REPUBLIC OF KENYA

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT

State Department of Housing and Urban Development

SECOND KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT (KISIP2)

CONSULTANCY SERVICES FOR INFRASTRUCTURE UPGRADING PLANS, DETAILED ENGINEERING DESIGNS AND PREPARATION OF PROCUREMENT DOCUMENTS AND CONSTRUCTION SUPERVISION OF INFRASTRUCTURE IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTIES OF NAIROBI, KIAMBU, NYANDARUA AND KAJIADO

Contract No: KE-MOTI-295979-CS-QCBS

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)
MATOPENI KAYOLE SETTLEMENT - NAIROBI COUNTY

APRIL 2024

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Document Authentication

I, ____________________________________on behalf of The Proponent – **Nairobi County Government, Approve** this Environmental and Social Impact Assessment (ESIA) Project Report for the proposed Kenya Informal Settlements Improvement Project Phase II (KISIP II)**.**

Signed at ______________________on this ______Day of ___________________2024

Signature ____

Designation: ____

I, Jenesio I. Kinyamario, a registered Lead EIA Expert by the National Environment Management Authority (License No. 0134), confirm that the contents of this report are a true representation of the Environmental Impact Assessment of the proposed Kenya Informal Settlements Improvement Project Phase II (KISIP II).

Signed by the Lead of EIA Expert:

Name: Jenesio I. Kinyamario (NEMA License No. 0134)

Signature: ……..…………………………………………

20th April, 2024

Date:……………………..………………………………….

ACRONYMS AND ABBREVIATIONS

AMCEN - African Ministerial Conference on the Environment

CBD - Convention on Biological Diversity

CBOs – Community Based Organisations

CDF – Constituency Development Fund

CITES - Convention on International trade in Endangered Species of Wild Fauna and Flora

CMS - Convention on Migratory Species

EAC - East Africa Community

EMCA - Environmental Management and Coordination Act

EMP – Environmental Management Plan

ERS - Economic Recovery Strategy

ESIA – Environmental and Social Impact Assessment

ESMF - Environmental and Social Management Frameworks

EU - European Union

GoK – Government of Kenya

HIV/AIDS - Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome

KES – Kenya Shilling

KISIP - Kenya Informal Settlements Improvement Project

KWS – Kenya Wildlife Service

NEAP - National Environment Action Plan

NEC – National Environment Council

NEPAD - New Partnership for Africa's Development

NGOs – non-governmental organisations

NPEP - National Poverty Eradication Plan

°C – degree Celsius

RPF - Resettlement Policy Framework

SDGs – Sustainable Development Goals

TOR – Terms of Reference

UNCCD - United Nations Convention to Combat Desertification

UNFCC - United Nations Framework Convention on Climate Change

USD – US Dollar

VCT - voluntary counselling and testing

WB – World Bank

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ESIA EXECUTIVE SUMMARY

E1: Introduction

Most urban areas in Kenya are characterized by high population density informal settlements driven by rural-urban migration by a population trying to escape from high poverty levels and in search of employment opportunities in urban areas. It is estimated that about 90% of informal settlements residents pay rent for their houses that are of poor quality and owned by very few landlords. It has not been possible to provide appropriate sanitation, water supply, drainage and solid waste disposal further worsening the environmental conditions. These conditions, coupled with the level of housing are considered poor and are part of the intervention targets under Kenya Informal Settlements Improvement Project Phase II (KISIP II).

Many informal settlements are characterized by: 1) lack of basic services, unplanned and underserved neighbourhoods typically settled by squatters without legal recognition or rights, overcrowding and high population density, poor and impermanent housing conditions and structures, and insufficient living area (three or more people per room), 2) inadequate access to improved water at affordable prices and without extreme effort; improved sanitation to a private or public toilet shared with a reasonable number of people; and other infrastructure services, and 3) less developed infrastructure such as access roads and drainage structures.

E2: Location of Project Area

Matopeni is located within Kayole estate, a low-income neighbourhood in the city of Nairobi. Located within the larger Eastlands area of Nairobi, Kayole is approximately 11 kilometres (6.8 mi) east of the central business district and is straddled by Kangundo Road to the south, within the Eastlands area in Embakasi. It borders other low-income neighbourhoods such as Njiru, Saika and Umoja.

Matopeni is located in the Njiru Sub-Location, Matopeni Location, Matopeni Ward and Embakasi Central Sub-County, Nairobi County.

The Project is located within Kayole, Nairobi County with an area of about 30 ha. GPS Coordinates 1º15’54”S and 36º55’48”E.

E3: Project Objectives

The Government of Kenya has received Credit facility from the International Development Association (IDA) and AFD towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP 2) and applied part of the credit to procure Consultancy Services for Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents, Resettlement Action Plan (RAP) and Environmental and Social Impact Assessment (ESIA) Reports and Vulnerable and Marginalized Groups Plan (VMGP) where applicable, and Supervision of Construction of Infrastructure Works in selected Informal Settlements in selected counties of Kenya.

The overall objective of KISIP 2 is to improve access to basic services and tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya.

This Project, while concentrating on informal settlements, complements existing and past urban upgrades in Kenya that address the urban infrastructure deficit and urban institutional challenges.

It supports the Governments' affordable housing agenda as it seeks to complement the infrastructure demand-side and supply-side operations to improve housing affordability.

E4: Scope of Works

Facilities planned for construction include the following: access roads, walkways, street lights, water lines, sewer lines and drainage channels.
The works shall include but not limited to: -

- Site clearance and earthworks as necessary
- Excavation to remove unsuitable materials
- Filling with approved materials as specified
- Hand packing with approved stone
- Improvement/construction of drainage facilities
- Repairs and/or improvement/construction of footpaths and shoulders
- Laying of asphaltic concrete layer(s) to a consolidated thickness.

The materials for construction of this project include the following;

- Filler material
- Aggregates for sub-base
- Bituminous (Asphaltic) mixes of bitumen and aggregate
- Bitumen (Asphalt)

These materials will be purchased from respective dealers, whereas filler materials and aggregates will be purchased from NEMA licenced quarries and borrow pits in the vicinity that are owned by private dealers or individuals. Bitumen is also purchased from bitumen dealers and purchased in drums.

- Laying and/or replacement of kerbs and channel
- Construction of the road junctions abutting to main roads
- Maintenance of the works during the construction and maintenance periods
- Traffic management through the works and from the works
- Relocation and/or protection of other services including but not limited to electric poles
- Any other works as instructed by the Engineer and/or as specified in this report

Summary of Scope of Works The settlement has the following planned projects roads, street lights, and drainages works.

Table 1 - Scope of Works

Name of Settlement	Road Name	Road Length(m)	Carriageway Width (m)	Available R.o.W
Matopeni	A1-Sanford Rd01	561	5.5	6
	Sanford-Boston Rd01a	139	5.5	8
	Portfolio-Main Rd02	297	5.5	8
	Portfolio-Kasyoka Rd02a	503	5.5	6

Name of Settlement	Road Name	Road Length(m)	Carriageway Width (m)	Available R.o.W
	Portfolio-Sokoni Rd03	470	5.5	6
	Total Road length	1970		
	Road Drain (m)	1970		
	Independent Drain (m)	704		
	Total Drain Length (m)	2674		

The Road works entail:

- Carriage way of varied widths between 6m to 8m specific to each Alignment
- Pavement structure comprising of;
    - Surfacing: The surfacing will consist of: -
      (i) 50mm Asphalt Concrete Type II.
    - The Base: 150mm Hand Packed Stone and an overlay of 50mm quarry dust compacted with a vibratory roller to fill in the voids
    - Subbase: 125mm, Neat Gravel.
    - Sub Grade: 300mm improved subgrade of S3 quality minimum CBR of 10%, compacted to 100% MDD (T99) in layers of not more than 150mm thickness

The Footpaths/Walkway works in all the settlements shall comprise of:-

- Surfacing: The surfacing will consist of: -
  (i) 60mm Concrete Paving Blocks of minimum 35N/mm^2 or
  (ii) 50mm Asphalt Concrete Type II.
- Similar pavement structure as the carriage way and
- slotted rectangular closed drain with covers.

The Drainage system construction works shall include;

- Cross pipe culverts and access culverts
- Lined rectangular closed drains

The Street Lighting Works

The Street Lighting works shall comprise of installation of 126No. Street lights along the entire road length with the following works being carried out;

- Pad foundation concrete works for mounting of street light column.
- Installation of 10m high round section tapering concrete column with single–arm street lighting from Class-C galvanized steel pipe as per the detailed drawings.
- Supply and Installation of integrated solar street light fittings as per the detailed drawings and specifications.

E5: ESIA Methodology

The ESIA applied both qualitative and qualitative research methods to collect relevant data and information and involved both literature review and site visits. A participatory approach that recognizes the importance of all stakeholders, and seeks to incorporate opinions and suggestions of all, especially the intended beneficiaries was adopted. The methodology comprised field visits and data collection from the project area, data analysis and report writing.

E6: The Objectives of the ESIA

The ESIA aims to achieve the following objectives:

1. Identify and analyse environmental issues that may affect the project and the sector.
2. Establish the environmental baseline in the study area, and identify any significant environmental issues (direct/indirect/induced/cumulative).
3. Assess impacts of the project on the environment, and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures.
4. Integrate the environmental issues in the project planning and design.
5. Develop appropriate management plans for implementing, monitoring and reporting of the suggested environmental mitigation and enhancement measures.

E7: Justification for the ESIA

An Environmental and Social Impact Assessment (ESIA) is a process that identifies both negative and positive environmental, economic, and social-cultural impacts of a project. It's done before a project begins, to either give a green light, offer an alternative, or stop it entirely.

In accordance with the EMCA, 1999, all new projects must undergo environmental impact assessment such as to comply with the EIA Regulations. EIA is a legal requirement in Kenya rooted in the constitution. Chapter 69 of the Constitution of Kenya lists obligations in respect of the environment. The state must establish systems of environmental impact assessment, environmental audit, and environmental monitoring. The state must also eliminate processes and activities likely to endanger the environment.
Consequently, the National Assembly of the Republic of Kenya has developed several laws to establish systems and guide the environmental impact assessment process in Kenya. The Environmental Management and Coordination Act (EMCA) 1999 (Cap 387 of the laws of Kenya), Environmental (Impact Assessment and Audit) Regulations 2003, Environmental Management and Coordination Act (Amendment) Act 2015, and Environmental (Impact Assessment and Audit) (Amendment) Regulations 2019, are some of these laws.

An EIA is done before the development or project begins. EIA is carried out by an Environmental Impact Assessment/ Environmental Audit (EIA/EA) expert duly registered and licensed by the National Environment Management Authority (NEMA).

E8: Terms of Reference (TOR) for the ESIA

The main objective of the project will be to improve the quality of life in this informal settlement and redress the existing inequalities through provision of reliable and efficient infrastructure such as roads, drainage and street lights to the residents. This ESIA process was commissioned to produce and subsequently implement an environmental impact assessment report for the proposed project.

E9: Summary of Anticipated Impacts and Their Mitigation Measures

Table 2 - Summary of Impacts and Mitigation Measures

Environmental/Socio-economic impact	Mitigation Measure
Pre-construction Phase	
Land Disruption	Early identification of impacts may involve land disruption, leading to temporary or permanent displacement of residents during the pre-construction phase.

Environmental/Socio-economic impact	Mitigation Measure
Social Discontent	The assessment level determination may generate social discontent among the community, as they become aware of potential changes and disruptions to their living conditions
Uncertainty	Compliance with safeguard policies may create uncertainty among stakeholders, including residents and project developers, as they await confirmation of the project's eligibility and adherence to standards.
Potential Livelihood Disturbance	Viability assessment, even before feasibility studies, could lead to concerns about potential disturbances to livelihoods, especially if the community relies on existing infrastructure that might be affected.
Public Opposition	The integration of screening outcomes into early project development may face public opposition as stakeholders may not fully comprehend the benefits, leading to misinformation and resistance.
Limited Feasibility Focus	Risk mitigation planning during the pre-construction phase may be challenging, as the focus is on identifying potential impacts rather than detailed analysis and planning.
Perception of Insufficient Analysis	Holistic project evaluation during the preconstruction Phase might be perceived as insufficient by some stakeholders who may expect more in-depth studies before project approval.
Construction Phase	
Displacement and Resettlement	Construction activities, particularly for roads and drainage systems, may lead to the displacement of residents and the need for resettlement, causing disruptions to established communities. The screening exercise identified few structures which shall be affected by the project. The impact is minimal as most of the structures affected are mainly semi structures.
Noise and Air Pollution	Construction-related activities can generate high levels of noise and air pollution, impacting the well-being of residents in the construction vicinity.
Traffic Disruptions	Road construction may cause disruptions to local traffic flow, affecting businesses and creating inconvenience for residents.
Waste Generation	Construction activities can result in significant waste generation, including debris and materials, contributing to environmental pollution.
Dust and Sedimentation	Excavation and construction processes may lead to dust and sedimentation, affecting air and water quality in the area.
Visual Intrusion	The installation of high-mast lights during construction might be visually intrusive, impacting the aesthetics of the settlement.
Disturbance to Water Supply	Water supply construction may temporarily disturb existing water sources, affecting access for residents during the construction phase.
Health and Safety Risks	Construction activities pose inherent health and safety risks to both workers and residents, including accidents and exposure to hazardous materials.

Environmental/Socio-economic impact	Mitigation Measure
GBV-Sexual Exploitation and Abuse (SEA) of communities by project workers and Sexual Harassment (SH) amongst project workers	Gender-Based Violence (GBV), specifically Sexual Exploitation and Abuse (SEA), refers to any act or threat of a sexual nature that is non-consensual and involves coercion or force. In the context of a project, this could manifest as project workers exploiting or abusing community members, particularly vulnerable individuals, through unwanted sexual advances, coercion, or other forms of sexual misconduct. On the other hand, Sexual Harassment (SH) amongst project workers involves unwelcome behaviour of a sexual nature within the project team, creating a hostile or uncomfortable work environment. Both SEA and SH can result in severe psychological, physical, and emotional consequences for victims, negatively impacting their well-being and potentially causing long-term harm.
Exclusion of disadvantaged and vulnerable groups e.g., VMGs, PWDs, elderly, youth, the sick, the poor, single-women, OVC etc.	This impact involves the unintentional or deliberate exclusion of disadvantaged and vulnerable groups from project benefits and decision-making processes. These groups, including Vulnerable and Marginalized Groups (VMGs), Persons with Disabilities (PWDs), elderly individuals, youth, the sick, the poor, single women, and Orphans and Vulnerable Children (OVC), may face social, economic, or physical barriers that limit their access to project advantages. Exclusion can perpetuate existing inequalities, deepen social divisions, and deny vulnerable populations the opportunities and support they need for equitable development.
Inadequate stakeholder engagement	Inadequate stakeholder engagement refers to a lack of meaningful involvement and communication with all relevant stakeholders throughout the project lifecycle. This can lead to a lack of understanding of local concerns, needs, and aspirations, potentially resulting in project designs and implementations that do not align with the community's expectations. Inadequate stakeholder engagement may foster mistrust, increase resistance to the project, and hinder the identification and mitigation of potential negative impacts.
Ineffective GRM (Grievance Redress Mechanism)	An ineffective Grievance Redress Mechanism (GRM) implies that the project lacks a structured and responsive system for addressing complaints and grievances raised by stakeholders. This can result in unresolved issues, escalating tensions, and a breakdown in community relations. An effective GRM is crucial for maintaining transparency, accountability, and social cohesion by providing a platform for stakeholders to voice their concerns and seek resolution for project-related grievances.
Operation Phase	
Increased Traffic	Improved roads may lead to increased traffic in the settlement, potentially causing congestion and safety concerns.
Light Pollution	The operation of high-mast lights may contribute to light pollution, affecting the natural night environment and potentially disturbing residents.

Environmental/Socio-economic impact	Mitigation Measure
Potential Water Contamination	Operation of water supply infrastructure may pose risks of water contamination if not properly maintained.
Maintenance Disruptions	Routine maintenance of roads and drainage systems may cause disruptions, affecting the daily lives of residents.
Energy Consumption	The operation of street lighting requires ongoing energy consumption, contributing to environmental impacts if not sourced sustainably.
Social and Economic Changes	The operation phase may bring about social and economic changes, potentially leading to gentrification or shifts in the settlement dynamics.
Ongoing Noise from Infrastructure	Continuous operation of drainage systems may generate noise, impacting the quality of life for nearby residents.
Potential Disputes	Ongoing operational changes may lead to disputes among residents, particularly if the benefits are not evenly distributed or if there are unforeseen negative consequences.
Decommissioning Phase	
Waste Disposal	Decommissioning activities may generate additional waste, necessitating proper disposal methods to avoid environmental pollution.
Disruption to Services	Decommissioning may temporarily disrupt services such as water supply, causing inconvenience to residents.
Potential Resettlement	In some cases, decommissioning activities may lead to further resettlement, impacting residents who had adjusted to the infrastructure.
Economic Shifts	Decommissioning may bring about economic shifts, affecting businesses and livelihoods that had adapted to the presence of the infrastructure.
Environmental Disturbance	Decommissioning activities may disturb the environment, requiring careful planning to minimize ecological impacts.
Community Resistance	Residents may resist decommissioning if they perceive negative impacts on their daily lives or if they had grown accustomed to the infrastructure.
Safety Concerns	Decommissioning poses safety concerns, particularly if not executed with precision, potentially causing accidents or injuries.
Uncertain Transition	Residents may face uncertainty during the decommissioning phase, not knowing what changes to expect and how it will affect their settlement.

E10: Monitoring on Mitigation of Impacts

The study observed that mitigation measures, design features, or actual impacts should be monitored to ensure acceptability of the project both during and after construction works. In some cases, monitoring can be done as part of routine or periodic maintenance, while socio-economic or ecological parameters can only be effectively assessed in the longer term. Parameters that can be monitored include:

(i) Soil conservation interventions,
(ii) Efficiency of drainage structures,
(iii) Impact on public health (due to STIs, clean drinking water),

(iv) Air quality,
(v) Noise quality, and
(vi) Sanitation at the workmen's camp.

Integrated monitoring requires the participation by majority of stakeholders so as to ensure that critical success factors are properly worked on throughout the monitoring period.

E11: Cost Implications of Mitigation and Monitoring Measures

The broad cost estimate for mitigation and monitoring measures including control measures for resettlement of affected persons and properties, soil erosion and tree planting, drainage impediment, fuel, labour camps, traffic controls and deviations, public health and occupational safety and HIV/AIDS is estimated at KES 1,305,600.

E12: Conclusions and Recommendations

E12.1 Conclusions

The Matopeni Kayole Settlement infrastructure upgrade project is a commendable initiative aimed at enhancing the well-being and livelihoods of the local community through the development of roads, drainage systems, water supply extension, and street lighting infrastructure. While the project holds positive intentions, it is crucial to acknowledge and address potential negative impacts such as resettlement and demolition, noise and air pollution, disruptions to daily activities, and the risk of flooding and social vices. The existing open sewer further adds to the challenges, necessitating a thorough assessment through an ESIA.

E12.2 Recommendations

Environmental and Social Impact Assessment (ESIA): There is a need for an ESIA in accordance with the principles of OP 4.01 Environmental Assessment of the World Bank and the regulations outlined in Legal Notice 31 and 32 of the Environmental Impact Assessment and Audit Regulations amended in 2019. This assessment should thoroughly evaluate the nature, magnitude, and extent of potential impacts and serve as the basis for subsequent decision-making.

Environmental and Social Management Plan (ESMP): Develop a robust ESMP as an integral part of the ESIA process. The ESMP should outline clear mitigation measures and monitoring strategies to address identified impacts and ensure responsible and sustainable project implementation. This plan should align with both World Bank safeguards and Kenyan regulatory requirements.

Stakeholder Engagement: Enhance stakeholder engagement throughout the ESIA process. Involve local communities, governmental bodies, and other relevant stakeholders in the decision-making process. Establish effective communication channels and a grievance redress Mechanism to address concerns and feedback.

Resettlement Planning: If resettlement is deemed necessary, develop a Resettlement Action Plan (RAP) that ensures fair compensation, proper relocation arrangements, and opportunities for improved housing and living conditions. Prioritize the well-being of affected residents. During the Screening process 3 potential PAPs were identified in Matopeni Kayole. A proper ARAP was carried out that captured all affected properties and persons. However, no displacement was identified during the process.

Pollution Control Measures: Implement pollution control measures, including the use of low-emission construction equipment and dust control strategies. Prioritize the reduction of environmental pollution to create a healthier living environment for the settlement.

Employment Opportunities: Maximize the positive impact of the project by creating employment opportunities during the construction phase. Foster local development and economic activities to contribute to the overall improvement of the community.

Monitoring and Reporting: Establish a robust monitoring and reporting framework to track the implementation of the ESMP and ensure compliance with environmental and social standards.

Regularly communicate progress and findings to relevant stakeholders, fostering transparency and accountability.

By adhering to these recommendations, the project can strike a balance between achieving its positive outcomes and mitigating potential negative impacts, ultimately contributing to the sustainable development and improvement of the Matopeni Kayole Settlement and its residents' quality of life.

CHAPTER 1: PROJECT BACKGROUND

1.1 Introduction

Most urban areas in Kenya are characterized by informal settlements arising from high population and poverty levels in addition to various other factors that vary from one urban centre to another. Coupled with high levels of unemployment and low income per household, there is little saving to invest in suitable housing. It is estimated that about 90% of informal settlements residents pay rent for their houses that are of poor quality and owned by very few landlords (only about 10% of the residents owns the houses). There is also low incentive for the landowners in the informal settlements to invest in good houses. Likewise, it has not been possible to provide appropriate sanitation, water supply, drainage and solid waste disposal, further worsening the environmental conditions. These conditions, coupled with the level of housing are considered poor and are part of the intervention targeted by this World Bank Project under the Kenya Informal Settlements Improvement Project Phase II (KISIP II).

1.1.1 Characteristics of Informal Settlements

The following are the characteristics of an informal settlement (slum):

- Lack of basic services
- Unplanned and underserved neighbourhood typically settled by squatters without legal recognition or rights
- Overcrowding and high density
- Poor housing conditions as reflected in hazardous location, impermanent structure and insufficient living area (three or more people per room);
- Inadequate access to: improved water at affordable prices and without extreme effort; improved sanitation to a private or public toilet shared with a reasonable number of people; and other infrastructure services.
- For lack of security, inhabitants seldom organize themselves into vigilante groups to ward off would be criminals

1.2 Overview of Social Economic Dimensions of Informal Settlements

It is estimated that 60% of Kenya's population live in the informal settlements with the number of people expected to rise even more. Informal settlements can be categorized into two: squatter settlements and those that arise out of illegal sub-divisions of either government or private land. In the country, most of these settlements are characterized by lack of access to water and sanitation, insecure tenure, lack of adequate housing, poor environmental conditions, and high crime rates (UN Habitat, 2008).

Rapid growth of informal slum settlements in the country can be attributed to a number of factors among them increasing income inequalities and urban poverty, increasing rates of rural urban migration, inefficient land delivery systems, high costs of urban living and poor investment in low-income housing, among other factors. Like in many other parts of the world, slum settlements in the country are situated in areas that are unsuitable for construction, such as riparian reserves, steep hill sides, abandoned quarry sites and marshy areas. Others are located next to areas that can offer employment opportunities to the residents. Close to 90 per cent of the slum households rent from private-sector landlords (who, in the past, often had the political connections that helped them to protect their investments).

This notwithstanding, most of the inhabitants earn low incomes and have limited assets. Employment is largely low skill (domestic help, waiter, bar maid, guard), often on a casual basis (construction labour), small business owners (kiosk owner, newspaper seller) and other low income-generating activities. In recent times, discrimination especially along ethnic lines has been highly experienced in some areas, with most ethnic groups living in (sub) communities of their own ethnic background. Even though clashes between ethnic groups have in the past been experienced it can be stated that slums themselves are not a major source of urban unrest, although they constitute areas with a higher concentration of crime, violence and victimization.

1.3 Project Area

Matopeni is located within Kayole estate, a low-income neighbourhood in the city of Nairobi. Located within the larger Eastlands area of Nairobi, Kayole is approximately 11 kilometres (6.8 mi) east of the central business district and is straddled by Kangundo Road to the south, within the Eastlands area in Embakasi. It borders other low-income neighbourhoods such as Njiru, Saika and Umoja.

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1.4 Objectives of the Project

The Government of Kenya has received Credit facility from the International Development Association (IDA) and AFD towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP 2) and applied part of the credit to procure Consultancy Services for Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents, Resettlement Action Plan (RAP) and Environmental and Social Impact Assessment (ESIA) Reports and Vulnerable and Marginalized Groups Plan (VMGP) where applicable, and Supervision of Construction of Infrastructure Works in selected Informal Settlements in selected counties of Kenya.

The overall objective of KISIP 2 is to improve access to basic services and tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya.

This Project, while concentrating on informal settlements, complements existing and past urban upgrades in Kenya that address the urban infrastructure deficit and urban institutional challenges. It supports the Governments’ affordable housing agenda as it seeks to complement the infrastructure demand-side and supply-side operations to improve housing affordability.

The project has the following four components:

Component 1: Integrated Settlement Upgrading. This component supports settlement upgrading through two main interventions classified under two subcomponents:

Sub-component 1.1: Tenure regularization

Coordinates regularization of tenure for people living on uncontested public lands whose process includes:

(i) Development of a local physical plan for the settlement which lays out land parcels and infrastructure (roads, drainage, walkways, etc.);
(ii) Surveying with physical placement of beacons (pegging) to demarcate the parcels as per the plan;
(iii) Preparation and issuance of letters of allotment based on the survey plan;
(iv) Issuance of titles.

Sub-component 1.2: Infrastructure Upgrading

Coordinates infrastructure investment portfolio whose menu includes: roads, bicycle paths, pedestrian walkways, street and security lighting, storm water drainage, water and sanitation systems, public parks, and green spaces. It further includes investments related to prevention of crime and violence, including but not limited to crime mapping.

Component 2: Socio-Economic Inclusion Planning

This component supports community development plans to enhance social and economic inclusion, identifies beneficiaries who fit the eligibility criteria of government programs but are excluded and connects them appropriately, supports participatory crime and violence mapping, monitors the employment of local labour, carries out community capacity building and awareness raising for various project interventions including community-based solid waste management.

Component 3: Institutional Capacity Development for Slum Upgrading

This component supports institutional and policy development at national and county levels; develops a capacity building plan for national and county levels to implement the Strategy and to develop understanding of slum upgrading processes; also supports technical assistance, training, workshops and learning events, experience sharing and peer-learning activities with other counties, and other capacity building activities**.**

Component 4: Program Management and Coordination

This component supports activities of the NPCT and the CPCTs related to national and county-level project management and coordination, including planning, surveying, engineering, fiduciary (financial management and procurement), safeguards compliance and monitoring, monitoring and evaluation (M&E), communication and community development.

1.5 Objectives of the ESIA

The objective of this ESIA is to give highlights of environmental and socio-economic impacts that may result as a consequent of activities of the project.

The scope of the ESIA process involved the following;

i. Review of documents including the preliminary environmental impact assessment report among other project document availed.
ii. Field evaluation of the proposed project areas for baseline information and verification.
iii. Establish the environmental baseline in the study area, and identify any significant environmental issues (direct/indirect/induced/cumulative).
iv. Plan and undertake public consultation forums for each or clustered beneficiary communities and related stakeholders.
v. Assess impacts of the project, and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures.
vi. Identify and analyze upstream environmental issues that may affect the project and the sector.

vii. Develop appropriate management plans for implementing, monitoring and reporting of the suggested environmental mitigation and enhancement measures.
viii. Prepare a comprehensive ESIA report providing the project description, potential impact and their mitigation as well as environmental and social management plans.
ix. Integrate the environmental issues in the project planning and design.

1.6 ESIA Process in Kenya

It is worth noting that in Kenya, the various levels of study reports form what are called versions of ESIA reports. The CPR or a Comprehensive Project Report is equated to full ESIA under the World Bank category. This is the report we present here.

