed sources of water are in Thiba and Kiringa rivers at approximate altitudes of 2028masl and 1943masl.

4.2.3 Geology and Soils

The area, like most of the southern slopes of Mt. Kenya geological suite, is underlain by the Thiba basalts (a uniform series of usually non-porphyritic, fine-grained grey basalts erupted from the vents of Mt. Kenya), which are Pleistocene in age. Over much of the area, the basalts rest directly on the Basement System rocks. The Thiba basaltic rocks are underlain by red volcanic soils (Nitosols) derived from the weathering of the underlying basalts.

4.3 Hydrology

The project area falls within the 4DA sub-catchment comprising the Thiba River and its tributaries of which Kiringa River is one of the main tributaries. All the major rivers in the 4DA sub-catchment originate from Mt. Kenya and drain into the Kaburu Dam on the Tana through Thiba River. There are numerous springs and small streams in the highlands that all flow into these major rivers.

plate 4-1:Rivers within the project location

	
River Thiba at Kutus bridge	River Kiriinga

4.4 Biological Environment

4.4.1Vegetation and Flora

Biodiversity of the project location is highly influenced by the Mt Kenya forest ecosystem with respect to indigenous plant cover species. However, due to human activities, the indigenous plant species have been displaced by exotic species that have also acquired economic values among the communities. Such plant species include tea, coffee, Eucalyptus spp, Cypress ssp., Caussurina spp. and Graveria SSP and wattle trees species. Other plant features include grass species, ferns, nappier grass, avocado, banana, yams (mainly in the river flood plains), cassava, sugar cane, pineapple, arrowroots, and coffee).

4.4.2 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 under agricultural use for many years pushing the animals into the Mt Kenya forest. However, limited rodents like squirrels, moles and different bird 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, fresh water fishes are found naturally in the rivers. Livestock keeping is significant with dairy cows, sheep, goats, poultry and house pets (dogs and cats) may also constitute part of the wider biodiversity).

4.5 Social Setup

4.5.1 Population

The Kenya population and housing census 2009 report indicate the population of the county was 528,054 with an annual growth rate of 1.5%. The county had a total population of 610,411 comprising 302,011 males, 308,369 females, and 31 inter-sex as determined by the 2019 KNBS population and housing census report.

The population distribution of the project as per the 2019 census indicates that: Kirinyaga West Sub county had a population of 114,660. Kirinyaga Central Sub county had a population of 122,740.

4.5.2 Education

There are 138 educational facilities in Kerugoya Kutus water LMC project area as shown in the table below:

Table 4-2:Educational facilities in the Municipality

Facility	**Number**		
	Public	**Private**	**Total**
ECDE	22	27	49
Primary schools	19	37	56
Special schools	1	_	1
Secondary schools	15	9	24
Vocational college	1	_	1
Technical training institutions	1	4	5
Tertiary	2	_	2

4.5.3 Religion

Most of the project area residents are mainstream Christians with the major denominations being the Roman Catholic and other protestant churches.

4.5.4 Agriculture and Economic activities

The climate experienced within the project area is favourable for cultivation of tea, coffee, maize, cowpeas, pigeon peas, tobacco, and a variety of other food crops. Generally, the area is entirely in an agricultural zone where mixed farming (livestock rearing, subsistence crop production) is practiced.

4.5.5 Water Supply Schemes

In addition to the KIRIWASCO Water Supply System, there are other community water supply schemes which supply raw water for domestic consumption and irrigation. Some of the community schemes in Kerugoya include;

- Ndia
- Sagana Water Supply System
- Baricho Water Supply
- Mukengeria Water Supply

Community water supply schemes are funded and built by community groups assisted by NGOs and County Government. The Community Schemes have distribution networks that run parallel to the KIRIWASCO networks in the urban areas and extend to rural areas beyond the KIRIWASCO network.

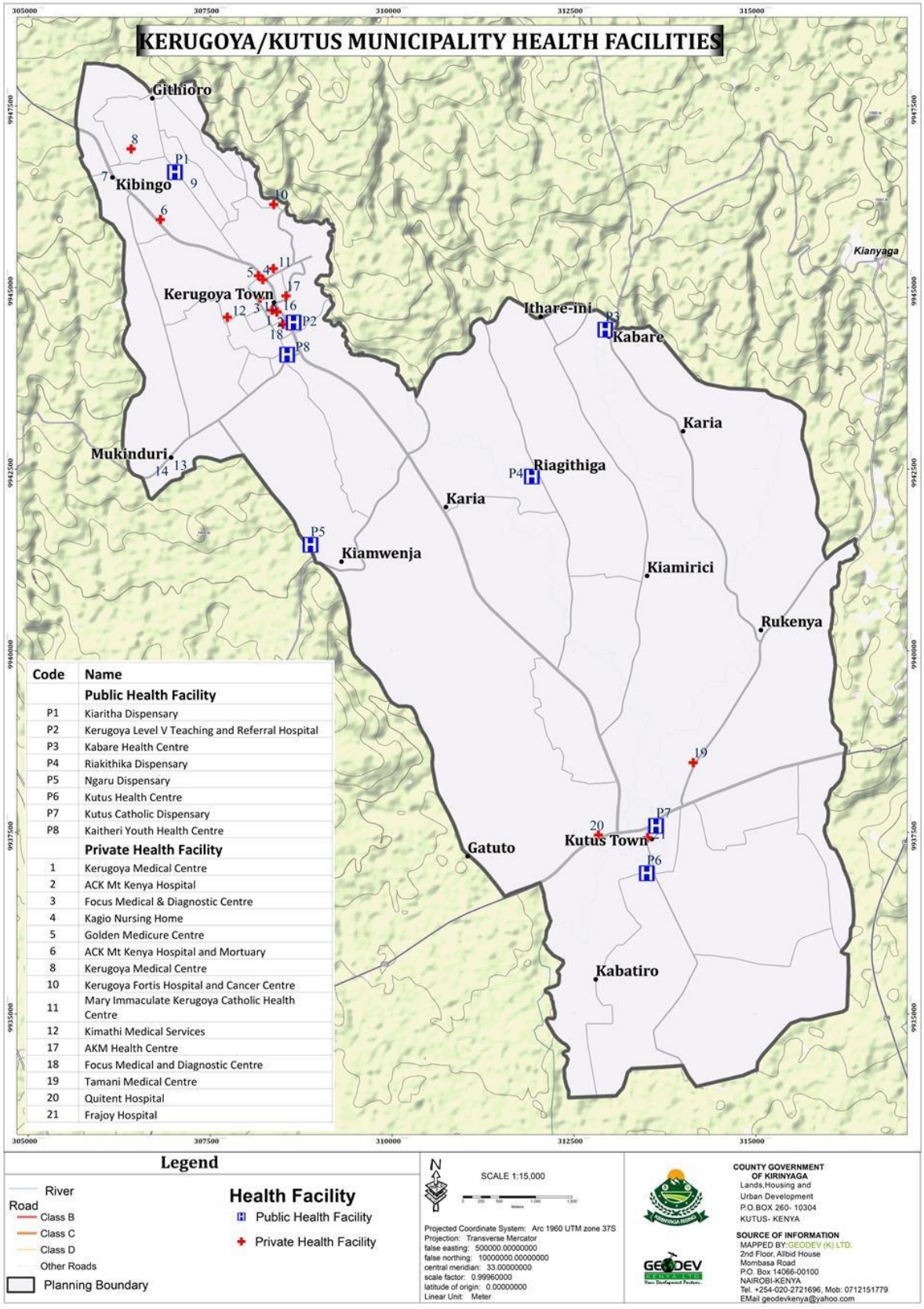
4.5.6 Energy use

According to the census and socio-economic survey, the main source of energy for lighting is electricity from the national grid. Other sources included lanterns/kerosene lamps diesel generators solar, candle, lantern and wood

4.5.7 Health Facilities

The project area has several referral hospitals and private dispensaries. In Kerugoya town there is Kerugoya hospital, Wanguru town area, there is Mwea Mission Hospital in Karira among many other small private facilities and dispensaries. There are 11 health facilities in the project area.

Figure 4-1 Health facilitis in the project area



Code	Name
	Public Health Facility
P1	Kiaritha Dispensary
P2	Kerugoya Level V Teaching and Referral Hospital
P3	Kabare Health Centre
P4	Riakithika Dispensary
P5	Ngaru Dispensary
P6	Kutus Health Centre
P7	Kutus Catholic Dispensary
P8	Kaitheri Youth Health Centre
	Private Health Facility
1	Kerugoya Medical Centre
2	ACK Mt Kenya Hospital
3	Focus Medical & Diagnostic Centre
4	Kagio Nursing Home
5	Golden Medicure Centre
6	ACK Mt Kenya Hospital and Mortuary
8	Kerugoya Medical Centre
10	Kerugoya Fortis Hospital and Cancer Centre
11	Mary Immaculate Kerugoya Catholic Health Centre
12	Kimathi Medical Services
17	AKM Health Centre
18	Focus Medical and Diagnostic Centre
19	Tamani Medical Centre
20	Quitent Hospital
21	Frajoy Hospital

4.5.8 Sanitation

Towns within the project area do not have an elaborate waste water treatment works. The mode of waste disposal is by onsite sanitation in form of pit latrines. Major business centers and town residents use pit latrines. Septic facilities are found among few of the residents. At present the sanitation conditions in these towns have not had any noticeable effect on public health but with the increase population, the situation is expected to tilt to the adverse effect.

4.5.9 Transport and Communication

The County's communications infrastructure is satisfactory. The total road network of in the county is 1,109.11 Km, out of which 106.5 Km is bitumen, 462.05 Km is gravel and 540.5 Km is earth surfaced roads. The county has an established road network with 7 tarmac roads passing through it namely Makutano – Embu road, Kutus –Karatina road, Baricho road, Kiburu road, Kutus – Sagana road, Kutus – Kianyaga road and Kabare – Kimunye road. The County is well served by several tarmac roads; these are Nairobi – Sagana – Karatina Highway, Nairobi – Makutano – Mwea- Embu Highway, Sagana – Kutus – Embu road and Kutus – Kerugoya – Karatina road. The County is well covered by all four mobile service providers and internet services are available in all urban Centres.

Besides the main roads connecting these towns the project area is served by a dense network of earth roads some of which are dusty in the dry season and muddy and impassable during the rainy season. The major soils are red coffee soils, which is sticky and slippery making it impossible for vehicles to reach interior when wet. The sticky soils also make movements by people difficult during rainy season.

4.5.10 Economic Activities

Agriculture is the largest driver of the local economy. It supports about 87% of the population with 72% of household income coming from agribusiness activities especially from banana farming and tea farming. Other economic activities include tourism largely due to the presence of Mt. Kenya National Park and mining of ballast and sand. The major industries in the County are involved agro-produce processing especially tea and coffee. Numerous financial institutions are also found in the County. These include 17 banks, 8 micro-finance institutions, 18 building societies and 5 insurance companies.

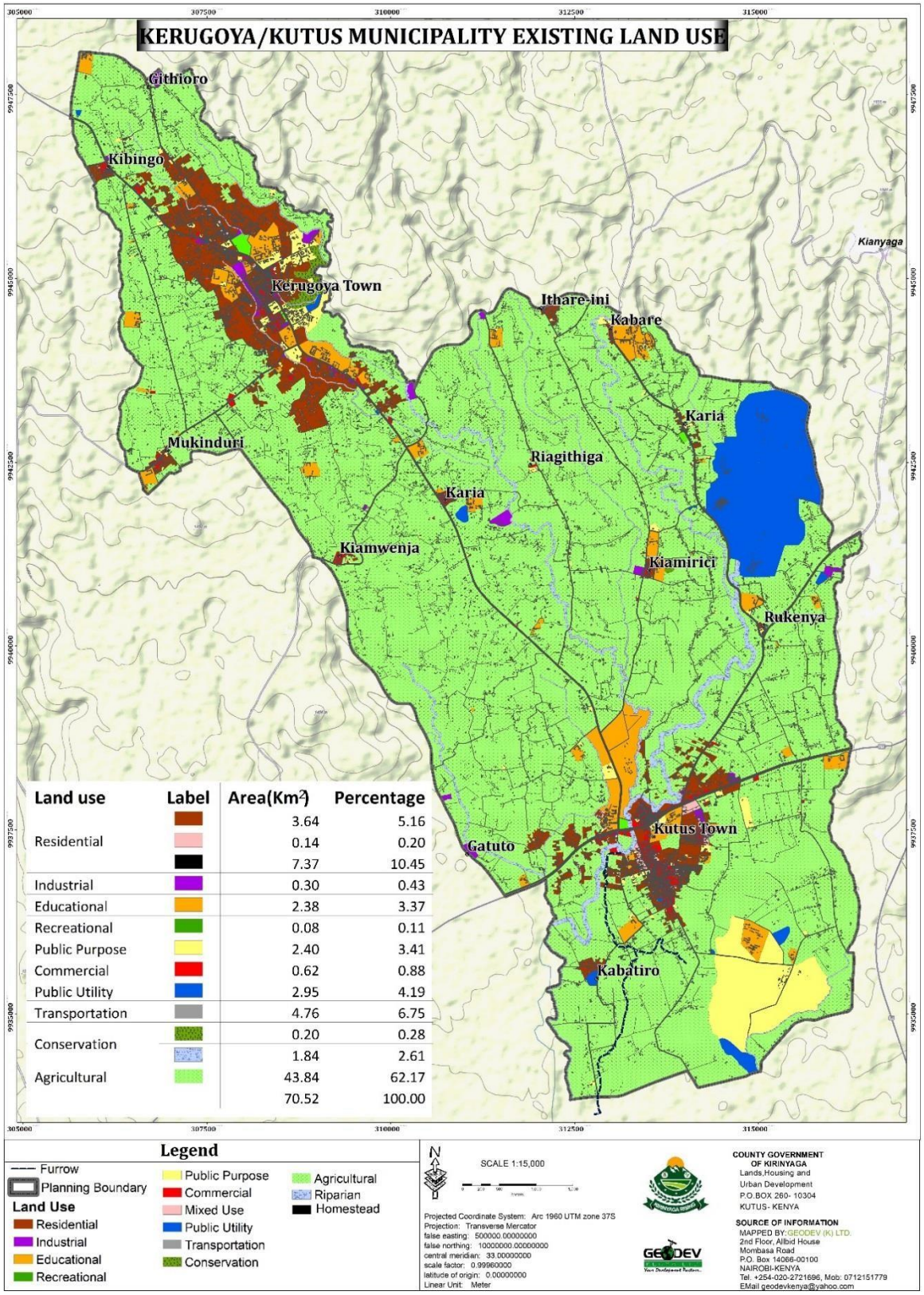
4.5.11 Land holding ad Land Uses

Agriculture remains the most important economic activity in Kenya, the contribution of the agricultural sector to Kenya's GDP stands 19% while employing 75% of the labour force. However, subsistence agriculture is the important contributor to the livelihoods of as over 90% of the project area households. As such land is a very treasured resource for rural households like the ones residing in the proposed site with 73% of polled households owning some agricultural land.

Farmers mostly practice zero grazing as evidenced by small farm lots set aside for fodder cultivation and absence of grazing animals in the fields.

Livestock kept by households includes cattle, goats, sheep and fowls. Livestock provides meat, milk, eggs and a cash income in times of economic hardships. Cattle are also an integral part of cropping activities, producing organic fertiliser in addition to supplementing household incomes through sale of stocks.

Figure 4-2 Land Use Map for the project area



CHAPTER 5: ANALYSIS OF PROJECT ALTERNATIVE

This chapter analyses the different alternatives considered in selection of the project pipeline route in water supply transmission.

5.1 Project Alternatives

This section analyses the Project alternatives in terms of site, technology scale and waste management options. However, under this study the alternative that was considered for the project was basically focusing on:

- Project Alternative
- Project Location
- Project Resettlement Impacts
- No Project Alternative

5.2 Project Location

The proposed project covers Kirinyaga West and Kirinyaga Central sub counties. Specifically, the water supply infrastructure will supply water to the towns of Kerugoya, Kutus, Kagio and Sagana.

5.3 No project Alternatives

The no-action alternative is often defined by the baseline information and is crucial in the assessment of impact because other alternatives are weighed with reference to it. This alternative would mean that the project does not proceed.

The No Project Option in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. However, if the project is not implemented, the following issues are most likely to continue affecting residents of Kirinyaga;

- There will be no improved accessibility to clean and reliable water supply to Kirinyaga residents
- There will be no improved Health and Sanitation within the target beneficiaries
- There will be no improved living standard/well-being, employment and local economy in the target beneficiaries

- There will be no creation of employment during both construction and operation phases of the projects

From the above analysis, it becomes apparent that the No Project alternative is no alternative to the community This scenario is thus not acceptable on either social or environmental grounds.

5.4 Project Option Alternative

The project shall directly result to realization of benefits such as:

- The realization TWWDA strategic goals of improving safe water supply from 73% to 90% rural population accessing safe water from 46% to 70% over the planning period, the project is among the initiatives of the Agency towards achieving the strategic goal above.
- Improved water supply and sanitation, in small towns and surrounding rural areas, as well as water storage, for water supply and irrigation development, that underpins the Kenyan economic and social developments (Vision 2030) and its associated five years Medium Term Plan (MTP) for 2012 – 2017
- Sustainable Development Goal (6) which is the new 2030 agenda and expands Millennium Development Goal as guided by resolutions of Rio+20 conference. The goal focuses more on investment in adequate infrastructure in water sanitation, Hygiene, water quality, waste Water Management, water scarcity and use efficiency, integrated water resource management and protection of water related ecosystems

5.5 Project Design Alternative

5.5. 1 Layout Alternatives

The proposed pipeline route is mainly covered with grass and a few short bushed. It is evident that the project will have minimal impact on this vegetation. Moreover, the construction of the supply pipeline will involve laying of the pipeline underground at an approximate depth of sixteen (16) inches. Compared to trenching, laying the pipelines above ground would have ensured minimum disturbance of the top soil matter. However, this presents a big risk of damage to the pipeline and consequently limiting the success of the project. This ESIA report thus recommends shallow trenching for the pipe layout

5.5.2. Alternative construction materials and technology

The supply pipeline will be constructed of both high-density poly-ethylene (HDPE) and galvanized iron (GI) at road crossings and carriage way areas. The proposed project will therefore be

constructed using modern, locally and internationally accepted materials to enhance public health, safety security and environment. Moreover, the material used for backfilling of the pipeline trenches will be the same soil that was earlier excavated. Use of timber as casts during constriction of washout chambers and valves will be discouraged where need arises. The contractor will be encouraged to make use of steel scaffolds and molds.

5.6 Project Resettlement Issues

The proposed project will mainly utilize the public road reserve that spans 30 feet with a provision of 20 feet carriage way development. The remaining 10 feet is reserved for other public utilities which included water infrastructure. There are no observable encroachments into the public road reserve through which the pipeline will be constructed. It was however observed that a small section of the pipeline will have to traverse crop land. Compensation would therefore be effected to provide an easement for the pipeline wayleave. Resettlement issues will therefore be minimal arise as only a few private lands are affected.

However, the pipeline will require permits from the public works office to enable the proponent trench through the road crossings in cases of road reserves.

5.7 Source Alternative

Kerugoya Kutus water supply has been designed and constructed to supply of 30,000 m^3/day which is projected to satisfy the year 2030 demand. The existing Intake worksat Thiba and Kiringa rivers are sufficient to meet the 2030 future demand however only the weir is constructed to meet the ultimate demand therefore for the system to meet its 2040 ultimate year demand the other intake structures will have to be constructed parallel to the existing ones.

5.8 Material Sourcing Sites and Disposal of Spoil

Material for fill shall be preferably red soil which is available on site. Other material such as rock and clay are also readily available within many small quarries a few kilometers from the project. The project shall have limited spoil material which shall be used to bury open and degraded sites within the project corridor; excess material shall be disposed off appropriately as required by the County Government of Kirinyaga.

CHAPTER 6: PUBLIC CONSULTATION AND DISCLOSURE

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 plans.

Public consultation in the ESIA review process is undertaken during the project design, implementation, and initial operation. The aim is to disseminate information to interested and affected parties (stakeholders), solicit their views, and consult on sensitive issues.

6.2 Stakeholders Engagement Plan

The objective of the engagements will be to enhance project acceptance and make a significant contribution to successful project design and implementation. The stakeholder engagements will be done timely, with relevant, understandable, and accessible information, in a culturally appropriate way free of manipulation, interference, coercion, discrimination, and intimidation.

The process of stakeholder engagement will involve:

Stakeholder identification and analysis: As discussed below but also when identifying participants in consultations involving multiple stakeholders, choose a wide range of interests and opinions, paying particular attention to women, the poor and to more vulnerable groups (young people, vulnerable ethnic minorities, elderly people, etc.).

i. Planning how the engagement with stakeholders will take place, including identification of appropriate venues, consideration on how to ensure inclusivity, Identification of socio-cultural factors that could influence the consultation process, Definition of the parameters, goals and expected results of the consultation process, Consideration of the various alternative approaches based on the particularity of the sub-project and adapting the participation process to the preferences of the stakeholders or context (individual meetings, focus groups, advisory committee, workshop, etc.); undertaking logistics for the consultation etc
ii. Consultation with stakeholders including disclosure of information in an open and transparent manner to ensure meaningful consultations, providing a response to the concerns expressed (if applicable);
iii. Addressing and responding to grievances;
iv. Reporting to stakeholders

v. Recording the key issues raised and addressing these in the design of the project or ensuring that the results of the consultation are reflected in the ESIA studies and in the documents prepared throughout the cycle of the project.

Stakeholder Analysis

Stakeholder analysis is a process of examining the relative influence that different individuals and groups have over a project as well as the influence of the project over them. The purpose of stakeholder analysis will be to: study their profile and the nature of the stakes, understand each group's specific issues, concerns as well as expectations from the project and gauge their influence on the Project.

The significance of a stakeholder group will be categorized considering the magnitude of impact (type, extent, duration, scale, and frequency) or degree of influence (power and proximity) of a stakeholder group and urgency/likelihood of the impact/influence associated with the stakeholder group in the project context. The magnitude of stakeholder impact/influence will be assessed by taking the power/responsibility and proximity of the stakeholder group and the group is consequently categorized as negligible, small, medium, or large.

Table 6-1 Stakeholders and Potential role in the project

NO	Stakeholder	Potential role	Interest
1.	Project Affected Persons	Affected by the project impacts or may own the land on which some of the project will be located	High
2.	Local Administration	Local Administration would facilitate in identifying and organizing the direct beneficiaries. Security	Medium
3.	WRUA	The Water Resources User Association is to issue comments to WRA concerning the issuance of the permit for the Project.	High
4.	KeNHA	The Kenya National Highway Authority will give approval to all road crossings done along their roads within the project area.	High
5.	KeRRA	Kenya Rural Roads Authority will give approval for the road crossings and access of the road reserve that will be used for pipeline laying within the project area.	High
6.	WRA-Regional Office	WRA Regional Office (In charge of the water resources within Tana Basin Area will issue	High

		authorization to construct and water use permit for the Project.	
7.	KICOWASCO	The WSP would facilitate in giving briefs about the advantages of the project since the project would be handed over to them for operation and maintenance.	High
8.	Public Health Office	The office will give health issues regarding water borne diseases cases experience in Kirinyaga Central and west sub counties health facilities.	High
9.	Physical Planning Department	They will give us the layout of kirinyaga centralConstituency and various land use, land use changes and physical setup of the study of the area.	High
10.	Sub County Administrator	The will guide on administrative ward and the leadership aspect	medium
11.	NEMA	Ensure environmental and social compliance	High
12.	County Governments including various technical departments	Grant approvals for the project	High
13.	DOSH.	Oversight on occupational Health & safety compliance	High
14.	Contractor	Construction of the project	High
15.	AfDB	Financing partner Monitoring of Compliance	High
16.	Other Government Agencies (KWS,KFS,)	Provide approval for clearances for project locations in sensitive environments	High

Stakeholder Engagement Schedule and Methods

Stakeholder engagement is a continuous process that will be carried out till project implementation. Various methods will be used such as: Baseline surveys, Public barazas, Focused group discussions, Questionnaires, Key Informants Interviews and stakeholders' meetings.

Disclosure

This stakeholders Engagement plan will be disclosed on the AfDB website as well as TWWDA'S website for easy access to persons with internet. Simlarly, all RAPs and ESIAs prepared for the project will also be disclosed on TWWDA website as well as availed on site.

6.3 Stakeholders' meetings

The aim of this was to ensure that all the stakeholders likely to be affected or influence the project are identified and targeted as part of the ESIA review study. The following stakeholders were engaged in the ESIA study and they include; -

- County Government
- Project Project affected Person's (PAPs;)
- Ministry of Lands and Physical Planning;
- Kerugoya Prisons;
- County Administration-County Commissioners, Deputy County Commissioners Assistant County Commissioners, Chiefs and Assistant Chiefs, Village elders etc.

Methods used for public participation (PP) to identify anticipated impacts and possible mitigation measures from the community members included

1. The administration of pre-designed questionnaires
2. Public meeting*/baraza*
3. Taking of pictures of community members in the attendance.
4. List of participants Appendix 2

Four public meetings were conducted in Kirinyaga Central and West Sub counties in order to explain the project and its effects to community as well as to obtain the views of the community on the proposed project. The schedule of the meetings is below.

Table 6-0-1 Community Barazas

Date	Attendance			Sub county	Venue
	M	F	T		
23/02/2024	30	10	40	Kirinyaga Central	Kerugoya Chiefs Office
23/02/2024	5	8	13	Kirinyaga Central	Ngaru Chiefs Office
23/02/2024	21	10	31	Kirinyaga Central	Kirimunge primary School
23/02/2024	22	13	35	Kirinyaga Central/East	Catholic Church Kutus
Total	78	41	119		

Methods used for stakeholder consultations (SC) included

1) Key informants' interview through a questionnaire
2) Direct discussions

6.4 Issues arising from Key Informants Interviews

Table 6-0-2 Issues arising from Key informants' interviews

Issues/Concerns	Responses by the Developer
Water cost	During consumption of water the consumer will bear the cost paid to water service provider for sustainability of the project
Loss of property and assets	Compensation to be done after assessment and valuation
Wayleave and Compensation	Most of the pipes will be along existing roads. In case of land acquisition, the affected land owners will be compensated.
Maintaining the water supply during low flow seasons	Have some storage to capture and store excess water during flooding so that during low flow there is enough water to be supplied.
Low Water Quality	Water quality will be monitored on quarterly basis by KICOWASCO PLC to ensure that the standard for water consumption is maintained.
Additional Distribution lines to cover both sides of the road at Kirimunge area	The proposed design covers one side of the road, but KICOWASCO PLC can assist in future connection.

6.5 Summary of key suggestions and Opinion arising from Consultative Forums

1. The project is expected to have the following impacts:
    - It will reduce conflicts between members of the community due to increased volume of the resource. Water related conflicts are commonly experienced in the area.
    - Incidences of water-borne diseases will be reduced since an alternative source of potable water will be available
    - There will be an increase in the hygiene practices of the community since water will be made available

- The time spent by members of the community – more so women - in fetching water from long distances will be reduced. The time saved will in-turn be invested in other beneficial socio-economic activities
- Job opportunities will be created for the residents along the pipeline route during the construction phase of the project. This will in-turn improve the socioeconomic situation of the areas
- There will be increased road traffic resulting from transportation of construction material to construction sites
- There will be an increased risk of accidents during construction since the pipeline will be constructed along existing roads
- The construction phase will see the destruction of existing infrastructure (i.e. excavation of tarmacked sections at road crossings as well as existing water connections)
- Construction activities will lead to dust emission
- Kerugoya town does not have an adequate sewerage system in-place. Increased water supply is expected to also increase the amount of waste water in the town thereby presenting a sanitation challenge and the possibility of water contamination
- Any leakages from the water supply pipeline might overflow to neighbouring farms thus leading to destruction of crops
- Poor disposal of construction wastes will lead to pollution of the environment
- Trenching activities will lead to soil erosion within the road drains thus the risk of siltation into the existing water ways

2. Illegal abstraction of water from surface water resources for irrigation purposes is widespread affecting water availability.
3. Common ailments related to sanitation and hygiene in the area include: Typhoid, diarrhea, amoeba, cholera (in rare cases) and worms.
4. Solid and liquid wastes are collected by the county government. There aren't any licensed private waste collectors

5. The road reserve along the pipeline route is about 30ft wide; the carriage way and roadside drainage take 20ft of the reserve. There are no buildings along the route; only farmland and live-fences have encroached on the reserve

6.6 Suggestions and Recommendations

During the consultative stakeholder meeting, participants raised the following suggestions and recommendations:

1. The ESMP should include measures to mitigate against degradation of water quality and quantity
2. The proponent and the contactor should involve local administration during the construction phase of the project. Liaison with the community should also continue during construction work and initial operation of the pipeline
3. Jobs opportunities that will arise during the construction of the pipeline should be reserved for the residents of the project areas
4. The proponent should apply for a permit from the relevant road infrastructure authority (KeRRA or Kenya Urban Roads Authority (KURA) to allow trenching of tarmacked road sections along the pipeline routes
5. Construction work should strictly observe standards of Occupational Health and Safety including the following;
    - Usage of safety gear and equipment by construction workers
    - Erection of safety signage along the construction route
    - Provision of sanitation facilities, clean water and food to construction workers
6. The proponent should also consider to construct and operate a sewerage handling system in Kerugoya town to manage the increased liquid waste expected due to increased water supply to the town

6.6. Future Stakeholders Engagement

After collection of public views on the proposed water supply, the Proponent will be required to set the ground for future consultations with key stakeholders and the general public

The following methods could be used to gather information from and continuously engage the various community members and other stakeholder groups:

- Key Informant Interviews;
- Focus Group Discussions (FGDs);
- Public meetings (barazas); and
- Roundtable meetings.

TWWDA and KICOWASCO PLC should maintain consultation records including attendance registers, signed minutes, sample photographs for meetings, mails etc.

6.6.1Public availability of documents

Subject to the existing legal framework, relevant approved project reports and licensing documents should be made available (at designated public offices and the project website) for public inspection/access on request.

We propose that the ESIA report findings be disclosed to the public through the Kirinyaga County NEMA office and the Deputy County Commissioners offices. Any comments raised by the public should be communicated to TWWDA through NEMA.

In addition, the final ESMP adopted for construction phase should also be made available to the public. Its availability should be publicized electronically through the Proponent and/or Contractor's website. Hard copies should be deposited at the contractor's camp site(s) and at the Deputy County Commissioners office for inspection.

6.6.2 Notification on forthcoming works

Prior to the commencement of construction, the Proponent and Contractor should mobilize and, in liaison with other stakeholders, facilitate consultation with the local community among other stakeholders including project affected persons (PAPs) in addition to those already identified in this report.

The Proponent and Contractor should continuously consult adjacent property owners with respect to project activities affecting their properties/environment and mitigation measures and, where necessary, jointly fine tune the proposed ESMP actions.

6.6.2 Publicity signages

Prior to the commencement of construction, the contractor should erect publicity signages detailing the nature of forthcoming water works at various strategic locations along the distribution lines. The Publicity signage should be as required and approved by the Ministry of Transport,

Infrastructure Housing Urban Development and Public works as well as National Construction Authority (NCA), and the by-laws of Kirinyaga County.

6.6.3 Localised notifications

For any working front, the Proponent in conjunction with the contractor will post notifications of forthcoming works, especially the disruptive ones. In addition, localized notifications should be made for:

- Job opportunities available;
- Any traffic disruptions or controls or changes to abutting property access; and
- Any irregular/hazardous work practices such as excessively noisy works etc.

6.7 Grievance Redress Mechanism

The section describes the processes and steps that shall be followed during Grievances management. A Grievance Redress Mechanism (GRM) shall be established to address any grievances that will emerge during the implementation of the proposed Kerugoya –Kutus LMC water project. Identifying and responding to grievances supports the development of positive relationships between projects and affected communities, and other stakeholders. The AfDB standards outline requirements for grievance mechanisms

6.7.1 Grievances Procedure

The Grievance management provides for three tiers of amicable review and settlement, with the first tier at the site level, second level will integrate a mediation committee in case the grievance cannot be solved at first level and finally there will be an option for each of the complaint to resolve to the court of law (third level) in case there is no resolution of the grievance with the mechanism.

The first tier will comprise of a Grievance Redress Committee whose members include:

- Project Ad-Hoc committee (PAP's representatives)
- Village elder
- Chiefs and Assistant Chiefs
- A representative of groups e.g. the religious groups, business groups, youth and women group
- TWWDA representative
- Contractor representative

- Supervising engineer representative

The second tier involves a Mediation Committee whose members will include representatives from:

- Project Ad-Hoc Committee (PAP's representatives
- National Government representative
- County Government representative
- TWWDA representative
- Contractor representative
- Deputy County Commissioner/Assistant County Commissioner

6.7.2 Grievance Mechanism

The grievance mechanism may include the following:

(a) Different ways in which the community can submit their grievances, which may include submissions in person or anonymously, by phone, text message, mail, email or via a web site.

(b) A log where grievances are registered in writing and maintained as a database.

A PAP will report a complaint at the grievance desk that will be set up at the Contractor's office, will be recorded in the grievance record and the Grievance Redress Committee will investigate and evaluate the nature of the complaint and provide a solution to the PAP within 14 days.

(c) Publicly advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response and resolution of their grievances.

(d) Transparency about the grievance procedure, governing structure and decision makers; and (e) An appeals process (including the national judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved.

6.7.3 Anticipated grievances from the Community

Grievances and complaints could arise with regards to land acquisition, compensation, activities associated with the construction project activities, social issues or any other subject related to the project.

6.8 Resettlement Action Plan

Tana Water Works Development Agency (TWWDA)), has proposed to implement the Kerugoya-Kutus LMC Water Supply Project to improve and increase water supply in Kerugoya, Kutus towns

and environs. Even though no structures are affected to trigger displacement of people, imminent loss of land use is envisaged during construction. The loss of land use would only occur at the pipeline wayleave therefore leading to partial loss of use during construction. Even though not many farms were traversed by the proposed pipeline, these issues have necessitated the client through the consultant to carry out a resettlement action plan (RAP) which is included in this ESIA project report.

The main objective of Resettlement Action Plan (RAP) is to provide a plan for resettlement and rehabilitation of the Project Affected Persons (PAPs) so that their losses are adequately compensated and their standard of living improved or at least restored to the pre- project status. The study entailed carrying out census of all the affected persons along the proposed route for the Kerugoya- Kutus LMC water project.

The parcels of land and crops affected will be paid in full by the client to cover for the loss of land use and produce that would have been harvested and sold during the construction period.

Table 6-0-3 RAP Implementation Matrix

Type of loss	Specification	Entitled Person	Category	Compensation entitlement
Land	Private Land	Owners	All categories of land	Provide easement allowance for the piece of land used for pipe laying at open market rate
Crops	Crops damaged as a result of the wayleave acquisition and construction activities	Owners	All crops	Crop damage compensation rates will be at market rates

CHAPTER 7: ASSESSMENT OF POTENTIAL IMPACTS AND MITIGATION MEASURES

7.1 Introduction

This section discusses both identified positive and negative impacts. The proposed project will have both socio-economic benefits and associated negative environmental impacts However, it is noteworthy that most of the impacts identified are temporary and will have no lasting or irreversible consequences on the environmental state of Kerugoya Kutus area. The purpose of the ESIA review process is to therefore systematically assess the value of the benefits against the environmental concerns and provide measures to either avoid, prevent or reduce the magnitude of the impacts.

The proposed project is classified as a medium risk based on NEMA Public Notice on ESIA and Legal Notice No. 31 thus requiring Comprehensive project report (CPR) and also **categorized by AfDB as category 2** with moderate risk operations likely to cause adverse environmental and social impacts and readily minimized by applying appropriate management and mitigation measures.