The below diagram illustrates the process of undertaking and ESIA in Kenya. Generally, once a project has been identified, the EIA process starts with screening following scheme below:

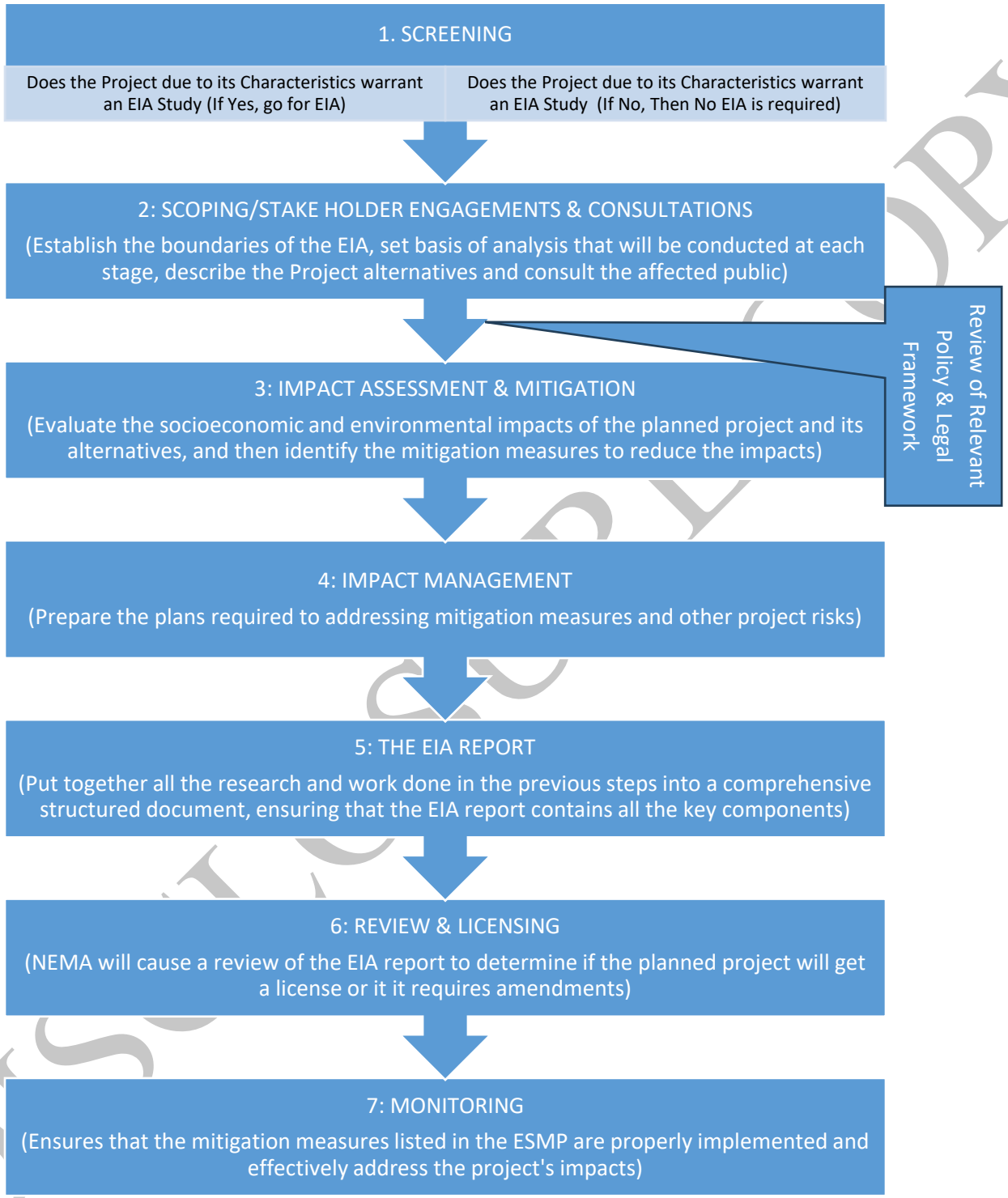

Figure 1 - The EIA Process

1.6.1 Screening

The NEMA approval process starts at the screening stage. Screening was done to determine the necessity of an EIA and the assessment levels if an EIA is required. Legal notice 31 of 2019 on EIA guides experts on what projects need an environmental impact assessment and at what level.

Project Categorization According to Legal Notices 31 and 32 of 2019: Developments are categorized as low, medium, and high risk.

Again, the screening methodology employed for the Matopeni Settlement project during the development of the ESIA study, seamlessly integrates insights from key World Bank Operational Policies (OP) and NEMA EMCA (1999) and its Regulations to ensure a robust and informative assessment. The screening report emanates from a triangulation of field assessments, stakeholder engagement, and desktop studies, guided by World Bank OP 4.01 (Environmental Assessment), OP 4.12 (Involuntary Resettlement), OP 4.11 (Physical Cultural Resources), and OP 4.10 (Indigenous Peoples). A pivotal element of the screening process entails an exhaustive field assessment conducted by environmental experts and sociologists who undertook on-site visits, gathering first-hand data on the prevailing environmental conditions. This approach aligns with OP 4.01, emphasizing the importance of assessing environmental impacts on project sites.

The emphasis on transparent decision-making aligns with the core tenets of OP 4.12.

1.6.1.1 Categorisation of ESIA Types According to NEMA Regulations

Category 1: Low Risk Projects

Low risk projects require a Summary Project Report (SPR). The SPR was introduced in Legal Notice 32 of 2019. NEMA has clearly stated the guidelines for the submission of SPRs. SPRs are submitted online by the EIA expert via the NEMA licensing portal or eCitizen NEMA links. Processing takes five days after submission. The proponent should also submit one hard copy to the relevant county's NEMA offices in case of internet challenges. The proponent and consultant must duly sign all hard copies.

Category 2: Medium Risk Projects

A Summary Project Report (SPR) is acceptable for medium risk projects. However, it is preferrable to do a full ESIA if the project is highly likely to have adverse environmental and social impacts.

The proponent submits five duly signed ESIA hard copies and one hard copy for county-level processing. The county and relevant lead agencies review the report and approve or disapprove it within 45 days of submission.

Category 3: High Risk Projects

High risk projects require a Study Report (SR), Kenya's most extensively detailed EIA report. The proponent submits ten duly signed SR hard copies and one electronic for processing at NEMA headquarters in Nairobi. It's reviewed within 90 days.

1.6.1.2 Categorisation of ESIA Types According to World Bank Operational Policies

WB has three (3) categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. Screening followed four relevant World Bank operation policies, namely 1) WB OP/BP 4.01 – Environmental Assessment procedure, 2) OP 4.10 Indigenous Peoples, 3) OP 4.11 on Physical and Cultural Resources,4) OP 4.12 on Involuntary Resettlement. The screening result in 3 potential categories of projects. The Project area has no known Indigenous Peoples of Physical Cultural Resources of interest. It has also been determined through RAP studies that there will be no significant involuntary resettlement or displacement.

Category A: Projects likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. EIA examines the potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" scenario), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The proponent is responsible for preparing an EIA report.

Category B: Proposed project can have potential adverse environmental impacts on human populations or environmentally important areas, but less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigating measures can be designed more readily than for Category A projects. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category A EIA.

Category C: A proposed project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required.

1.6.1.3 Stakeholder engagement

Stakeholder engagement integrated the principles of OP 4.12, focusing on Involuntary Resettlement. It is also anchored in the Constitution of Kenya 2010 and subsequent legislations. For the stakeholder engagement process, the consultant applied a range of various techniques that were specifically tailored to the identified stakeholders. These included:

i. **Stakeholder consultations**: Consultations were organized during screening process to get the views of various stakeholders.
ii. **Workshops:** The workshops with stakeholders were carried out. The main topics of these workshops included seeking opinions and disseminating various project progresses;
iii. **In-depth interviews with relevant stakeholders:** stakeholder's views and recommendations on various project issues were conducted as part of the SEP especially with the SEC;
ii. **Leaflets/informative notes/maps:** Leaflets/informative notes/maps: with information that was showing the project geographical scope of the settlement was shown to the participants during the stakeholder meetings; and
iii. **Letters:** invitation letters were distributed to the offices such as administration offices, and area MCA for opinion and attendance.

1.6.2 Scoping and Development of Terms of Reference (TOR)

The scoping exercise identifies the extent of the EIA and important decision-making issues. Terms of Reference (TOR) provides guidelines on how the EIA should be conducted. It includes the purpose and objectives of the EIA, consultant details, scope of work, baseline information, and work schedule, among other details. The consultant collaborates with NEMA to provide the client with the TORs necessary for conducting an EIA.

Legal Notice 32 of 2019 in Kenya guides EIA/EA experts on the extent of EIA to be done. It gives essential details to be included in EIA reports depending on a project's risk level.

1.6.3 Public Participation

Article 69 of the Constitution of Kenya 2010, obligates the need for public participation in the management, protection, and conservation of the environment. Therefore, public participation

with stakeholders and Project Affected Persons (PAPs) is vital for any EIA process. Furthermore, legal notice 32 of 2019 necessitates inclusive public participation and a summary of issues raised during the process. The consultant must show proof of public participation, attaching duly signed minutes of consultation meetings, attendance lists, and filled questionnaires to the final report.

1.6.4. Impact Analysis

After scoping and screening, the consultant analyses the project to predict positive and negative environmental and social impacts. Impacts can be positive or negative; direct or indirect. The magnitude of each impact is described in terms of being significant, minor or negligible, temporary or permanent, long-term or short-term, specific (localized) or widespread, reversible or irreversible. Generally, temporary impacts having no obvious long-term consequences are regarded as being minor. But those with long-term repercussions are classified as significant. Significant positive impacts are usually associated with improvement, which is the prime objective of this project. Thereafter, a matrix of impacts is then prepared.

1.6.5 Mitigation

Mitigation establishes measures to prevent or compensate for negative environmental and social impacts. It also helps reduce the severity or seriousness of negative impacts. For example, construction could cause noise pollution to the neighbours. Although the Noise and Excessive Vibrations Pollution Control 2009 Regulations prohibit construction at night, it allows public utility construction, such as roads and bridges, at night. However, the law prescribes maximum permissible noise levels. Mitigation measures should also include suggestions from the public participation process.

1.6.6 No Project Alternative

The No Project alternative will mean that the status quo is maintained in the project areas. This is not a good option considering the many advantages that will accrue if the project is in place.

1.6.7 Reporting

A licensed EIA expert prepares the EIA report per the law, including all necessary information for clear decision-making. Some documents are attached to the report as Annexes.

1.6.8 Decision Making

NEMA issues a decision on the EIA license application after consultation with relevant lead agencies and public participation (for high-risk projects). It may:

1. Ask for more information from the proponent and consultant
2. Reject the EIA license application
3. Grant the EIA license with conditions. The EIA license is valid for 24 months. The project must start within this time. However, you can extend it to a maximum of 4 years by paying the requisite fees to NEMA.

1.6.9 Follow Up

Follow-up will depend on the decision arrived at by the Authority (NEMA).

1. The consultant and proponent should supply the Authority with the requested information when asked. Afterward, the Authority may accept or reject the license application.
2. If attainable, address the issues raised when an EIA license application is rejected. You can also appeal the decision.
3. Implement the project once the EIA license is granted, meeting all terms and conditions. Follow up with a mandatory annual Environmental Audit (EA) to be submitted to NEMA by

a duly licensed EIA/EA expert. You can also self-audit as many times as you need in a year to keep up with internal environmental management goals.

1.7 Consultancy Services

The main objective of the consultancy assignment is to prepare infrastructure Upgrading Plans, Detailed Engineering Designs, Procurement Documents, Resettlement Action Plan (RAP) and Environmental and Social Impact Assessment (ESIA) Reports and Supervision of Construction of Infrastructure works in Selected Informal Settlements.

Specifically, the objectives and the extent of the needed consultancy services are well defined in the TOR and while it is not necessary to repeat the whole section, it can be summarized as below:

a) The Consultant will review the available literature on the project and in general on slum upgrading. The TOR has given some titles that the consultant is expected to study in the effort to the collection of relevant data. Review of data will be done in parallel with Site visits to the settlement themselves.
b) Undertake an ESIA of the recommended option for each settlement and issue an ESIA Report in accordance with the Environmental Management and Coordination Act (EMCA) 1999 and World Bank environmental safeguards requirements. The consultant shall assist KISIP in submission of the ESIA report to NEMA and subsequent discussions with NEMA and other agencies as required during the assessment procedure to ensure a permit/license is granted. The environmental and social impacts will be addressed in line with World Bank and NEMA environmental and safeguard requirements, specifically the World Bank's Environmental and Social Management Frameworks (ESMF) and the Resettlement Policy Framework (RPF). The RPF guided the preparation of a Resettlement Action Plan acceptable to the World Bank.
c) Prepare Contract Packages for the construction works with aim to benefit those working and living in the target informal settlements by creating jobs and only minimally disrupting their lives during the construction phase. The Consultant shall also prepare corresponding bidding documents including specifications, bills of quantities, conditions of contract and the construction drawings based on the World Bank guidelines for procurement of works.
d) Assistance to the Employer on Tender Formalities, including tendering procedures, evaluation of the Tenders and recommendation of award.

1.8 Field work

Fieldwork for the environmental and social impact assessment study was conducted between November, 2023 and January, 2024. Data on topographical surveys, hydrology and drainage, soils and materials investigations, and condition surveys of the project road alignment were collected and analysed.

The study involved an initial evaluation of the project in terms of the need for EIA study and the level of assessment required. The evaluation included a checklist of requirements such as indicated under EMCA 1999 amended in 2015 and NEMA Legal Notices of 2019.

The initial evaluation of the project was conducted by the consultants (Environmentalist, Socio-economist, Engineers) with inputs through public consultations from the community and affected County offices.

1.9 ESIA Study Team

The study team consisted of the following:

1. Jenesio Kinyamario, Environmentalist and Lead Expert (NEMA Reg. No. 0134);
2. Eng. Patrick Githinji, Design Engineer
3. Elijah Kimani Mutuango – Socio-Economist,
4. - Land Use Planner;
5. - Hydrologist;
6. - Civil Engineers; and
7. - Surveyors.

1.10 Budget

The budget is estimated to total about **KShs 197,961,290. excluding 16% VAT and 10% Contingencies.** This is inclusive of the budget for implementation of ESMP of Kshs. 2,309,100.

CHAPTER 2: PROJECT DESCRIPTION AND DESIGN

2.1 Project location

Matopeni Settlement is located within Kayole estate that is located in the East of Nairobi County off Kangundo Road. Matopeni is located in the Njiru Sub-Location, Matopeni Location, Matopeni Ward and Embakasi Central Sub-County, Nairobi County.

The Project is located within Kayole, Nairobi County with an area of about 30 ha. GPS Coordinates 1º15'54"S and 36º55'48"E.

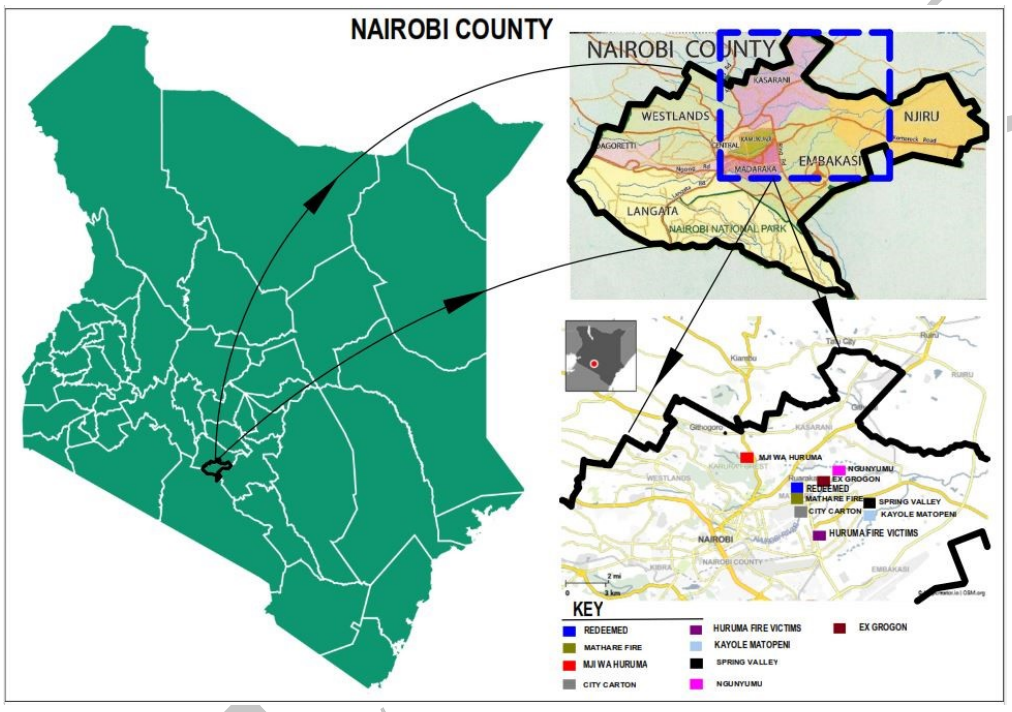

Figure 2 - Location Map of Matopeni Kayole Settlement

2.2 Project Context

2.2.1 Purpose

The purpose of the project is to enhance the infrastructure within informal settlements to provide residents with better access to essential services such as clean water, sanitation, electricity, roads, and drainage systems. The ultimate goal is to improve living standards, health, and safety for residents.

The implementation of the project shall address the infrastructure deficits in Matopeni Kayole settlement to promote inclusive urban development and improve the quality of life for marginalized communities.

2.2.2 Project Scope

The project scope includes assessing the existing infrastructure deficiencies in the informal settlement, identifying priority areas for improvement, designing appropriate solutions, and implementing upgrades. This shall involve constructing new infrastructure, upgrading existing facilities, and incorporating sustainable and resilient design principles. As per the prioritization carried out by the community, the following is the scope of works as designed for the first packaging of the works.

The proposed project comprises of construction of 1970m of roads within the settlement with the following characteristics.

Table 3 - Designed Roads Characteristics

Characteristic	Description
Cross Section Type	A
Lanes	2, 2 Directional
Surfacing	60mm medium duty paving blocks
Carriageway Width	5m, 3.0 m
Footpath	1.5m
Camber	2.5%

The roads will include storm drainage system running along the roads. The project will also include construction of 126 streetlights to improve security in the area.

Table 4 - Matopeni Kayole Settlement Project Details

<table>
<tr><th colspan="3">Matopeni Kayole Settlement</th></tr>
<tr><td>Roads /footpath</td><td colspan="2">Construction of 1970m of roads<table><tr><td>A1-SANFORD RD01</td><td>561</td></tr><tr><td>SANFORD-BOSTON RD01A</td><td>139</td></tr><tr><td>PORTFOLIO-MAIN RD02</td><td>297</td></tr><tr><td>PORTFOLIO-KASYOKA RD02A</td><td>503</td></tr><tr><td>PORTFOLIO-SOKONI RD03</td><td>470</td></tr></table></td></tr>
<tr><td>Storm water Drainage</td><td colspan="2">Construction of 1970m of Storm water Road Drainage</td></tr>
<tr><td></td><td colspan="2">Construction of 704m of independent storm water drainage</td></tr>
<tr><td>Public lighting</td><td colspan="2">Construction of 126Nr Street light</td></tr>
</table>

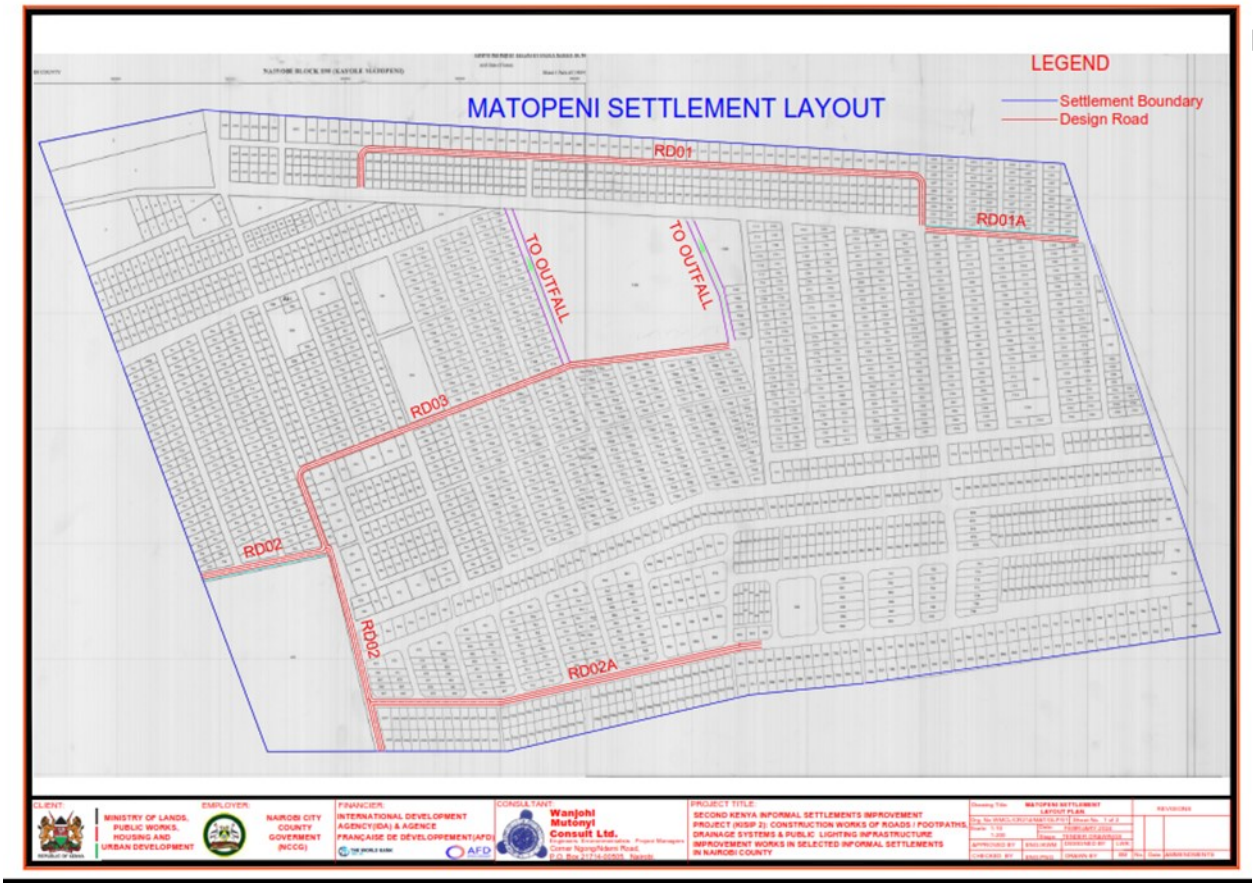

Figure 3 – Matopeni Kayole Settlement Layout Map

2.2.3 Goals

The primary goals of the project shall include:

- Providing access to clean water sources and improving sanitation facilities to reduce the risk of waterborne diseases.
- Upgrading and installation of security lighting infrastructure to ensure safety for residents.
- Improving road networks and transportation infrastructure to enhance connectivity within the settlement and with the surrounding areas.
- Implementing drainage systems to mitigate flooding and waterlogging during heavy rains.
- Enhancing community resilience to natural disasters and climate change impacts through infrastructure upgrades.
- Promoting community participation and empowerment in the decision-making process.

2.2.4 Target Audience

The primary target audience includes residents Matopeni Kayole Settlement who will directly benefit from the infrastructure upgrades. Additionally, local government authorities (County), non-governmental organizations (NGOs), community-based organizations (CBOs), and other stakeholders are also key audiences involved in planning and implementing the project.

2.2.5 Challenges

Some challenges associated with the informal settlement infrastructure upgrading project, lack of formal planning and regulation, resistance from residents, environmental constraints, and the need for community engagement and capacity building.

2.2.6 Approach

The project shall adopt a participatory approach, involving collaboration between government agencies, NGOs, community representatives, and other stakeholders. It will prioritize the needs and preferences of the residents while ensuring the sustainability and affordability of the proposed infrastructure solutions.

2.3 Existing Status of Infrastructure in Matopeni Kayole Settlement

2.3.1 Water and Sanitation

The major source of water in the project area is borehole / wells (55%) and plot based water connection (36%).

Sanitary conditions are essential to any human settlement as they have direct impact on the environment and health of the inhabitants. 93% of the residents have plot based sewer connected toilet while 7% use individual sewer connected toilet. Majority (77%) have their toilets with less than 20 meters from their houses. 61% of the respondents indicated that they don't pay for using the toilet.

2.3.2 Electricity and Security/Street Lighting

The project area is connected to the Kenya Power and Lighting Company (KPLC). 100% of the households use electricity as their main source of power for lighting. There is also existing settlement security lighting in some areas but most of them are not functional.

2.3.3 Roads and Footpaths

Most of the existing roads within the settlement are gravel roads with no provision for pedestrian footpaths. However, some are tarmacked and in fairly good condition.

2.3.4 Drainage and Flooding

All existing roads have no proper drainage systems contributing to flooding during the rainy season.

2.4 Project Prioritization during Focus Groups Discussions

2.4.1 Description of Matopeni Kayole Settlement

a) Population

The project area is Matopeni settlement which is within Njiru sub-locations, Matopeni location, Matopeni ward, Embakasi Central sub-county, Nairobi County. Nairobi County's population was 4,397,073 people as per the 2019 Kenya Population and Housing Census 2019 with 2,192,452 (49.9%) being male, 2,204,376 (50.1%) being female and 245 (0.006%) being intersex. The county had 1,506,888 households and an average household size of 2.9. The population was projected at 4,671,906, 4,906,355 and 5,049,701persons in the year 2022, 2025 and 2027 respectively. The population of the sub-county of Embakasi within which the proposed project area lies, has a total of 988,808 persons which is expected to rise to 1,135,570 by 2027. The settlement has 4700 Households.

b) Housing

The majority of the houses feature stone walls with a corrugated iron roof

c) Solid Waste Management

There are various ways of solid waste management in the project area. From the study it was established that 55% of the respondents use collection by community garbage collection initiative method, 42% use services of private companies to collect, while 3% throw their solid waste into the toilet / latrine.

d) Security

From the Socio-economic survey, it was revealed that 90% of the respondents indicated that security is poor in the area. The most common security issue mentioned by 61% of the respondents was drug abuse. Pick pocketing, Violence and crime also featured as common in the area.

2.4.2 Prioritized Interventions

A community participatory meeting was held on 14th November 2023 to prioritize the projects preferred by the community. The projects were prioritized as follows:

1. Sanford to ABC road - 130m
2. Entrance to Mama John road - 650m
3. Borehole to sanford road - 130m
4. Sokoni road - 516m
5. Police station to sanford road - 220m
6. Portfolio road - 309m

7. Evc court road - 150m
8. City court road -150m
9. Tuungane court road - 300m
10. CFF road - 300m
11. Faith court road - 300m
12. Wisdom court road - 300m
13. Vision court road - 200m
14. Unity court road - 200m
15. Ushindi court road - 200m
16. Young stars road - 200m
17. Blue court road - 200m
18. JD court road - 200m
19. Madina road - 457m
20. Canaan road - 185m
21. Boston road - 694m
22. Madina II road - 200m
23. Madina III road - 200m
24. Madina IV road - 200m
25. Connerstone church road - 391m
26. Jerusalem road - 412m
27. Ingrid road - 737m
28. Riverbank road - 869m
29. Jesus flock road I - 100m
30. Jesus flock road II - 100m
31. Maasai court road - 100m
32. Deliverance church road I - 100m
33. Deliverance church road II - 100m
34. Deliverance church road III - 100m
35. Kwa wamosee road - 143m
36. Riverbank A road - 122m
37. Riverbank B road - 229m
38. Riverbank C road - 229m
39. Ujimi A road - 77m
40. Ujimi B road - 77m
41. Ujimi C road - 77m
42. Ujimi D road - 77m
43. Kwa marush road - 148m
44. Wazee ukumbuka I road - 77m
45. Wazee ukumbuka II road - 77m
46. Wazee ukumbuka III road - 77m
47. Wazee ukumbuka IV road - 77m
48. Ara - Arahmn road - 413m
49. Cobra road - 577m
50. Emmanuel road - 519m
51. Matopeni to Karagita - 686m
52. Bishop Maina road - 76m
53. Revival church road I - 76m
54. Revival church road II - 76m

Total Length = 14,147m

Some of the priorities have been designed under the main packaged works while others have been designed and packaged under package 2 of the works.