7.2 Positive Impacts

Environmental impacts.

a) Enhancement of Tree Species Diversity

Environmental management good practices demand that the proponent ensures environmental restoration on construction completion. Through afforestation with non-invasive indigenous species and landscaping activities which would involve the local community the proponent could improve the biodiversity of the project area. Continuous audit of this activity would ensure sustainability of the initiative

b) Improved water supply

The proposed project will improve the general water supply in the area and encourage both domestic and commercial water uses. This will directly improve the livelihood of the village residents.

Social impacts.

a) Employment

The proposed Kerugoya-Kutus Water Supply LMC construction will require both skilled and unskilled labour. The short-term employment opportunities during the construction phase will be

of benefit to the local communities living around the project location. The community members will provide labour for bush clearing, loading and offloading of construction materials and deliveries, record keeping and provision of security at active sites and temporary campsites and stores. Indirect job opportunities for the locals such as provision of goods and services such as catering and kiosks, barber shops etc. to the construction crew are anticipated

b) Reduction in water fetching time

It was noted during focused group discussions that there was inadequate water supply and taking time to fetch water, this will significantly reduce for most residents within the area

c) Reduction in waterborne diseases

The commissioning of the Proposed Kerugoya-Kutus water supply LMC will significantly reduce the health problems associated with the current reliance on raw, untreated and occasional contaminated water. This includes the problem of intestinal worms and other related diseases.

d) Provision of services and construction materials

The project will require lease services from machines and equipment suppliers and supply of construction materials. Most of the materials and machinery will be sourced locally within the project surrounding areas. This will provide ready market to the suppliers such as companies and individuals with such materials and equipment.

e) 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 and any material sites required such are borrow pits and quarries.

f) Economic growth

Through the use of locally available materials and equipment during the construction phase; 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 including VAT which will be payable to the government hence increasing government revenue while the cost of these raw materials will be payable directly to the project beneficiaries.

7.3 Negative Environmental Impacts

Alongside the project benefits, there will be potential negative environmental impacts at the three phases of the project cycle. These are pre-construction and construction, operational and possible

decommissioning phases. The proceeding sections discuss each of these phases' impacts on the environmental and the livelihoods of the local community.

7.4 Potential Negative Impacts and Mitigation Measures at Pre-Construction

7.4.1 Delay in Implementation of the Project due to objections and stop orders

Seeking approvals from NEMA for the ESIA and other organizations such as KENHA, KURA and KERRA may take more time than expected. This may be due to objections before implementation or after approval and at the inception of the project. This may be mitigated by:

Mitigation measure

- ✓ The Proponent and the Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to;
- ✓ The Proponent and the Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract.

7.4.2 Risks of Environmental degradation risks

All activities to be undertaken on site will have the environmental and health and safety risk associated with them. This requires the contractor to minimize the risks by applying appropriate mitigation measures as follows: -

Mitigation measure

- ✓ The Contractor shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP.
- ✓ The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming.
- ✓ An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project affected persons.

7.4.3 Risks of Increased HIV and AIDS

HIV/AIDS transmission is likely to increase due to the influx of workers from other areas to the project areas. To mitigate this, application of the mitigation measures below is recommended.

Mitigation measure

- ✓ The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, & contracting organization, with preference for an organization already working on this issue in the project area.
- ✓ The Contractor's Camp layout shall consider availability of access for deliveries and services and any future works.
- ✓ The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material, availability of condoms (free)

7.4.4 Delay in Project Implementation due to Opposition from Aggrieved Community Members

Recruitment of people for labor may lead to complains from the local community as there may be disparities in the employment. Gender issues related to labor may also lead to complaints. Moreover, the stakeholder engagement may be conducted in a manner that may not be accepted by the community therefore leading to grievances. To mitigate for these impacts, the recommended mitigation measures below may be applied.

Mitigation measure

- ✓ Wherever possible, the Contractor shall use local labor, and women must be encouraged to be involved in construction work.
- ✓ The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule.
- ✓ Contractor to hire community liaison officers who will act as a link between the community and contractor.
- ✓ Identification and engagement of all stakeholders to be undertaken.
- ✓ A working Grievance Redress Mechanism to be established before commencement of works.

7.5 Construction Phase

7.5.1 Partial loss of land use

During construction phase, it will be impossible to grow crops along the wayleave before the actual laying of pipeline. It should however be noted that the project does not lead to physical displacement of persons and the process of construction will take a very short time; say one season of crop growing.

Proposed Mitigation Measures

- Implement the Resettlement Action Plan (RAP) prior to commencement of any project works for the affected persons.
- Institute and maintain an active grievance redress mechanism on site during the construction phase to ensure that any arising issues are promptly and amicable addressed e.g. property affected but not previously envisaged in the RAP is timely compensated for as applicable

7.5.2 Impacts on Flora

The proposed project area has crops, trees and shrubs especially along the pipeline that are likely to be cleared during construction. This loss will be permanent but necessary due to the need to increase the per capita water availability for people in Kirinyaga County. This is in line with SDG 6 of ensuring availability and sustainable management of water and sanitation for all. Access to water and sanitation are basic human rights and are critical sustainable development challenges. These challenges will only worsen and the impacts on people will only increase as competing demands for clean fresh water (agriculture, households, industrial use, and ecosystems) are exacerbated by the effects of climate change putting more pressure on water quality and availability. These conditions will create increasing risk for businesses, governments, communities and the environment.

Mitigation Measures

- The proponent shall ensure that clearing of any vegetation is limited to the pipeline trench area (i.e. 0.5 meters width) within the road reserve and that transportation of construction materials is done through the existing local roads.
- In case of loss of assets then compensation for the affected persons.

- The areas to be cleared for the pipeline trench, camp-site and materials holding yard shall be identified and marked out prior the start of construction activities. In addition, clearance of vegetation on riparian land will be avoided.
- Construction Supervision will ensure clearance of vegetation is limited to only necessary areas. If cutting of trees is unavoidable, replanting of the respective number and species of trees will be carried out after completion of Works;
- The proponent will encourage residents to plant trees on affected areas.

7.5.3 Increased Vehicular Traffic

During the construction phase of the project, there will be increased vehicular traffic during the transportation of construction materials might result in the destruction of light traffic roads and increase the risk of transportation accidents.

Mitigation Measures

- Transportation of construction material to specific sites will be done through the existing local roads where possible. The contractor will rehabilitate the local roads that will be damaged during construction activities
- Any detours and diversions that will be necessary during construction will be done in-consultation with the local communities.
- Vehicular and human traffic shall be restricted to the road reserve as much as possible.
- Drivers/ operators of vehicles will be advised to comply with prescribed speed limits to reduce the risk of road accidents.

7.5.4 Soil erosion and siltation of surface water resources

Earth material excavated may be carried away by wind and surface water run-off. Excavated soils could be swept into surface water bodies by storm water floods during rains. This will increase the turbidity and sediment loads of the water bodies thereby increasing the cost of water treatment.

Mitigation Measure

- Use excavated earth materials for backfilling
- Sprinkling of backfilled trenches with water
- Compaction of backfilled trenches
- Re-vegetation of excavated areas
- Channelling of surface water runoff away from the pipeline route

7.5.5 Noise and Vibrations

Increased noise levels will be experienced from the use of heavy construction equipment. Increased vibrations during construction by equipment movement, excavations and blasting may transform the calm and quiet conditions in the area. Noise during the project construction will mainly be caused by construction machinery, such as bulldozers, excavators, pile drivers, concrete mixer trucks, and transport vehicles among others could exert noise impact. The vibration effect during the construction period will mainly result from the operation of machinery and equipment. However, the construction process will therefore have no key receptors except for the construction workers who will have the necessary PPEs such ear plugs.

7.5.6. Interruption of Existing Infrastructure and Services

The pipeline route traverses an existing road reserve but some sections will cross tarmacked and feeder roads. Construction work will interfere with existing supply and distribution pipeline networks thereby interrupting water supply services. These services are critical and have implications with spill-over effects on the social and economic performance.

Mitigation Measures

- The project proponent will apply for authorisation from relevant national authorities to interfere with existing infrastructure. The proponent will liaise with KeNHA and KeRRA for authorisation to cut through main roads and feeder roads that fall under their jurisdiction
- The contractor will immediately restore the damaged sections of roads and water supply networks to pre-construction conditions.

7.5.7 Solid waste generation

Some solid waste will be generated from construction waste including remnant packaging materials such as cement bags. Domestic waste from the construction base camp could also lead to environmental pollution. It is expected that the contractor should ensure full compliance with the EMCA Waste Management Regulations of 2006 as well as the following measures: -

- ✓ Use of integrated solid waste management system through the following options: i) waste source reduction, ii) material reuse and recycling, and, iii) combustion,
- ✓ Disposing waste more responsibly in appropriate designated dumping sites,

- ✓ Using construction materials that have minimal or no packaging to avoid the generation of excessive packaging waste, and providing waste collection sites and facilities within the site.
- ✓ Use of licensed waste handlers

7.5.8 Occupational health and safety issues

During the construction of the proposed project, it is expected that construction workers are likely to have accidental injuries as a result of accidental occurrences, neglect of the use of protective gears among others. Accidents may also occur to members of public, livestock and wildlife from open trenches, but they will be reduced by marking of the construction site by use of tape and restricting access to the sites.

Mitigation Measures

Appointed contractor shall establish a Health and Safety Plan for all the construction works. Such plans shall incorporate and ensure:

- Work methods and Job safety analysis;
- Installation and maintaining warning signs along the major junctions on roads used by the construction vehicles;
- that all construction machines and equipment are in good working conditions to prevent occupational hazards;
- Appointment of a trained health and safety officer for the duration of the construction work;
- Provision of workers with appropriate PPE's and enforce usage;
- A First Aid Kit should be provided within the site and during construction phase. This should be fully equipped at all times and should be managed by qualified persons.
- Workers training on safety procedures and emergency response such as fire, oil and chemical spills, pipe bursts and other serious water loss risks;
- Fencing off or barricading active construction areas from the public and having restricted access;
- Installation and maintenance of appropriate hazard warning signs around the site;
- Due care should be taken to maintain hygienic conditions at site by providing proper sanitation facilities and ensuring standard cleanliness of the facilities;

- food suppliers have licenses from the local public health department for handling/vending the foodstuff; and
- The contractor maintains workmen's compensation cover. It should comply with Workmen's Compensation Act, as well as other ordinances, Regulations and union Agreements

7.5.9 Influx of workers from other areas

The project area might experience an influx of workers from other areas. This will directly affect the normal social set up of communities living in the project area thereby possible decay of morality, increase in school drop-outs due to available unskilled labour, possible child labour, petty thieves and increased HIV/AIDS incidence and communicable diseases.

Mitigation Measures

- Education and sensitization of workers and the local communities on the dangers and prevalence of the disease
- Regular sensitization campaigns and monitoring of the disease spread
- Instituting HIV/AIDS awareness among the project workers
- There should be adequate and regular passage of information regarding the spread and risk of contracting the disease
- There should be the provision of adequate prevention measures such as condoms
- The contractor will give preference to local residents for unskilled jobs where necessary.

7.5.10 Gender Based violence

This impact is triggered during Project Construction Phase when the Contractor fails to comply with the following provisions;

(i) Gender inclusivity requirements in hiring of workers and entire project management as required by Gender Policy 2011 and 2/3 gender rule.

(ii) Failure to protect human risk areas associated with, disadvantaged groups, interfering with participation rights, and interfering with labour rights.

Mitigation Measures

- Ensure clear human resources policy against sexual harassment that is aligned with national law
- Integrate provisions related to sexual harassment in the employee code of Conduct (COC)

- Ensure appointed human resources personnel to manage reports of sexual harassment according to policy
- The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse
- The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:
  - ✓ Effective and on-going community engagement and consultation, particularly with women and girls;
  - ✓ Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women etc.
- The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc
- The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

7.5.11 Sexual Exploitation and Abuse (SEA) and Sexual Harassment

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 a SEA action plan with an Accountability and Response Framework as part of the C-ESMP

• 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-cantered 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.

7.5.12 Security

Security is a prerequisite to/for any development as it ensures materials/project is secure. It also controls movement within the site especially for the intruders who might be injured by the materials and other hazardous features available within the site.

Mitigation measures

- The project site should be enclosed using suitable walls to beef-up security and to control movement within the site;
- There should be guard houses at the gate. Security guards should always monitor the gate of the facility to keep away the intruders and to control movement within the site;
- Contractor should provide adequate security during the construction period when there are no works on the site; and
- The guards stationed at the gates should document movements in and out of the site/ property

7.5.13 Air Quality Degradation

Limited air pollution will occur mainly due to fugitive emissions and dust generation from various construction activities. Particulate matter pollution is likely to occur during the site clearance, excavation, loading and transportation construction materials. However, the site is not inhabited and will therefore have no key receptors except the construction workers who will have the necessary PPEs such as dust masks.

Mitigation Measures

- Supply and construction vehicles will only use the designated transport routes. The drivers will also be advised to stick to prescribed speed limits
- The contractor will ensure proper repair and maintenance of vehicles and equipment to minimize exhaust gases
- The contractor shall ensure the appropriate speed limits are observed at along all road sections that will be used by construction vehicles on a needs basis to eliminate the creation of dusts
- Construction workers will be provided with dust masks to mitigate

7.5.14 Vandalism

Mitigation Measures

- The project site should be enclosed using suitable walls to beef-up security and to control movement within the site.
- There should be guard houses at the gate. Security guards should always monitor the gate of the facility to keep away the intruders and to control movement within the site.
- Contractor should provide adequate security during the construction period when there are no works on the site.
- The guards stationed at the gates should document movements in and out of the site/ property.

7.6 Positive impacts during Operation Phase

7.6.1 Improved sanitation and public health

Construction of Kerugoya-Kutus water supply LMC will ensure that the residents are supplied with clean water for domestic use. As a result, incidences of water related diseases are expected to immensely decline.

7.6.2 Improved access to water services

Majority of the residents complained of inadequate water and general lack of a clean source of water. The completion of the existing water supply network will eliminate this challenge by reducing time spent in collection of water from other sources and elimination of the necessity of disinfection of water by boiling. All in all, the project will play a part in meeting the SDG goal on improved Access to clean water and sanitation for all.

7.6.3 Empowerment of women

Women play an important role in domestic and general economy of the town. However, the existing challenge of water shortage fall squarely on them as the society expects them to draw and provide water to the households. The water supply network will however work in their benefit and award them more time to other economic activities such as farming, selling their products in the open market, businesses among other income generating activities.

7.7 Negative Impacts During Operation Phase:

7.7.1 Risk of increased water pollution

Provision of additional water to the surrounding location is expected to spur economic growth of the area leading to additional wastewater which will likely be managed by use of proposed sewer project. This can cause pollution of surrounding rivers besides increasing cases of water related diseases which are already significantly affecting the local community.

Mitigation Measures

- Sensitizing the residents on health and sanitation issues should be carried out to ensure that the waste water does not come into contact with food, kitchen wares, and stored water or end up in the river in its raw state;
- Laying down of a sewer system has been considered as part of the long term Kerugoya - Kutus development for the project area;
- Kirinyaga County government to require all new urban households and commercial buildings using the flash system to connect to the proposed sewer system
- Sanitary facilities should be kept clean always, through regular washing/cleaning too.

7.7.2Risk of illegal connection to the new pipeline

Illegal connections are common where residents connect to water supply pipes illegally to avoid paying connection fees and monthly service levies. This practise will lead to Non-Revenue Water (NRW) and loss of revenue to KICOWASCO PLC. Loss of revenue will impact on the cash-flow of the company. Illegal connections will reduce the volume of water reaching Kerugoya town and its environs thereby reducing the reliability of the project.

Mitigation Measures

- The project proponent will ensure that communities living along the pipeline route are adequately served with piped water to reduce the urge for illegal connections.

- The proponent will also conduct water balance studies and NRW audits to identify and plug points of water loss along the pipeline.

7.7.3 Soil erosion and Siltation of Surface Water Resources

Earth material excavated during repair and maintenance of the pipeline may be carried away by wind and surface water run-off. Excavated soils could be swept into surface water bodies by storm water floods during rains. This will increase the turbidity and sediment loads of the water bodies thereby increasing the cost of water treatment.

Mitigation Measures

- During the operation phase of the project, repair and maintenance staff shall drain the pipeline sections to be worked on to avoid spillage of water. Any pipeline leakages or bursts shall be swiftly repaired to avoid triggering landslides.

7.8 Positive impacts during Decommissioning Phase

7.8.1Employment opportunities

This a positive impact where both skilled, semi-skilled and unskilled workers will be employed during decommissioning phase.

7.8.2 Site rehabilitation

Decommissioning phase will lead to rehabilitation of the site that was cleared to pave way for construction activities. This will ensure that the environment is left as natural as possible close to or better than before.

7.9 Negative impacts during Decommissioning Phase

7.9.1Reduced availability of potable water to beneficiaries

The termination of the project at the end-of-project life will reduce the amount of potable water available to the established beneficiaries. This will cause increased competition for the water resources available at the time. Consequently, water related conflicts and utilisation of contaminated sources will occur.

Mitigation Measures

- TWWDA should provide an alternative access to portable water before the operation period of the pipeline and treatment plant expires; and
- Awareness should be carried out early in advance to inform the people on the major rehabilitation or decommissioning period and its anticipated impacts.

7.9.2 Soil erosion and Siltation of Surface Water Resources

Excavation activities during decommissioning will loosen soil thereby making it vulnerable to erosion due to wind and surface water run-off. Excavated soils could be swept into surface water bodies by storm water floods during rains. This will increase the turbidity and sediment loads of the water bodies thereby increasing the cost of water treatment.

Mitigation Measures

- The project contractor shall ensure that excavated earth materials are used for backfilling the pipeline trenches. The backfilled soil will also be sprinkled with water and compacted to a similar density to the existing ground.
- The cleared sites will be re-vegetated to improve ground cover and minimize soil erosion and also improve on aesthetics of the project area.
- The contactor will also ensure proper channelling of surface water runoff away from the pipeline route and where necessary install silt traps to reduce the volume of sediments directly entering drainage channels.

7.9.3Air Quality Degradation

Potential air quality degradation will occur as a result of vehicular and equipment emissions/ exhaust gases. Generation of dusts from trucks and vehicles accessing the project site and camp sites as well as piling of excavated material is expected to degrade the local air quality.

Mitigation Measures

- Practice dust management techniques, including watering down during drier period;
- Set up dust barriers/ screens at strategic locations;
- Provide and enforce the appropriate use of PPE against dust.

7.9.4 Interruption of Existing Infrastructure and Services

The pipeline route traverses an existing road reserve but some sections will cross tarmacked and feeder roads. Construction work will interfere will existing supply and distribution pipeline networks thereby interrupting water supply services. These services are critical and have implications with spill-over effects on the social and economic performance.

Mitigation Measures

- The project proponent will apply for authorisation from relevant national authorities to interfere with existing infrastructure.
- The proponent will liaise with KURA and KeRRA for authorisation to cut through main roads and feeder roads that fall under their jurisdiction.

- The contractor will immediately restore the damaged sections of roads and water supply networks to pre-construction conditions.

7.9.5 Effect on Socio-Economic Activities

During the decommissioning phase, any crops in the farmlands that encroached on the road reserve will be cleared to make way for decommissioning activities. Visits to the project area revealed minimal encroachment by way of farmlands and live fences to the road reserve. This impact will therefore have minimal adverse effect to the local communities.

Mitigation Measures

- The local community members whose farms have encroached on the reserve will be notified of pending construction activities in advance and asked to harvest any crops and salvage any useful fence materials there-in.

7.9.6 Solid waste material

It is expected that large amounts of solid waste material arising during decommissioning and hence proper disposal of these materials is critical.

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; and
- Careful disposal of any residual chemicals and wastes from the treatment plant

7.10 Impact Assessment Matrix

Environmental Impact Assessment study should identify impacts., indicate the scale of impacts (magnitude, duration), and identify the impacts whether irreversible or reversible, permanent, or temporary, direct or indirect, large scale or local to project site. The assessment is in the table 7 below:

Table 7-0-1: Impact Assessment Matrix

Impact	**NATURE OF IMPACT**				**NATURE OF IMPACT**			
	Positive/ Negative	**Direct/ indirect**	**Temporary/ Permanent**	**Significance (high, Modera**	**Pre-construction**	**construction**	**Operation**	**decommissioning**

				te, Low)				
1.Improved and reliable water supply for the residents of Kerugoya Town and its environs	Positive	Direct	Permanent	High			√	
2. Increased reliability of water supply to the residents of Kirinyaga-County	Positive	Direct	Permanent	High			√	
3. Creation of employment opportunities for residents of the project area	Positive	Direct	Temporary	Moderate		√		
4. Improved Service Delivery by the County	Positive	In-direct	Permanent	Moderate			√	

Government								
5. Increased revenue generation by National Government	Positive	In-direct	Permanent	Moderate	√	√	√	√
6. Injection of Money to the Local Economy	Positive	In-direct	Temporary	High		√	√	
7. Benefits from Capacity Building	Positive	Direct	Permanent	High		√	√	
8. Partial loss of land use	Negative	Direct	Temporary	Low		√		
9 Slope in-stability	Negative	Direct	Permanent	Moderate	√	√	√	√
10. Soil erosion and Siltation of Surface Water Resources	Negative	Direct	Temporary	Moderate		√	√	√
11. Air Quality Degradation	Negative	Direct	Temporary	Moderate		√		√
12. Risk of illegal connection to the new pipeline	Negative	Direct	Permanent	Low			√	
13. Interruptio	Negative	Direct	Temporary	Moderate		√		

n of Existing Infrastructure								
14. Effect on Socio-Economic Activities	Negative	Direct	Temporary	Low		√		
15. Loss of Flora and Fauna	Negative	Direct	Temporary	Low		√	√	√
16.Increased Vehicular and Human Traffic	Negative	Direct	Temporary	Moderate		√	√	√
17.Generation of liquid and solid wastes	Negative	Both	Both	High		√	√	√
18. Health and Safety Hazards	Negative	Direct	Both	Moderate		√	√	√
19.Degradation of water quality	Negative	Direct	Temporary	Moderate		√		√

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

8.1 Introduction

The purpose of the ESMP is to ensure that environmental and social impacts and risks identified during the ESIA review are effectively managed during the construction, operation and decommissioning of the proposed project. The ESMP specifies the mitigation and management measures for each impact/ risk, party allocated responsibility, means of monitoring and frequency, objective verifiable indicators and an indicative budget.

The project proponent shall avail this ESMP to the successful contractor awarded the tender for construction work for this project. The contractor will be required to formulate a more specific ESMP and work methods that will ensure construction of the project in compliance with established standards and legislation. The contractor will factor the costs of implementing the ESMP into their budget. The project proponent will take the necessary steps to ensure that the ESMP is fully implemented.

Table 8-0-1 Environmental and Social Management Plan

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
Pre-Construction Phase					
Delay in Implementation of the Project due to objections and stop orders	• The Proponent and the Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to; • The Proponent and the Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract.	TWWDA	Before implementation	• Compliance Documents available	**500,000**

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
Risks of Environmental degradation risks	• The Contractor shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP. • The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming. • An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project affected persons.	Contractor	Continuous	ESMMP Report	**200,000**

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
Delay in Project Implementation due to Opposition from Aggrieved Community Members	• The Contractor shall use local labor, and women must be encouraged to be involved in construction work. • The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule. • Contractor to hire community liaison officers who will act as a link between the community and contractor. • Identification and engagement of all	Proponent/contractor	Planning	GRM Report	**350,000**

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	stakeholders to be undertaken. • A working Grievance Redress Mechanism to be established before commencement of works.				
Risks of Increased HIV and AIDS	• The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, & contracting organization, with preference for an organization already working on this issue in the project area.	Contractor			

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	• The Contractor's Camp layout shall consider availability of access for deliveries and services and any future works. • Training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material, availability of condoms (free)				
CONSTRUCTION PHASE					
Partial loss of land use	• Community sensitization and awareness creation regarding the project	TWWDA	Periodically, prior to project mplementation	• No. of complaints	500,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
			No. and minutes of consultative meetings held	from the local community	
	• Conduct a Resettlement Action Plan (RAP) along the proposed pipeline and compensate the PAPs	TWWDA/ Consultant	Periodically, prior to project implementation	• RAP Compensation Matrix	**Cost in RAP report**
Injection of money to the local economy	• The contractor's staff shall strive to purchase basic items that may be required while construction is in progress from the local shopping centres (e.g. airtime, snacks, etc.)	Contractor	Throughout the construction phase	• Increased economic activity around the project site	No direct costs anticipate
Increased vehicular traffic	• Transportation of construction material to	Contractor	During construction	• No of vehicles at the site	No extra cost

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	specific sites will be done through the existing local roads where possible. The contractor will rehabilitate the local roads that will be damaged during construction activities • Any detours and diversions that will be necessary during construction will be done in-consultation with the local communities. • Vehicular and human traffic shall be restricted to the road reserve as much as possible. • Drivers/ operators of vehicles will be advised to comply with prescribed				

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	speed limits to reduce the risk of road accidents.				
Soil erosion and Siltation of Surface water resources	• Use excavated earth materials for backfilling • Sprinkling of backfilled trenches with water • Compaction of backfilled trenches • Re-vegetation of excavated areas • Channelling of surface water runoff away from the pipeline rout	Contractor	Daily Inspection	-No. of silt traps installed -No. of surface drains constructed Presence/ absence of stockpiled excavated earth material	No direct costs (integrated in the works costs
Noise and vibration	• workers who will have the necessary PPEs such ear plugs	Contractor	During excavation	No of workers using PPe	

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
Influx of workers from other areas	• Education and sensitization of workers and the local communities on the dangers and prevalence of the disease • Regular sensitization campaigns and monitoring of the disease spread • Instituting HIV/AIDS awareness among the project workers • There should be adequate and regular passage of information regarding the spread and risk of contracting the disease • There should be the provision of adequate	Contractor	Construction phase	Workers register No of sensitizations done	

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	prevention measures such as condoms • The contractor will give preference to local residents for unskilled jobs where necessary.				
Loss of flora	• The proponent shall ensure that clearing of vegetation clearing is limited to the pipeline trench area (i.e. 0.5 meters width) within the road reserve • Transportation of construction materials to be done through the existing local road • Avoidance of vegetation clearing along riparian land	TWWDA/Contractor	Routine Inspection	No. and type of vegetation cleared No. and type of indigenous species replanted Size of area cleared Size of area revegetated	Contractor's best management practise 300,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	• Sensitization of construction workforce on environmental conservation and ecological protection • Re-vegetation of completed pipeline route with fibrous rooted indigenous vegetation species				
Air Quality Degradation	• Supply and construction vehicles will only use the designated transport routes. The drivers will also be advised to stick to prescribed speed limits • The contractor will ensure proper repair and maintenance of vehicles and	Contractor	Daily Monitoring	-Records of speed limits signs erected Records of machine	Contractors cost 200,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	equipment to minimize exhaust gases • The contractor shall ensure the appropriate speed limits are observed at along all road sections that will be used by construction vehicles on a needs basis to eliminate the creation of dusts • Construction workers will be provided with dust masks to mitigate				
Generation of Solid waste	• Provision of solid waste collection facilities (waste bins) • Contracting licensed solid waste handlers	Contractor	Daily Inspection	• Presence/ absence of scattered solid wastes at sites	100,000.00

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	• Sensitization of construction workers on proper disposal of solid wastes			• Availability of waste receptors • No. of sensitization meetings held with workers	
Water quality degradation	• The contractor will maintain all site vehicles and equipment is a serviceable state. • Oils and greases emanating from repair and maintenance activities will be collected in containers to avoid entry into local drainage channels • Water from cleaning of equipment will be utilised	Contractor	Throughout construction phase	Evidence of oil leaks and greases on site Evidence of waste water flowing through local drainage channels	Contractor's cost

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	within the project site and will not be discharged into water courses				
Interruption of Existing Infrastructure	• The proponent will liaise with KeRRA for authorisation to cut through main roads and feeder roads that fall under their jurisdiction. • The contractor will immediately restore the damaged sections of roads and water supply networks to pre-construction condition	**TWWDA/Contractor**	Before and during the construction phase	Permit from KeRRA Engineer's inspection of repaired road sections Complaints from the local community	**200.000.00**

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
Impact on Socio Economic Activities	• Notification to local community members whose farms have encroached on the reserve will be notified of pending construction activities	**TWWDA/KICOWASCO PLC**	Before the construction phase	Complaints from the local community during construction activities No of grievances registered	50,000
OccupationalHealth and Safety Hazard	• Continuous supervision of occupational, health and safety management to ensure compliance	**TWWDA/KICOWASCO PLC**	Routine Inspection	HSE inspection reports	**60,000.00**
	• Occupational Safety and Health • Training for contractor's staff	Contracto	Throughout construction phase	Training reports Training attendance sheets	**50,000.00**
	• Conduct orientation talks and visits	Contractor	At employment of new staff	Orientation report	No direct costs anticipated

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	• Conduct toolbox talks	Contractor	On a daily basis	No. of toolbox talks	20,000
Spread of HIV / AIDS and STI related infections.	• Contractor should be required to offer HIV/AIDS education to the workers and residents in collaboration with local health institutions; • Provide condoms through strategically situated condom dispensers near lodges and hospitals where people are likely to pick them; • Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training,	Main Contractor for Civil Works	During the entire project cycle	No of sensitization trainings	100,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	awareness campaigns, multimedia and workshops or during community Barazas; and • Offer VCT services to the community with the help of local health facilities				
Gender based Violence	• Ensure clear human resources policy against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee code of Conduct (COC) • Ensure appointed human resources personnel to manage reports of sexual	Contractor /TWWDA	Construction period	No of reported cases	50,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	harassment according to policy • The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse • The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:				

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	✓ Effective and on-going community engagement and consultation, particularly with women and girls; ✓ Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women etc. • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to				

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	compensation and employment; etc • The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.				
Sexual Exploitation, Abuse and harrassment	• Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP	Contractor	Entire project period	GRM Register	10,000
Vandalism	• The project site should be enclosed using suitable walls to beef-up security and to control movement within the site.	Contractor	Throughout the project period	Number of incidents reported	20,000

Potential Impact	Recommended MitigationMeasures	Responsibility	Monitoring means / Frequency	Verifiable Indicators	Estimated Costs (KES.)
	• There should be guard houses at the gate. Security guards should always monitor the gate of the facility to keep away the intruders and to control movement within the site. • Contractor should provide adequate security during the construction period when there are no works on the site. • The guards stationed at the gates should document movements in and out of the site/ property.				
Total					1,550,000

Table 8-0-2 ESMP Operation phase

Potential Negative Impact	**Proposed Mitigation Measures**	**Responsibility**	**Monitoring Indicator**	**Cost (KES)**
Operation Phase				
Impacts on water flow and downstream quantity and quality variations.	-The proponent to ensure they abstract only the authorized amount as per the hydrological report. -Participate in the conservation activities by WRA to ensure successful river water management. -Community training on efficient water use and management. -Cultivate water efficient crops. -Install water gauge/meters to ensure only authorized amount is abstracted.	-KICOWASCO PLC	water quality tests	**10,000**

Potential Negative Impact	**Proposed Mitigation Measures**	**Responsibility**	**Monitoring Indicator**	**Cost (KES)**
Wasteful use of water.	-Proper installation of drainage structures. -Ensure efficiency of drainage structures. -Avoid unnecessary wastage. -Recycling of water. -Make use of roof catchments to provide water. -Provide gratings to the drainage channels. -User education.	-KICOWASCO PLC	-Designs inspections. - Observations.	**20,000.**
Water demand.	-Ensure water flow and yields from the river are monitored. -Ensure water conservation is practiced.	-KICOWASCO PLC	-Yields measurements.	**50,000**
Risk of encroachment on the water easement corridor.	-Mapping and installation of beacons to which illustrate the width of the pipeline reserve. -Regular inspection of the pipeline corridor for encroachment.	-KICOWASCO PLC	-Absence of encroachment cases.	**200,000**

Potential Negative Impact	Proposed Mitigation Measures	Responsibility	Monitoring Indicator	Cost (KES)
	-Prosecution of encroachers as required by County By laws on wayleaves and road reserves maintenance. -Conduct public sensitization programs on importance ofnot interfering with wayleaves and public reserve land.			
Risk of water wastages leading to increase in Non-Revenue Water percentages. Water system leaks reducing the pressure compromising its integrity and ability to protect water quality (by allowing contaminated water to leak into the system).	-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 leak detection and repair program (including records of past leaks and unaccounted for water to identify potential problem areas).	-KICOWASCO PLC	-Constant water pressure system. -Non-complaints on water in availability.	**70,000**

Potential Negative Impact	Proposed Mitigation Measures	Responsibility	Monitoring Indicator	Cost (KES)
Increase in Non-Revenue Water percentages. -Reduction on pressure inflows.	-Constant inspection by KICOWASCO PLC officials and installation of leak and burst detectors at designated areas along the pipeline. -Conduct public sensitization programs on importance of not interfering with the water pipeline and the need to seek official water connection from KICOWASCO PLC.	KICOWASCO	-Absence of illegal connections. -Constant Revenue Collection with the registered active connections.	**100,000**
The discharge of flushed water, which may be high in suspended solids, residual chlorine, and other contaminants that can harm surface water bodies.	-Identify environmental issues that need mitigation during project operation. -Develop management plans and procedures needed to address the environmental concerns. -Monitor and evaluate the performance against set targets. -Set a budget for environmental management and restorations.	KICOWASCO PLC	-Low level complaints on water quality provided.	**400,000**

Potential Negative Impact	Proposed Mitigation Measures	Responsibility	Monitoring Indicator	Cost (KES)
	-Schedule for revising and updating the ESMMP. -Initiate sensitization programs on best practices on solid waste management right from the source, sorting, transportation & disposal. -Conducting an initial audit in the first year of operation of the projects and subsequent annual audits of the operational activities.			
Project Monitoring and evaluation.	-NEMA to nominate a member to monitor project implementation during construction.	Proponent/ KICOWASCO PLC, NEMA	-Availability of compliance certification.	**200,000**
Monitoring & Auditing Requirements.	-Follow guidelines provided under the Monitoring and Auditing Section on commissioning of operations. -Follow guidelines as provided by NEMA on commissioning of operations.	-KICOWASCO PLC	-Availability of Compliance Certification.	**100,000**

Potential Negative Impact	**Proposed Mitigation Measures**	**Responsibility**	**Monitoring Indicator**	**Cost (KES)**
Initial Environmental Audit.	-To conduct initial environmental audit a year after implementation.	-External Environmental Auditor.	-Environmental Audit Report.	**200,000**
Total cost				**1,320,000**
Decommissioning phase				
Flooding of sections of the Rivers.	-Seek alternative utilization of the river water.	-Community.	-Consultation.	**To be established at Decommissioning phase**
Loss of livelihood.	-Propose alternative means of livelihood.	Community	Consultation	**To be established at Decommissioning phase**
Loss of portable water.	TWWDA should provide an alternative access to portable water before the operation period of the pipeline and treatment plant expires; and Awareness should be carried out early in advance to inform the people on the	TWWDA	Consultation	Decommissioning phase

Potential Negative Impact	Proposed Mitigation Measures	Responsibility	Monitoring Indicator	Cost (KES)
	major rehabilitation or decommissioning period and its anticipated impacts			

8.2 Environmental and Social Management Monitoring Plan

The Environmental and Social Management Plan (ESMP) is designed to make sure that social and environmental risks and impacts that were identified during the ESIA process are successfully managed during the Project's development and operation.

The ESMP details the mitigation and management actions that the applicants and the Contractor are committed to taking, and it demonstrates how the Project will mobilize organizational resources and capacity to put these measures into action.