The following is the comparison of the prioritized projects versus the designed under the first package.

Table 5 - Priotized Vs Designed Roads Projects

PRIORITIZED		**DESIGNED**	
No.	***LENGTH(M)***	***No.***	***LENGTH(M)***
54	14,147	5	1970

The remaining prioritized roads and other priorities shall be designed and packaged as Package 2.

2.5 Project Design Interventions

The project design concepts were derived from the existing infrastructure condition and the community priorities and views. The relevant Nairobi County Government representatives were also engaged in the concept and design process. All infrastructure projects are guided by existing national standards/laws and county technical by-laws; the designs are based on sound value engineering principles and feasible on the ground.

Certain infrastructure elements are interdependent and function in tandem. For instance, the construction of a road necessitates the incorporation of proper drainage, as a road lacking adequate drainage is prone to a shortened lifespan.

Public lighting, encompassing floodlights and streetlights, is closely tied to the level of electrification in an area. Additionally, it directly impacts the security and safety of residents. The presence and functionality of public lighting play a crucial role in enhancing visibility and deterring potential security risks, making it an integral component of community well-being.

All the project designs and proposed features are shown in the detailed drawings, which are submitted as the Book of Drawings contained in the project design report. The book of drawings generally contains the list of Drawings, Project Location Map, Legends and Abbreviations, Plans and Profiles of Carriageway, Main Drains and Footpaths, Detailed Cross Sections, Junction Layouts, Typical Cross Sections of Road Formations, Standard drawings, Miscellaneous drawings of kerb stones, drainage cross-sections, chute drains in fill sections, pedestrian railing, details of street lamp posts including monopoles security lighting, Standard drawings of road markings and signs, sign boards, minor/major junctions, kerbs, Layouts Drawings (Roads, Drainage, Water Supply, Sanitation, Security Lighting and Solid Waste Management Plan) and Sanitation facilities.

2.5.1 Roads and footpath designs

The geometric design of the project roads has been done to follows the existing alignment as close as possible. Aspects considered in the geometric design include but limited to: -

- Horizontal alignment,
- Vertical alignment,
- Road cross section
- Super elevation of curves,
- Road widening,
- Junctions and
- Bus bays

The geometric design sought to identify the most economic, safe and practical horizontal and vertical alignments such that; the desired roads can physically be realized and the total performance of the constructed road is adequate. The design is to offer a combination of uninterrupted traffic flow sections and junctions. The un-interrupted traffic flow section is the road link, the right of way reserved for unhindered vehicular travel between two locations along a route while an intersection space is the entire area shared by the joining or crossing of a number of basic road spaces.

The overarching goal of the geometric design is to identify the most economical, safe, and practical horizontal and vertical alignments. This ensures that the desired roads can be physically realized, and the overall performance of the constructed road is deemed adequate. The design aims to create a balance between providing uninterrupted traffic flow sections and efficient junctions.

Additionally, the road cross sections, as depicted in the figure below, contribute to low carbon emissions by potentially optimizing traffic flow, reducing congestion, and enhancing overall road efficiency. This can result in smoother traffic patterns, minimizing idling time for vehicles and subsequently reducing carbon emissions associated with transportation. The road design cross-sections are shown in the figure 4 below.

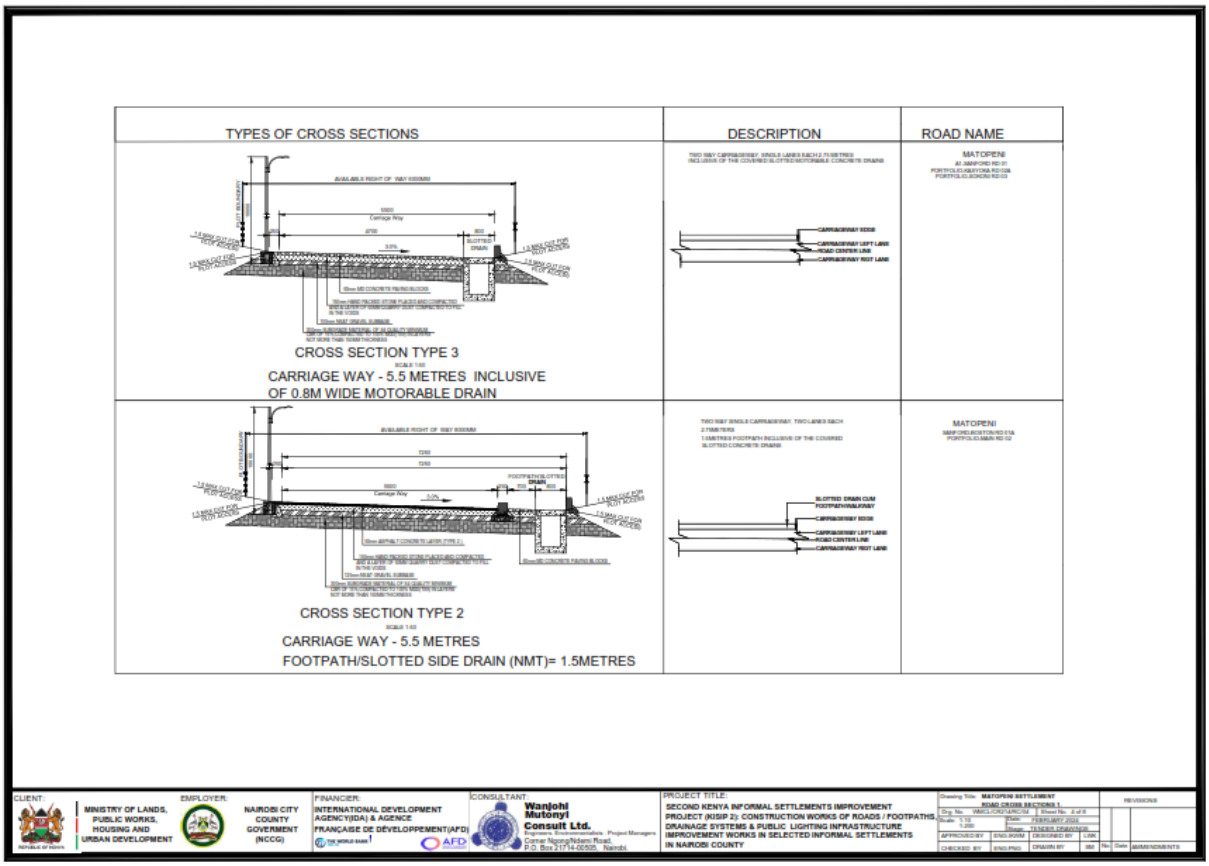

Figure 4 - Typical Road Cross Section – Matopeni Kayole Settlement

2.5.2 Drainage Design

For all the alignments in the project areas, a covered u-drain of 0.5m wide have been proposed with removable cover slab at every 5m being a provision for inspection and cleaning. The drain will be channelled to existing outfalls mainly rivers.

Catch Water will be provided on cut slopes to intercept water flowing from upper reach and to guide such flow into culverts.

Maintenance of the drainage system involves removing vegetation growth from the unlined side drains and thoroughly cleaning them to minimize friction. These drains are then directed towards nearby culverts or natural depressions.

To ensure proper water flow down the slope, a dedicated maintenance team is necessary. This team is responsible for desilting the side drains and guiding the water along a defined path. Occasionally, side drains may experience upheaval, causing their bed levels to rise. In such instances, water may deviate from the drains, flowing laterally through the pavement and causing damage. This disruption in drainage gradients can impede surface flow. Apart from clearing side drains, the maintenance team should address upheavals and depressions on the drain beds,

ensuring that the drains are consistently positioned at levels lower than the pavement with suitable gradients for effective water disposal.
Regular maintenance is also crucial for lined drains and catch pits, involving routine checks for blockages or damage. Immediate remedial measures should be implemented to uphold an efficient drainage system.

Table 6 - Schedule of Proposed Cross Culverts

Cross Culverts				
SN	**Road Name/ID**	**Chainage (Kms)**	**Diameter(mm)**	**Hydraulic Capacity(m3/s)**
Matopeni Settlement				
1	**MTN RD01**	**0+185**	**900**	**1.09**
2	**MTN RD02**	**0+120**	**900**	**1.09**
3		**0+195**	**900**	**1.09**
4		**0+260**	**900**	**1.09**

2.5.3 Public Lighting

All the designed roads shall have street lighting at a spacing of about 20m. Matopeni Kayole Settlement will have about 101 street lighting with the following design characteristics.

- An integrated solar street light fitting with 30Ah, 12.8V Lithium Ferro Phosphate battery with 2000 charge and discharge cycles; in-built 60Wp, 17Vmp, 21Voc monocrystalline solar panel; 35W MPPT charge controller; light on/off control and motion detection sensors; pressure die cast aluminium for sturdiness and long life, and specially designed pole mounting bracket to allow different tilt angles, lateral and pole top mounting. The luminaire to be of LED type with 6000 lumen, 175lm/W, 5700K, L70B50 50000h lifespan, and rated IP65 and IK08; complete with mounting accessories for 6m high galvanised steel lighting pole, as Philips SunStay BRP710 LED60 CW MR HY FDIM20 SOLAR, or approved equivalent.
- Installation of 10m high round section tapering concrete column with single –arm street lighting manufactured from Class-C galvanized steel pipe with 1.2m bracket with 0 degrees tilt with anti-vandal, anti-theft, and anti-climbing features and all accessories to meet 10m mounting height requirements as shown in the drawings and in the Technical Specifications.

The figure 5 below shows the construction details of the street lighting.

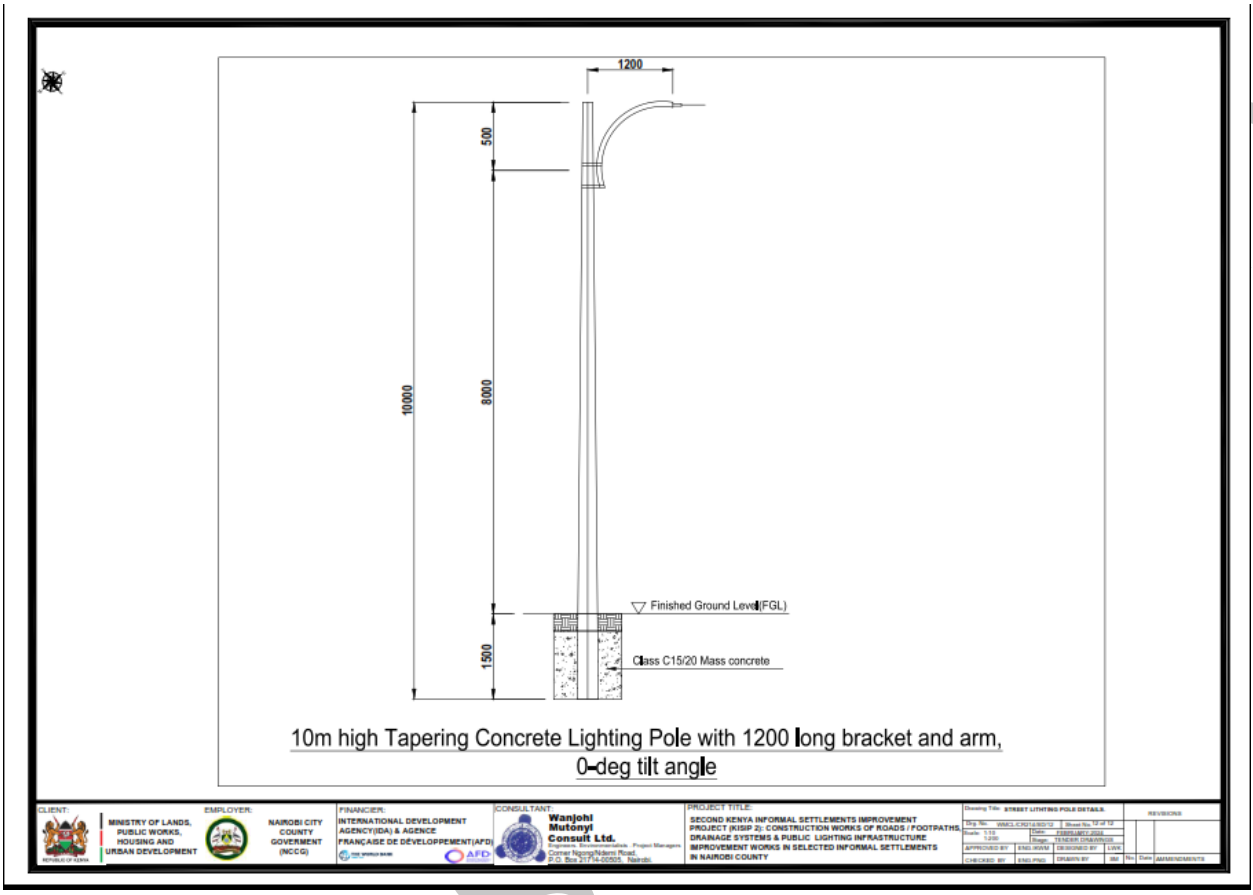

Figure 5 - Typical Street Lighting Detail

2.6 Project Cost

The estimated project cost for Nairobi County KISIP 2 projects is **Kshs. 608,934,263 (Kenya Shillings Six Hundred and Eight Million, Nine Hundred Thirty-Four Thousand, Two Hundred Sixty-Three Only)**. The proponent is thus required by law (regulation 48 of the Environmental (Impact Assessment and Audit) Regulations, 2003) to pay 0.1% of the project cost as NEMA license processing fee GAZETTE NOTICE NO. 13211. In this aspect, Ksh **608,934 (Kenyan shillings Six Hundred and Eight Thousand, Nine Hundred and Thirty-Four Only)** shall be paid to NEMA by the proponent for NEMA Licensing process.

This covers the total NEMA fees for the five Settlements namely, Spring Valley, Matopeni Kayole, Huruma Fire Victims, Mathare Fire Victims and Majengo Pumwani.

CHAPTER 3: ANALYSIS OF PROJECT ALTERNATIVES

3.1 Introduction

This chapter describes and examines the various alternatives available for the project. The consideration of alternatives is one of the more proactive sides of environmental assessment - enhancing the project design through examining options instead of only focusing on the more defensive task of reducing adverse impacts of a single design. This calls for the comparison of feasible alternatives for the proposed project site, technology, and/or operational alternatives. Alternatives have to compare in terms of their potential environmental impacts, capital and recurrent costs, suitability under local conditions, and acceptability by neighbouring land users.

3.2 Selection of Settlement for Infrastructure Improvement

Environment and social impacts are minimized as a direct consequence of the settlement selection in that the proposed projects location must not have adverse impacts to the identified location. The following considerations were made:

Land Requirements: The proposed project areas within the settlement are located on land that is owned by Nairobi County Government. The projects have been designed to only utilize the road reserves as designated on the Physical Development Plans (PDPs) developed by KISIP 2 component for the targeted settlements. No private land will be acquired for the project. This has significantly minimized displacement of populations and livelihoods as a result of the Project and the need to carry out resettlement. A separate Abbreviated RAP was prepared for the Project components which have an impact to people's assets and sources of livelihood along the proposed project corridors.

Location: The proposed project sites are located within the Nairobi City Sub urban area of Kayole with no sensitive environmental features.

Settlement size and density: The population of the sub-county of Embakasi within which the proposed project area lies, has a total of 988,808 persons which is expected to rise to 1,135,570 by 2027. The settlement has 4700 Households.

Scale of potential displacement of residents: The proposed developments are situated in areas with no displacements of residential houses and with minimal displacements of businesses in terms of makeshift sheds especially along the wayleaves.

Proximity to trunk infrastructure: The prioritized projects to be implemented are within close close proximity to core trunk infrastructure (such as roads and trunk lines for water and electricity). The roads to be implemented are connected to other roads which have a direct access to the main Nairobi - Kangundo road.

Need to eliminate economic differentials: KISIP 2 is by design biased towards support to informal settlements. The motivating criteria is to improve quality of life in informal settlements towards building equality and attaining both local and globally accepted standards for quality of life. Matopeni Kayole Settlement is fast growing and in turn requires faster connectivity and infrastructure.

Compliance with Kenyan law: Matopeni Kayole Settlement is located within an urbanized area of Kayole, away from riparian areas. The proposed developments including Roads and footpaths, Storm water Drainage and Public lighting will be located within the government planning area and will not involve any relocation.

3.3 Construction of Proposed infrastructure projects

The project components comprise roads & drainage and security lighting. Project alternatives was majorly analyzed for roads, drainages and street lighting proposed for unserved and underserved areas.

3.4 No project alternative

In this alternative, the existing conditions in the settlement would remain. It will mean that all the economic and social benefits to settlement and the surrounding areas from the project will be foregone.

The **"No-Project" option** will imply the status quo remain, with the existing facilities and infrastructure without an expansion plan.

This is not a preferred option by either the beneficiaries or the country in general. If the Proponent takes no action, and does not upgrade the infrastructure, impacts would be the "business as usual" causing socio-economic stagnation and proliferation of water borne disease in the project area.

3.5 Design Alternatives

The engineering design has basically followed the recommendations of the design manuals referenced in the design review report. However, due to the uniqueness of the site, some design Alternatives were incorporated in the project as briefly explained in the sections below:

i. The street lights were designed as a hybrid system to accommodate both solar energy and national grid.
ii. Due to varied widths of the road alignments for the settlements, specific cross sections were proposed for each alignment fitting the necessary services within the available space
iii. The topography of the settlements brings out unique surface runoff drainage challenges. There are a number of localized drainage problems where natural drainage system to the existing water ways lacks. In such cases, vertical drains were proposed to address such challenges

3.6 Design Standards

3.6.1 Design approach

The approaches to the detailed engineering solutions that has been taken into account are:

i. Optimized the use of materials for construction;
ii. Improved geometric deficiencies;
iii. Improved the junctions;

iv. Provided access culverts and improved access roads for public convenience to major buildings;
v. Provided cross-drainage structures with adequate opening size and proper protection work;
vi. Providing roadside drainage with adequate capacity;
vii. Proper outfall connectivity of the longitudinal drains/ ditches, has been proposed;
viii. Proper outfall of culverts has been designed;

The main outcomes of the design approach adopted are explained below.

3.6.2 Drainage Systems:

i. **Permeable Pavement:** Use of Permeable surfaces such as permeable concrete or interlocking permeable pavers allow water to infiltrate and contributes to reduction of runoff and erosion.
ii. **Bio retention Cells/ rain gardens**: These are landscaped areas which collect and treat storm water naturally hence promoting filtration and reducing the burden on traditional drainage systems.

3.6.3 Roads Alternatives

When designing the roads in Matopeni Kayole informal settlement, focus has been made to providing accessible, durable, and cost-effective infrastructure that improves the quality of life for residents. Additionally, the chosen design and technology has been considered adaptable to the unique characteristics of the informal settlement, such as narrow pathways and varying topography.

The available alternative technologies considered include the use of paving blocks for use by vehicular traffic and bitumen tarmacked roads. The roads will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. The technology to be adopted in this case, bitumen surfaced road, has been majorly informed by the community preference for road surfacing material and the availability of the preferred material. The most economically viable and sensitive to the environment materials have also been considered.

3.6.4 Lighting and electric Alternatives

i. Solar powered alternative

The option of solar power uses batteries to store power during the day for use at night. This option has high initial cost but it is sustainable in the long run as it utilizes renewable energy.

ii. Electricity Grid alternative

The electricity grid is available within the settlement and will only require connecting the street lighting to electricity from the grid.

3.6.5 Evaluation criteria

The evaluation criteria for choosing the best design alternatives is provided in Table 8 below.

Table 7 - Design Evaluation Criteria

Sr. No	Criteria and weighting	Description
1	Technical Assessment **(30%)**	The technical criterion assesses route options in terms of geometry, degree of curvature, length of the road, drainage systems.
3	Social, political & Resettlement Assessment **(30%)**	This criterion assesses road options in relation to parameters such as population, number of encroachments.
4	Road Safety **(20%)**	The following design criteria which are linked to road safety were used to assess the suitability of the alternative roads: a) Stopping and passing sight distances; b) Coordination of horizontal and vertical curves; c) Cross-sections; and, d) Carriageway and roadside safety treatments.
5	Cost **(20%)**	The aim is to select the roads with the least lifetime construction and maintenance cost per unit of investment. In other words, the alternative that give the highest Net Present Value per Unit Cost of Investment. The economic evaluation was undertaken using the internationally recognized HDM-4, and will incorporate environmental and road safety costs and savings in the analysis.

CHAPTER 4: POLICY, LEGAL FRAMEWORK AND INSTITUTIONAL SETUP

4.1 Introduction

In regards to this Project, various policies and legal instruments were relevant to this ESIA study. These were both Government of Kenya policies and legal instruments (including those international ones domesticated by Kenya), and World Bank policies. These are found in Sections 3.5, 3.6, 3.7 and 3.8 below.

4.2 The Project in Context

Informal settlements constitute between 40 and 70% of the population in all major urban centres in Kenya. These settlements are characterized by poor infrastructure, poor provision of water and sanitation services. The Government of Kenya (GoK) has responded to the Vision 2030 and the recommendation of the "Kenya Economic Recovery for Wealth and Employment Creation (2003 - 2007)", by upgrading of informal settlements. This is exemplified by the Kenya Informal Settlements Improvement Project Phases I and II.

4.3 Policy and Legal Issues

Many of Kenyan national policies and laws were formulated to cater for environmental and sustainable development. The Environmental Management and Co-ordination Act (1999) deals specifically with all matters relating to the environment and has guidelines in how to carry an EIA in Kenya. These guidelines address the following major problems:

- Land degradation,
- Environmental pollution (noise, water, air, soil etc.),
- Lack of accessible, good quality water,
- Loss of wildlife habitats and biodiversity,
- Deforestation,
- Deterioration of aquatic ecosystems,
- Public health, and
- Climate change.

The major laws and regulations include the Constitution of Kenya 2010; the Environment Management and Coordination Act (Cap 387); Environmental Impact Assessment and Audit Regulations (2003); The Public Health Act (Cap 242); The Physical and Land Use Planning Act 2019; The Occupational Safety and Health Act 2007; The County Governments Act 2012; The Building Code (Adoptive By-laws) 1968; The National Environment Policy Session paper No. 10 of 2014; the Environment and Land Court Act, 2011; Climate Change Act, 2019; County Government Act, 2012; Labour Relations Act, 2016, Children Act, 2001; the Public Participation Act, 2016; etc.

4.4 The Need for an ESIA

According to the Kenya National Environment Action Plan (NEAP, 1994) the Government recognized the negative impacts on ecosystems emanating from industrial, economic and social development programmes that disregarded environmental sustainability. Following on this, establishment of appropriate policies and legal guidelines as well as harmonization of the existing ones have been accomplished and/or are in the process of development. The NEAP process introduced environmental assessments in the country with among the key stakeholders being industrialists, business community and local authorities. This culminated into the development of the Policy on Environment and Development under the Sessional Paper No. 6 of 1999. This also

led to the enactment of EMCA 1999. Environmental Impact Assessment is a tool for ensuring new projects and programmes incorporate appropriate measures to mitigate adverse impacts to the environment and peoples' health and safety as well as enhancing sustainable operations with respect to environmental resources and co-existence with other socio-economic activities in their neighbourhood. Necessary policies and legislation that ensures annual environmental audits (EA) are carried out on every running project, activity or programme and a report submitted to National Environmental Management Authority (NEMA) for approval and issuance of relevant certificates/licences. An EIA is done before the development or project begins. EIA is carried out by an Environmental Impact Assessment/ Environmental Audit (EIA/EA) expert duly registered and licensed by the National Environment Management Authority (NEMA).

4.5 Policy Provisions

National Environment Action Plan (NEAP)

According to the Kenya National Environment Action Plan (NEAP, 1994) the Government recognized the negative impacts on ecosystems emanating from economic and social development programmes that disregarded environmental sustainability. In this regard, establishment of appropriate policies and legal guidelines as well as harmonization of the existing ones have been accomplished and/or are in the process of development. Under the NEAP process EIA was introduced and among the key participants identified were the District Development Committees.

National Policy on Water Resources Management and Development

The National Policy on Water Resources Management and Development (Sessional Paper No. 1 of 1999) was established with an objective to preserve, conserve and protect available water resources and allocate it in a sustainable rational and economic way. It also desires to supply water of good quality and in sufficient quantities to meet the various water needs while ensuring safe disposal of wastewater and environmental protection. The policy focuses on streamlining provision of water for domestic use, agriculture, livestock development and industrial utilization with a view to realizing the goals of the Millennium Development Goals (MDGs) as well as Vision 2030. To achieve these goals, water supply (through increased household connections and developing other sources) and improved sanitation is required in addition to interventions in capacity building and institutional reforms.

While the National Policy on Water Resources Management and Development (1999) enhances a systematic development of water facilities in all sectors for promotion of the country's socio-economic progress, it also recognizes the by-products of this process as waste water. It, therefore, calls for development of appropriate sanitation systems to protect people's health and water resources from institutional pollution. Development projects, therefore, should be accompanied by corresponding waste management systems to handle the waste water and other waste emanating there from. The same policy requires that such projects should also undergo comprehensive EIAs that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighbourhood and further downstream are not negatively impacted by the emissions. In addition, the policy provides for charging levies on waste water on quantity and quality (similar to polluter-pays-principle) in which case those contaminating water are required to meet the appropriate cost on remediation, though the necessary mechanisms for the implementation of this principle have not been fully established under the relevant Acts. However, the policy provides for establishment of standards to protect the water bodies receiving waste water, a process that is ongoing.

Sessional Paper No. 6 of 1999 on Environment and Sustainable Development

Among the key objectives of the Sessional Paper No. 6 of 1999 on Environment and Sustainable Development (1993) are:

i. To ensure that from the onset, all development policies, programmes and projects take environmental considerations into account.
ii. To ensure that an independent environmental impact assessment (EIA) report is prepared for any development before implementation.
iii. To ensure that effluent treatment standards which will conform to acceptable health standards.

This paper provided the basis for the environmental Policy framework that is in the process of formulation. Under this paper, broad categories of development issues have been covered that require sustainable approach. These issues include the waste management and human settlement sectors. The paper recommends the need for enhanced re-use/recycling of residues including wastewater and increased public awareness raising and appreciation of clean environment as well as the participation of stakeholders in the management of wastes within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others for decent housing of every family.

The Land Policy

Among the philosophies behind the land policy is that land presents multiple values that should be protected by law and that it is a finite resource that should be utilized sustainably. It also recognizes the values of productivity and environmental sustainability among others. Land use management issues in urban and rural areas has been of concern due to rapid urbanization, inadequate land use planning, unsustainable production, poor environmental management and inappropriate ecosystem protection and management. This compromises benefit-sharing concepts of integrating economic, social and environmental aspects of land use activities.

Land use planning is required to address strategies for human settlement in relation to environmental conservation among other aspects as well as efficient and sustainable utilization and management of land and land-based resources. Among measures for restoration and conservation of land include control of land degradation through abuse of inputs and inappropriate land use practices. Environmental management principles captured in these measures are conservation and sustainable management, ecosystem protection, urban environment management and environmental assessments and audits.

Vision 2030

Vision 2030 is a government development strategy that is aimed at steering Kenya to a middle-income country by the year 2030. It is based on the 3 pillars of political, social and economic advancement and it aims to transform the economy to newly industrialized status by 2030 and achieve sustainable growth. Environmental considerations of development are contained within the social and economic pillar. On poverty reduction, the vision aims at creating opportunities for the poor by making institutions stronger. The vision recognizes the significance of public sector reform as a key enabler. The sector was to be transformed by building and implementing service delivery systems that ensure efficiency, quality, speed, convenience, and dignity in service delivery as well as being globally competitive. This is also in line with the Economic Recovery Strategy for Wealth and Employment Creation (ERS) which addresses issues of promoting sustainable livelihoods in marginalized areas.

By upgrading the water and sanitation status of the slums, KISIP will be assisting the country to provide clean domestic water and better sanitation facilities for the urban poor and therefore help attain the goals of Vision 2030 and the UN's SDGs.

The National Environment Policy Sessional Paper No. 10 of 2014

The policy provides comprehensive strategies for government action regarding the quality of the environment and development. The project will have to comply with the policy by integrating of environmental sustainability principles during implementation, operation, and decommissioning stages.

National Gender and Development Policy (2000)

The overall objective of the Gender and Development Policy is to facilitate the mainstreaming of the needs and concerns of men and women in all areas in the development process in the country. The construction sector plays a key role in socio-economic development. Deliberate and affirmative action to encourage all genders to contribute to the proposed subproject activities has been inculcated in the ESMP. The Project provides an opportunity for the engendering of the construction sector as a means towards poverty reduction and inclusive socio-economic development.

Private Sector Development Strategy 2006-2010

The strategy focuses on improving Kenya's business environment, institutional transformation, trade expansion, improved productivity and support to entrepreneurship and indigenous enterprise development. One of the key factors for the improvement of productivity is the adoption of modern, appropriate technologies.

The Project will spur private sector investments in the slums areas and that of the national economy in general by provision of infrastructure such as access roads, lighting and clean domestic waters, better sanitation and drainage.

National Poverty Eradication Plan (NPEP), Poverty Reduction Strategy Paper (1999) on Environment and Development and Sessional Paper for Sustainable Development (No 1 of 2002)

The NPEP has the objective of reducing the incidence of poverty in both rural and urban areas by 50 percent by the year 2015; as well as strengthening the capabilities of the poor and vulnerable groups to earn income. It also aims to narrow gender and geographical disparities and create a healthy, better educated and more productive population. This plan has been prepared in line with the goals and commitments of the World Summit for the Social Development (WSSD) of 1995. The plan focuses on the four WSSD themes of the poverty eradication; reduction of unemployment; social integration of the disadvantaged people and the creation of an enabling economic, political, and cultural environment. This plan is to be implemented by the Poverty Eradication Commission (PEC) formed in collaboration with Government Ministries, community based organizations and private sector.

The Strategy Paper on Environment and Development was published by the Government in 2001. The two key goals of the strategy are poverty reduction and economic growth. The document outlines the priorities and measure necessary for poverty reduction and economic growth. The objectives of economic growth and poverty reduction are borne out of realization that economic growth is not a sufficient condition to ensure poverty reduction. In this regard, measures geared towards improved economic performance and priority actions that must be implemented to reduce the incidence of poverty among Kenyans have been identified. With respect to the environment,

the paper proposes that adequate awareness be created among stakeholders regarding environmental costs and benefits. It further calls for community involvement and participation in environmental management and conservation.

This Sessional Paper for Sustainable Development (No. 1 of 2002) which is an update of Sessional Paper Number 4 of 1984 on population policy guidelines, addresses issues on environment, gender, poverty and problems faced by segments of the population including the youth, the elderly and persons with disabilities. Outlined in the paper are population and development goals and objectives including improvement on standards of living and quality of life of the people; full integration of population concerns into development process; motivating and encouraging Kenyans to adhere to responsible parenthood; and empowerment of women.

By upgrading the infrastructure of the slums, KISIP II will be assisting the country to provide clean better access roads, lighting, domestic water and better drainage and sanitation facilities for the urban poor and therefore help attain the goals of Vision 2030 and the UN's SDGs. The project will also spur private sector investments in the project areas and that of the national economy in.

The National Policy on Water Resources Management and Development (1999)

The National Policy on Water Resources Management and Development (1999) seeks to enhance a systematic development of water facilities in all sectors for the country's socio-economic progress, and therefore calls for development of appropriate sanitation systems to protect people's health and water resources from pollution. It also sets guidelines for the utilization of water resources to prevent overexploitation and depletion of the resource.

Development projects, therefore, should be accompanied by corresponding waste management systems to handle the wastewater and other waste emanating there from. The policy also requires that such projects should undergo comprehensive Environmental Impact Assessments that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighbourhoods and further downstream are not adversely affected by any emissions or discharges.

Physical Planning Policy

The local Authorities are empowered under section 29 of the Physical Planning Act Cap 286 to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. The same section, therefore allows for the prohibition or control of the use and development of land and buildings in the interest of proper and orderly development of an area. Section 36 states that, if in connection with a development application, the local Authority is of the opinion that the proposed development activity will have a injurious impact on the environment, the applicant shall be required to submit together with the application an Environmental Impact Assessment EIA report. The proposed project is in complete cognizance with the provisions of the Physical Planning Act.

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. Kenya has domesticated these goals in its development agenda. These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are inter-connected – often the key to success on one will involve tackling issues more commonly associated with another. The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way,

for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They aim to tackle the root causes of poverty and unite us together to make a positive change for both people and planet.

National Climatic Change Response Strategy (NCCRS)

Climate change is considered one of the most serious threats to sustainable development globally. Studies have shown that about 90% of all natural disasters afflicting the world today are related to severe weather and extreme climate change events. Impacts of the projected climate change are expected in many sectors such as environment, human health, food security, economic activities, natural resources and physical infrastructure. Kenya acknowledges that the change in the Earth‘s climate and its adverse effects are a common concern of humankind. The Ministry of Environment and Climate Change and Forestry has therefore recognized the need to enhance coordination of climate change activities in the country with a view to ensuring a climate-proof socioeconomic development anchored on a low carbon path. The vision of the Strategy is for a prosperous and climate change resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaptation and GHG (greenhouse gases) emission mitigation. This will be achieved by ensuring commitment and engagement of all stakeholders while taking into account the vulnerable nature of Kenya‘s natural resources and society at large.

The objectives are to:

- Enhance understanding of the global climate change regime: the negotiation process, international agreements, policies and processes and most importantly the positions Kenya needs to take in order to maximize beneficial effects of climate change,
- Assess the evidence and impacts of climate change in Kenya,
- Recommend robust adaptation and mitigation measures needed to minimize risks associated with climate change while maximizing opportunities,
- Enhance understanding of climate change and its impacts nationally and in local regions,
- Recommend vulnerability assessment, impact monitoring and capacity building framework needs as a response to climate change,
- Recommend research and technological needs to respond to climate change impacts, and avenues for transferring existing technologies,
- Recommend a conducive and enabling policy, legal and institutional framework to combat climate change, and
- Provide a concerted action plan coupled with resource mobilization plan and robust monitoring and evaluation plan to combat climate change.

Table 8 - Relevance of National Environmental and Social Framework

	Policy	Policy Brief	Policy relevance to the Project
1	National Environment Action Plan (NEAP)	Under the NEAP process EIA was introduced and among the key participants identified were the District Development Committees.	The Project will trigger the requirement of EIA study for the project
2	National Policy on Water Resources Management and Development	Objective is to preserve, conserve and protect available water resources and allocate it in a sustainable rational and economic way. To achieve this objective, water supply (through increased household connections and developing other sources) and improved sanitation is required in addition to interventions in capacity building and institutional reforms.	The Project will trigger the requirements contained in this Policy as pertains to infrastructure development in the Settlement.
3	Sessional Paper No. 6 of 1999 on Environment and Sustainable Development	Under this paper, broad categories of development issues have been covered that require sustainable approach. These issues include the waste management and human settlement sectors. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others for decent housing of every family.	The Project will trigger the requirements contained in this Policy as pertains to infrastructure development in the Settlement.
4	The Land Policy	The essence of this policy is that land presents multiple values that should be protected by law. It calls for proper land use planning in urban and rural areas due to rapid	The Project will trigger the requirements contained in this Policy as pertains to infrastructure development, land use planning, etc. in the Settlement.

	Policy	Policy Brief	Policy relevance to the Project
		urbanization, inadequate land use planning, unsustainable production, poor environmental management and inappropriate ecosystem protection and management.	
5	Vision 2030	Environmental considerations of development are contained within the social and economic pillar. On poverty reduction, the vision aims at creating opportunities for the poor by making institutions stronger.	By upgrading the water and sanitation status of the slums, KISIP will be assisting the country to provide clean domestic water and better sanitation facilities for the urban poor and therefore help attain the goals of Vision 2030 and the UN's SDGs.
6	The National Environment Policy Sessional Paper No. 10 of 2014	The policy provides comprehensive strategies for government action regarding the quality of the environment and development.	The project will have to comply with the policy by integrating of environmental sustainability principles during implementation, operation, and decommissioning stages.
7	National Gender and Development Policy (2000)	The overall objective of the Gender and Development Policy is to facilitate the mainstreaming of the needs and concerns of men and women in all areas in the development process in the country.	The construction sector plays a key role in socio-economic development. Deliberate and affirmative action to encourage all genders to contribute to the proposed subproject activities has been inculcated in the ESMP. The Project provides an opportunity for the engendering of the construction sector as a means towards poverty reduction and inclusive socio-economic development.
8	Private Sector Development Strategy 2006-2010	The strategy focuses on improving Kenya's business environment, institutional transformation, trade expansion, improved productivity and support to entrepreneurship and	The Project will spur private sector investments in the slums areas and that of the national economy in general by provision of infrastructure such as access roads, lighting and clean domestic waters, better sanitation and drainage.

	Policy	Policy Brief	Policy relevance to the Project
		indigenous enterprise development. One of the key factors for the improvement of productivity is the adoption of modern, appropriate technologies.	
9	National Poverty Eradication Plan (NPEP), Poverty Reduction Strategy Paper (1999) on Environment and Development and Sessional Paper for Sustainable Development (No 1 of 2002)	The plan focuses on the four themes of the poverty eradication; reduction of unemployment; social integration of the disadvantaged people and the creation of an enabling economic, political, and cultural environment.	By upgrading the infrastructure of the slums, KISIP II will be assisting the country to provide clean better access roads, lighting, domestic water and better drainage and sanitation facilities for the urban poor and therefore help attain the goals of Vision 2030 and the UN's SDGs. The project will also spur private sector investments in the project areas and that of the national economy in.
10	The National Policy on Water Resources Management and Development (1999)	This Policy seeks to enhance a systematic development of water facilities in all sectors for the country's socio-economic progress, and therefore calls for development of appropriate sanitation systems to protect people's health and water resources from pollution.	The policy also requires that such projects should undergo comprehensive Environmental Impact Assessments that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighbourhoods
11	Physical Planning Policy	The local Authorities are empowered by the Policy to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. For a development to be approved, if the local Authority is of the opinion that the proposed development activity will have a injurious impact on the environment, the applicant shall be required to submit together with the application	The Project will trigger the requirements contained in this Policy as pertains to infrastructure development, land use planning, etc. in the Settlement.

	Policy	Policy Brief	Policy relevance to the Project
		an Environmental Impact Assessment EIA report	
12	Sustainable Development Goals (SDGs)	The major objective of these Goals is to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. They aim to tackle the root causes of poverty and unite us together to make a positive change for both people and planet.	The Project will trigger the requirements contained in these Goals as pertains to infrastructure development, land use planning, reduction of poverty, etc. in the Settlement.
13	National Climatic Change Response Strategy (NCCRS)	Climate change is considered one of the most serious threats to sustainable development globally. The vision of the Strategy is for a prosperous and climate change resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaptation and GHG (greenhouse gases) emission mitigation.	The Project will trigger the requirements contained in this Strategy as pertains to infrastructure development, land use planning, etc. in the Settlement. This is considered in the ESMP.

4.6 Legal Framework

The EIA guidelines available for Kenya, especially the EMCA 1999 and NEMA Environmental Impact and Audit Regulations 2003, were closely followed in this ESIA. Awareness regarding the relationship between the environment and economic development in Kenya continues to grow since 1992 when Kenya joined the rest of the world in endorsing Agenda 21 as the global blueprint for sustainable development. To this end Kenya has recognized the need for mainstreaming environmental issues in all aspects of its economic development. This will ensure that the project is environmentally sustainable and will result in minimal environmental hazards. To summarize, the following are some of the various legal and policy instruments dealing with environment as an integral part of national development.

Applications of national statutes and regulations on environmental conservation suggest that the proposed project management institutions will have a legal duty and social responsibilities to ensure the proposed project development is carried out without compromising the status of the natural resources in the area, public privacy, health and safety. This position enhances the importance of this environmental impact assessment for the proposed site to provide a benchmark for its sustainable operation. The key national laws that govern the management of environmental resources in the country have been briefly discussed below. It is noteworthy that wherever any of

the laws contradict each other, the Environmental Management and Co-ordination Act 1999 prevails.

The Constitution of Kenya (2010)

The constitution of Kenya was promulgated in 2010. Several articles are relevant to the proposed project in relation to the environment. Article 42 states that, every person has the right to a clean and healthy environment, which includes the right:

a) To have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and
b) To have obligations relating to the environment fulfilled under Article 70.

Article 69: Obligations in Respect to the Environment

The Article provides that the State shall:

a) Ensure sustainable exploitation, utilization, management, and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits.
b) Work to achieve and maintain a tree cover of at least ten percent (10%) of the land area of Kenya.
c) Protect and enhance intellectual property and indigenous knowledge of biodiversity and the genetic resources of the communities.
d) Encourage public participation in the management, protection, and conservation of the environment.
e) Protect genetic resources and biological diversity.
f) Establish systems of Environmental Impact Assessment, Environmental Audits and monitoring of the environment, processes and activities that are likely to endanger the environment; and
g) Utilize the environment and natural resources for the benefit of all the people.

Section (2) states that; 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.

Article 70: Enforcement of Environmental Rights

1. It stipulates that: If a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter.
2. On application under clause (1), the court may make any order or give any directions, it considers appropriate:

a) To prevent, stop or discontinue any act or omission that is harmful to the environment;
b) To compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or to provide for compensation for any victim of a violation of the right to a clean and healthy environment. For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury.

The Environment Management and Co-ordination Act, 1999 (Amended 2015)

EIA is a legal requirement in Kenya rooted in the constitution. Chapter 69 of the Constitution of Kenya lists obligations in respect of the environment. The state must establish systems of environmental impact assessment, environmental audit, and environmental monitoring. The state must also eliminate processes and activities likely to endanger the environment. Consequently,

the National Assembly of the Republic of Kenya has developed several laws to establish systems and guide the environmental impact assessment process in Kenya. The Environmental Management and Coordination Act (EMCA) 1999 (Cap 387 of the laws of Kenya), Environmental (Impact Assessment and Audit) Regulations 2003, Environmental Management and Coordination Act (Amendment) Act 2015, and Environmental (Impact Assessment and Audit) (Amendment) Regulations 2019, are some of these laws.

Finally, the environmental impact assessment guidelines require that EIA be conducted in accordance with the issues and general guidelines spelt out in the second and third schedules of the regulations. These include coverage of the issues on schedule 2 (ecological, social, landscape, land use and water considerations) and general guidelines on schedule 3 (impacts and their sources, project details, national legislation, mitigation measures, a management plan and environmental auditing schedules and procedures.

This ESIA is in compliance with Section 58 of the Environmental Management and Coordination Act (EMCA) No.8 of 1999 Second Schedule Part 3 (a), and the Environment (Impact Assessment and Audit) Regulations 2003 and 2019. Environmental quality conservation aspects of this project will be realized through the implementation of the Environmental and Social Management Plan aimed at mitigating the potentially negative impacts and enhancing the potentially positive impacts predicted through this ESIA study.

Factories and Other Places of Work Act Cap 514

The Factories and Other Places of Work Act Cap 514 makes provision for the health, safety and welfare of persons employed in factories and other places of work. The provisions require that all practicable measures be taken to protect persons in places of work from dust, fumes or impurities originating from any process within the workplace. The provisions of the Act are also relevant to the management of hazardous and non-hazardous wastes, which may arise at a project site. The proponent will appoint a reputable contractor who will be responsible in enforcing the requirements during construction and subsequent repairs and maintenance after project completion.

The Occupational Health and Safety Act (OSHA), 2007

This legislation provides for protection of workers (employees) during pre-construction and construction phases. It is tailored at implementation of the EHS plan in compliance with the relevant sections of this Act. The Occupational Safety and Health Act 2007 applies to any work place. The Act requires that the operator of premises or works prepares a written statement of his general policy with respect to safety and health at work of his employees. This statement must be made available to the employees. Health and safety provisions covers, among others, cleanliness, ventilation, lighting, safe use of plant and machinery, fire prevention, dangerous fumes, safety provisions, first aid, control of air pollution, noise and vibration.

Regarding the handling, transportation and disposal of chemicals and other hazardous substances, there shall be classification of hazardous materials and chemicals, and the materials data sheet should be maintained. The occupier of a workplace shall cause a thorough safety and health audit of his workplace to be carried out at least once in every period of twelve months by a safety and health advisor, who shall issue a report of such an audit containing the prescribed particulars to the occupier on payment of a prescribed fee and shall send a copy of the report to the Director. The audit report shall be preserved and be kept available for inspection by the occupational safety and health officer.

Work Injury Benefits Act 2007 (WIBA)
This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes.

National Museums of Kenya Act
National Museums of Kenya is a state corporation charged with research, management and documentation of historical sites, archaeological sites and site of natural and national heritages and monuments. National Museums of Kenya has also been designated as a national biodiversity centre and is involved in taxonomic and herbaria activities. Any archaeological item of note will be referred to the National Museums of Kenya for documentation and safe keeping.

Land Acquisition Act Cap 295
This Act provides for the compulsory or otherwise acquisition of land from private ownership for the benefit of the general public. Section 3 states that when the Minister is satisfied on the need for acquisition, notice will be issued through the Kenya Gazette and copies delivered to all the persons affected. Full compensation for any damage resulting from the entry onto land to things such as survey upon necessary authorization will be undertaken in accordance with section 5 of the Act.

The Act applies where public interests override private interests as indicated in Chapter 7 of the Constitution of Kenya. The initiatives and procedures of acquisition are set out in the Act and the following highlights are notable:

- The Minister has to be satisfied that the land required is for public purpose by a public body before he directs the Commissioner of Lands to acquire it compulsorily.
- The Commissioner of Lands then publishes the notice of acquisition.
- The Commissioner holds an inquiry for hearing of claims by persons interested in the land.
- The Act recommends that full compensation to be paid promptly to all persons interested in the land.

Due to the fact that water pipes and sewerage line will follow the public road networks in the settlement areas, the government may not have the need to acquire land and compensate the owners accordingly.

Wayleaves Act Cap 292
The Act provides for certain undertakings to be constructed e.g. transmission lines, dams, canals, pathways etc., through, over or under any lands. Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever provided it shall not interfere with any existing building or structures of an on-going activity. Where any developments are affected, the Act recommends for compensation under Section 6 (1) - “the Government shall make good all compensation to the owner of any tree or crops destroyed or damaged”. The Act further explains the process of resolving conflicts that arise in determining the compensation value. Due to the fact that water pipes and sewerage line will follow the public road networks in the slum areas, the government may not have to acquire land and compensate the owners accordingly.

Government Lands Act Cap 280
This is an Act of Parliament to make further and better provision for regulating the leasing and other disposal of Government lands, and for other purposes. Under this act the President through the Commissioner of Lands, allocates any un-alienated land to any person he so wishes ("unalienated Government land" means Government land which is not for the time being leased

to any other person, or in respect of which the Commissioner has not issued any letter of allotment). Such a land once allocated is held as a grant from the government on payment of such rents to the government as the government wishes. This is now subject to the provisions of the new Constitution of Kenya 2010. By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act.

Registered Land Act Cap 300

This Act provides for the absolute proprietorship over land (exclusive rights) in Kenya. Under this Act any person may acquire absolute ownership to any land once he or she has been registered as the absolute owner under the Act. On registration such a person acquires freehold interests on the land which implies absolute ownership. By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act.

Land Control Act 302

This Act restricts transfer of land and as such has some bearing on the flexibility with which affected farmers can acquire replacement land. The most pertinent section of this act is Section (9) that states the economic size for agriculture. It controls the subdivisions of the agricultural land. The Land Control Act Cap 406 allows for all private land to be adjudicated and registered following which, a title deed is issued to the registered owner. Acquisition of private land is through transfer of the Title Deed either on account of inheritance, purchase or free gift but in all cases, transfers must be registered with the District Land Registrars following approval by the Land Control Boards. By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act.

Physical Planning Act Cap 286

This Act provides for the preparation and implementation of physical development plans for connected purposes. It establishes the responsibility for the physical planning at various levels of Government in order to remove uncertainty regarding the responsibility for regional planning. A key provision of the Act is the requirement for Environmental Impact Assessment (EIA).

It provides for a hierarchy of plans in which guidelines are laid down for the future physical development of areas referred to in a specific plan. The intention is that the three-tier order plans, the national development plan, regional development plan, and the local physical development plan should concentrate on broad policy issues. The Act also promotes public participation in the preparation of plans and requires that in preparation of plans proper consideration be given to the potential for socio-economic development needs of the population, the existing planning and future transport needs, the physical factors which may influence orderly development in general and urbanization in particular, and the possible influence of future development upon natural environment. Any change of use of the actual development without authority constitutes an offence.

KISIP II will need to work closely with the local authorities and other relevant government departments to ensure that there is proper utilization of land and its resources within the project area. This will entail proper planning for facilities, etc.

Energy Act 2006

This Act consolidated the laws relating to energy, provides for the establishment, powers and functions of the Energy Regulation Commission and the Rural Electrification Authority; and for connection purposes. Section 54 of the Act provides how land can be acquired if the Minister in consultation will the Energy Regulation Commission is satisfied that the land is needed for public

benefit. Working closely under the provisions of this Act, KISIP will ensure safe distribution of power lines and other facilities in the project areas.

Agriculture Act

The Agriculture Act Cap 318 of the Laws of Kenya seeks to promote and maintain a stable and sustainable agriculture, to provide for the conservation of the soil and its fertility and to stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry. This Act primarily guides and regulates farming practices especially in relation to the proximity of farming within the riparian section. The Act specifies that no agricultural activity is allowed and or permitted within the riparian area of a wetland, river or Lake. The Agriculture Act is the principal land use statute covering, *inter- alia,* soil conservation, and agricultural land use in general. County Government together with relevant government arms will ensure that proper agricultural practices are put in place in the project area and cut down the use of sewerage for farming. These will include adhering to the set areas of riparian zones in order to reduce soil erosion and sedimentation of water bodies.

Public Health Act Cap 242

The Public Health Act has no environmental protection standards. The Act is primarily concerned with the protection of the quality of water supplies and sources used for human, domestic and animal consumption. It contains provisions against environmental pollution by what it describes as “nuisance” that would result in the pollution of the environment by gaseous emissions, solid wastes and liquid effluent in order to protect public health. The Proponent and the contractor are legally bound by this Act to prevent this from happening.

The Act protects human health. It prevents and guards against introduction of infectious diseases into Kenya from outside, promotes public health as well as the prevention, limitation or suppression of infectious, communicable or preventable diseases within Kenya. Its objective is also to advice and direct local authorities in regard to matters affecting the public health to promote or carry out researches and investigations in connection with the prevention or treatment of human diseases. This Act provides the impetus for a healthy environment and gives regulations to waste management, pollution and human health.

This act provides for securing and maintaining health. This Act defines what an environmental nuisance is and this includes emissions of wastes, gases, smoke and the general pollution of land, air and water. During the construction of the bridge, it is likely that wastes and accidents may occur. Section 118 (c) deems it a nuisance for any street , road, or any part thereof, any stream, pool, ditch, gutter, watercourse, sink, water tank etc. so foul or in such a state or so situated or constructed as in the opinion of the medical officer of health to be offensive or to be injurious or dangerous to human health. Street here includes bridges, footway, square, court, alley etc.

Lakes and Rivers Act (Cap 409)

The Lakes and Rivers Act provides for the protection of rivers, lakes and associated flora and fauna. The provisions of this Act therefore have to be applied in the management of rivers that will be within by the proposed project.

Water Act 2002

The Water Act (2002) of the Laws of Kenya seeks to make better provision for the conservation, control of pollution, apportionment and use of the water resources in Kenya, and for purposes they are incidental thereto and connected therewith. The Act vests ownership and control of water

in the government subject to any rights of user. Under this provision the responsibility to regulate access, use and control of water resources is vested in the Water Resources Management Authority (WRMA).

The Act vests the rights of all water to the state, and the power for the control of all body of water with the Cabinet Secretary, the powers is exercised through the Cabinet Secretary and the Water Resources Authority in consultation with the regional water resources boards. It provisions aim at the conservation of water, apportionment, and use of water resources. Part II, section 18, of the Principal Act provides for national monitoring and information archiving system on water resources. Following on this, sub-section 3 allows the Water Resources Authority (WRA) to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority.

Section 25 of the Act requires a permit to be obtained for any use of water from a water resource, and the discharge of a pollutant into any water resource. Under Section 29, application for such a permit shall be subject to public consultation as well as an Environmental Impact Assessment in line with the Environmental Management and Coordination Act, Cap 387. The conditions of the permit may also be varied if the Authority is of the opinion that the water so used is causing deterioration of water quality or causing shortage of water for other purposes for which the Authority lays a higher priority. This is provided for under section 35 of the Act.

Section 73 of the Act allows a person, who has been granted a license to supply water (licensee), to make regulations for purposes of protecting against degradation of their water source(s). Under the Section, the licensee could be a local authority, a private Trust or an individual, and enforcement will under the supervision of the Regulatory Board with jurisdiction. Section 76 states that no person shall discharge any trade effluent from any trade premises into sewers of a licensee without the consent of the licensee upon application indicating the nature and composition of the effluent, maximum quantity anticipated, flow rate of the effluent and any other information deemed necessary. The consent shall be issued on conditions including the payment rates for the discharge as may be provided under section 77 of the same Act.

The proposed project shall require large quantities of water during the construction phase and generation of equally large volumes of surface run-off during construction and operations. The contractor shall seek the necessary permits to obtain water and shall abide by the conditions attached to the permit(s).

The Act protects water bodies and sources from pollution and controls their use. The Act also gives provisions for protecting catchments from deforestation. The Minister may designate protected catchment areas, within which activities may be regulated. However, the Water Act does not provide for control of other land uses that may degrade the catchment through soil erosion. The Agriculture Act, on the other hand, does provide a framework for dealing with these problems, although these provisions seem rarely to be implemented. Control of water pollution is covered in a general sense by the Water Act. The legislation is deficient, since it does not lay down water quality and discharge standards or provide powers for these to be defined. It also does not provide for water quality monitoring. The Public Health and Pest Control Products Acts also touch directly or indirectly on water pollution, but there is little institutional capacity to implement their provisions.

This will ensure proper use of water resources within the project area and mitigate against water pollution by residents/activities.

KISIP II will need to encourage proper utilization and use of the water resources to ensure provision of clean water suitable for domestic use by curbing water misuse and pollution.

The Penal Code (Cap 63)

Section 191 of the Penal Code states that if any person or institution that voluntarily corrupts or foils, water for public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offense. Section 192 of the same Act says a person who makes or vitiates the atmosphere in any place to make it noxious to the health of persons/institution, dwelling or business premises in the neighbourhood or those passing along public way, commits an offense. The vitiation of the atmosphere, corruption of and foiling of the water springs is not an inherent quality of the proposed project's nature. None the less the operational aspects of the project have significantly foreseeable negative impacts. Enforcement of this Act in complimentary with all the aforementioned environmental systems, conserving policies and specific Acts will achieve the desired goals and objectives in this respect. The officers of County Government with jurisdiction will exercise due diligence.

Climate Change (Amendment) Act 2023

The Act applies to the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya. Without prejudice to subsection (1), the Act is applicable in all sectors of the economy by the national and county governments to: mainstream climate change responses into development planning, decision making and implementation; build resilience and enhance adaptive capacity to the impacts of climate change; formulate programs and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change; mainstream and reinforce climate change disaster risk reduction into strategies and actions of public and private entities; promote low carbon technologies, improve efficiency and reduce emissions intensity by facilitating approaches and uptake of technologies that support low carbon, and climate resilient development; facilitate capacity development for public participation in climate change responses through awareness creation, consultation, representation and access to information; mobilize and transparently manage public and other financial resources for climate change response; provide mechanisms for, and facilitate climate change research and development, training and capacity building; mainstream the principle of sustainable development into the planning for and decision making on climate change response; and integrate climate change into the exercise of power and functions of all levels of governance to enhance cooperative climate change governance between the national and county governments.