The ESMP also shows how mitigation and management measures will be scheduled and will ensure that the Project complies with the applicable laws and regulations within Kenya. Environmental and social management plans have been prepared for the Kerugoya Kutus Water supply LMC project in order to avoid, minimize, and reduce negative impacts and to ensure opportunities for the enhancement of positive impacts are realized. These plans include the following:

- Noise Management Plan;
- Air Quality Management Plan;
- Biodiversity Management Plan;
- Community Health, Safety and Security Management Plan;
- Employment and Procurement Management Plan;
- Gender Development Plan; and
- Waste Management Plan

The key objectives of the ESMP are to:

- Formalize and disclose the programme for environmental and social management;
- Provide a framework for the implementation of environmental and social management initiatives. Best practice principles require that every reasonable effort is made to reduce, and preferably prevent, negative impacts while enhancing the Project benefits. These principles have guided the ESIA process.

8.3 ESMP Implementation

The ESMP will be administered by the four (4) different institutions (i.e. TWWDA, KICOWASCO PLC, NEMAand the Contractor). The role of NEMA will be to conduct audit visits to ensure that the impacts envisaged under the ESMP are being managed effectively.

9.2 Roles and Responsibilities table

Table 9-0-3 Roles and Responsibilities

Party	Roles and Responsibilities
Tana Water works Development Agency (TWWDA)	• Drafting of comprehensive tender documents that include environmental specifications in the tender specifications • Selection of qualified, environmentally conscious contractors • Supervision to ensure that objectives of this ESMMP are met
Construction Consultant	• Ensure that the proposed ESMMP is up to date and is being used by the contractor • Conduct periodic audits of the ESMMP to ensure that its performance is as expected
Construction Contractor	• Ensure compliance environmental specifications of the ESMMP • Engage a competent Environment Safety Health and Safety Advisor/officer to advise them on the ESMP compliance; • Undertake risk assessments and prepare project specific Construction ESMPs for review and approval.
NEMA	• Exercise general supervision and co-ordination over all matters relating to the environment • Conduct periodic visits to ensure that the terms of the project license are being observed.
Water Resources Authority	• Give water permits • Protection of riparian zones

County Government	• The County Governments have powers to control or prohibit all businesses, factories and other activities including new projects which maybe or become a source of danger, discomfort or annoyance to the neighbourhood and to prescribe conditions subject to which such activities shall be carried.
DOSH	• Inspecting workplaces to ensure compliance with safety and health laws, including: • Examination and testing of regulated equipment; • Measurements of workplace pollutants for purposes of their control; • Investigation of occupational accidents and diseases with a view to preventing recurrence; • Medical examinations of workers; • Training on OSH, first aid and fire safety; and • Disseminating information on occupational safety and health to beneficiaries • Workplace registration
KICOWASCO PLC	• Oversee the mainstreaming environmental and social sustainability of the project. • Supervising ESMP implementation by the contractor and responsible for monitoring during project's operation.

8.4 Objectives of Environmental and Social Monitoring

The overall objective of environmental and social monitoring is to ensure that mitigation measures are implemented and that they are effective. Environmental and social monitoring will also enable response to new and developing issues of concern. The activities and indicators that have been recommended for monitoring are presented in the ESMP.

Environmental monitoring is also carried out to ensure that all construction and operation activities comply and adhere to environmental provisions and standard specifications, so that all mitigation

measures are implemented. The contractor shall employ an officer responsible for implementation of social/environmental requirements. This person will maintain regular contact with the proponent's environmentalist and the respective County Environmental Officers. The contractor and proponent's environmentalist have responsibility to ensure that the proposed mitigation measures are properly implemented during the construction phase.

The environmental monitoring program will operate through the construction, and operation phases. It will consist of a number of activities, each with a specific purpose with key indicators and criteria for significance assessment.

Monitoring includes:

- Selection of environmental parameters;
- Visual observations; and
- Regular sampling and test measurements of these parameters.

Periodic on-going monitoring will be required during the life of the Project and the level can be determined once the Project is operational.

Monitoring will be done in three fronts:

- Physical monitoring;
- Biological monitoring; and
- Social monitoring.

8.5 ESMP Audit

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

- The ESMP 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 ESMP; and
- Ensure that appropriate corrective and preventive action is taken by the Contractor once instructions have been issued.

CHAPTER 9: CONCLUSION AND RECOMMENDATION

9.1 Conclusion

The assessment and evaluation of the environmental and social impacts of the proposed Kerugoya –Kutus LMC Water Supply project by TWWDA has revealed that the project will bring a net environmental, social, health and economic benefits to all living within the Project area and its environs. Additionally, the project has also been found to have adverse impacts that need to be mitigated to make the project environmentally, socially and economically viable throughout its lifespan. Based on the assessment of impacts, the following conclusions can be made;

i). The proposed project is long overdue considering the increasing population and rising demand for water within the project areas

ii). The County Government and the communities living within the project area have fully embraced the project. However, part of the community feels that the proponent needs to increase reliability of supply from existing water project.

iii). The EMSP has allocated the responsibility for costs to offset the negative impacts and enhance the positive impacts of the project on the social and environmental condition of the project area

iv) The Environmental & Social Impact Assessment concludes that the project is feasible and should be allowed to proceed by NEMA issuing ESIA License.

9.2 Recommendations

For the negative environmental impacts identified, adequate mitigation measures have been proposed in order to alleviate the expected negative impacts and to make the project environmentally and socially acceptable. An ESMP has been prepared, and it includes: the mitigation plan; the monitoring and enforcement requirements; and the responsible persons/organizations.

All the recommendations/ mitigations mentioned in the study should be financed and incorporated in the construction and supervision contracts as applicable. Strict controls and Supervision of the Contractor will ensure compliance with required mitigation measures.

It is therefore recommended that:

- The Kerugoya-Kutus water LMC project design has optimised use of public road reserves as feasible, but where private land or property is affected, a Resettlement Action Plan is recommended to ensure that any project affected person is compensated for the associated loss;
- A monitoring programme should be adhered to during both construction and operation phases. This ESMP has been based on the LMC water supply, having been updated from the Kirinyaga County Bulk Water Supply and Sewerage ESIA done in 2017.
- Apply standard best practice site sediment control procedures to minimise sediment in site drainage waters returning to the river;
- Conduct quarterly monitoring of the effluent from water treatment plant to ensure compliance with the water quality standards;
- Engage the public in awareness campaigns for the protection and conservation of the catchment area
- There is need to undertake capacity building for the local communities so as to enable them to competitively exploit opportunities that arise from construction of the project (employment, supplies, etc.) as well as utilization of their resources. Public sensitization on matters of environmental conservation, public health and economic activities will also help improve the living standards of the communities.
- The proponent, construction consultant and the contractor should work together to ensure full implementation of the ESMP for proper enhancement and mitigation of impacts emanating from the project.

REFERENCES

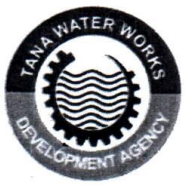
- Constitution of Kenya 2010
- District Environmental Assessment Report, National Environment Secretariat Ministry of environment and environmental management (Waste Management regulation) 2006
- Environmental (Impact Assessment and Audit) Regulations 2003
- Environmental (Noise and Excessive Vibrations Pollution Control) Regulations 2009
- Environmental Management and coordination Act CAP 387 Laws of Kenya
- FAO, 1977: Guidelines for soil profile description. 2nd Edition FAO, Rome.
- National Construction Authority Act CAP 449A 2012
- Kenya Bureau of Statistics 2009
- Occupational Safety and Health Act 2007
- Physical Planning Act chapter 286
- Public Health Act CAP 242
- Sessional Paper No. 6 of 1999 on Environment and Development
- Water Act 2016
- Work Injury Benefit Act, 2007
- Water Resources Regulation 2021

APPENDICES

Appendix 1: List of Participants

Appendix 2: Minutes

Appendix 3 QUESTIONNAIRES



AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: _____

1. **Details of the Respondent**

NAME				
POSITION/ORGANISATION				
TELEPHONE NO.				
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KUTUS	KARABE WEST	KIRINYAGA EAST	KIRINYAGA

2. What are your institutional roles in the proposed project area?

Monitoring

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

KIRINYAGA WATER SERVICES COMPANY

4. What are the land use practices in the area?

Farming

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

YES:

Home members trying to create illegal connections

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

Kiringa river & Rubai river

7. **a)** In your perception/opinion is the project good for the area? YES ☑ NO ☐
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

None

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

None

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

YES

10) Is the one time connection fee paid to water company manageable to the users?

YES

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

None

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

None

13) Do you have any other comment about the proposed project?

It should be attended in future

14) Do you have any objection on the proposed project? YES ☐ NO ☒

Thank you for your cooperation

Signature ..... **Date** 22/02/2024

CHIEF
KABARE WEST LOCATION
P. O. Box 2 - 10301, KIANYAGA
Date: 22/2/24 Sign:

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KERICHO-KUTUS LAST MILE WATER CONNECTIVITY.

1. **Details of the Respondent**

NAME	EDWARD KIMUTAI HJELA			
POSITION/ORGANISATION	ASST CHIEF KIALA			
TELEPHONE NO.	0722 880743			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KIALA	KAMYAMU	K/CENTRAL	KERICHO.

ASST/CHIEF KIANJEGE SUB-LOCATION Date: 23/2/2021 Sign:

2. What are your institutional roles in the proposed project area?

Selling and mobilizing the public on importance of the project.

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

HD

4. What are the land use practices in the area?

Substistence farming as there is no water horticulture.

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

Yes. The are no permanent rivers as the stream in the are sometimes dries up.

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

River Thika

7. **a)** In your perception/opinion is the project good for the area? YES ☑ NO ☐
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

During its initiation we may have some shelters destroyed or even trees cut which might be on the line.

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

Yes public participation is not done especially where people have encroached on the road.

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

Yes if the water will be there.

10) Is the one time connection fee paid to water company manageable to the users?

Yes.

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

NO.

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

NO.

13) Do you have any other comment about the proposed project?

14) Do you have any objection on the proposed project? YES ☐ NO ☑

Thank you for your cooperation

Signature..... **Date**....21/02/2024.

ASST/CHIEF
KIANJEGE SUB-LOCATION
Date: 21/02/2024
Sign:

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME:

PRINCIPAL
KIRIMUNGE JUNIOR SEC. SCHOOL
P. O. Box 44 - 10300, KERI
Date..... Sign.....

1. **Details of the Respondent**

NAME	JOHN MBUI NYAGA			
POSITION/ORGANISATION	HEADTEACHER KIRIMUNGE PRIMARY SCHOOL			
TELEPHONE NO.	0720795061			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KIRIMUNGE	KANYEKI-INI	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

I WILL PROVIDE WAY LEAVE

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

No

4. What are the land use practices in the area?

FARMING

.....

.....

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

.....

NO RELIABLE WATER SOURCE

.....

.....

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

NOT APPLICABLE

.....

.....

7. **a)** In your perception/opinion is the project good for the area? YES✓NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

ACCIDENTS IF LEFT EXPOSED

THE PIPES COULD BURST LEADING TO

ACCIDENTS

.....

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

.....

NO

.....

.....

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

YES

.....

.....

10) Is the one time connection fee paid to water company manageable to the users?

YES

.....

.....

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

NO

.....

.....

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

NO

.....

.....

13) Do you have any other comment about the proposed project?

.....

NO

.....

.....

14) Do you have any objection on the proposed project? YES €NO €✓

Thank you for your cooperation

Signature.....JM..... **Date**....23/2/2024

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PRINCIPAL KIRIMUNGE BOYS SECONDARY SCHOOL
23 FEB 2024
RECEIVED
P.O. Box 44 - 10300 KERUGOYA

PROJECT NAME:

1. **Details of the Respondent**

NAME	PATRICK M- NDUNGU			
POSITION/ORGANISATION	School principal (sec)			
TELEPHONE NO.	0725-917919			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	Kirimunge	Kanyekini	Kirinyaga Central	Kirinyaga

2. What are your institutional roles in the proposed project area?

- Way leave as the pipe tranverse in serving the public.

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

Available but not reliable.

4. What are the land use practices in the area?

- Cultivation of food crops at subsistence level

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

The water is salty and not reliable. Wells dry up also.

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

Thika River.

7. **a)** In your perception/opinion is the project good for the area? YES ✓ NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

N/A

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

.....Non.....

.....

.....

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

.....Yes.....

.....

10) Is the one time connection fee paid to water company manageable to the users?

.....In the School situation is.....

.....Manageable.....

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

.....Non.....

.....

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

.....NO.....

.....

13) Do you have any other comment about the proposed project?

.....Highly Support the.....

.....proposal for the project.

.....

14) Do you have any objection on the proposed project? YES ~~€~~NO ~~€~~

Thank you for your cooperation

Signature.....

Date.....23/2/24

KIRIMUKIGE MIXED DAY SEC. SCHOOL
PRINCIPAL
23 FEB 2024
RECEIVED
P.O. Box 44 - 10300, KERUGOYA

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KERUGOYA KUTUS SEWERLINE LAST MILE CONNECTIVITY

1. **Details of the Respondent**

NAME	PETER MURIMI MUGWERU			
POSITION/ORGANISATION	CHIEF KOROMA LOCATION			
TELEPHONE NO.	0746009279			
LOCALITY KOROMA – TOWNSHIP AREA PRISON AREA	**Village**	**Location**	**Sub-County**	**County**
	KAMONDO	KOROMA	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

- Mobilisation of stakeholders for public participation
- Explaining to the affected residents ways of resolving conflicts in case they arose
- Linking the residents and the company involved in the project

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

1. The main sewer line - Kerugoya-Kutus
2. Water Projects

4. What are the land use practices in the area?

- Cash and food crop production
- Livestock keeping/farming
- settlement/residential purposes &
- institutions

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

- Destruction of Pipes during road construction resulting to shortage due to delays in repair.
- Rationing of water during the dry season when water levels are low, clean
- Most area are not connected with Piped water.

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

Kiringa river - intake

7. **a)** In your perception/opinion is the project good for the area? YES ☑ NO ☐
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - It will improve land value - It will enhance settlement and - the general development of the area	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

+ Will interfere with people's' means of Livelihood.
Mitigation - Reasonable compensation
- May lead to excessive soil erosion due to development of gullies
Mitigation - Effective soil erosion prevention mechanism
- May lead to air and noise pollution during excavation.
Mitigation - Employ effective control measures
- May cause accidents especially where trenches are left open or loosely covered
Mitigation - Warning signs / yellow tapes/lin and or proper filling and compactin

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

- The existing water pipes for other community water projects may be affected;
  solution – connect residents with the project
- Infrastructure especially roads may be affected
  solution- Repair and maintenance to ensure that the infrastructure remains intact

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

Yes - since connectivity and availability of water has been a major challenge

10) Is the one time connection fee paid to water company manageable to the users?

This depends on the fee charged due to levels of income by the users and the guaranteed availability of the product/water.

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

No.
N/A

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

- The river bank sites
- The road reserves

13) Do you have any other comment about the proposed project?

The project is welcome since it will lead to the general development of the area
- Always involve the public to create a sense of ownership.

14) Do you have any objection on the proposed project? YES ☐ NO ☑

Thank you for your cooperation

Signature..... **Date**..21/02/2024

CHIEF
KOROMA LOCATION
P. O. Box 1 - 10300, KERUGOYA
Date 21/2/2024 Sign

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: _____

1. **Details of the Respondent**

NAME	BENSON GITAU CHATIR			
POSITION/ORGANISATION	ST. JOHN CATHOLIC PRISON CHAPEL			
TELEPHONE NO.	0726208889			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KAMONDO	KIROMA	~~KAMONDO~~ KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

- offer Spiritual support and nourishment to the Community

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

Yes

- KIRINYAGA WATER ~~AND~~ SEWAGE AND SANITATION

4. What are the land use practices in the area?

- Church set up Compound and Church offices

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

.....

yes

- Not enough.

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

.....

.....

7. **a)** In your perception/opinion is the project good for the area? YES NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

- There is a lot of distraction

- ATV pollution.

-

.....

.....

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

- There are those people who are not positive with the project and cause Chaos

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

Yes

10) Is the one time connection fee paid to water company manageable to the users?

Yes

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

13) Do you have any other comment about the proposed project?

- It will serve the whole Community. Well since there is no other -

14) Do you have any objection on the proposed project? YES €NO €

Thank you for your cooperation

Signature..... **Date**..23/02/2024

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KEROGOYA LAST MILE CONNECTIVITY PROJECT

1. **Details of the Respondent**

NAME	JOSEPH M KIARI			
POSITION/ORGANISATION	OFFICER IN CHARGE KEROGOYA PRISON			
TELEPHONE NO.	0720832487			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KAMANDO	KORAMA	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

REHABILITATION & SAFE CUSTODY OF PRISONERS

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify YES

- Water supply by Kirinyaga Co
- Using Institutional Septic Tanks

4. What are the land use practices in the area?

Physical infrastructure & Farming -

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

.....

Yes : Inadequate water supply

.....

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

.....

.....

7. **a)** In your perception/opinion is the project good for the area? YES ✓ NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

- Destruction of property

.....

.....

.....

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution yes.

For damage of existing systems, there is a need for engagement and Compensation or relocation.

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

Yes

10) Is the one time connection fee paid to water company manageable to the users?

Yes

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

NIL

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

NA

13) Do you have any other comment about the proposed project?

There is an urgent for proper engagement with the Organization before any undertaking.

14) Do you have any objection on the proposed project? YES ✓NO €

Thank you for your cooperation

Signature: [signature] **Date.** 23/2/2024

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: Kerugoya Kutus Last Mile Connectivity Project

1. **Details of the Respondent**

NAME	Roswam Hotel			
POSITION/ORGANISATION				
TELEPHONE NO.	0705758225			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	Kibigo	Kerugoya	Kirinyaga	Kirinyaga

2. What are your institutional roles in the proposed project area?

Hospitality

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

Yes bore hole

4. What are the land use practices in the area?

Farming

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

.....

water charge are very high

.....

6. Which River is ideal and sustainable for location of an intake/effluent discharge for the proposed project?

.....

.....

7. **a)** In your perception/opinion is the project good for the area? YES NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	**Positive Impacts**	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

.....

.....

.....

.....

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

.....

.....

.....

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

.....Yes.....

.....

10) Is the one time connection fee paid to water company manageable to the users?

.....Yes.....