Wildlife Conservation and Management Act Cap 376

The Act and its related amendments regulate wildlife conservation within the country. The Act also created the Kenya Wildlife Service in 1997 and gives the agency the power to oversee the establishment and management of the Parks and reserves in Kenya and undertake to protect the fauna and flora within the National parks including entering into agreements with organizations of person to ensure that wildlife corridors continue to be provided for migration of wildlife. Alienation of any park can only be undertaken by a resolution from parliament. The Act gives KWS the powers to maintain an armed wing and provides the sweeping powers for the organization to enter into premise search and arrest anybody handling live or dead animal or part of animal and prosecute in a court of law.

Urban and Cities (Amendment) Act 2019

The Act came into function with regard to Article 184 of the Constitution providing regulations on the classification, governance and management of urban areas and cities and further providing the criteria of establishing urban areas. Part III of the Act gives the regulations and functions of every city or municipality with regard to integrated development plans, which shall include but not limited to environmental plans and disaster preparedness, within the area of jurisdiction in achieving objects of devolved governments under section 174 of the constitution while maintaining the socio-economic rights of the people. Moreover, in the first schedule, the Act enlists the services that any municipality shall provide to its residents which include but not limited to traffic control and parking, water and sanitation, refuse collection, solid waste management, pollution abatement services among others.

County Government Act, 2012

Section 109 of the County Government Act (2012) helps counties to ensure effective coordination of spatial developments. Sub - section (2) part C states in part; a spatial county plan shall:

- Indicate desired patterns of land use within the county;
- Address the spatial construction or re-construction of the county;
- Provide strategic guidance in respect of the location and nature of development within the county;
- Set out basic guidelines for a land use management system in the county taking into account any guidelines, regulations or laws as provided for under Article 67(2) (h) of the Constitution;
- Set out a capital investment framework for the county‘s development programs; and Contain a strategic assessment of the environmental impact of the spatial development framework.

The National Construction Authority Act (NCA), 2011

The National Construction Authority Act, Number 41 of 2011 is set to streamline, overhaul and regulate the construction industry in Kenya. The industry has for many years suffered poor legislative framework and has been dominated by quacks and unqualified persons. The industry has also suffered a lot of competition from foreign contractors who are seen to offer cheaper and more quality work. The new Act is a win for the public as it guarantees public safety. All contractors must be registered with the Authority (NCA), meaning that shady contractors and quacks will be locked out of the industry. It is an offence to carry out any construction work without first having been registered with the Authority. The Contractor who will undertake the project will be one who is registered with NCA. The Act also outlines that every development projects must be registered and subsequent construction permit secured from the Authority prior to commencement of the project activities.

The Environment and Land Court Act, 2011

This is an Act of Parliament that gives effect to Article 162 (2) (b) of the Constitution to establish a superior court to hear and determine disputes relating to the environment and the use or occupation of land. The Environment and Land Court is one of the courts contemplated by article 162 (2). It is a Superior Court and has the same status as the High Court. The court is established under section 4 of the Environment and Land Court Act No. 19 of 2011. It has 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 powers to deal with disputes relating to land administration and management. The court is also empowered to hear cases relating to public, private and community land and contracts or other instruments granting any enforceable interests in land. The court also exercises appellate jurisdiction over the decisions of subordinate courts or local tribunals in respect of matters falling within the jurisdiction of the Court. The court further exercises supervisory jurisdiction over the subordinate courts, local tribunals, persons or authorities in accordance with Article 165(6) of the
Constitution.

Employment Act 2007

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 is prohibited under this Act.

The Labour Relations Act, 2007

The principal objective of this Act is to provide a legal framework to promote freedom of association and the right to collective bargaining, to streamline the registration process of trade unions, employees organizations and federation of trade unions and employers; organizations to provide mechanisms for the effective management of property, funds and accounts of trade unions, employers organizations and their respective federations, and to promote expedition and conclusive dispute settlements. It provides for establishment and registration of trade unions and employers organization. It sets out the procedure for the application and consequences of registration and also provides for suspension and cancellation of registration of trade unions and employers organizations.

Table 9 - Relevance of National Legal Framework on the Project

	Constitution/Act	Brief	Relevance to the Project
1	The Constitution of Kenya (2010)	The Constitution of Kenya 2010 is the principal law of the Country. Article 42 states that, every person has the right to a clean and healthy environment. *Article 69* Section (2) states that; 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.	EIA is a legal requirement in Kenya rooted in the constitution.
2	The Environment Management and Co-ordination Act,	EIA is a legal requirement in Kenya rooted in the constitution. Chapter 69 of the Constitution of Kenya	This ESIA is in compliance with Section 58 of the Environmental Management and Coordination Act (EMCA)

	Constitution/Act	Brief	Relevance to the Project
	1999 (Amended 2015)	lists obligations in respect of the environment. The environmental impact assessment guidelines require that EIA be conducted in accordance with the issues and general guidelines spelt out in the Second and Third Schedules of the Regulations.	No.8 of 1999 Second Schedule Part 3 (a), and the Environment (Impact Assessment and Audit) Regulations 2003 and 2019. Environmental quality conservation aspects of this project will be realized through the implementation of the Environmental and Social Management Plan aimed at mitigating the potentially negative impacts and enhancing the potentially positive impacts predicted through this ESIA study.
3	Factories and Other Places of Work Act Cap 514	The Factories and Other Places of Work Act Cap 514 makes provision for the health, safety and welfare of persons employed in factories and other places of work. The provisions require that all practicable measures be taken to protect persons in places of work from dust, fumes or impurities originating from any process within the workplace.	The proponent will appoint a reputable contractor who will be responsible in enforcing the requirements during construction and subsequent repairs and maintenance after project completion.
4	The Occupational Health and Safety Act (OSHA), 2007	This legislation provides for protection of workers (employees) during pre-construction and construction phases. The Act requires that the operator of premises or works prepares a written statement of his general policy with respect to safety and health at work of his employees. This statement must be made available to the employees. Health and safety provisions covers, among others, cleanliness, ventilation, lighting, safe use of plant and machinery, fire prevention, dangerous fumes, safety	The Project will trigger the requirements contained in this Act as the Contractor will have to engage employees on the Project during Construction Phase.

	Constitution/Act	Brief	Relevance to the Project
		provisions, first aid, control of air pollution, noise and vibration. Regarding the handling, transportation and disposal of chemicals and other hazardous substances, there shall be classification of hazardous materials and chemicals, and the materials data sheet should be maintained.	The Project may use some hazardous materials especially during construction or roads, there by triggering provisions of this Act.
5	Work Injury Benefits Act 2007 (WIBA)	This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes.	During construction, the project sites will become place of work where people are engaged as employees. Hence the provisions of this Act will be triggered.
6	National Museums of Kenya Act	National Museums of Kenya is a state corporation charged with research, management and documentation of historical sites, archaeological sites and site of natural and national heritages and monuments.	Any archaeological item of note will be referred to the National Museums of Kenya for documentation and safe keeping.
7	Land Acquisition Act Cap 295	This Act provides for the compulsory or otherwise acquisition of land from private ownership for the benefit of the general public.	Due to the fact that water pipes will follow the public road networks in the settlement areas, the government may not have the need to acquire land and compensate the owners accordingly.
8	Wayleaves Act Cap 292	Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever provided it shall not interfere with any existing building or structures of an on-going activity.	Due to the fact that water pipes will follow the public road networks in the slum areas, the government may not have to acquire land and compensate the owners accordingly.
9	Government Lands Act Cap 280	This is an Act of Parliament to make further and better provision for regulating the leasing and other disposal of Government lands, and for other purposes.	By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act.

	Constitution/Act	Brief	Relevance to the Project
10	Registered Land Act Cap 300	This Act provides for the absolute proprietorship over land (exclusive rights) in Kenya. Under this Act any person may acquire absolute ownership to any land once he or she has been registered as the absolute owner under the Act.	By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act. This will involve issuing of title deeds to the land owners.
11	The Land Control Act Cap 406	The Land Control Act Cap 406 allows for all private land to be adjudicated and registered following which, a title deed is issued to the registered owner.	By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act. This will involve issuing of title deeds to the land owners.
12	Physical Planning Act Cap 286	This Act provides for the preparation and implementation of physical development plan. A key provision of the Act is the requirement for Environmental Impact Assessment (EIA).	By invoking the provisions of this Act, it will ensure proper use of land within the provisions of the Act.
13	Energy Act 2006	This Act consolidated the laws relating to energy, provides for the establishment, powers and functions of the Energy Regulation Commission and the Rural Electrification Authority; and for connection purposes.	Provisions of street lights falls under this Act.
14	The Agriculture Act Cap 318	This Act seeks to promote and maintain a stable and sustainable agriculture, to provide for the conservation of the soil and its fertility and to stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry.	The County Government together with relevant government arms will ensure that proper agricultural practices are put in place in the project area and cut down the use of sewerage for farming. These will include adhering to the set areas of riparian zones in order to reduce soil erosion and sedimentation of water bodies.
15	Public Health Act Cap 242	The Act is primarily concerned with the protection of the quality of water supplies and sources used for human, domestic and animal consumption. It contains	The Proponent and the contractor are legally bound by this Act to prevent this from happening.

	Constitution/Act	Brief	Relevance to the Project
		provisions against environmental pollution by what it describes as "nuisance" that would result in the pollution of the environment by gaseous emissions, solid wastes and liquid effluent in order to protect public health.	
16	Lakes and Rivers Act (Cap 409)	The Lakes and Rivers Act provides for the protection of rivers, lakes and associated flora and fauna.	The provisions of this Act therefore have to be applied in the management of rivers, streams and riparian areas that will be within by the proposed project.
17	Water Act 2002	The Act seeks to make better provision for the conservation, control of pollution, apportionment and use of the water resources in Kenya, and for purposes they are incidental thereto and connected therewith.	The proposed project shall require large quantities of water during the construction phase and generation of equally large volumes of surface run-off during construction. The contractor shall seek the necessary permits to obtain water and shall abide by the conditions attached to the permit(s).
18	The Penal Code (Cap 63)	Section 191 of the Penal Code states that if any person or institution that voluntarily corrupts or foils, water for public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offense.	The provisions of this Act therefore have to be applied in the management waters resources that will be within by the proposed project during the construction phase. The officers of County Government with jurisdiction will exercise due diligence.
19	Climate Change (Amendment) Act 2023	The Act applies to the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya.	The Act is applicable in all sectors of the economy and projects undertaken by the national and county governments.
20	Wildlife Conservation and Management Act Cap 376	The Act regulates wildlife conservation within the country.	By invoking the provisions of this Act, it will ensure protection of biodiversity in the project work sites.

	Constitution/Act	Brief	Relevance to the Project
		It undertakes to protect the fauna and flora within and outside of the National parks and reserves.	
21	Urban and Cities (Amendment) Act 2019	The Act provides regulations on the classification, governance and management of urban areas and cities and further providing the criteria of establishing urban areas. In the First Schedule, the Act enlists the services that any municipality shall provide to its residents which include but not limited to traffic control and parking, water and sanitation, refuse collection, solid waste management, pollution abatement services among others.	Through provision of proper urban planning and provision of basic services such as roads, foot paths, water and drainage the provisions of this Act will be triggered.
22	County Government Act, 2012	Section 109 of the County Government Act (2012) helps counties to ensure effective coordination of spatial developments.	This Act will be triggered as the Project falls under the jurisdiction of the local County Government.
23	The National Construction Authority Act (NCA), 2011	The National Construction Authority Act, Number 41 of 2011 is set to streamline, overhaul and regulate the construction industry in Kenya. The Contractor who will undertake the project will be one who is registered with NCA.	The Act also outlines that every development projects must be registered and subsequent construction permit secured from the Authority prior to commencement of the project activities.
24	The Environment and Land Court Act, 2011	This is an Act of Parliament that gives effect to Article 162 (2) (b) of the Constitution to establish a superior court to hear and determine disputes relating to the environment and the use or occupation of land. The court has powers to deal with disputes relating to land administration and management. The court is	This Act may be triggered in case of any land ownership/boundaries disputes.

	Constitution/Act	Brief	Relevance to the Project
		also empowered to hear cases relating to public, private and community land and contracts or other instruments granting any enforceable interests in land.	
25	The Land Commission Act	The Act provides for the management and administration of land in accordance with the principles of Land Policy set out in Article 60 of the Constitution and the national land policy;	This Act may be triggered in case of any land ownership disputes.
26	Employment Act 2007	This Act applies to all employees employed by any employer under a contract of service. Employment of children is prohibited under this Act.	During construction, the project sites will become place of work where people are engaged as employees. Hence the provisions of this Act will be triggered.
27	The Labour Relations Act, 2007	This Act provides a legal framework to promote freedom of association and the right to collective bargaining, to streamline the registration process of trade unions and employees' organizations	During construction, the project sites will become place of work where people are engaged as employees. Hence the provisions of this Act will be triggered.

4.7 National Guidelines and Regulations

EIA is a legal requirement in Kenya rooted in the constitution. Chapter 69 of the Constitution of Kenya lists obligations in respect of the environment. The state must establish systems of environmental impact assessment, environmental audit, and environmental monitoring. The state must also eliminate processes and activities likely to endanger the environment. Consequently, the National Assembly of the Republic of Kenya has developed several laws to establish systems and guide the environmental impact assessment process in Kenya. The Environmental Management and Coordination Act (EMCA) 1999 (cap 387 of the laws of Kenya), Environmental (Impact Assessment and Audit) Regulations 2003, Environmental Management and Coordination Act (Amendment) Act 2015, and Environmental (Impact Assessment and Audit) (Amendment) Regulations 2019, are some of these laws.

Legal Notices 31 and 32 of 2019 categorizes projects into three categories, namely, low risk projects, medium risk projects, and high-risk projects. Depending on the project type, the consultant must submit one of three reports for the proponent (developer): Summary Project Report (SPR) for low-risk projects, Comprehensive Project Report (CPR) for medium-risk projects, and Study Report (SR) for high-risk projects.

The Environment (Impact Assessment and Audit) Regulations, 2003 and 2019; Legal Notice No. 101

The Regulations supplements EMCA, 1999. In the following specific Sections, the regulation states that;

10. (1) On determination of the project report, the decision of the Authority, together with the reasons thereof, shall be communicated to the proponent within forty-five days of the submission of the Comprehensive Project Report (CPR). (2) Where the Authority is satisfied that the project will have no significant impact on the environment or that the CPR discloses sufficient mitigation measures, the Authority may issue a license in Form 3 set out in the First Schedule to these Regulations. (3) If the Authority finds that the project will have a significant impact on the environment and the CPR discloses insufficient mitigation measures, the Authority shall require that the proponent undertake an Environmental Impact Assessment study in accordance with these Regulations. (4) A proponent who is dissatisfied with the Authority's decision that an Environmental Impact Assessment study is required, may within fourteen days of the Authority's decision, appeal against the decision to the National Environmental Tribunal in accordance with regulation 46.

11. (1) An Environmental Impact Assessment study shall he conducted in accordance with terms of reference developed during the scoping exercise by the proponent and approved by the authority (NEMA). (2) The terms of reference shall include matters required to be considered in the making of an Environmental Impact Assessment as may be contained in the Second Schedule to these Regulations and such other matters as the Director General-NEMA may in writing require.

12. (1) An Environmental Impact Assessment study shall be conducted in accordance with the general Environmental Impact Assessment guidelines and sector Environmental Impact Assessment guidelines set out in the Third Schedule to these Regulations. (2) Sector environmental impact assessment guidelines shall be developed by the relevant lead agency in consultation with the Authority.

Environmental Management and Coordination (Water Quality) Regulations, 2006

This Legal Notice on Water Quality provides that anyone who discharges effluent into the natural environment shall be required to apply for Effluent Discharge License. The license for discharge is KES 5,000 while annual license fee for discharge into the environment will be KES 20,000 or 100,000 depending on the facility. Non-compliance with the regulations attracts a fine not exceeding KES 500,000 and the polluter pay principle may apply depending on the court ruling. During the construction phase, the contractor shall obtain the necessary discharge permits. The contractor will abide by the conditions of the discharge license(s), which may include quality trend monitoring and data archiving.

Wastewater guidelines

Part of the study involves a review of the environmental standards that provides a basis for monitoring and future audits. The table below presents recommended guidelines on wastewater quality for discharge into the public sewers and open water bodies.

Table 10 - Kenya Discharge Guidelines for Waste Water

Parameter	Discharge in public sewers (mg/l)	Discharge into water bodies (mg/l) – Assuming 10% dilution
PH	6.0 – 9.0	6.0 – 9.0
BOD5 (20°C)	500	20
COD	1000	50
Suspended Solids	500	30

Detergents	30	Nil
Heavy metals (combined)	1	0.1
Oils/Grease	50	Nil
Nitrates (TN)	20	10
Phosphates (TP)	30	5
Conductivity	-	1500 uS/cm
4hr PV Value	No limits	20
Faecal Coliforms	No limits	1000/100ml for large water bodies, otherwise <10/ml)
Sulphates	-	500
Dissolved Oxygen	No limits	2
Phenols	-	2
Cyanides	-	0.1
Chlorides	-	1000
PCB	-	0.003
Colour	No limits	5 Hazen Units
Odour	No limits	Not objectionable

Sources: NEMA

Environmental Management and Co-Ordination (Waste Management) Regulations, 2006
These regulations define the responsibilities of waste generators and define the duties and requirements for transportation and disposal of waste. The regulations provide for mitigation of pollution and handling of hazardous and toxic wastes. The regulations require a waste generator to dispose waste only to a designated waste receptacle. The proponent shall adhere to the regulations and proposes to contract a NEMA registered waste transporter (NEMA, 2006).

Environmental Management and Coordination (Noise and Excessive Vibrations Pollution) (Control) Regulations, 2009
This regulation prohibits any person to cause unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Part 11 section 6 (1) provides that no person shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations. The contractor will prepare a Noise Control Plan (NCP) to reduce the possibility of adverse noise impacts to human health in the project area.

Environmental Management and Co-ordination (Air Quality) Regulations, 2014
This regulation is referred to as -The Environmental Management and Coordination (Air Quality) Regulations, 2014‖. The objective of these Regulations is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. The general prohibitions state that no person shall cause the emission of air pollutants listed under First Schedule (Priority air pollutants) to exceed the ambient air quality levels as required/ stipulated under the provisions of the Seventh Schedule (emission limits for controlled and non-controlled facilities) and Second Schedule (ambient air quality tolerance limits). The regulations provides for the establishment of emission standards for various sources, including as mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the Environmental Management and Coordination Act, 1999. It also covers any other air pollution source as may be determined by the Minister in consultation with the Authority. The Regulations prohibits the Proponent from:

- Acting in a way that directly or indirectly cause or may cause air pollution to exceed levels set out in the second Schedule to the Regulations
- Allowing particulates emissions into the atmosphere from any source not listed in the sixth schedule of the Regulations
- Causing ambient air quality in controlled areas (listed in Schedule Thirteen) to exceed those stipulated under second Schedule.
- Allowing (during construction and demolition) emission of particulate matter above the limits stipulated in Second Schedule.
- Causing or allowing stockpiling or storage of material in a manner likely to cause air pollution.
- Causing or allowing emissions of oxides of nitrogen in excess of those stipulated in the eleventh Schedule of the Regulation.

The Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007; Legal Notice No. 73

The Controlled Substances Regulations defines controlled substances and provides guidance on how to handle them. The regulations stipulate that controlled substances must be clearly labelled with among other words, "Controlled Substance-Not ozone friendly" to indicate that the substance or product is harmful to the ozone layer. Advertisement of such substances must carry the words, "Warning: Contains chemical materials or substances that deplete or have the potential to deplete the ozone layer". Persons handling controlled substances are required to apply for a permit from NEMA.

Products containing controlled substances include air conditioners, air coolers, refrigerants, portable fire extinguishers, heat pump equipment, dehumidifiers, insulation boards, panels and pipe covers, pre-polymers, etc. The proponent is thus required to comply with these regulations during the project implementation phase.

Table 11 - Relevance of National Guidelines and Regulations on the Project

	Guideline/Regulation	Brief	Relevance to the Project
1	Legal Notices 31 and 32 of 2019	These Notices 31 and 32 categorize projects into three categories, namely, low risk projects, medium risk projects, and high-risk projects. Depending on the project type, the consultant must submit one of three reports for the proponent (developer): Summary Project Report (SPR) for low-risk projects, Comprehensive Project Report (CPR) for medium-risk projects, and Study Report (SR) for high-risk projects.	Carrying out of EIA studies falls under the requirements of these Legal Notices.
2	The Environment (Impact Assessment	These Regulations spell out how to handle the various	Carrying out of EIA studies falls under the requirements of

	Guideline/Regulation	Brief	Relevance to the Project
	and Audit) Regulations, 2003 and 2019; Legal Notice No. 101	types reports for each category of project type. An Environmental Impact Assessment (EIA) study shall be conducted in accordance with the general Environmental Impact Assessment guidelines and sector Environmental Impact Assessment guidelines set out in the Third Schedule to these Regulations	these Legal Notice and Regulations.
3	Environmental Management and Coordination (Water Quality) Regulations, 2006	This Legal Notice on Water Quality provides that anyone who discharges effluent into the natural environment shall be required to apply for Effluent Discharge License.	During the construction phase, the contractor shall obtain the necessary discharge permits. The contractor will abide by the conditions of the discharge license(s), which may include quality trend monitoring and data archiving.
4	Wastewater guidelines	The Guidelines provide guidelines on wastewater quality for discharge into the public sewers and open water bodies.	As water will be used during the Construction Phase thereby generating waste waters, provisions of these guidelines will be triggered.
5	Environmental Management and Co-Ordination (Waste Management) Regulations, 2006	These regulations define the responsibilities of waste generators and define the duties and requirements for transportation and disposal of waste. The regulations provide for mitigation of pollution and handling of hazardous and toxic wastes. The regulations require a waste generator to dispose waste only to a designated waste receptacle.	The proponent shall adhere to the regulations and proposes to contract a NEMA registered waste transporter (NEMA, 2006).
6	Environmental Management and Coordination (Noise and Excessive Vibrations Pollution) (Control) Regulations, 2009	This regulation prohibits causing of unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.	The contractor will prepare a Noise Control Plan (NCP) to reduce the possibility of adverse noise impacts to human health in the project area.

	Guideline/Regulation	Brief	Relevance to the Project
		Part 11 section 6 (1) provides that no person shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations.	
7	Environmental Management and Co-ordination (Air Quality) Regulations, 2014	The objective of these Regulations is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. No person shall cause the emission of air pollutants listed under First Schedule (Priority air pollutants) to exceed the ambient air quality levels as required/ stipulated under the provisions of the Seventh Schedule (emission limits for controlled and non-controlled facilities) and Second Schedule (ambient air quality tolerance limits).	During Construction Phase air quality may be impacted through dust generated during construction and also vehicle exhaust emissions.
8	The Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007; Legal Notice No. 73	The Regulations defines controlled substances and provides guidance on how to handle them.	The proponent is thus required to comply with these regulations during the project implementation phase.

4.8 Multilateral Environmental Agreements

A number of international agreements and conventions have effects on the use and regulations of ecosystems and the environment. In general, Kenyan law and legal regulations within the environmental sector reflects the ratification of these agreements and conventions. These include the following:

Safety Provision (Building) Convention 1937

This Convention applies to all construction activities, namely building, civil engineering, and erection and dismantling work, including any process, operation or transport on a construction site, from the preparation of the site to the completion of the project. The Convention describes the term “construction” as:

1. Building, including excavation and the construction, structural alteration, renovation, repair, maintenance (including cleaning and painting) and demolition of all types of buildings or structures;
2. Civil engineering, including excavation and the construction, structural alteration, repair, maintenance and demolition of, for example, airports, docks, harbours, inland waterways, dams,

river and avalanche and sea defence works, roads and highways, railways, bridges, tunnels, viaducts and works related to the provision of services such as communications, drainage, sewerage, water and energy supplies;
3. The erection and dismantling of prefabricated buildings and structures, as well as the manufacturing of prefabricated elements on the construction site.

Article 6 states that: Measures shall be taken to ensure that there is co-operation between employers and workers, in accordance with arrangements to be defined by national laws or regulations, in order to promote safety and health at construction sites while Article 12, Section 1, States that the National laws or regulations shall provide that a worker with the right to remove himself from danger when he has good reason to believe that there is an imminent and serious danger to his safety or health, and the duty so to inform his supervisor immediately.

African Convention of the Conservation of Nature and Natural Resources
This was the effort of the African Ministerial Conference on the Environment (AMCEN) which gave birth to the convention among the African states. Other than conservation of other resources, the convention requires that contracting parties designate conservation areas within their waters and provide a zonation plan in order to conserve the protected areas.

Convention on Biological Diversity (CBD)
The Convention on Biological Diversity adopts a broad approach to conservation. It requires Parties to the Convention to adopt national strategies, plans and programmes for the conservation of biological diversity, and to integrate the conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programmes and policies. The proposed project is expected to conserve biodiversity, especially the rare and endangered species in the project area and its environs.

United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC)
The United Nations Framework Convention on Climate Change (UNFCC) seeks to regulate levels of greenhouse gases (GHGs) concentration in the atmosphere, so as to avoid the occurrence of climate change at levels that would harm economic development, or that would impede food production activities. The Convention is founded on the principle that contracting parties should take courses of action, in respect of their economic and social activities, and with regard to the Convention's specific requirements, that will protect the climate system for present and future generations. The UNFCC informs land use in so far as activities on land are required to be designed to have a minimum negative effect on factors that may result in climate change.

The Kyoto Protocol requires signatories to reduce their greenhouse gas emissions levels to 5% below 1990 levels by the year 2012. The Protocol came into force on 16th February 2005, after it received the pre-requisite signatures. However, with the United States, Australia, China and India not being signatories, the future of the protocol looked uncertain though this has been renegotiated for another 7 years at Cancun Mexico in 2010 during UNFCCC's Conference of the Parties (COP 16). NEMA is the national focal point for this Protocol.

Some of the principal concepts of the Kyoto Protocol
1) The main feature of the Protocol is that it establishes legally binding commitments to reduce emissions of greenhouse gases. The commitments are based on the Berlin Mandate, which is a part of UNFCCC negotiations leading up to the Protocol.

2) Implementation: In order to meet the objectives of the Protocol, Annex I Parties are required to prepare policies and measures for the reduction of greenhouse gases in their respective countries. In addition, they are required to increase the absorption of these gases and utilize all mechanisms available, such as joint implementation of the Clean Development Mechanism and emissions trading, in order to be rewarded with credits that would allow more greenhouse gas emissions at home.
3) Minimizing impacts on developing countries by establishing an Adaptation Fund for Climate Change.
4) Accounting, reporting and reviewing in order to ensure the integrity of the Protocol.
5) Compliance: Establishing a Compliance Committee to enforce compliance with the commitments under the Protocol.

Paris Agreement on Climate Change
The Paris Agreement establishes the main framework for cooperative action on climate change beyond 2020 and will replace the Kyoto Protocol.

The Key Elements of Paris Agreement on Climate Change
1. To keep global increase in temperatures "well below" 2ºC above pre-industrial times and "endeavour to limit" them even more, to 1.5ºC.
2. To limit the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100.
3. To review each country's contribution to cutting emissions every five years so they scale up to the challenge.
4. And for rich countries to help poorer nations by providing "climate finance" to adapt to climate change and switch to renewable energy.

United Nations Convention to Combat Desertification (UNCCD)
This Convention was adopted on 17th June 1994 in Paris and came into force on 26th December 1996. The objective of the United Nations Convention to Combat Desertification (UNCCD) is to combat desertification and to mitigate the effects of drought in seriously affected countries, especially those in Africa. It seeks to achieve this objective through integrated approaches to development, supported by international cooperation and partnership arrangements, in the affected areas. It lays emphasis on long-term strategies that focus on improved productivity of land and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level. The provisions are domesticated in several Acts of Parliament. Section 46 of EMCA requires District Environment Committees to identify areas that require re-forestation or afforestation as well as to mobilize local communities to carry out these activities. The proposed project will need to adhere to the requirements of the UNCCD.

Convention for the Protection of the World Cultural and Natural Heritage
This Convention was adopted in Paris on the 21st November 1972. The Convention currently has at least 178 signatories. Its primary purpose is to preserve cultural and natural heritage, which includes monuments, architectural works, cave dwellings, painting and natural formations that are universally outstanding. Kenya ratified the Convention on 5th June 1991. The National Museums of Kenya is the national focal point. Findings of any significance need to be notified to the National Museums of Kenya.

Basel Convention - Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal

The Convention was adopted on 22nd March 1989 and came into force on 5th May 1992. The Convention seeks to put in place measures that reduce the production of hazardous wastes and further to minimize their unlawful transboundary disposal. Kenya acceded to the Basel Convention on 1st June 2000. Section 91 of EMCA empowers the Standards and Enforcement Review Committee to classify hazardous wastes, whereupon NEMA is required to establish guidelines on the management of the waste. Section 141 of the Act makes it an offence to import, dispose or otherwise manage hazardous wastes contrary to the Act.

Bamako Convention on Hazardous Wastes within Africa

The Bamako Convention was adopted in Mali, Bamako on 30th January 1991; it came into force on 22nd April 1998. The Convention has 18 parties (ten ratifications and eight accessions). Kenya signed the Convention on 25th March 2004. The Convention has provisions for import, transboundary movement and management of hazardous wastes within Africa. It is intended to fortify the provisions of the Basel Convention in order to protect the African people and their environment against dumping of hazardous wastes. This regional Convention also influences the use of land in Kenya in a similar manner as the application of the Basel Convention.

New Partnership for Africa's Development (NEPAD)

The New Partnership for Africa's Development (NEPAD) adopted by the African Heads of State and Government is an initiative based on a common vision, firm and shared conviction to eradicate poverty and place the continent on the path to sustainable growth and development as well as participate in global economic and political arena. NEPAD recognizes that the range of issues necessary to nurture the region's environmental base and sustainable use of natural resources is vast and complex; and that a systematic combination of initiatives is necessary for the development of a coherent environmental programme. The NEPAD strategic framework to promote Africa's sustainable development has been developed prepared through a consultative and participatory process under the leadership of the African Ministerial Conference on Environment (AMCEN). The plan is comprehensive, holistic and integrates sustainable development principles.

East African Community (EAC)

The East Africa Community (EAC) is a regional intergovernmental organization of the republics of Kenya, Uganda and Tanzania, with its headquarters in Arusha, Tanzania. The EAC aims at achieving various goals and objectives within its mandate through "Promotion of sustainable growth and equitable development of the region including rational utilization of the region's natural resources and protection of the environment." The Community has developed a draft Protocol on Environment and Natural Resources, which commits member states to sound environment and natural resources management. In addition, joint guidelines on Environmental Impact Assessment for Shared Ecosystems, have been adopted by the member states as an annexure to the protocol on environment and natural resources. Other specific areas of co-operation are in environment and natural resources management arrangement. The EAC Treaty will provide an effective mechanism for the general advancement of the region.

Table 12 - Relevance of Multilateral Environmental Agreements on the Project

	Agreement	Brief	Relevance to the Project
1	Safety Provision (Building) Convention 1937	This Convention applies to all construction activities, namely building, civil engineering, and erection and dismantling work,	The Convention will be triggered during the Construction Phase of the Project.

	Agreement	Brief	Relevance to the Project
		including any process, operation or transport on a construction site, from the preparation of the site to the completion of the project. Other than conservation of other resources, the convention requires that contracting parties designate conservation areas within their waters and provide a zonation plan in order to conserve the protected areas.	
2	African Convention of the Conservation of Nature and Natural Resources	Other than conservation of other resources, the convention requires that contracting parties designate conservation areas within their waters and provide a zonation plan in order to conserve the protected areas.	The Convention will be triggered during the Construction Phase of the Project.
3	Convention on Biological Diversity (CBD)	It requires Parties to the Convention to adopt national strategies, plans and programmes for the conservation of biological diversity, and to integrate the conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programmes and policies.	The proposed project is expected to conserve biodiversity, especially the rare and endangered species in the project area and its environs.
4	United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC)	The Framework seeks to regulate levels of greenhouse gases (GHGs) concentration in the atmosphere, so as to avoid the occurrence of climate change at levels that would harm economic development, or that would impede food production activities.	During Construction Phase air quality may be impacted by vehicle exhaust emissions much of which are greenhouse gases.
5	Paris Agreement on Climate Change	The Paris Agreement establishes the main framework for cooperative action on climate change	During Construction Phase air quality may be impacted by vehicle exhaust emissions much of which are greenhouse gases.

	Agreement	Brief	Relevance to the Project
		beyond 2020 and will replace the Kyoto Protocol. Among others, it aims to limit the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100.	
6	United Nations Convention to Combat Desertification (UNCCD)	The objective of the Convention is to combat desertification and to mitigate the effects of drought in seriously affected countries, especially those in Africa. It lays emphasis on long-term strategies that focus on improved productivity of land and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level.	The proposed project will need to adhere to the requirements of the UNCCD.
7	Convention for the Protection of the World Cultural and Natural Heritage	Its primary purpose is to preserve cultural and natural heritage, which includes monuments, architectural works, cave dwellings, painting and natural formations that are universally outstanding. The National Museums of Kenya is the national focal point.	Findings of any significance need to be notified to the National Museums of Kenya.
8	Basel Convention - Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal	The Convention seeks to put in place measures that reduce the production of hazardous wastes and further to minimize their unlawful transboundary disposal. Section 91 of EMCA empowers the Standards and	Yes provisions of this Convention will be triggered by the project.

	Agreement	Brief	Relevance to the Project
		Enforcement Review Committee to classify hazardous wastes, whereupon NEMA is required to establish guidelines on the management of the waste. Section 141 of the Act makes it an offence to import, dispose or otherwise manage hazardous wastes contrary to the Act.	
9	Bamako Convention on Hazardous Wastes within Africa	The Convention has provisions for import, transboundary movement and management of hazardous wastes within Africa.	Yes, provisions of this Convention will be triggered by the project.
10	New Partnership for Africa's Development (NEPAD)	NEPAD recognizes that the range of issues necessary to nurture the region's environmental base and sustainable use of natural resources is vast and complex; and that a systematic combination of initiatives is necessary for the development of a coherent environmental programme.	As the projects aims at sustainable developments of the settlement, it will trigger provisions of NEPAD.
11	East African Community (EAC)	The EAC aims at achieving various goals and objectives within its mandate through "Promotion of sustainable growth and equitable development of the region including rational utilization of the region's natural resources and protection of the environment." In addition, joint guidelines on Environmental Impact Assessment for Shared Ecosystems, have been adopted by the member states as an annexure to the protocol on environment and natural resources.	As the projects aims at sustainable developments of the settlement, it will trigger provisions of EAC.

4.9 World Bank Safeguard Policies

Under World Bank environmental safeguard policies projects need to be environmentally and economically sustainable and need to be screened against potential impacts. Although the project is expected to produce net benefits, certain project activities may have environmental or social impacts that require mitigation. Based on the screening process, overall project falls under Category B of the World Bank. Category B projects have impacts that are "less significant, not as sensitive, numerous, major or diverse. Few, if any, impacts are irreversible, and remedial measures can be more easily designed."

Table 13 - The World Bank Safeguard Policies

Policy	Applicability to this project
Environmental Assessment (OP 4.01)	Yes
Natural Habitats (OP 4.04)	No
Pest Management (OP 4.09)	No
Indigenous People (OP 4.10)	No
Physical Cultural Resources (OP 4.11)	Yes
Involuntary Resettlement (OP 4.12)	Yes
Forests (OP 4.36)	No
Dam Safety (OP 4.37)	No
Projects in International Waterways (OP 7.50)	No
Projects in Disputed Areas (OP 7.60)	No

Environmental Assessment (OP 4.01)
The ESIA identifies the major potential environmental impacts and proposes measures to mitigate these effects. Many of the impacts will only be localised around the project.

Natural Habitats (OP 4.04)
There are a number of critical habitats in the basin; however, none will be adversely affected by the project. The project will not be implemented in any protected area, but impact on a few critical natural habitats including wetlands may lead to degradation or conversion of habitats.

Physical Cultural Property (OP 11.03)
The project will not include areas of significant cultural value. The Government of Kenya through the Department of Monuments and Sites of the National Museums of Kenya is committed to the preservation of cultural properties and seeks means to avoid their elimination.

Indigenous Peoples (OP 4.20)
The project will not impact any indigenous peoples in the Project area.

Involuntary Resettlement (OP/BP 4.12)
The project will result in very small scale land acquisition and no foreseeable large resettlement programme which will necessitate a preparation of ARAP. In general, involuntary resettlement may cause severe long-term hardship, impoverishment, and environmental damage unless appropriate measures are carefully planned and carried out. However, this project's impacts are not expected to be major but less significant, not as sensitive, and few, if any, impacts are irreversible, and remedial measures can be more easily designed. The project has been categorized as a World Bank Category B project.

It is therefore important that the project will ensure activities are conceived and executed as sustainable development programmes, providing sufficient investment resources to enable the persons in the project to share in project benefits. Persons should be meaningfully consulted and should have opportunities to participate in planning and implementing of the project. Any displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

(The World Bank environmental and social due diligence confirmed the project classification as **environmental Category B.** The Bank's environmental safeguard policies triggered by the project include Environmental Assessment (Operational Policy 4.01; OP 4.01) and Physical Cultural Resources (OP 4.11). The World Bank's social safeguards policies triggered by the project include: Indigenous Peoples (OP 4.10) and Involuntary Resettlement (OP 4.12).

Table 14 - Relevance of Applicable WB Environmental and Social Policy Framework on the Project

	Policy	Policy Brief	Policy relevance to the Project
1	Environmental Assessment (OP 4.01)	Environmental Assessment is used in the World Bank to identify, avoid, and mitigate the potential negative environmental associated with Bank lending operations. The purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable and that potentially affected people have been properly consulted. By nature of the proposed project, interactions with general environmental and social setting are anticipated. In this regard, this safeguard is triggered.	The ESIA identifies the major potential environmental impacts and proposes measures to mitigate these effects.
2	Natural Habitats (OP 4.04)	The policy is designed to promote environmentally sustainable development by supporting the protection, conservation, maintenance and rehabilitation of natural habitats and their functions. The policy seeks to ensure that World Bank-supported	There are a number of critical habitats in the basin; however, none will be adversely affected by the project. The project will not be implemented in any protected area, but impact on a few critical natural habitats including wetlands may lead to

	Policy	Policy Brief	Policy relevance to the Project
		infrastructure and other development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society.	degradation or conversion of habitats
4	Indigenous People (OP 4.10)	This policy contributes to the Bank's mission of poverty and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of indigenous peoples. For all projects that are proposed for Bank financing and affect indigenous peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation.	The project will not impact any indigenous peoples in the Project area.
5	Physical Cultural Resources (OP 4.11)	This policy is meant to assist in preserving physical cultural resources including the movable or immovable (above or below ground, or under water) objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance including sites and unique natural values.	The project will not include areas of significant cultural value. The Government of Kenya through the Department of Monuments and Sites of the National Museums of Kenya is committed to the preservation of cultural properties and seeks means to avoid their elimination.
6	Involuntary Resettlement (OP 4.12)	The policy states that "Where large-scale of population displacement is unavoidable, a detailed resettlement plan, timetable, and budget are required. Resettlement plans should be built around a development strategy and package aimed at improving or	The project will result in very small-scale land acquisition and no foreseeable large resettlement programme which will necessitate a preparation of ARAP.

	Policy	Policy Brief	Policy relevance to the Project
		at least restoring the economic base for those relocated. Involuntary resettlement is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The objective of this policy is to avoid or minimize involuntary resettlement, though participation in resettlement planning and implementation and, where this is not feasible, to assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	
	Forests (OP 4.36)	The policy on forest safeguards seeks to realize the potential of forests to reduce poverty in sustainable manner, integrate forests effectively into sustainable economic development and protect the vital local and global environmental services and values of forests.	The project will not impact any forest in the Project area as the project is located in an urban setting.

4.10 Administrative Framework for ESIA

The National Environment Council (NEC)

EMCA 1999 No. 8 part III, section 4 outlines the establishment of the National Environment Council (NEC). NEC is responsible for policy formulation and directions for the purposes of EMCA; set national goals and objectives and determines policies and priorities for the protection of the environment and promote co-operation among public departments, local authorities, private sector, non-governmental organizations and such other organizations engaged in environmental protection programs.

The National Environmental Tribunal (NET)

The National Environment Tribunal (NET) is established under section 125 and Part XII of the Environmental Management and Coordination Act (EMCA) No. 8 of 1999. Its principal function is to receive, hear and determine appeals arising from decisions of the National Environment Management Authority (NEMA) on issuance, denial or revocation of Environmental Impact Assessment (EIA) licenses, among other decisions. Such licenses are, in effect, statutory permission to undertake developments of specified nature. The function arises from EMCA's enumeration (in the Third Schedule) of certain kinds of developments that require EIA and thereafter, NEMA's issuance of EIA license, without which the specified developments cannot proceed.

The National Environment Management Authority (NEMA)

The objective and purpose for which NEMA is established is to exercise general supervision and coordinate over all matters relating to environment and to be the principal instrument of the government in the implementation of all policies relating to the environment. NEMA's mandate is designated to the County Environment Committees.

***National Environmental Complaints Committee* (NECC)**

The Committee performs the following functions:

- Investigate any allegations or complaints against any person or against the Authority in relation to any environmental condition in Kenya and on its own volition, any suspected case of environmental degradation and to report findings together with its recommendations thereon to the Council.
- Prepare and submit to the Council periodic reports of its activities which shall form part of the annual report on the state of the environment under section 9 (3)
- To perform such other functions and exercise such powers as may be assigned to it by the Council.

The County Environment Committees (CECS)

According to EMCA, 1999 No. 8, section 40, the following sub-sections states that:

1) Every County Environment Committee shall, within one year of the commencement of this Act and every five years thereafter, prepare a county environment action plan in respect of the county for consideration and adoption by the County Assembly.
2) Every County Environment Committee, in preparing a county environment plan, shall undertake public participation and take into consideration every other County Environment Action Plan already adopted with a view to achieving consistency among such plans.
3) The respective County Executive Committee members of every county shall submit the County Environment Action Plan referred to in subsection (1) to the Cabinet Secretary for incorporation into the national environment action plan referred to in section 37.
4) The Authority shall consider every county environment action plan and either recommend incorporation of such plan into the national environment action plan or specify changes to be incorporated into a respective county environmental plan.
5) The Cabinet Secretary shall, on the recommendation of the Authority, issue guidelines and prescribe measures for the preparation of environmental action plans.

Table 15 - The Regulatory Agencies Relevant to the Project

S. No.	Institution role in the proposed project	Role in the proposed project	Project phase required
1.	National Environment Management Authority	Issuance of EIA license and Monitoring for Compliance with conditions and environmental law	Construction, operation and decommissioning
2.	Nairobi City County Government	Approval of plans and building inspections, issuance of licenses	Planning and preconstruction
3.	Physical Planning Department – Nairobi City County Government	Building certifications	Planning, preconstruction and construction
4.	Directorate of Occupational Safety and Health Services	Ensure safety of workers at construction site	Construction and operation
5.	National Construction Authority	Project Registration and Certification	Planning and preconstruction
6.	Local Water and Sewerage Company	Permit to connect to the sewer line in the project area	Planning and preconstruction

4.11 NEMA Compliance

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

4.12 Sectoral Integration

This integration encourages provision of sustainable development and a healthy environment to all Kenyans. The key functions of NEMA through the NEC include policy direction, setting national goals and objectives and determining policies and priorities for the protection of the environment, promotion of cooperation among public departments, local authorities, private sector, non-governmental organizations and such other organizations engaged in environmental protection programmes and performing such other functions as contained in the act. Other stakeholder authorities include Ministry of Roads and Transport, Ministry of Water, Sanitation and Irrigation, Ministry of Gender, Culture, the Arts & Heritage, Ministry of Environment, Climate Change and Forestry, Ministry of Health, Ministry of Interior and National Administration, and County Governments where each settlement is located.

4.13 KISIP 2 Institutional Framework

Institutional Arrangements Implementation of KISIP will involve a three-tier institutional arrangement (National, County and Community). Both the National and County PCT will have dedicated Safeguards Teams to address safeguard issues. The community through the Settlement Executive Committees (SECs) will be enabled to participate in the preparation of mitigation plans, implementation and monitoring as well as grievance redress.

KISIP 2 is being implemented at both National and County Levels. National Level: Responsible for overall implementation of the project. The following implementation units have been established; -Project Steering Committee -National Project Coordination Team (NPCT) County Level: Responsible for the day-to-day coordination of county level Project activities through the County Project Coordination Team (CPCT). CPCTs have been established in all the 33 participating counties. The Council of Governors – Linking the two levels of Government Settlement Level: Settlement Executive Committees (SEC) and Grievance Redress Committee (GRC).

a) National Level: The following implementation units have been put in place
i). Project Steering Committee: Responsible for Strategic guidance and in consultation with World Bank, provides approval of Annual Work Plans and Budgets.

ii). National Project Coordination Team: Responsible for the overall coordination of Project activities. NPCT is in charge of Project design, financial management, procurement, M&E, reporting, capacity building and communication. Further, it supports the participating counties to ensure adherence to IDA's applicable policies and guidelines.

The national level works in liaison with the Council of Governors (CoG) to ensure effective coordination and communication with the participating County Governments.

a) **County Level**
County Project Coordination Team: Responsible for implementing Project activities within respective counties and supervising the day-to-day project activities.

c) Community level
i). Settlement Executive Committee (SEC): Established in each participating settlement. Responsible for community mobilization, awareness creation and ensuring community participation on Project activities.

ii). Grievance Redress Committee (GRC): Established in each of the participating settlements. Responsible for receiving and registering grievances/ complaints, investigating and giving resolutions. Cases that are not resolved are escalated to CPCT, then to NPCT and WBGRM. Complainants are also at liberty to seek redress at the court of law.

Table 16 - Implementation Roles of NPCT and CPCT

Roles at the National Level (NPCT)	**Roles at the County Level (CPCT)**
• Contract Management and Administration • Collaborate with National Government Ministries/ Departments/ Agencies in tenure processes and approval of the outputs • Dispute resolution (where applicable)	• Delineation of settlements • Facilitate entry to the settlement • Community mobilization and sensitization • Participate in all activities- planning and surveying • Plan approval and Validation of List of Beneficiary • Implementation of SMP/RAP (where applicable) • Dispute resolution
National Level (NPCT)	**County Level (CPCT)**
• Preparation of detailed engineering designs, bidding documents and supervision of works	• Infrastructure works procurement and implementation

CHAPTER 5: ENVIRONMENTAL AND SOCIAL ECONOMIC BASELINE INFORMATION

5.1 Environmental Baseline Conditions of Nairobi City County

There are several informal settlements in Nairobi City County under KISIP 2 Programme. These settlements include Matopeni Kayole, Spring Valley Kayole, City Carton, Huruma Fire Victims, Mathare Fire Victims, and Pumwani Majengo.

5.2 Physical Environment Baseline Information for Nairobi City County

5.2.1 Geographical Location

The city of Nairobi is situated in Kenya at coordinates 1° 17' S; 36° 49'E and occupies an area of approximately 684 square kilometers. It is situated at an average of 1660 meters above sea level.

Figure 6 - Location of the Nairobi City County in Kenya

As Nairobi is adjacent to the eastern edge of the Rift Valley, minor earthquakes and tremors occasionally occur. The Ngong Hills, located to the west of the city, are the most prominent geographical feature of the Nairobi Area.

Mount Kenya is situated north of Nairobi and Mount Kilimanjaro is towards the south-west. Both mountains are visible from Nairobi on clear days.

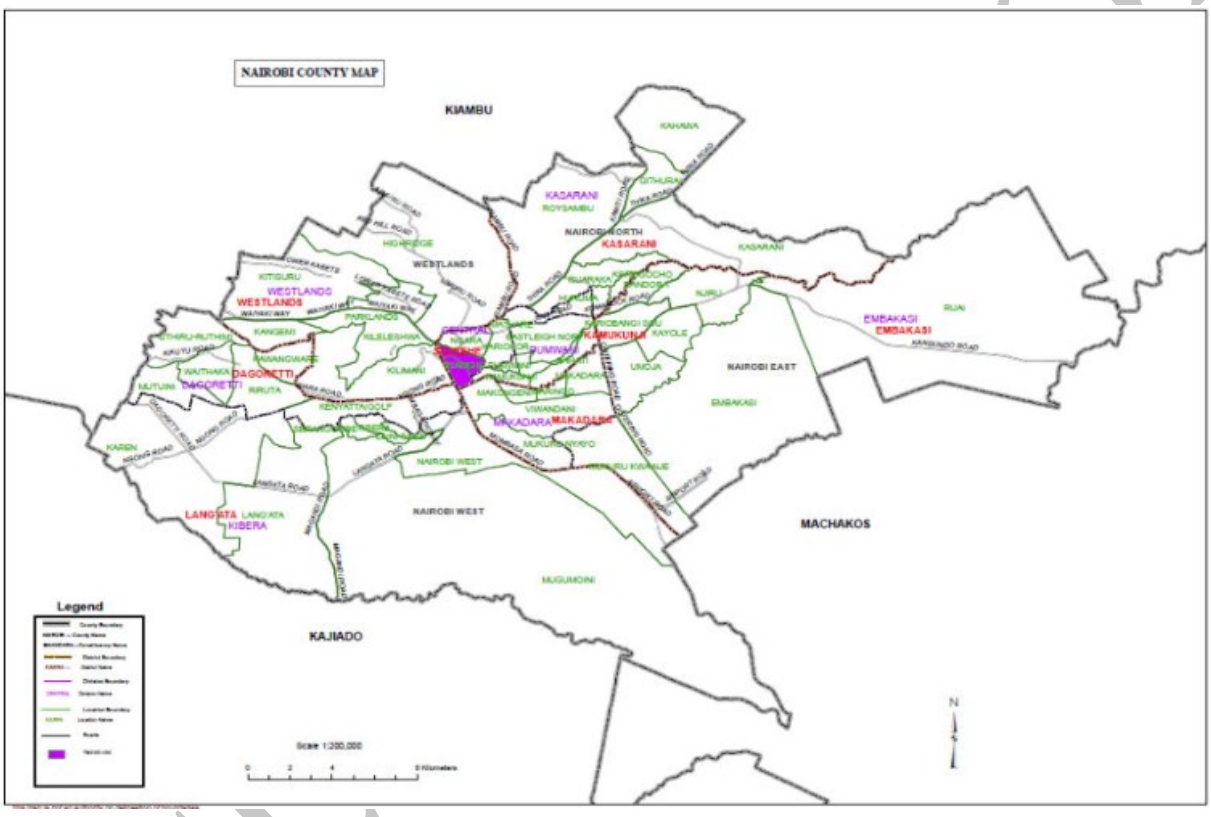

Figure 7 - County's Administrative and Political Units

5.2.2 Demographic Features

Population Size, Composition and Distribution

Nairobi County's population was 4,397,073 people as per the 2019 Kenya Population and Housing Census 2019 with 2,192,452 (49.9%) being male, 2,204,376 (50.1%) being female and 245 (0.006%) being intersex. The county had 1,506,888 households and an average household size of 2.9.

Table 17 - Population Projects by Sub-County

Place	2019	2022	2025	2027 (Projected)
Nairobi City	**4,397,073**	**4,671,906**	**4,906,355**	**5,049,701**
Dagoreti	434,208	461,348	484,499	498,655
Embakasi	988,808	1,050,612	1,103,335	1,135,570

Place	2019	2022	2025	2027 (Projected)
Eastlands	308,854	328,159	344,626	354,695
Kamukunji	268,276	285,044	299,349	308,094
Kasarani	780,656	829,450	871,074	896,524
Kibra	185,777	197,389	207,294	213,351
Langata	197,489	209,833	220,363	226,801
Makadara	189,536	201383	211,489	217,668
Mathare	206,564	219,475	230,489	237,233
Njiru	626,482	665,639	699,043	719,467
Starehe	210,423	223,575	234,795	241,655

Source: KNBS

5.2.3 Geology and Soils

Geology

The project area is underlain with the typical geological formations in the Lower Nairobi areas. The top soils are generally black cotton type below which lies the Kirichwa toughs for between 10 and 40 metres deep. At depths of 60 – 100 metres lie the Nairobi phonolites layers that are very impervious to water infiltration. Further deep (100 - 120m) are the Upper Athi Series, at which most of the aquifers are found. They are dense welded tuffs of ash-flow origin with fairly uniform characteristics, important differences being in colour and variation of texture that are sometimes emphasized by weathering.

The Kirichwa tuffs have been variously named Nairobi building stone, Nairobi freestone, lava, devitrified trachyte, pitchstone, axiolotic phonolite and rhyolite. The tuffs have irregular jointing which consists mainly of sub-vertical or curvilinear fractures that cause the rocks to break into irregularly shaped blocks. The joints permit the downward percolation of groundwater and different blocks, often in juxtaposition, may be variably wet and dry. The colour of deposits range through white, red, maroon, blue grey and grey (Ref: EP Saggerson 1991: Geological Report No.98, Geology of the Nairobi Area).

a) Nairobi Phonolites

The Nairobi phonolite consists of a number of lava flows ranging from 30-40m thick attaining over 75m at Embakasi (Figure 3-3). This is a tough dark grey lava commonly referred to as ‘block trap’. It is occasionally vesicular with a fissile and platy flow texture. It can be distinguished from the Kapiti phonolites by its lack of large feldspar phenocrysts. Several thin flows separated by phonolitic sands have been distinguished in borehole logs. The total thickness of the Nairobi phonolites series is not expected to be significant within the project area.

b) Upper Athi Series

The Upper Athi Series forms part of the extensive Athi tuffs and lake beds (Figure 3-3). Its occurrence is as a result of consolidation of fragmental volcanic material which was deposited shallowly into water after eruption. Geaverts, 1964, classify the series as all the sediments and tuffs lying between the Nairobi and the Kapiti phonolite. They are taken to include beds of the Kerichwa Valley series where the phonolite and trachytes are absent. The extensive occurrence of the series in the area indicates the former presence of an extensive swampy country. The presence of chert deposits indicate periods of quiescence during deposition while the contorted bands and slump structures may be due to tremors and movements during the same period.

The Upper Athi series consists mainly of sandy sediments, tuffs and welded tuffs, with clays being subordinate. The series is weathered and provide various aquiferous zones. The thickness of the series increases westwards, but its presence has not been accurately established in this area.

c) Kapiti Phonolites

Wherever the contacts of the Kapiti Phonolite are present, the unit underlies associated volcanic rocks and is consequently the oldest lava of the succession (Figure 3-3). This has been confirmed by numerous borehole sections, which reveal that the sub-volcanic floor over which the Kapiti Phonolite was extruded was irregular and cut in Precambrian rocks.

The lava was laid down on an eroded surface covered in places by Tertiary conglomerates and grits (Fairburn, 1963), formed part of the first Miocene flood eruptions. The rock is distinctive in hand specimens by its large white crystals of feldspar and waxy-looking nephelines which are set in a fine grained dark green to black or dark bluish-grey groundmass.

d) The Basement System

The Basement System consists of crystalline rocks of Precambrian age and is part of the Mozambique Belt. These rocks often occur as layered fine grained schists and coarse gneisses that have been invaded by pink quartzo-feldspathic pegmatites. Biotite-garnet-epidote gneisses, hornblende gneisses and quartz-feldspar gneisses are also common. In the Kitengela valley biotite gneisses are exposed, and are frequently migmatitic. This confirms that the overlying volcanics thin out as one moves in an easterly direction.

In the JKIA area however, the Basement rocks are estimated at more than 250 metres below ground level and are therefore not encountered in boreholes around JKIA.

Soils

The soils of the project area are developed on Tertiary basic igneous rocks (phonolites) and are imperfectly drained, very deep, dark grey to black, firm to very firm, boulder and stony, cracking clay; in places with a calcareous, slightly saline deeper subsoil. Top soils range from black cotton types to laterites.

5.2.4 Topography

The area falls within the Athi plains, a plateau that rises from 700m in the east to 1700m above sea level in the west and is interrupted by an escarpment and series of hill masses, the highest being Kilimambogo that rises to 2,144m above sea.

Volcanic activities have dominated the geological history of the Nairobi area since Miocene times and has controlled the geomorphological evolution. Apart from a few isolated occurrences of Precambrian and Quaternary rocks the area is composed of volcanic rocks that originated in the Rift region and flowed eastwards on to a warped and partly dissected, pre-Miocene erosion surface, cut across the older crystalline rocks.