.....

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

.....

.....

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

.....

.....

13) Do you have any other comment about the proposed project?

.....

.....

.....

14) Do you have any objection on the proposed project? YES €NO €

Thank you for your cooperation

Signature..... **Date**.....22/2/2024.....

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KERUGOYA/KUTUS LAST MILE CONNECTIVITY

1. **Details of the Respondent**

NAME	IBS ABDULRAHMAN			
POSITION/ORGANISATION	IMAM. KERUGOYA MOSQUE			
TELEPHONE NO.	0702733755			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KAMONDO	KOROMA	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

Our role is to nuture the congregation Spiritually, guidance and Counselling.

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

Water supply yes

4. What are the land use practices in the area?

Yes

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

.....

ND

.....

.....

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

.....Ruiru River.....

.....

7. **a)** In your perception/opinion is the project good for the area? YES ✓ NO €
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

.....Compensation of destroyed items.....

.....and plantations.....

.....

.....

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

Yes when not compensated or disagreement with community

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

YES

10) Is the one time connection fee paid to water company manageable to the users?

YES

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

NO

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

NO

13) Do you have any other comment about the proposed project?

NO

14) Do you have any objection on the proposed project? YES €NO €

Thank you for your cooperation

Signature ..... **Date** 23/02/2024

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KERUGOYA KUTUS LAST MILE CONNECTIVITY

1. **Details of the Respondent**

NAME	JUSTUS M. NJOGU			
POSITION/ORGANISATION	ST. JAMES KIARITHA SEC. SCHOOL			
TELEPHONE NO.	0704358200.			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KIARITHA	KERUGOYA	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

EDUCATION PROVISION

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

YES - WATER SUPPLY BY KIRIWASCO.

4. What are the land use practices in the area?

FARMING

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

NO

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

N/A

7. **a)** In your perception/opinion is the project good for the area? YES ✓ NO
b)) If **YES,** please *tick one or many* of the following: **(positive impacts)**

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - N/A - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

- NOISE POLLUTION FROM MACHINES MAY AFFECT TEACHING/LEARNING.
- INTERFERENCE WITH SCHOOL FENCE MAY RESULT TO INSECURITY
- INTERFERENCE WITH EXISTING WATER LINES MAY CAUSE WATER SHORTAGE

8) Do you foresee any conflict with the proposed project and other community **projects** in the area ? If Yes recommend methods for conflict resolution

NO

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

YES

10) Is the one time connection fee paid to water company manageable to the users?

YES

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

NO

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

YES - A STREAM

13) Do you have any other comment about the proposed project?

NO

14) Do you have any objection on the proposed project? YES €NO €✓

Thank you for your cooperation

Signature..... **Date**..23/02/24....

AFRICAN DEVELOPMENT BANK GROUP

RESETTLEMENT ACTION PLAN (RAP) KEY INFORMANT INTERVIEW QUESTIONNAIRE

PROJECT NAME: KERUGOYA-KUTUS LAST MILE CONNECTIVITY

1. **Details of the Respondent**

NAME	KEFFA MARICHO NGONDI			
POSITION/ORGANISATION	CHIEF KAITHERI LOCATION			
TELEPHONE NO.	0792540117			
LOCALITY	**Village**	**Location**	**Sub-County**	**County**
	KIRIGU	KAITHERI	KIRINYAGA CENTRAL	KIRINYAGA

2. What are your institutional roles in the proposed project area?

- Mobilisation of affected members of public
- Linking the members of public affected with company
- Identify the members of public affected to the company

3. Does the organization have existing water supply systems and/or sewer system in the area? If Yes specify

- Yes
- Main sewer line - Kerugoya - ~~Ngaru~~ Kutus
- Water project - Kerugoya - Ngaru

4. What are the land use practices in the area?

- Cash crop and Institution of learning
- Livestock keeping
- Premises and settlements

5. Are there challenges faced in the area in regard to water supply? If Yes Specify

- Destruction of pipe line during road construction
- Water rationing unexpectedly
- Lack of connection with water by water company

6. Which River is ideal and sustainable for location of an **intake/effluent discharge** for the proposed project?

- Kahigaini Stream
- Rutui River - Intake

7. **a)** In your perception/opinion is the project good for the area? YES ✓ NO €
b)) If **YES,** please *tick one or many* of the following: (**positive impacts**)

S/No.	Positive Impacts	Tick
1)	Create employment	✓
2)	It will create access to clean water for consumption	✓
3)	It will improve livelihood in the area	✓
4)	Provide market for construction materials	✓
5)	Reduce water borne diseases	✓
6)	Any other that is not mentioned above; - - -	

7) In your opinion, which Negative Impacts will possibly arise from the proposed project and suggest possible mitigation measures

- Roads may be obstructed during excavation
Mitigation - Members to be advised of any road excavation earlier.
- Accident arising from uncovered trenches
Mitigation - Trenches to be covered and warning signs and filling and compacting.

8) Do you foresee any conflict with the proposed project and other community projects in the area ? If Yes recommend methods for conflict resolution

- Yes

Recommendation - Involving of other projects and advising them accordingly for their preparedness

9) In your opinion/perfection will there be willingness by the community to pay water company for one time connection?

Yes.

10) Is the one time connection fee paid to water company manageable to the users?

Yes - Depending with the fees that are friendly to users during this economic crises.

11) Are there any culturally sensitive sites within the proposed project area? If yes specify

N/A

12) Are there any environmentally sensitive sites within the proposed project area? If yes specify

- Road Reserves
- River Banks

13) Do you have any other comment about the proposed project?

- Involvement of affected users to avoid conflicts
- The members of the public are positively embracing the project.

14) Do you have any objection on the proposed project? YES €NO €

Thank you for your cooperation

Signature..... **Date**..23/02/2024.....

Appendix 4 STAKEHOLDER ENGAGEMENT PLAN
STAKEHOLDER ENGAGEMENT PLAN

The objective of the engagements will be to enhance project acceptance and make a significant contribution to successful project design and implementation. The stakeholder engagements will be done timely, with relevant, understandable, and accessible information, in a culturally appropriate way free of manipulation, interference, coercion, discrimination, and intimidation.

The process of stakeholder engagement will involve:

Stakeholder identification and analysis: As discussed below but also when identifying participants in consultations involving multiple stakeholders, choose a wide range of interests and opinions, paying particular attention to women, the poor and to more vulnerable groups (young people, vulnerable ethnic minorities, elderly people, etc.).

vi. Planning how the engagement with stakeholders will take place, including identification of appropriate venues, consideration on how to ensure inclusivity, Identification of socio-cultural factors that could influence the consultation process, Definition of the parameters, goals and expected results of the consultation process, Consideration of the various alternative approaches based on the particularity of the sub-project and adapting the participation process to the preferences of the stakeholders or context (individual meetings, focus groups, advisory committee, workshop, etc.); undertaking logistics for the consultation etc

vii. Consultation with stakeholders including disclosure of information in an open and transparent manner to ensure meaningful consultations, providing a response to the concerns expressed (if applicable);

viii. Addressing and responding to grievances;

ix. Reporting to stakeholders

x. Recording the key issues raised and addressing these in the design of the project or ensuring that the results of the consultation are reflected in the ESIA studies and in the documents prepared throughout the cycle of the project.

1. Stakeholder Identification

For the purposes of this ESMP, a stakeholder will be defined as “a person, group, or organization that has a direct or indirect stake in a project/organization because it can affect or be affected by the Project/organization's actions, objectives, and policies” Stakeholders thus will vary in terms of the degree of interest, influence and control they have over the project. Stakeholders will be classified into the following two categories;

- **Project-affected parties** - Stakeholders who are affected or are likely to be affected by the project.
- **Other interested parties** - Stakeholders who have an interest in the project.

2. Stakeholder Analysis

Stakeholder analysis is a process of examining the relative influence that different individuals and groups have over a project as well as the influence of the project over them. The purpose of stakeholder analysis will be to: study their profile and the nature of the stakes, understand each group’s specific issues, concerns as well as expectations from the project and gauge their influence on the Project.

The significance of a stakeholder group will be categorized considering the magnitude of impact (type, extent, duration, scale, and frequency) or degree of influence (power and proximity) of a stakeholder group and urgency/likelihood of the impact/influence associated with the stakeholder group in the project context. The magnitude of stakeholder impact/influence will be assessed by taking the power/responsibility and proximity of the stakeholder group and the group is consequently categorized as negligible, small, medium, or large.

Table 12-0-1 Stakeholders and Potential role in the Project

Stakeholder	**Potential role**	**Interest**
Project Affected Persons	Affected by the project impacts or may own the land on which some of the project will be located	High
Local Administration	Local Administration would facilitate in identifying and organizing the direct beneficiaries.	Medium

	Security	
KeNHA	The Kenya National Highway Authority will give approval to all road crossings done along their roads within the project area.	High
KeRRA	Kenya Rural Roads Authority will give approval for the road crossings and access of the road reserve that will be used for pipeline laying within the project area.	High
KICOWASCO PLC	The WSP would facilitate in giving briefs about the advantages of the project since the project would be handed over to them for operation and maintenance.	High
Public Health Office	The office will give health issues regarding water borne diseases cases experienced in Kerugoya Constituency health facilities.	High
Physical Planning Department	They will give us the layout of Kerugoya Constituency and various land use, land use changes and physical setup of the study of the area.	High
Sub-County, Ward Administrator	The will guide on administrative ward and the leadership aspect	medium
NEMA	Ensure environmental and social compliance	High
County Governments including various technical departments	Grant approvals for the project	High
DOSH.	Oversight on occupational Health & safety compliance	High

Contractor	Construction of the project	High
AfDB	Financing partner Monitoring of Compliance	High

3. **Stakeholder Engagement Schedule and Methods**

Stakeholder engagement is a continuous process that will be carried out till project implementation. Various methods will be used such as: Baseline surveys, Public barazas, Focused group discussions, Questionnaires, Key Informants Interviews and stakeholders' meetings.

4. Disclosure

This stakeholders Engagement plan will be disclosed on the AfDB website as well as TWWDA'S website for easy access to persons with internet. Similarly, all RAPs and ESMPs prepared for the project will also be disclosed on TWWDA website.

Appendix 5: <u>GRAVE RELOCATION PROCEDURE</u>

Upon Identification of a grave on a proposed project site, the following legal procedures are followed:

1. **Family Consent**
    a) Close Family Members of the deceased person(s) must be engaged in order to allow the relocation of the interred remains of their kin(s) and identify a possible final resting place preferably on the same land/plot no. away from the project corridor.
    b) Family consent must be written (by hand/printed) and the family must relegate all legal responsibility to one member (referred to as the next of Kin).
2. **Chief's Affirmation**

    The area chief must ascertain the following;

    i. That he is well aware that there indeed are interred remains of a loved one on the said area (give plot no)
    ii. That the family has unanimously agreed towards relocating the grave of their loved one.
    iii. That upon relocation, the new burial place will be within the same land but away from the project corridor.
    iv. That exhumation and reburial will be undertaken on the same day.
3. **Legal Procedures**
    - **Application for Exhumation**.
        - ❖ This will be drafted by a lawyer under the Certificate of urgency; whereby the named next of kin will sign together with a sworn Affidavit.
        - ❖ The documents shall be presented to the court for application for Exhumation.
        - ❖ The court (depending on the severity) may or may not treat the case as urgent making it give a mention date for the hearing.
        - ❖ The next of kin (Person who signed the application) must be present during court hearings.
    - **Court Order.**

      Upon successful legal proceedings, the permit to exhume the body shall be given.
4. **Exhumation Procedures**.
    1) **Court order**

The applicant (family) remains with the order but must serve a copy to the rest of interested members.

The court order shall be served to the entities as indicated (normally included in the application).

a) The Public Health Officer (P.H.O).

For purposes of ensuring safety of the public (health aspect).

- The P.H.O shall supervise the exhumation and reburial processes according to the public health act cap 242.
- The P.H.O shall ensure that the appropriate PPES are worn by the team conducting exhumation and reburial.
- PPES needed include: Body bags to evacuate the remains and serve as a casket for reburial.
- Disposable Clinical Hand gloves.
    - Disposable Masks
    - Any other PPE as the P.H.O advises.

b) The area OCS

For maintenance of law and order; maintaining general safety of the public. To control growing crowd as essentially the function is deemed private (family affair)

c) The area Chief

The area administrator must be served with the order as most inception meetings on exhumation planning will be undertaken in their office.

Administrators are said to be arbitrators they would help calm unnecessary situations.

2) Grave Relocation Planning Meeting

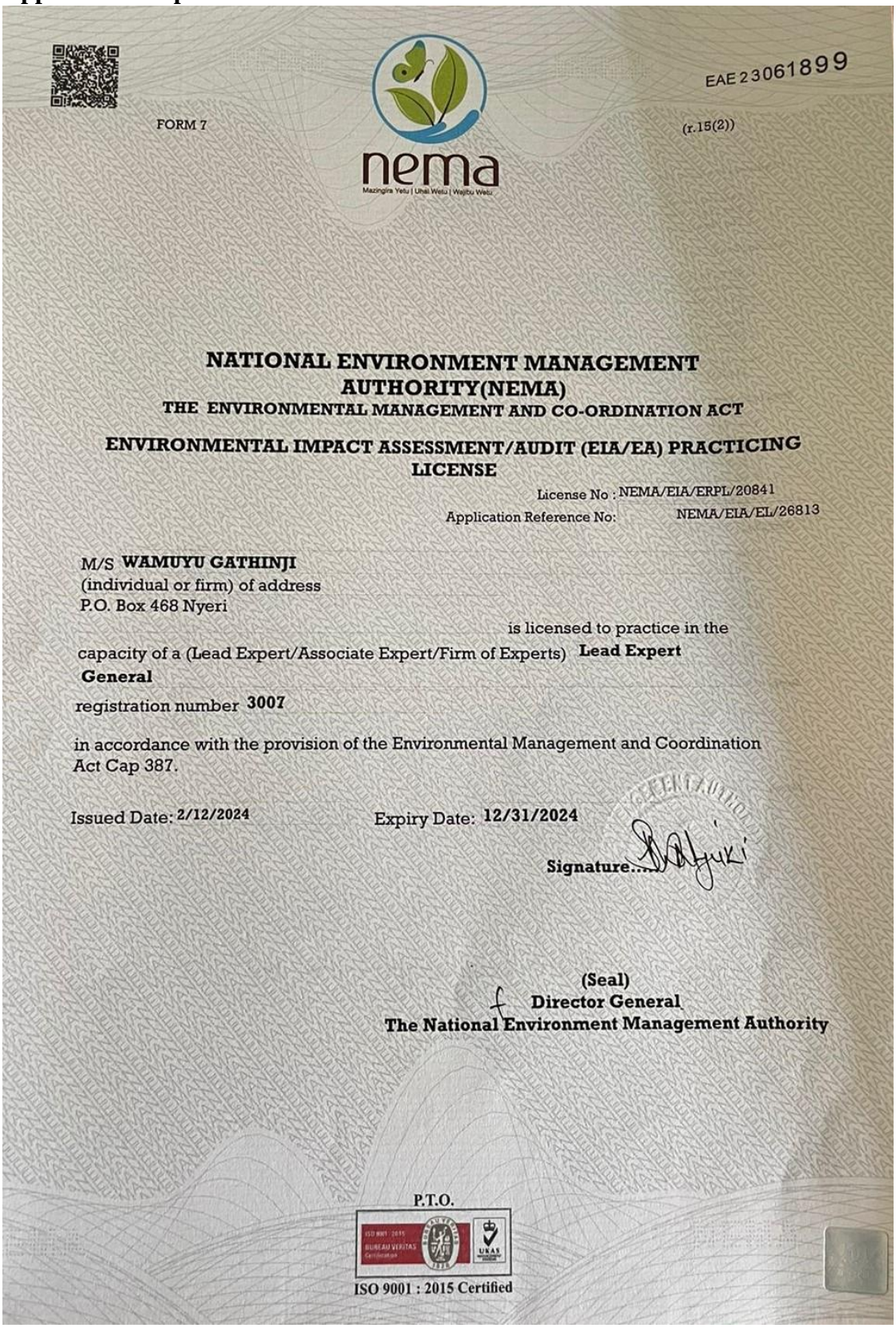
- ✓ All parties served with the orders will attend an inception meeting to identify the appropriate day to conduct the exercise.
- ✓ All duties will be allocated to the relevant parties as represented and as required by law.
- ✓ An ideal burial site will be identified by the family and made known to the members as well

3) Exhumation and Re-burial

The process will be supervised strictly by the P.H.O in accordance to the Public Health Act Cap 242.

Exercise will be done on the same day at a final resting place as identified by the family.