Four prominent physiographic units are recognised in the Nairobi area reflecting the volcanic rock types and the tectonic movements which have affected them. They are: the lava plains; the Kikuyu highlands; the Rift flank; and the Ngong hills. The main drainage is consequent upon the regional slope of the volcanic rocks towards the east, while subsidiary internal drainage into the Rift region is confined to the western part of the area. A more comprehensive review of the physiography of the area is given by Morgan (1967).

5.2.5 Climatic Conditions

The Nairobi City County, at an average of 1660 meters above sea level, lies within the semi-humid and semi-humid to semi-arid zones in the agro-climatic zoning of Kenya. The area is characterized with a semi-humid climate that is highly influenced by semi-aridity on the east (towards the Machakos) and southern (towards Kajiado) directions and the high potential in Kiambu, Kikuyu and Ngong areas. The rainfall is bi-modal with two rainy seasons from March to May (long rains) and from mid-October to mid-December (short rains) with an average annual mean rainfall of about 1,080 mm per year. The minimum and maximum temperature ranges from of 12 ºC to 28 ºC temperature of about 19 ºC. Daily evaporation ranges from a mini mum of 89 mm in the month of July to a maxim m of 19 mm in the month of March.

The mean annual temperatures vary from 18^0 to 20^0 C. The mean annual maximum temperatures vary from 24^0 to 26^0 C while the mean minimum temperatures vary from 12^0 to 14^0 C.

The timing of sunrise and sunset does not vary tremendously throughout the year, due to Nairobi's close proximity to the equator.

On precipitation, the project area experiences two rainy seasons in March to May and October to December as depicted by the analysis of rainfall record at the JKIA Meteorological Station No. 9136168 located at the airport.

5.3 Biological Environment Baseline Information for Nairobi City County

The County is predominantly a terrestrial habitat that supports a diverse web of biodiversity and ecosystems. It is home to about 100 species of mammals, 527 bird species and a variety of plant species. The existence of Nairobi National Park has been of prestigious value as the only park within a city. The Park is covered by a highland of forest hardwoods. Variety of birds and animals find their home in the Park including the Big Five.

Nairobi County is rich in biodiversity despite the accelerated pace of urbanization and development. The County is home to about 100 mammal species, 527 bird species and a variety of plant species. Nairobi National Park has got a variety of Africa's best known animals such as giraffes, zebras, ostriches, lions, baboons, cheetahs and endangered species of black rhinos and white rhinos.

The main wildlife conservation areas in Nairobi are game parks, reserves, conservancies, and game ranches. For instance, Nairobi Animal Orphanage which is located in Nairobi National Park serves as a treatment and rehabilitation centre for wild animals. It hosts lions, cheetahs, hyenas, jackals, serval cats, warthogs, leopards, monkeys, baboons, but alo and various bird species like parrots, guinea fowls and ostriches.

To the North west of the city, adjacent to the Rift Valley is an area of undulating grassland with a covering of rich well- drained "red- coffee soils". To the North- East of the city, the high and ever sloping land is dissected by South- East flowing streams which have formed a series of steep sided parallel ridges and valleys. South and East of Nairobi are grassland plains of poorly drained "black cotton clays".Due to high population growth and urbanisation rates, environmental degradation has been experienced in Nairobi, causing stress on the natural resources. The main surface water sources are Ngong and Nairobi Rivers, clean when they enter the city but highly polluted as they leave. All rivers in Nairobi have been excavated in search of sand for construction.

There are three forests in the County, namely Ngong Forest to the south, Karura Forest to the north and the Nairobi Arboretum. The three forests have a total coverage of 23.19 Km^2. Karura forest is the largest of the three with 1,041 hectares located in northern Nairobi. It contains 605 species of wildlife including three types of antelopes. 632 hectares contain plantations while indigenous trees cover 260 hectares. The rest of the forest is shrubs and other plants.

Ngong Road forest covers 538 hectares with 80 per cent being indigenous trees and 20 per cent exotic eucalyptus plantations. Nairobi Arboretum is 30 hectares of wooded landscape, an oasis close to the heart of the City situated about 3Km from the City centre and adjacent to State House. It is one of the few remaining green spaces in Nairobi with shaded walkways, picnic lawns and jogging trails.

5.4 Social Economic Baseline Information for Nairobi City County

5.4.1 Land and Land Use

The Table 9 shows the land use type and coverage in the County. Industrial and commercial land has dwindled in the last decade and most industries have been looking for land in Athi river part of Machakos County.

Table 18 - Land Use Type by Area and Percentage Cover

Tand Use Type	Area (Km^2)	Cover (%)
Residential areas	175.6	25.22
Industrial/Commercial/Service Centres	31.8	4.27
Infrastructure	15.9	2.28
Recreation	12	1.72
Water bodies and riverine areas	11.8	1.69
Urban agriculture	96.8	13.9
Open lands	198.8	28.33
Others (Including protected areas)	153.6	22.06
Total	**696.3**	**100**

Source: GoK/UNEP 2007 (these must have changed by today – especially areas under residential, infrastructure and open lands)

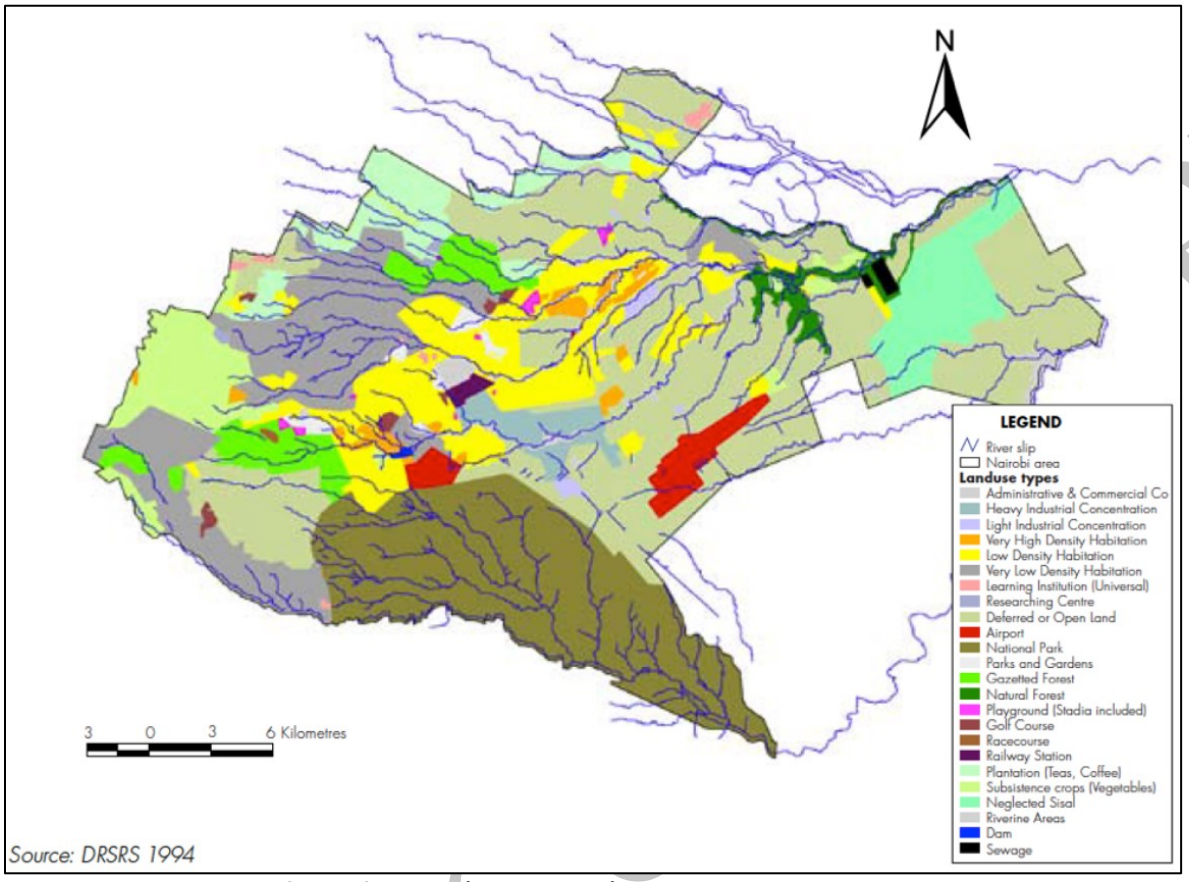

Figure 8 - Land use map of City of Nairobi (DRSRS, 1994)

(these patterns must have changed by today – especially areas under residential, infrastructure and open lands)

In 2012 the projected housing land requirement was estimated to be 250 Km^2. Land meant for urban agriculture has been on the decline as more of it is turned to residential use with the City relying on other counties for supply of food items. The industrial areas are largely concentrated in Industrial Area, Kariobangi South and Baba-Dogo.

Mean Holding Size

The distribution of farming households by mean agricultural parcels and land holding sizes by poverty status in Nairobi County shows that the poor have a mean agricultural parcel of 1.2 acres and holding size of 0.9 acres while the non-poor have a mean agricultural parcel of 1.4 acres and mean holding size of 1.3 acres.

Percentage of land with title deeds

The proportion of households that have title deeds in the County is low, a higher proportion of the non-poor compared to the poor own title deeds. The numbers of parcels held by the poor stands at 1,565 while those of the non-poor stands at 6,944. It is worth noting that all of the 1,565 parcels operated by the poor have no title deeds. This situation is also shared by 33.4% of the non-poor operating about 2,389 parcels.

Incidences of landlessness

The complexity of land issues in the County has affected a big proportion of its residents both poor and non-poor with the poor living in informal settlements bearing the highest burden of landlessness. This situation is fuelled partly by historical land injustices, land grabbing and influx of unskilled and semi-skilled job seekers from rural areas. About 450,000 households living in informal settlements experience some form of landlessness.

5.4.2 Crop and Livestock Production

Main Crops Produced

The main crops grown in the County are maize and beans though mainly on a small-scale basis especially in Njiru, Langata and Kasarani. Other crops include sweet and Irish potatoes, kales and cassava. High value crops such as onion, tomato, and Swiss chard are also produced. Most of these crops are meant for consumption by the farming households while the surplus is sold to earn supplementary income.

Hectares under Food Crops and Cash Crops

The land under crop cultivation is about 751.5 hectares. However, sack gardening and green houses are coming up as an alternative method of farming due to limited space for conventional farming. The average farm size in the County is approximately 0.0295 ha.

Main Livestock Bred

The main livestock breeds in the County are dairy cattle, beef cattle, sheep, goats, poultry, donkeys, bees, rabbits and pigs. There is a total population of 25,536 dairy cattle, 29,010 beef cattle, 35,980 sheep 52,412 goats, 127,083,985 commercial chicken, 181,721 indigenous chicken, 12,824 donkeys, 18,430 rabbits and 29,976 pigs. Livestock products in the County include milk, beef, mutton, chevon, pork, hides/skins, eggs, honey and wax. These products form an important source of income for the livestock farmers as well as a source of raw materials for processing industries.

About 500 households practice fish farming under fish ponds. The total number of fish ponds account for about 180,000 m with the main fish farmed being tilapia, cat fish and common carp. The fish harvest is estimated to be 152 tones whose value is estimated at KES. 24.3 million.

5.4.3 Environment and Climate Change

Climate change is a problem that is affecting people and the environment. Greater energy efficiency and new technologies hold promise for reducing greenhouse gases and solving this challenge. This section briefly analyses the major catalysts for environmental degradation, effects of climate change and proposes a few mitigation measures for these important phenomenon in the County.

Nairobi's large and growing population is one of the main forces driving the County's overwhelming environmental degradation. Other contributors include increased number of vehicles, unplanned and uncontrolled settlements, poor solid waste management, uncontrolled development, untreated industrial discharge and inefficient energy use. The leading contributor to climate change is from industrial and motor vehicle emissions. Pollution control measures are hampered by inadequate capacity for enforcement of existing environment conservation policies. In addition, there is need to address existing policy gaps particularly on Bio-Technology, environmental planning and accounting for natural resources.

Environment degradation in the County has contributed to loss of biodiversity, destruction of habitats along river basins. It has also led to diminishing health and sanitation standards as a result of environmental pollution.

Climate change affects the environment negatively leading to water scarCity, increased health threats, increasing temperature, low precipitation, erratic weather patterns, food insecurity and increase in cost of food commodities.

5.4.4 Mining

The County has minimal mining activities as there are few mineral deposits. Quarrying is the main mining activity that is normally carried out in a small scale. The main quarrying activities are centred in 15 quarries located mainly in Njiru and Embakasi areas that produce natural building stones, ballast and hardcore. According to the Department of Mines and Geology, the Nairobi construction industry relies heavily on other counties for supplies of sand mainly Machakos and Kajiado. There are about 7,846 people working directly in the quarries in the County.

There exists potential for increased production of quarry products if mining technology is enhanced. This potential is in Ruai area of Kasarani and Embakasi constituencies.

5.4.5 Tourism

Nairobi County is a major centre of tourism in the region. Its relative proximity to many tourist attractions both in Kenya and East Africa makes it an asset of great importance in the tourism sector. As the capital City and commercial centre, it attracts many businessmen and leisure tourists. This is partly because the Jomo Kenyatta International Airport (JKIA) the main point of entry to Kenya by air is located in the County.

Nairobi is the only capital City in the world with a national park close to its City centre. The Nairobi Safari Walk is a major attraction to tourists as it offers a rare foot experience for wildlife viewing. The County boasts of the Nairobi National Museum which houses a large collection of artifacts portraying Kenya's rich heritage through history, nature, culture and contemporary art. Other important museums include Nairobi Gallery and the Karen Blixen Museum.

Nairobi is considered the safari capital of the world and has many spectacular hotels to cater for safari bound tourists. Some of the major hotels in the County include: The Stanley, Laico Regency, Inter-continental, Hilton, Ole Sereni, Oakwood, Windsor Golf & Country Club, Panari, Hotel La Mada, Fairmont the Norfolk, Eka Hotel, Safari Park Hotel, Nairobi Safari Club, Serena and Boma Hotel and Spa, Villa Rosa Kempinski, Radisson, Southern Sun Mayfair, Sankara, Jakaranda, Park Inn and Hilton among others. Bed occupancy within the high class hotels within the County has been growing at an average rate of 9.7 % with the occupancy averaging 90%. Below is a list of the hotels and their ratings. It is also home to the largest skating ice rink in East Africa at the Panari Hotel's sky centre covering 15,000 square feet and accommodating 200 people.

5.4.6 Industries

Nairobi is the home of major industries which accounts for about 80 per cent of the total industries in the country. This offers a wide range of employment opportunity for the people within and outside the County. The various industries play a significant role in employment creation. There are 2061 industries in Nairobi County with 422 being in manufacturing. Most of these industries are located in industrial area, Kariobangi and Baba Ndogo areas

5.4.7 Employment and other Sources of Income

This section gives the employment situation in the County in terms of number of wage earners, self-employed persons, County's labour force and the unemployment levels.

Nairobi commands the largest share of formal sector wage employment in Kenya with a total of 453,000 people. The manufacturing industry accounts for the highest wage employment followed by trade, restaurants and hotels. The construction, transport and communications industry also play key role in generation of wage employment. Other important sectors include finance, real estate and business services. The main formal employment zones in Nairobi are the Central Business District (CBD), Industrial area, along Mombasa Road, along Thika Road and Dandora.

A large segment of the labour force in Nairobi is self-employed largely in the informal sector with 1,548,100 being employed in this sector. This is about 3.5 times those in wage employment. The informal sector covers small scale activities that are semi-organized, unregulated and uses low and simple technologies while employing few people per establishment.

The ease of entry and exit into the informal sector, coupled with the use of low level of technology at all makes it easy avenue for employment creation especially for the youth.

5.4.8 Water and Sanitation

Nairobi County is characterized by seasonal water scarcity and low sanitation access levels in non-formal settlements. This section outlines the water resources situation, water supply schemes, water sources and sanitation situation in the County.

Nairobi County has no main water tower; most of the supply is from the Tana Basin and is pumped to the City from distances of around 50 Km. This bulk water-supply is not reliable during periods of drought, and is also endangered by siltation of the reservoir due to deforestation in the catchment areas. The supply problem is further aggravated by the poor state of the distribution system, which results in about 50 per cent losses due to leakage, illegal connection and inefficient and wasteful use of water by some consumers.

Nairobi Water and Sewerage Company is the main water company in the County. Most of the water wells are operated by large private consumers (industrial enterprises, hotel complexes) or by individual residential owners in parts of the City that receive only intermittent supply (for example, Langata, Karen).Wells are often shared with neighbors or water is sold for distribution by tankers. Many private well owners are also connected to the mains water-supply network (which provides cheaper water) but also use groundwater as a back-up.

5.4.9 Water sources

The main sources of water for the residents in Nairobi County are from Sasumua Dam in Nyandarua, Kikuyu Springs, Ruiru Dam, Thika and Ngethu water works. Although Nairobi River is permanent, its water is unsafe for human consumption. There are residents that use borehole water, wells and roof catchments. Over 80 per cent of the residents have access to piped water.

5.4.10 Sanitation

About 61.5 per cent of the population in the County use flush toilets as the main waste disposal method, while 32.1 per cent use pit latrines. The remaining 4.8percent of the population have no means of waste disposal. On garbage collection, 36.1 per cent of the communities have their garbage collected by private firms and similar percentage is collected by neighborhood community groups

5.4.11 Access Health Facilities

Of the 681 health facilities in the County, only 115 (17%) are publicly owned comprising of four County referral hospitals, 33 health centres, 55 dispensaries and 23 clinics. There is need to increase the number of health facilities, to upgrade the dispensaries and clinics to health centres, and health centres to sub-county referral hospitals to increase access to health services. Level 5 hospitals in the County have a bed capacity of 750. The doctor patient ratio stands at 1:7,816. The County has 30 public dispensaries, Private dispensaries, 84 private clinics and 22 public clinics. Kenyatta National Hospital has a total bed capacity of 1,800. The health facilities also need to be adequately equipped to offer services that are commensurate with their levels of care. The County also needs to collaborate with other sectors to improve access roads to some of the health facilities.

The top five causes of morbidity for under-five are the diseases of the respiratory system, diarrhea, and diseases of the skin, pneumonia and malaria. The top five causes of morbidity for adults are respiratory diseases, urinary tract infections, diarrhea, dental disorders and typhoid fever. The HIV prevalence rate in the County stands at 6.1%. There are 116,513 eligible HIV clients on ARVs. Currently the numbers of people living with HIV in Nairobi are 171,510 while new infections are 4,981 per year.

5.4.12 Education and Literacy

Literacy is the ability to read for knowledge, write coherently and think critically about the written word. It involves, at all levels, the ability to use and communicate in a diverse range of technologies. Education is very critical for economic development. This section describes the pre-school education, primary education, literacy level, secondary education and tertiary education situation in the County.

The County has 2,906 ECD centres with a total of 8,470 EDC teachers. The teacher pupil ratio in the pre-primary school is 1:34. The total enrolment in the ECD is 292,126. The preprimary retention rate is 99.8 per cent with a drop-out rate of 0.2 per cent while the transition rate is 98 per cent.

The County has 1,235 primary schools with 7,741 teachers. The teacher pupil ratio in the primary schools is 1:55.5. The total enrolment is 429,280 with 207,056 boys while that of girls is 222,224. The gross enrolment is 51.8 per cent while the net enrolment is 44.9 per cent. Dropout rate stands at 3.6 per cent. The average years of attendance for primary school are 8 years while the retention rate is 96.4 per cent. Transition rate to secondary is at 65.7 per cent. The average distance travelled by pupils to primary schools ranges from 39.3 per cent for 0-1 KM and 31.5 per cent for 5 KM and above.

Nairobi County has 319 secondary schools with 2,359 teachers. The teacher pupil ratio is 1:22. The total enrolment is 49,728 with 26,755 boys and 22,973 girls. The gross enrolment rate is at 35.6 per cent while the net enrolment is 25.8 per cent. The dropout rate is 5.5 per cent; completion rate is 91.8 per cent while the retention rate is 94.6 per cent. 54.9 per cent of the pupils travel between 0-1Km to access a secondary school. 29.4 per cent of the pupils travel between 1.1 and 4.9 Km while 15.7 per cent of the pupils travel more than 5Kms to access a secondary school.

Nairobi County hosts two public universities, that is, University of Nairobi and Technical University of Kenya. There are ten private universities and 16 campuses operated by both public and private

universities in the County. Most of the campuses are located within the Central Business District (CBD). In addition, the County has 237 science and technology institutes.

The County has a total of 5,015 adult literacy centres where enrolment for male learners is 2,627 and 2,388 female learners. On literacy level, 96.1 per cent of the population can read and write while 2.8 per cent of the population cannot read and write.

5.5 Environmental Baseline Information for Matopeni Kayole Settlement

Geology

The project area is underlain with the typical geological formations in the Lower Nairobi areas. The top soils are generally black cotton type below which lies the Kirichwa toughs for between 10 and 40 metres deep. At depths of 60 – 100 metres lie the Nairobi phonolites layers that are very impervious to water infiltration. Further deep (100 - 120m) are the Upper Athi Series, at which most of the aquifers are found. They are dense welded tuffs of ash-flow origin with fairly uniform characteristics, important differences being in colour and variation of texture that are sometimes emphasized by weathering.

Soils

The soils of the project area are developed on Tertiary basic igneous rocks (phonolites) and are imperfectly drained, very deep, dark grey to black, firm to very firm, boulder and stony, cracking clay; in places with a calcareous, slightly saline deeper subsoil. Top soils range from black cotton types to laterites.

Topography

The area falls within the Athi plains, a plateau that rises from 700m in the east to 1700m above sea level in the west and is interrupted by an escarpment and series of hill masses, the highest being Kilimambogo that rises to 2,144m above sea.

Climatic Conditions

The Nairobi City County, at an average of 1660 meters above sea level, lies within the semi-humid and semi-humid to semi-arid zones in the agro-climatic zoning of Kenya. The area is characterized with a semi-humid climate that is highly influenced by semi-aridity on the east (towards the Machakos) and southern (towards Kajiado) directions and the high potential in Kiambu, Kikuyu and Ngong areas. The rainfall is bi-modal with two rainy seasons from March to May (long rains) and from mid-October to mid-December (short rains) with an average annual mean rainfall of about 1,080 mm per year. The minimum and maximum temperature ranges from of 12^{o}C to 28^{o}C temperature of about 19^{o}C. Daily evaporation ranges from a mini mum of 89 mm in the month of July to a maxim m of 19 mm in the month of March.

Biodiversity

The project has been a long time in an urban setting. Much of the vegetation of the project area, due to its urban nature, there are no vegetations left.

Due to the urban nature of the project area, no mammals were sited except dogs. A number of birds were cited in the area, for example a variety of birds including doves, weaverbirds, ibises starlings, storks, Indian crows, etc.

A variety of reptiles are found in the area, especially on walls of houses and trees. These include mainly lizards.

No 'Threatened species' listed in the Red Data Book of endangered species were noted.

5.4 Socio-Economic Baseline Information for Matopeni Settlement

Availability of Energy

The project area is connected to the Kenya Power and Lighting Company (KPLC). 100% of the households use electricity as their main source of power for lighting.

Health Facilities

The health sector is an important development segment for the empowerment and well-being of a society. There are no public health facilities and the community depends on private health institutions in the area.

Education Facilities

There is one public schools within the proximity of Matopeni settlement namely Kayole North Primary School.

Demographic and Household Information

Matopeni has a population of approximately 4700 Households from which we drew a sample of 100 households for the survey. The information captured included gender of respondents, age, marital status, level of education, area of residence, livelihood sources and income levels.

Gender of Respondents

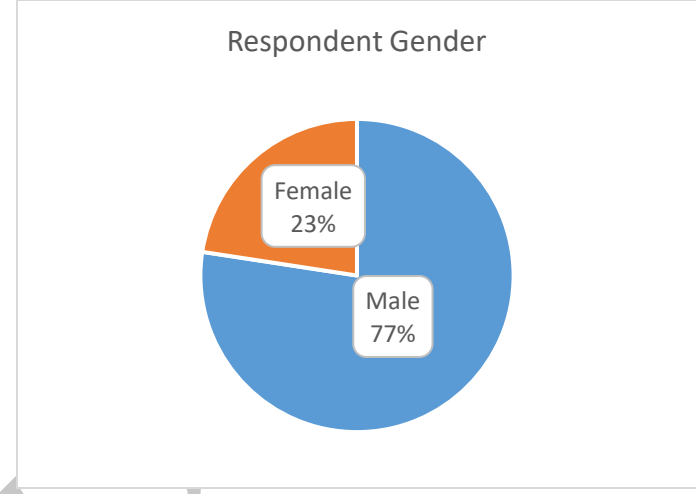

Figure 9 - Gender of Respondents

According to the study, the total number of males is 77% of the respondents while female respondents were at 23%.

Household Head and Size

Among the respondents interviewed 68% of the households were headed by males and 32% of the households headed by female as shown in Figure 7 below. 42% of the households has 2 – 4

persons with 26% of the total households interviewed having below 2 persons as shown in Figure 6 below.

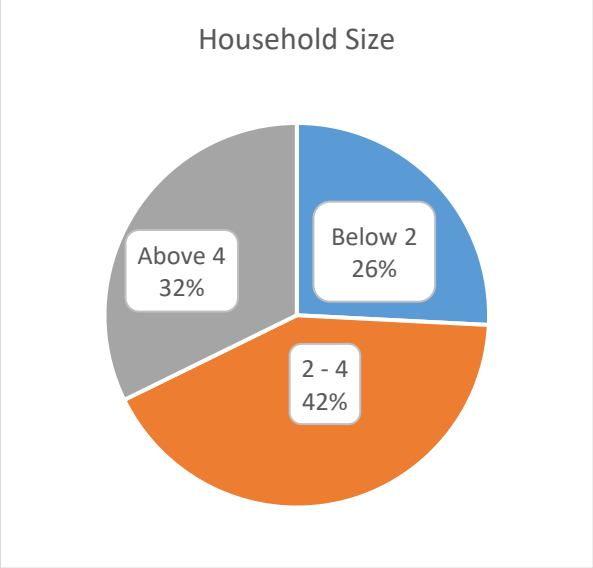

Figure 10 - Household Head

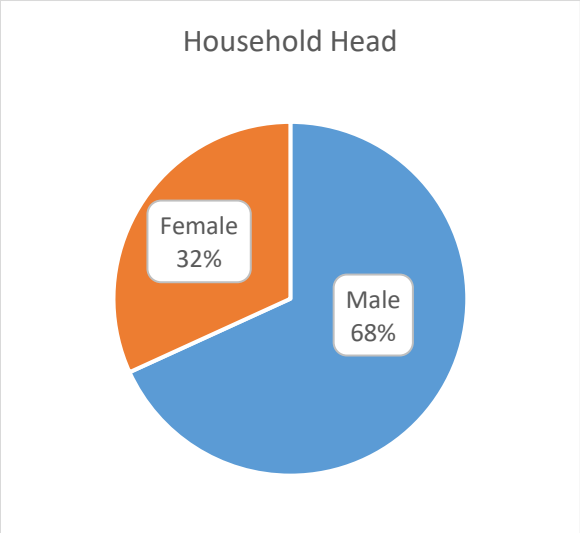

Figure 11 - Household Size

Education Status

According to the study, the results were as follows: 16% of the respondents had attended school up to primary level, 61% had attained up to secondary level while 23% have attained tertiary level.

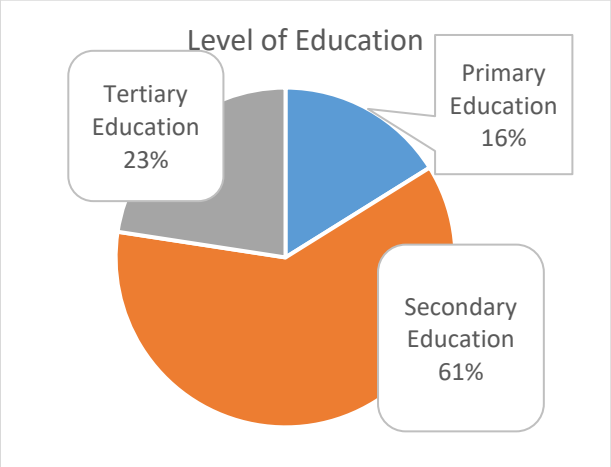

Figure 12 - Education Levels of the Respondents

Vulnerability status of Household head

The study indicated that 9% of the households are headed by vulnerable person who is either over 65 years old or chronically ill person with 16% headed by a female.