Appendix 6: Experts License



EAE 23061899

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/20841

Application Reference No: NEMA/EIA/EL/26813

M/S **WAMUYU GATHINJI**
(individual or firm) of address
P.O. Box 468 Nyeri

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
General
registration number **3007**

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

Issued Date: **2/12/2024** Expiry Date: **12/31/2024**

Signature....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001 : 2015 Certified

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/19665

Application Reference No: NEMA/EIA/EL/25094

M/S **ANNE WANJIKU NJAGI**
(individual or firm) of address
P.O. Box 3267 - 00200 NAIROBI

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

registration number **3036**

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

Issued Date: **5/19/2023** Expiry Date: **12/31/2023**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001:2015 Certified

FORM 7

EAE 23061997

(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/20960

Application Reference No: NEMA/EIA/EL/28135

M/S **Martin Muthukia Maina**
(individual or firm) of address
P.O. BOX 13989-00100

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Associate Expert** registration number **13007**

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

Issued Date: **2/21/2024**

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

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001 : 2015 Certified

Appendix 7 : Pictorial Evidence During Public Participation

Public Participation photos

Chief of Kathare addressing the participants

The consultant addressing the community at Kirimunge Secondary grounds

Kutus residents at Kutus Catholic Church

TWWDA addressing the Kerugoya town area residents

KICOWASCO officer addressing the participants

Consultant team members guiding in filling of the questionnaire

Meeting with the DCC and Chiefs

List of Participants

Venue: - Catholic Rosary Church -Kutus

ATTENDANCE REGISTER

Page 1 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
	PROJECT NAME:
	VENUE:
	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
1.	BERNARD MITHAMO	KABARE WEST Loc.	11170352	0721578566	M	—		✓		
2.	CATHERINE NGARI	KATHIRAI SUB LOCATION	29939638	0724232210	F	NO		✓		
3.	LUKE M. KITHUNGA	A/CHIEF KUTUS	22309289	0723201415	M	M		✓		
4.	KENNETH M. NDAMBIR	A/CHIEF KUTUS	22600298	0721704057	M			✓		
5.	SHADRACK N. OBED	A/CHIEF	21929443	0724867218	M			✓		

Revision	00

	ATTENDANCE REGISTER	Page 2 of 8

SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)

PROJECT NAME:

VENUE:

DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
	DENNIS Mithamo	Mikavena	23012676	0741130660	Male	✓ NO				[signature]
6.	Christian Mbithi	Githiriti	32377626	0712492524	Male	No	✓			[signature]
7.	Edward mwendi	Kithiriti	32118677	0723288779	Male	no	✓			[signature]
8.	Beatrice Ngima mwai	Kutus	4694414	0757462323	F	NO		✓		[signature]
9.	Simon Njeru Muthee	Kutus	24064361	0723228469	M	NO	3✓			[signature]
10	WINNIE WAKIO	Kutus	0756158	0720008410	F	NO		✓		[signature]

	ATTENDANCE REGISTER	

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
	PROJECT NAME:
	VENUE:
	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
11	Elijah Macharia	Kutus	34333477	079617654	M	NO	✓			[signature]
12	DAVID9ICOY, I	Kutus	9678683	0723760187	m	NO		✓		[signature]
13	John Kinyua	Kutus	~~8~~753706	0701330294	M	~~NO~~ Yes		✓		JOHNC
14	Sammy Kiriga	Kutus	3127199	0720598566	M	No			–	[signature]
15	muoni mathenge	Kutus	2053344?	0728735018	f	No		✓		muoni

Revision	00	

	ATTENDANCE REGISTER	Page 4 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
16	LAWRENCE MIGWI	KITHIRI	24217228	0710417279	MALE	NO		✓		
17	ROSE WANJIRU	Kabare	4957150	0721539385	F	NO		✓		
18	LUCY NJERI	KUTUS	3789/098	0745909191	F	NO	✓			
19	IBRAHIM NDUATI	KUTUS	32961839	0745405550	MALE	NO	✓			
20	BERNARD MAINA	KUTUS	34915627	0746[illegible]5869	MALE	NO	✓			

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one			SIGNATURE
							18-35 √	35-70 √	Above 70 √	
21	ESTHER WANJIKU GATHUTWA	KUTUS	5753212	0713245579	F	NO		✓		Wanjiku
22	Faith Makena Gitonga.	Kutus	33609497	0111247946	F	NO	✓			Faith.
23	Edward Maina Karanja	Kutus	10750744	0724517446	M	N/A		✓		
24	DOUGLAS GICOBI NDAMBIRI	KUTUS	13696030	0727328505	M	NO	✓	✓		
25	LYDIAH WAMBUI WANGECHI	KUTUS	10888961	0714988835	F	NO		✓		

Revision	00	

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	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
26	AGNES MICHELLE	KUTUS	27983554	0711182931	F	NO	✓			[signature]
27	JOSPHAT WACHIRA	KUTUS	23626123 ~~0723890701~~	0723890701	M	NO		✓		[signature]
28	Laban waweru	KUTUS	mjini		M	NO			✓	[signature]
29	Wilson Kariuki	Kutus	6091322	0720430827	M	Yes		✓		[signature]
30	JANE WAIRIMU	Kutus	2149545 8	0717064888	F	~~YES~~ NO		✓		[signature]

	ATTENDANCE REGISTER	Page 6 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
26	Mary Wanjiru K	NDIMI	10161359	0706630570	F	NO		√		Mary
27	MARTIN MUTHUNGU	NDIMU	23645900	0720774895	M	NO		✓		
28	DANIEL MWAI	NDIMI	21363652	0715146019	M	NO	✓			
29	Ignatius Karimi	NDIMI	24667415	0717578457		NO	✓			
30	CATHERINE MUTHUI	NDIMI	0807761	0723842626	F	None	✓	✓		

	ATTENDANCE REGISTER	Page 7 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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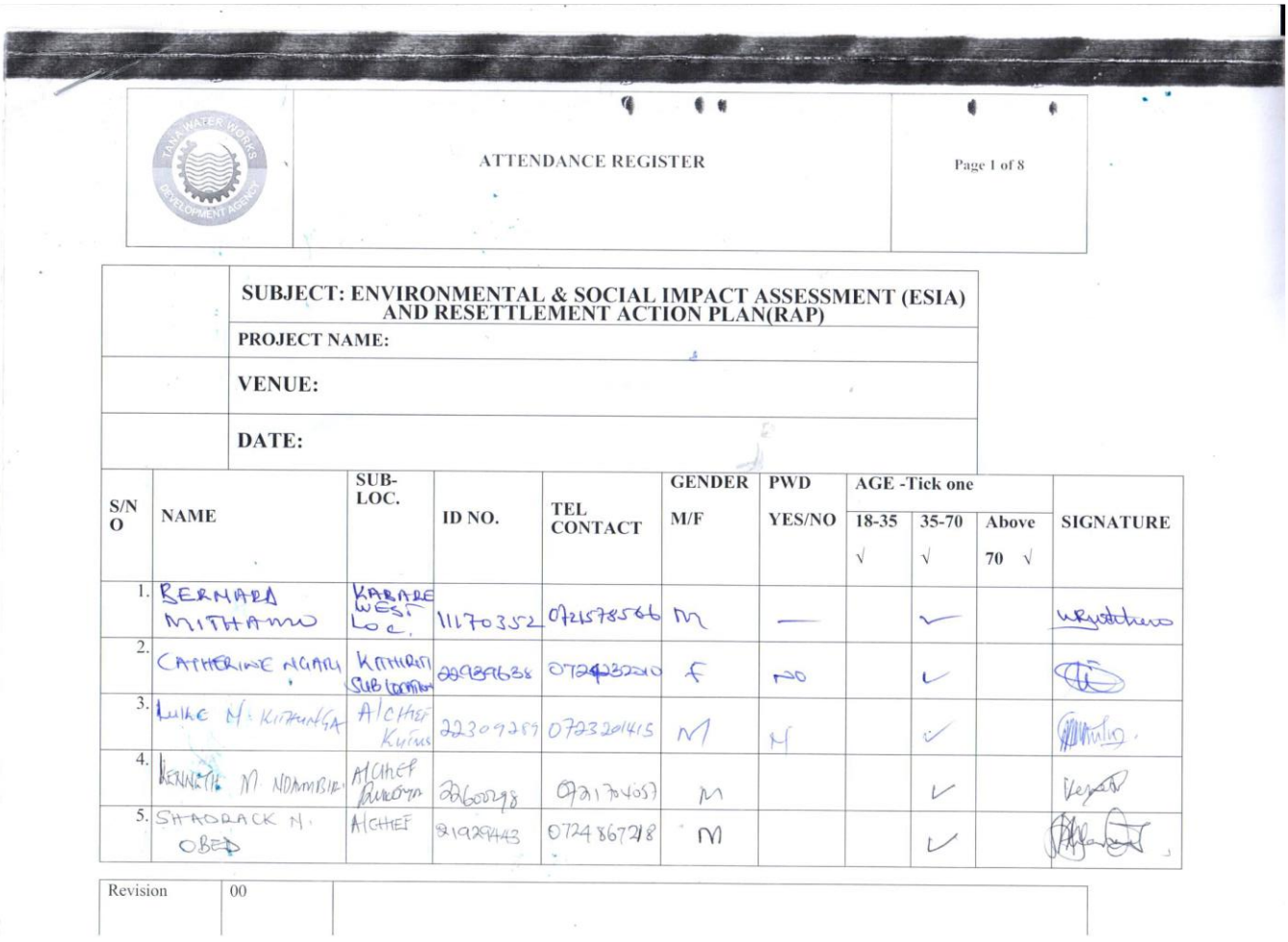
S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
31	Sophia Wanjiru	Ndimi	3395636	—	F	NO		✓		
32	HARUN NJIRU MACHERE	KACHUKA	0316439	0725233770	M	NO			✓	
33	JANE NJIRU GACHOKI	NDIMI	21329310	0708601665	F	NO		✓		
34	ABRAHAM M MWAI	KIMURI	25475873	0728671962	M	NO	✓			
35	David Munene Ngawira	Kuguya	22517462	0720110349	M	NO		✓		

Revision	00

Appendix 1: List of participants
Venue: Kerugoya Chiefs Office



ATTENDANCE REGISTER

Page 1 of 8

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1.	BERNARD MITHAMO	KABARE WEST Loc.	11170352	0721578566	M	—		✓		
2.	CATHERINE NGARI	KATHIRAI SUB LOCATION	29989638	0724235210	F	NO		✓		
3.	LUKE M. KITHUNGA	A/CHIEF Kyeni	22309289	0723201415	M	N		✓		
4.	KENNETH M. NDAMBIRI	A/CHIEF Kerugoya	28600298	0731704057	M			✓		
5.	SHADRACK M. OBED	A/CHIEF	21929443	0724867218	M			✓		

Revision	00

	ATTENDANCE REGISTER	

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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
	DENNIS Mithamo	Mikarara	23012676	0741410660	Male	✓ NO				Mitha
6.	Christian Mbithi	Githiriti	32377626	0712492524	Male	No	✓			[illegible]
7.	Edward Mwangi	Kithiriti	32118677	0723288779	Male	No	✓			[illegible]
8.	Beatrice Ngima Mwai	Kutus	4694414	0757462323	F	NO		✓		Bgima
9.	Simon Njeru Muthee	Kutus	24064361	0723228469	M	NO	✓			[illegible]
10	WINNIE WAKIO	Kutus	0756158	0720008410	F	NO		✓		Wakio

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11	Elijah Machari	Kutus	34333477	0796170554	M	NO	✓			[signature]
12	DAVID GICOVI	Kutus	9678683	0723760187	M	NO		✓		[signature]
13	John Kinyua	Kutus	8753706	0701330294	M	~~NO~~ Yes		✓		JOHN
14	Sammy Kiega	Kutus	3127199	0720598566	M	No			–	[signature]
15	muchi mathenka	Kutus	20533447	0728735018	F	No		✓		muchi

Revision	00	

	ATTENDANCE REGISTER	Page 4 of 8

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16	LAWRENCE MIGWI	KITHIRI	24217226	0719617279	MALE	NO		✓		
17	ROSE WANJIRU	Kabare	4957508	0721539385	F	NO		✓		
18	LUCY NJERI	KUTUS	3789/098	0745909191	F	NO	✓			
19	IBRAHIM NDUATI	KUTUS	32961839	0745405550	MALE	NO	✓			
20	BERNARD MAINA	KUTUS	24915627	0746[illegible]869	MALE	NO	✓			

Revision	00

	ATTENDANCE REGISTER	Page 5 of 8

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21	ESTHER WANJIKU GATHUTWA	KUTUS	5753212	0713245579	F	NO		✓		
22	faith makena Gitonga.	kutus	33609497	0111247946	F	NO	✓			Faith.
23	Edward Maina Karanja	KUTUS	10790744	0724517446	M	N/A		✓		
24	DOUGLAS GICOBI NDAMBARI	KUTUS	13696030	0727328505	M	NO	✓	✓		
25	LYDIAH WAMBUI WANGECHI	KUTUS	10888961	0714988835	F	NO		✓		

Revision	00	

	ATTENDANCE REGISTER	Page 6 of 8

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26	AGNES MICHELLE	KUTUS	27983554	0711182981	F	NO	✓			
27	JOSPHAT WACHIRA	KUTUS	23625123 0723870701	0723870701	M	NO		✓		
28	Leban Waweru	Kutus	mjini		M	NO			✓	
29	Wilson Kaniuki	Kutus	6091822	0720430827	M	Yes		✓		
30	JANE WAIRIMU	Kutus	21495458	0717016488	F	NO		✓		

	ATTENDANCE REGISTER	Page 7 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
31	JOSPHINE MURINGO MIGWI	KITHIRITI	12977227	0726475883	F	NO		✓		[signature]
32	chang muchira	Kanjarara [Kutus]	8797030	0720110043	f	No.		✓		[signature]
33	DOMINIC K. MAITHUA	Kutus (KITHIRITI)	8528729	072114109	M	NO		✓		[signature]
34	Emilio Kamau	Kutus	11599539	0721169127	M	YES		✓		[signature]
35	JACKSON GACOILI	KUTUS	10953509	0728212352	M	NO		✓		[signature]

Revision	00	

Appendix 1: List of participants
Venue: Kirimunge MCA s Office

	ATTENDANCE REGISTER	Page 1 of 8

SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)

PROJECT NAME: KERUGOYA KUTUS LAST MILE CONNECTIVITY

VENUE: KIRIMUNGE MCA'S OFFICE

DATE: 23/02/2023

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
1.	JOSEPH M KIHARI	KIMURI	12946825	0720832487	M	~~N/A~~ NO		✓		
2.	BENSON G. [illegible]	KIMURI	11598338	0726208889	M	NO		✓		
3.	Paul Kioko	Kimuri	22400082	0726086597	M	NO		✓		
4.	Albert N. MACHONDU	NDIMI	2505168	0723374882	M	NO		✓		
5.	Dominic Muthene	NGIMI	1899905	0724797766	M	No		✓		

Revision	00	

	ATTENDANCE REGISTER	

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
	PROJECT NAME:
	VENUE:
	DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
6.	ST JEMIMAH MWANGI		22171764	0721991193	FEMALE			✓		[illegible]
7.	NDEGGE MUCHIRI		[illegible]	[illegible]	MALE			✓		[illegible]
8.	JOAH [illegible]		[illegible]	[illegible]	MALE			✓		[illegible]
9.	ANTONY MUNGA MBARIRE		31663755	0719226500	MALE		[illegible]	✓		[illegible]
10	JOHNSON Mchumba Mclowsu	Kiaga	607265	0725974265	Male	NO		✓		[illegible]

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
11	Bernard Murage	Kiaga	0809606	0726473446	M	Yes			✓	[illegible]
12	Stephen Karoki	Kiaga	12978497	0721959313	M	Yes		✓		[illegible]
13	Mary Muthoni	Diiago	3691159	0705300466 0705300466	F	yes		✓		[illegible]
14	Anne Wanjiku	Katharg	0754363	0710567736	F	Yes		✓		[illegible]
15	Rose Wanjiku	Katharo	35794635	0759098086	F	yes		✓		[illegible]

	ATTENDANCE REGISTER	Page 5 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
21	AMOS MUNENE	KATHARE	30567929	0704402088	M	NO	✓			[signature]
22	Peter maringa	Kathare	0254944	0712 866406	M.	NO			✓	[signature]
23	MILKA MAINA	KIAGA	3691997	0791305517	F	NO		✓		[signature]
24	THABITHA KAMAU	KIAGA	11651946	0748619730	F	NO		✓		[signature]
25	Eunice wanjira	Kiaga	2897179	0712725205	F	NO		✓		[signature]

Revision	00	

	ATTENDANCE REGISTER	Page 6 of 8

	SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)
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S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
26	PENINAH W. MUTUGI	KIAGA	39853424	-	F	NO		✓		P.w.
27	JOYCE MUGERE	KIAGA	3680013	-	F	NO		✓		J.M.
28	MARTHA WAMBUI	KATHARE	7237474	0708851224	F	NO		✓		Martha
29	LIGIORE WAIGWA	KIAGA	0671746	0727105150	F	YES		✓		
30	ROSE WAKUTHII	KATHARE	31285 96	0705124275	F	YES		✓		R.W

SUBJECT: ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) AND RESETTLEMENT ACTION PLAN(RAP)

PROJECT NAME:

VENUE:

DATE:

S/NO	NAME	SUB-LOC.	ID NO.	TEL CONTACT	GENDER M/F	PWD YES/NO	AGE -Tick one 18-35 √	35-70 √	Above 70 √	SIGNATURE
	GEOFFREY [illegible]	Kiaga	12544407	0713207668	MALE					[signature]
31	Peter Gikunju Njogu	Kathare	0755347	04358262	Male					[signature]
32	Justus Njama	Kiaga	3128841	0720707690	MALE					[signature]
33	Solomon Wanjohi	Kathare	0752733	0721277433	Male					[signature]
34	Joseph Mwangi	Kathare	1499222	0713622148	Male					[signature]
35	Stanley Muthike	Kathare	2599763	0723129210	Male					[signature]

MINUTES OF THE PUBLIC MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESSTLEMENT PLAN FOR THE CONSTRUCTION OF KERUGOYA KUTUS WATER AND SEWERAGE LAST MILE CONNECTIVITY PROJECT

Date: 23rd February ,2024

Time: 2:00 PM

Venue: Catholic Rosary Church -Kutus

Attendance as attached list

Agenda:

1. Team introduction and Project Background

2. Comments, Question and Answer

3. Filling of questionnaires

4. Closing Remarks

Min 1/02/2024: Team Introduction and Project Background

The meeting was called to order by area Chief at 2:05 PM with a word of prayer from one of the attendants. The TWWDA Representative then welcomed all the attendants and thanked them for finding time to attend the meeting. She further asked her team to introduce themselves and asked the participants to contribute freely towards the discussions noting that their views and comments will go a long way towards the success of project. The TWWDA representative briefed the meeting about Kerugoya –Kutus Water and Sewerage supply project and KICOWASCO representative elaborated on the project areas for water project.

The Consultants (Aqua Green) representative informed the meeting that the project will be funded by Africa Development Bank (AfDB) through the TWWDA. She explained that as part of the public consultation, the meeting was key to allow the public give their views on the project. She then welcomed the attendants to give their views, comments and suggestions on the project

Min 2//02/2024: Comments, Question and Answer

During the discussions the following issues of concern were raised:

- The participants wanted to know if there will be any compensation if the project leads to closure of business and loss of assets.
- The participants wanted the project areas clarified well since some were not sure whether they were to be affected.
- Some members expressed fear of losing business space.
- Air pollution during construction especially in town areas.
- Who was to be in charge of maintenance of the sewer in case of damage.

Responses

- The proponent was to prepare Resettlement Action Plan for all those affected.
- The surveyor KICOWASCO explained to the participant the project areas and plans were available for further scrutiny and clarification.
- The contractor will mitigate against some impacts like dust during construction.
- KICOWASCO will be in charge of repair and maintenance during operation phase.

Min 3//02/2024: Filling of Questionnaires

The ESIA consultant informed the participants the importance of public participant in Kenya laws and giuded the participants through the questionnaire filling.

Min 4//02/2024: Closing Remarks

The TWWDA team thanked the attendants for their active engagement in the meeting and reminded them that their views and comments will be incorporated in the ESIA and RAP report by the consultant.

There being no other business the public consultation meeting ended at 5:05 pm

NAME:..... CATHERINE W. NGARI

POSITION:..... ASS/ CHIEF K[illegible]

INSTITUTION:..... NGA[illegible]

ASSISTANT CHIEF
KITHIRITI SUB-LOCATION
Sign:.....
Date:.....

NAME:..... WAMUYU GATHINJI

AQUAGREEN ENTERPRISES
LIMITED
P. O. Box 468-10100,
NYERI

POSITION:..... CONSULTANT – LEAD EXPERT.

INSTITUTION:..... AQUA GREEN ENTERPRISES LTD.

NAME:..... Eng. David W Ndegwa .....

POSITION:..... PEWSI .....

INSTITUTION:..... TANA WATER WORKS DEVELOPMENT AGENCY

MINUTES OF THE PUBLIC MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT PLAN FOR THE CONSTRUCTION OF KERUGOYA KUTUS SEWERAGE LAST MILE CONNECTIVITY PROJECT

Date: 23rd February ,2024

Time: 9:00 AM

Venue: Kerugoya Chiefs Office

Attendance as attached list

Agenda:

1. Team introduction and Project Background

2. Comments, Question and Answer

3. Filling of questionnaires

4. Closing Remarks

Min 1/02/2024: Team introduction and Project Background

The meeting was called to order by area Chief at 9:15 AM with a word of prayer from one of the attendants. The TWWDA Representative then welcomed all the attendants and thanked them for creating time to attend the meeting. She further asked her team to introduce themselves briefly and asked the participants to contribute freely towards the discussions noting that their views and comments will go a long way towards the success of project.

The TWWDA representative briefed the participants about Kerugoya –Kutus Water and Sewerage supply project and a representative of KICOWASCO PLC elaborated on the project areas. The meeting was informed that the project will be funded by Africa Development Bank (AfDB) through the TWWDA. She explained that as part of the study, public consultation was key and that the meeting was organized for the community to give their views on the project. She then welcomed the attendants to give their views, comments and suggestions on the project

Min 2//02/2024: Comments, Questions and Answers

Mr Justus Mwai Question – He noted that some of the residents far away from the main sewer line may not be connected to the sewer line and especially where the connection of their premises to the main sewer line involved pipeline traversing through private land.

A – The TWWDA representative informed the meeting that the aim of the Last Mile Connectivity Project was to establish secondary lines from the main sewer trunk to estates in such a way as to enable direct connections to the users. In situations where is far away from the secondary line, then KICOWASCO PLC will liaise with the customer and guide accordingly.

Mr. Abraham Mwai. Q –He was concerned about the limited space on some of the roads reserves and wondered how in such situation the pipeline will be installed. He also expressed fears of water shortage during construction.

A – It was clarified that with the help of the road Agencies, road demarcation will be done and incase there of encroachment of the road by land owners, then an amicable solution will be arrived at with the involvement of the local administration. During construction, the Contractor will ensure minimum interference with the existing water pipeline and will work closely with KICOWASCO PLC to promptly restore water supply.

Ms Jane Gachoki Q – she enquired on where compensation related complaints will be channeled in case someone was dissatisfied with the compensation matters.

A-The participants were informed that grievance forms will be available at the chief's office or at KICOWASCO PLC, and members of the public would be free to fill the forms in case of any grievance. It was also clarified that frequent public Baraza's shall be conducted during project implementation period where such complaints will be addressed.

Mr Justus Mugo Q – he enquired whether there shall be compensation for structures erected along the road reserve.

A-the participants were informed that compensation for livelihood losses will be done in accordance to AfDB guidelines.

Min 3//02/2024: Filling of Questionnaires

The ESIA consultant informed the participants the importance of public participant in Kenya laws and guided the participants through the questionnaire filling.

Min 4//02/2024: Closing Remarks

The Consultant's team thanked the attendants for their active participation in the meeting and reminded them that their views and comments will be incorporated in the ESIA and RAP report. The participants were then asked by the consultant to sign the attendance sheet and requested to share all they have learned about the project with other residents.

There being no other business the public consultation meeting ended at 10:30 am.

Confirmation of Minutes

These minutes were confirmed as a true reflection of the deliberations that were relayed on the meeting by the undersigned as:

NAME:....FRANCIS....KARANI....KINGAU.............. OFFICE OF THE CHIEF KERUGOYA LOC DATE

POSITION:....AG. CHIEF KERUGOYA.......... OFFICE OF THE CHIEF KERUGOYA DATE OFFICE OF THE CHIEF KERU DATE

INSTITUTION:.....N.G.A.O..................................

NAME:...WAMUYU GATHINJI.......... AQUAGREEN ENTERPRISES LIMITED P.O. Box 468-10100, NYERI

POSITION:...CONSULTANT- AQUA GREEN ENTERPRISES LTD.

INSTITUTION:..AQUA GREEN ENTERPRISES LTD.

NAME:......Eng. David W Ndegwa..............................

POSITION:......PEWSI..

INSTITUTION:......TANA WATER WORKS DEVELOPMENT AGENCY

MINUTES OF THE PUBLIC MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT PLAN FOR THE CONSTRUCTION OF KERUGOYA KUTUS WATER AND SEWERAGE LAST MILE CONNECTIVITY PROJECT

Date: 23rd February ,2024

Time: 11:00 AM

Venue: Kirimunge MCAs Office Premises

Attendance as attached list

Agenda:

1. Team introduction and Project Background
2. Concerns and Issues
3. Filling of questionnaires
4. Closing Remarks

Min 1/02/2024: Team introduction and Project Background

The meeting was called to order by area Chief at 11:05 AM who had mobilized the members for the meeting. He then invited a volunteer to officially open the meeting with a word of prayer.

The area MP representative was excited about the project and expressed that the development was welcome to the area.

The Consultant representative introduced her team and then welcomed all the attendants and thanked them for finding time to attend the meeting. She asked the participants to contribute freely towards the discussions noting that their views and comments will go a long way towards the success of project. The surveyor KIRIWASCO briefed the meeting about Kerugoya –Kutus Water and Sewerage supply project and described the project coverage.

The consultant representative then welcomed the attendants to give their views, comments and concerns on the project

Min 2//02/2024: Concerns and Issues

During the discussions the participants raised the following issues:

- The participants wanted the projects areas reviewed to cover other areas that has water challenges.
- Some members were concerned that pipelines installation works will affect and interfere with their farms and other assets such as fences.
- Some members were concerned that for them to be connected to the project, several road crossings need to be established.
- Participants requested that employment of locals be prioritized during project implementation.

Responses

- The proponent was to prepare Resettlement Action Plan for all those affected for proper compensation
- The surveyor KIRIWASCO PLC explained that major road crossings had been included in the design to connect the secondary line to the mainlines and that the users shall be connected to the secondary lines and therefore only a few road crossings will be required and not individual customer crossings. KIRIWASCO PLC will guide and will be involved at the point of customer connection.
- The Contractor will recruit locals for employment but can source for skilled labour if not available locally.

Min 3//02/2024: Filling of Questionnaires

The ESIA consultant informed the participants the importance of public participant in Kenya laws and guided the participants through the questionnaire filling. Most of the participants were not affected by the proposed pipeline so just a few filled the questionnaires.

Min 4//02/2024: Closing Remarks

The consultant's team thanked the attendants for their active engagement in the meeting and reminded them that their views and comments will be incorporated in the ESIA and RAP report.

There being no other business the public consultation meeting ended at 1:25 pm.

NAME: GILBERT KARIMI MWEUTHI

POSITION: CHIEF

OFFICE OF THE CHIEF
KANYEKI-INI LOCATION
P. O. Box 1-10300, KERUGOYA
Date 26/3/2024 Tel

INSTITUTION: HCAO

NAME: WANJIKU GATHINJI

AQUAGREEN ENTERPRISES
LIMITED
P. O. Box 468-10100,
NYERI

POSITION: CONSULTANT LEAD EXPERT

INSTITUTION: AQUAGREEN ENTERPRISES LTD

NAME: Eng. David W Ndegwa

POSITION: PEWSI

INSTITUTION: TANA WATER WORKS DEVELOPMENT AGENCY

MINUTES OF THE PUBLIC MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT PLAN FOR THE CONSTRUCTION OF KERUGOYA KUTUS WATER AND SEWERAGE LAST MILE CONNECTIVITY PROJECT

Date: 23 February ,2024

Time: 11:00 AM

Venue: Ngaru Chiefs Office

Attendance as attached list

Agenda:

1. Team introduction and Project Background

2. Concerns and Issues

3. Filling of questionnaires

4. Closing Remarks

Min 1/02/2024: Team introduction and Project Background

The meeting was called to order by area Chief at 11:05 AM who had mobilised the members for the meeting he then invited a volunteer to officially open the meeting with a word of prayer.

The TWWDA Representative introduced her team and then welcomed all the attendants and thanked them for finding time to attend the meeting. She asked the participants to contribute freely towards the discussions noting that their views and comments will go a long way towards the success of project. The KIRIWASCO member briefed the meeting about Kerugoya –Kutus Water and Sewerage supply project and elaborated on the project areas especially water component.

The consultant representative then welcomed the attendants to give their views, comments and concerns on the project

Min 2//02/2024: Concerns and Issues

During the discussions the following points were noted:

- The participants wanted to know the project areas coverage
- Interference with the existing water systems in the area
- Some members felt that pipelines may affect their farms, fences etc
- Members requested that water charges be friendly

- Members requested that water charges be friendly

Responses

- The design was explained in details
- The existing water system will be consulted before construction works commence
- The proponent was to prepare Resettlement Action Plan for all those affected for proper compensation
- The participants were promised that the charges will be necessary for operation and maintenance of the project

Min 3//02/2024: Filling of Questionnaires

The ESIA consultant informed the participants the importance of public participant in Kenya laws and guided the participants through the questionnaire filling. Various issues were raised and addressed by the team.

Min 4//02/2024: Closing Remarks

The TWWDA team thanked the attendants for their active engagement in the meeting and reminded them that their views and comments will be incorporated in the ESIA and RAP report.

The cut off date off date was agreed upon as 31st March 2024

There being no other business the public consultation meeting ended at 1:00 pm.

Confirmation of Minutes

These minutes were confirmed as a true reflection of the deliberations that were relayed on the meeting by the undersigned as:

NAME: BETHROSER GACONJE

POSITION: CHIEF

CHIEF
NGARU LOCATION
Date 26/3/2024
Sign

INSTITUTION:..... NGANDU LOCATION

NAME:..... J. KAMAU GATHINJI .....

AQUAGREEN ENTERPRISES LIMITED
P. O. Box 468-10100,
NYERI

POSITION:..... CONSULTANT - LEAD EXPERT .....

INSTITUTION:..... AQUA GREEN ENTERPRISES LTD .....

NAME:..... Eng. David W Ndegwa .....

POSITION:..... PEWSI .....

INSTITUTION:..... TANA WATER WORKS DEVELOPMENT AGENCY .....

EIA 23062829

nema
Mazingira Yetu | Uhai Wetu | Wajibu Wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

CERTIFICATE OF VARIATION OF ENVIRONMENTAL IMPACT ASSESSMENT LICENSE

Certificate No: **NEMA/EIA/VC/2197**

Application Reference No: **NEMA/EIA/VEIA/3538**

This is to certify that the Environmental Impact Assessment License No **NEMA/EIA/PSL/6810** issued on **10/15/2018**

to **Tana Water Services Board.**

of

P.O.Box 1292-10100, Nyeri.

regarding

Proposed Bulk Water Supply and Sanitation Project.

whose objective is

Improvement of Kerugoya Kutus Bulk water supply involving construction of intakes, transmission pipelines and primarydistribution/ transmission pipelines, storage tanks and pressure breaks.

located at

Kerugoya, Kutus, Kagio & Sagana towns in Kirinyaga County.

has been varied to

Amend the project objective to include the Last Mile Connectivity system comprising of water lines and 1No. pressure tank and associated works, subject to conditions on EIA License No. NEMA/EIA/PSL/6810.

with effect from **15 May, 2024** in accordance with the provisions of the Act.

Date: **15 May, 2024**

Signature

(Seal)

Director-General
The National Environment Management Authority.

P.T.O.

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT LICENSE

License No: **NEMA/EIA/PSL/6810**

Application Reference No: **NEMA/EIA/PSR/10374**

This is to certify that the Environmental Impact Assessment Project Report received from

Tana Water Services Board.

P. O. Box 1292 - 10100, Nyeri.

submitted to the National Environment Management Authority in accordance with the Environmental Impact Assessment & Audit Regulations, 2003 regarding the:

Proposed Bulk Water Supply and Sanitation Project.

whose objective is to carry on

Improvement of Kerugoya Kutus Bulk water supply involving construction of intakes, transmission pipelines and primary distribution/transmission pipelines, storage tanks and pressure breaks.

located at

Kerugoya, Kutus, Kagio & Sagana towns in Kirinyaga County.

has been reviewed and a license is hereby issued for the implementation of the project, subject to attached conditions.

Issue date : **15 October, 2018**

Signature

(seal)

Director-General
The National Environment Management Authority.

P.T.O.

1.0 General Conditions

1.1 This project is for the installation of Kerugoya Kutus Bulk water supply involving the construction of intakes, transmission pipelines and primary distribution/transmission pipelines, storage tanks and break pressure tanks in Kirinyaga County.

1.2 The license shall be valid for 24 months (time within which the project shall commence from the date hereof.

1.3 The Director General shall be notified of any transfer, variation or surrender of this license.

1.4 Without prejudice to the other conditions of this license, the proponent shall implement and maintain an environmental management system, organizational structure and allocate resources that are sufficient to achieve compliance with the requirements and conditions of this license.

1.5 The Authority shall take appropriate action against the proponent in the event of breach of any of the conditions stated herein or any contravention to the Environmental Management and Coordination Act, Cap 387 and regulations therein.

1.6 This license shall not be taken as statutory defence against charges of environmental degradation or pollution in respect of any manner of degradation/pollution not specified herein.

1.7 The proponent shall ensure that records on conditions of licenses/approval and project monitoring and evaluation shall be kept on the project site for inspection by NEMA's Environmental Inspectors.

1.8 The proponent shall submit an Environmental Audit report in the first year of occupation/operations/commissioning to confirm the efficacy and adequacy of the Environmental Management Plan.

1.9 The proponent shall provide the final project accounts (final project costs) on completion of construction phase. This should be done prior to project commissioning/operation/occupation.

1.10 The proponent shall comply with NEMA's improvement orders throughout the project cycle.

2.0 Construction Conditions

2.1 The proponent shall obtain the requisite approvals from the County Government of Kirinyaga and all other relevant Authorities prior to commencement of works.

2.2 The proponent shall put in place proper designs that shall mitigate breakage of water supply pipelines along the wildlife conservation areas.

2.3 The proponent shall put up a project signboard as per the Ministry of Transport and Infrastructure standards showing the NEMA EIA license number among other details.

2.4 The proponent shall seek authorization from the Water Resources Authority for the proposed in-water works and for water abstraction, prior to commencement of works.

2.5 The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution Control) Regulations of 2009.

2.6 The proponent shall ensure strict adherence to the Occupational Safety and Health Act (OSHA), 2007.

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2.6 The proponent shall ensure strict adherence to the Occupational Safety and Health Act (OSHA), 2007.

3.7 The proponent shall ensure that all drainage facilities are fitted with adequate functional oil water separators and silt traps.

3.8 The proponent shall ensure that rain water harvesting facilities are provided to supplement surface and ground water.

3.9 The proponent shall ensure that all equipment used are well maintained in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations of 2009.

3.10 The proponent shall ensure that all solid waste is handled in accordance with the Environmental Management and Coordination (Waste Management) Regulations of 2006.

3.11 The proponent shall ensure that all workers are well protected and trained as per the Occupational Safety and Health Act (OSHA) of 2007.

3.12 The proponent shall comply with the relevant principal laws, by-laws and guidelines issued for development of such a project within the jurisdiction of the County Government of Kirinyaga, Kenya Forest Service, Ministry of Health, Kenya Rural Roads Authority, Ministry of Land, Housing and Urban Development, Water Resources Authority, and other relevant Authorities.

3.13 The proponent shall ensure that environmental protection facilities or measures to prevent pollution and ecological deterioration such as soil erosion control, functional storm drainage, utility relocation plan, catchment protection, river pollution prevention, and equitable water supply mechanisms are designed, constructed and employed simultaneously with the proposed project.

4.0 Notification Conditions

4.1 The proponent shall seek written approval from the Authority for any operational changes under this license.

4.2 The proponent shall ensure that the Authority is notified of any malfunction of any system within 12 hours on the NEMA hotline No. **0786101100** and mitigation measures put in place.

4.3 The proponent shall keep records of all pollution incidences and notify the Authority within 24 hours.

4.4 The proponent shall notify the Authority in writing of its intent to decommission the facility **three (3) months** in advance.

5.0 Decommissioning Conditions

5.1 The proponent shall ensure that a decommissioning plan is submitted to the Authority for approval at least three (3) months prior to decommissioning.

5.2 The proponent shall ensure that all pollutants and polluted material is contained and adequate mitigation measures provided during the phase.

The above conditions will ensure environmentally sustainable development and must be complied with.