Economic Activities

Majority of the member of the population in the settlement reside in the area. They work and operate businesses within and outside the settlement.

Sources of Income

The sources of income for the respondents varies with the majority of the respondents at 68% having been employed under a private entity. Notably, 10% of the respondents indicated to be unemployed as shown in Figure 9 below.

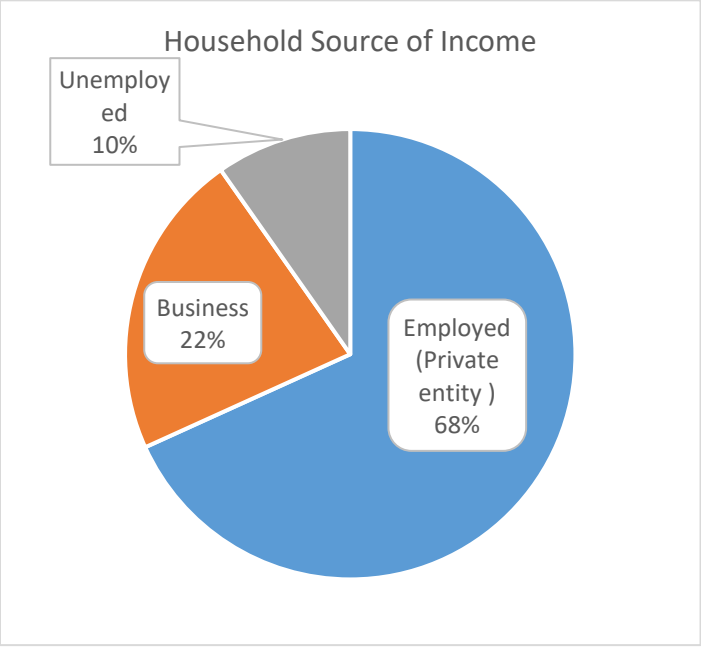

Figure 13 - Sources of Income

Monthly Household Income and Expenditure

The Socio-economic survey revealed that majority of the respondents at 78% earn below KES10,000 per month; 13% earn between KES10,001-20,000; 3% earn between KES20,001-30000; 3% earn between KES30,001-40,000; while another 3% earn above KES 50,000 per month. The distribution of the earnings is as indicated in the Figure 10 below.

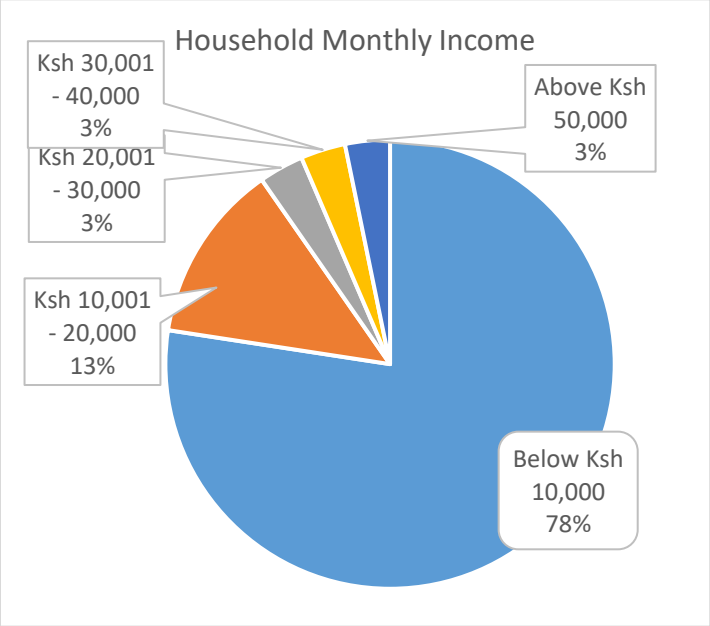

Figure 14 - Monthly Household Income

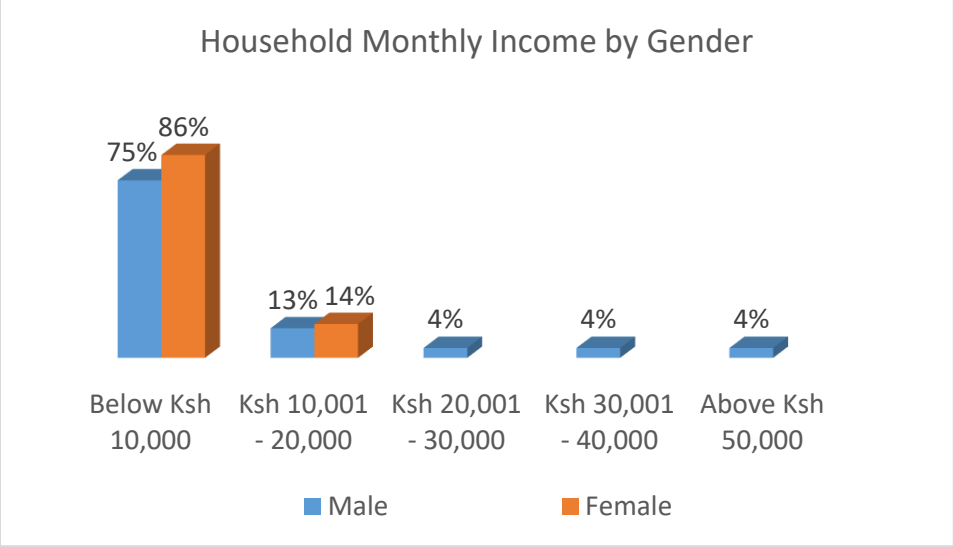

Figure 15 - Monthly Household Income by Gender

Analysing income levels by gender shows that majority of female (86%) and male (75%) of the respondents had their income levels below KES 10,000. Notably, only 4% of male respondents earned above KES 50,000.

Monthly Household Expenditure

The study shows that the monthly household expenditure of the majority respondents spends below KES 10,000 with only 4% spending KES 30,001 – 40,000 per month.

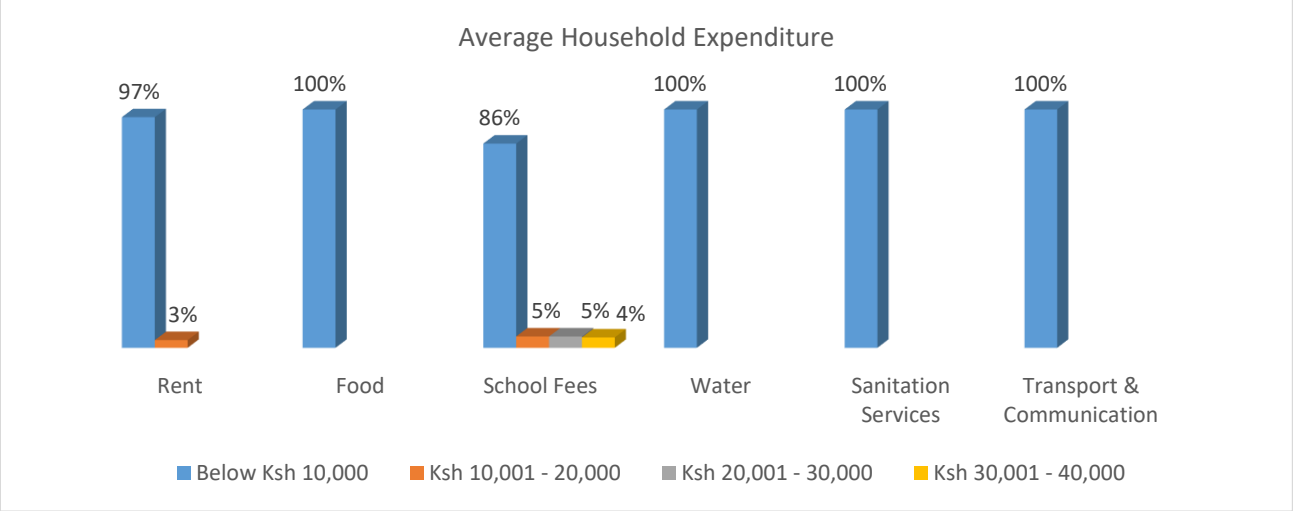

Figure 16 - Monthly Household Expenditure

Tenure Systems

Land ownership

Majority (87%) of the respondents considered themselves as tenants with 10% indicating that they have inherited / awaiting title deed. Only 3% have title deed as ownership documents.

Residential status

Majority (81%) of the respondents were tenants in the area.

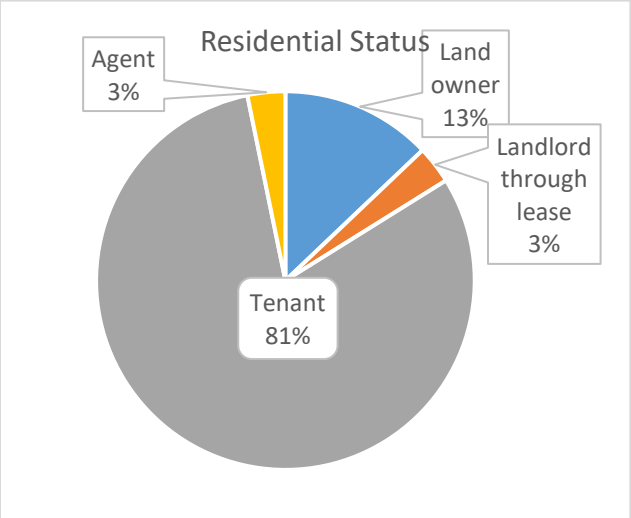

Figure 17 - Residential Status

Land Use

The main land use in the project area is mainly residential and less commercial.

Housing

Majority (97%) of the houses have stone walls with corrugated iron roof while 3% have iron sheets wall with corrugated iron roof and concrete floor.

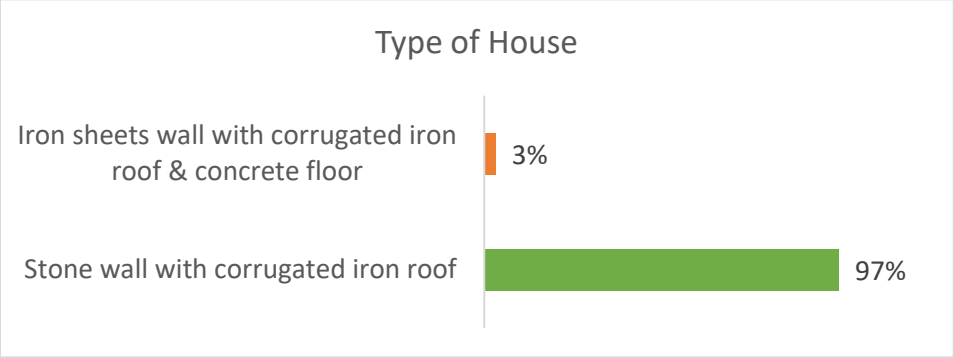

Figure 18 - Type of Housing

Domestic Water Supply

The major source of water in the project area is borehole / wells (55%) and plot based water connection (36%) as shown in Figure 15.

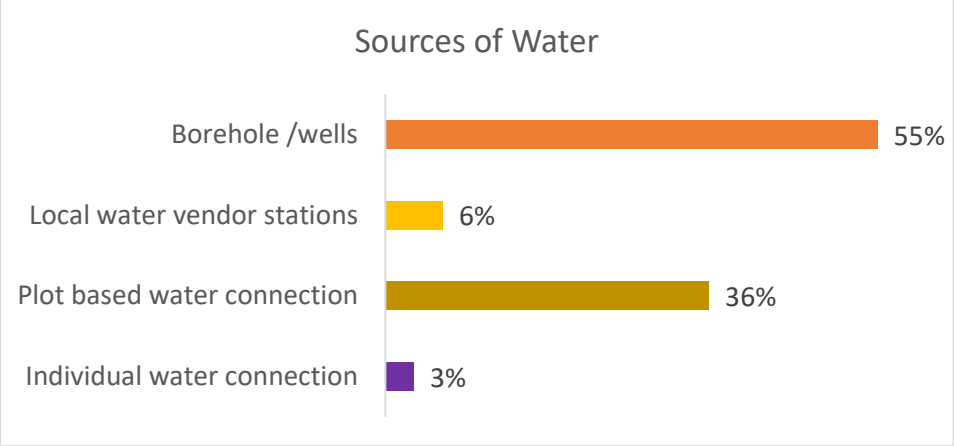

Figure 19 - Main Water Sources

Thirteen (13%) of the respondents indicated that the water they use for domestic purposes is metered paying between KES 300 – 1,000 monthly. Those respondents whose main source of water is water vendors indicated that (80%) paid KES 20, 13% paid KES 30 and 7% paid KES 10 per 20-liter jerrican. Majority (68%) of the residents have their water source located more than 100 meters from their houses.

Water reliability and payment for services

Majority (97%) of the respondents indicated that the water was reliable. 84% pays for their water supply services through cash, 10% through the bank and 6% through mobile payment. According to the respondents, (48%) of the residents pay above KES 10,000, 36% KES 2,500, 13% KES 2,600 – 5,000 and 3% KES 5,001 – 7,000 for new water connection.

Willingness to support project

when asked whether they would opt for individual water meter connection, 48% of the respondents were positive with all of them indicating their willingness to provide wayleave for the projects. However, only 19% had a preferred location they could consider for public water point in the settlement. 94% of the respondents indicated that they were willing to pay if they were supplied with good quality water in an accessible and clean environment preferring to buy at KES 10 per 20 liters.

Sanitation

Sanitary conditions are essential to any human settlement as they have direct impact on the environment and health of the inhabitants. 93% of the residents have plot based sewer connected toilet while 7% use individual sewer connected toilet. Majority (77%) have their toilets with less than 20 meters from their houses. 61% of the respondents indicated that they don't pay for using the toilet.

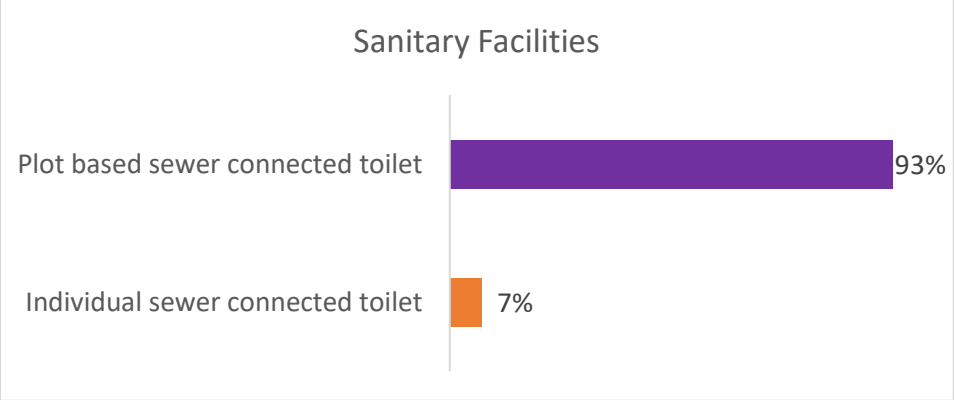

Figure 20 - Human Waste Disposal

There is inadequacy of the sewer connection in the area as indicated by 62% of the people interviewed. Majority (52%) of the respondent indicated that the nearest sewer line to their residence is between 100 – 200 meters while 48% said it's within a distance of 0 – 50 meters. Only 42% of the respondents indicated that they would opt for individual toilets connected to the sewer.

When asked whether they had a place they considered suitable for a public toilet, majority (97%) indicated No with only 3% who indicated positive with area around Kayole Police Station being the most preferred area.

Majority (81%) of the respondents who uses toilets connected to the septic tank indicated that they emptied immediately once filled up through seeking the services of private business person. The frequency of de-sludging exercise happen once a year paying between KES 2,000 – 4,000 per trip.

Solid Waste Management

There are various ways of solid waste management in the project area. From the study it was established that 55% of the respondents use collection by community garbage collection initiative method, 42% use services of private companies to collect, while 3% throw their solid waste into the toilet / latrine as shown in Figure 17. Plastics constitute the huge amount of the solid waste in

the settlement. This situation is compounded by the fact that majority (87%) of the respondents indicated that they do not separate waste within their premises.

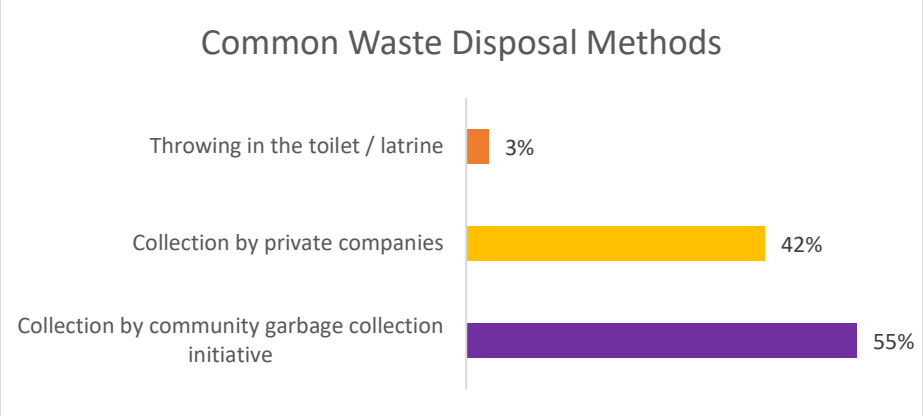

Figure 21 - Solid Waste Disposal

All the respondents indicated that they were willing to use waste collection points if they are constructed.

Security

From the Socio-economic survey, it was revealed that 90% of the respondents indicated that security is poor in the area.

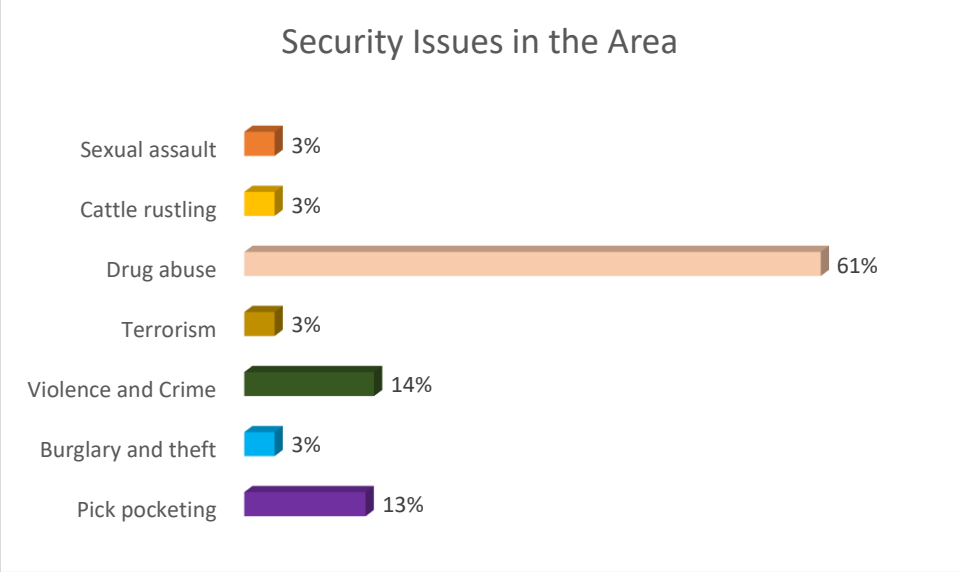

Figure 22 - Security issues in the Area

The most common security issue mentioned by 61% of the respondents was drug abuse. Pick pocketing, Violence and crime also featured as common in the area as shown in Figure 18.

5.5 Current Project Area Photographic Description

5.5.1 Roads

Most of the roads are in very poor state, especially during rains. However, some are have gravel surface and are easily motorable.

Figure 23 -Current Road Condition

CHAPTER 6: STAKEHOLDER ENGAGEMENT AND CONSULTATION

6.1 Overview

Public Participation is a facilitative process of strengthening the organizational and management capacities of people in such a way that they become self-reliant in solving their own problems. It connotes the organized action of the people towards the resolution of issues or acquisition of what they desire and what may benefit them. This, then, requires that people, as a group, must have proper ownership of actions and highly organized course of action.

Effective public participation requires the availability of adequate information in public inputs. The latter involves various values, critiques, questions, information, suggestions and other inputs, which are expressed by individuals, groups or organizations among the general public in an attempt to influence decision-making.

6.2 Objectives of the Public Participation

The following objectives were considered:

- to inform the local people, leaders and other stakeholders about the proposed projects and their objectives;
- to initiate public involvement processes, in a bid to induce and cultivate a sense of peoples' belongingness to the project;
- to suggest and facilitate the peoples' roles in the project's sustainability, in terms of management, maintenance and productivity;
- to seek views, concerns, and opinions of people in the area concerning the projects;
- to establish if the local people foresee any positive or negative environmental effects from the project and if so, how they would wish the perceived impacts to be addressed; and
- to find out if there are issues or places of cultural/or religious importance to the local communities that could be negatively impacted upon by the projects

6.3 Public and Stakeholder Consultations Outcome

The initial public consultations and sensitization were done on 13th November 2023. They involved county government administration, community leaders and community groups in Matopeni informal settlement, Provincial Administration through the assistant chief and the SEC. These consultations provided views, opinions and suggestions on the proposed projects including feeder roads, sewer line, completion of social hall, erection of high mast security light and water supply in the informal settlement. Further, the consultations provided views (comments, suggestions, fears and concerns) on the proposed projects in these settlements. Detailed public consultations involved conducting public meetings and key informants' discussions with the target beneficiaries and other stakeholders. The meetings were facilitated by the SEC.

Sample photos of the consultative forums

Photo 1: Consultant, County and SEC Members during the Site Visit

Field Observations:

- The existing road corridor has minimal encroachment of the road reserve by structures
- The area is relatively poorly lit with no street lights along major access
- Alcohol and drug abuse and sale of illicit brew is rampant in the area

Impacts of the Proposed Project during Construction and Operation

Positive Impacts

- Increased land value in the settlement
- Improved road network and drainage system.
- Improved security because of the installation of high mast security lights (mulika mwizi)
- Attraction of investors due to better infrastructure and improved security
- Employment creation during the project implementation
- Increased business due to long operation hours due to improved security

Negative impacts

- Disruption of businesses during the construction
- Dust pollution during the construction
- Influx of people as infrastructure will attract people from other areas into the settlement
- Increased HIV infections as human influx is likely going to attract sex workers during and after construction
- Disposal of waste materials during the construction period

Conclusion

Generally, there is an overall appreciation for the proposed projects having emanated from the community members within the Matopeni informal settlement. However, the community emphasizes the need to be involved in the overall project. SEC is the entry point into the

community hence the Contractor should ensure that members are involved at all stages of the project. In so doing, this will go a long way in ensuring the smooth implementation of the project.

CHAPTER 7: IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS AND ASSESSMENT

7.1 Overview

Infrastructures (access roads, footpaths and walkways, storm water control and other drainage infrastructures, street lighting) development are key factors in sustainable urban environmental, social and economic development of any urban centre. Increasing population and the desire for economic progress continuously increase pressure on natural resources including housing, water availability, sanitation infrastructure, waste management, land space and even appropriate environmental quality mostly in informal settlements.

Abundance of water supply occasionally leads to increased generation of wastewater (sewage and runoff) that require to be safely disposed off. Provision of these infrastructures is the most challenging development aspect in the improvement of the living standards of the informal settlements.

The main principle behind this Environmental and Social Screening is identification of impacts that may be associated with the project and to establish of how the project components will get integrated within the existing environmental, social and economic framework without creating adverse or negative impacts.

Appropriate mitigation measures are proposed for integration into the project implementation to ensure minimal impacts to the environment and the social setting. These impacts and their potential degree of impacts or impacts level of significance are summarized in the table below.

Table 19 - Summary of Anticipated Impacts and Their Mitigation Measures

Environmental/Socio-economic impact	Mitigation Measure
Pre-construction Phase	
Land Disruption	• Conduct comprehensive land surveys and assessments to identify potential areas of disruption. • Develop resettlement action plans (RAPs) for any affected communities, ensuring fair compensation
Social Discontent	• Implement robust community engagement strategies to communicate project goals and benefits. • Provide clear and transparent information about the project's potential impacts and mitigation plans.
Potential Livelihood Disturbance	• Conduct socioeconomic assessments to understand the dependency of communities on existing infrastructure. • Develop livelihood restoration programs to mitigate any disruptions, providing alternative income opportunities.
Public Opposition	• Implement targeted awareness campaigns to educate stakeholders about the project's importance and benefits. • Address misinformation and misconceptions through factual information and engagement with key influencers.
Limited Feasibility Focus	• Clearly define the scope and objectives of feasibility studies to ensure comprehensive assessment of project viability.

Environmental/Socio-economic impact	Mitigation Measure
	• Allocate sufficient resources and expertise to conduct thorough feasibility studies during the pre-construction phase.
Economic Uncertainty	• Conduct rigorous cost-benefit analyses to assess the potential economic impacts and viability of the project. • Develop contingency plans to address unexpected cost increases or revenue shortfalls during the pre-construction phase.
Perception of Insufficient Analysis	• Communicate the rationale behind the holistic project evaluation approach, emphasizing its importance in early project stages. • Provide opportunities for stakeholders to contribute feedback and suggestions for improving the analysis process.
Construction Phase	
Displacement and Resettlement:	• Ensure no additional PAPs if any are added after the cut-off date.
Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Sensitise workforce • Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide PPE to workers.
Noise pollution and vibrations	• Sensitise workforce • Supervise construction traffic • Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlement.
Soil erosion	• Construct efficient drainage structures (culverts, mitre drains, scour checks etc.). • Control earthworks through cascading gabions and distribution ch6annels for storm water. • Protect excavated sections of the route of storm water during heavy rains. • Provide erosion channels to natural drains and drainage system to minimize erosion. • Design to incorporate existing drainage pattern and avoid disturbing the same.
Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion
Employment & business opportunities	• Employment of locals in the project as semi-skilled labour.
Water Pollution	• Works to be done preferably in the dry season

Environmental/Socio-economic impact	Mitigation Measure
	• Solid waste at construction camps, and equipment maintenance workshops should not be dumped in or near any water bodies (rivers, streams, etc.) along the project or area of influence. • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater
HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing
Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide PPE to workers
Increased gender recognition	• Employment of women for gender equity during the project
Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.
Socio-cultural conflicts	• Sensitize migrant workers on key cultural sensitivities of the host community. • Ensure fairness in recruitment of workforce by ensuring that local people get priority of the jobs that they can perform. • Create open communication for people to channel their grievances to avoid rumours and fake news with respect to the proposed project. • Engage with local leaders at all times. • Create a project committee with representation of all actors.
Social economic impact-displacement	• Full compensation before the commencement of the works
Climate Change	• Include green and blue infrastructure into design of the project. • Minimize tree cutting in the project areas. • Any remaining riparian areas should be preserved as these act as urban green/blue corridors and support temperature regulation. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks
Operation Phase	
Air/Dust Pollution	• Maintain shrubs and trees cover to reduce noises on the road
Noise pollution and vibrations	• Maintain shrubs and trees cover to reduce noises on the road
Soil erosion	• Maintain shrubs and trees cover to reduce noises on the road
Vegetation Loss	• Replenish vegetation at the open areas regularly • Proper maintenance of trees and other vegetation in open areas, e.g. along roads

Environmental/Socio-economic impact	Mitigation Measure
Employment & business opportunities	• Implement community engagement programs to address potential social and economic shifts.
Water Pollution	• Establish regular water quality testing and maintenance schedules for the water supply infrastructure
Increased Traffic	• Implement traffic management measures, such as speed bumps and designated parking areas.
Security	• Ensure street lights are working and serviced
Climate Change	• Maintain trees and other plant ornamentals cover along roadsides to provide cooling of the urban environment and thus a healthier, more resilient community. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks.
Decommissioning Phase	
Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide proper PPE to workers.
Noise pollution and vibrations	• Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlements
Soil erosion	• Protect excavated sections of the route of storm water during heavy rains
Resettlements	• Number of affected properties (These are contained in the ARAP Report Annex 2)
Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion
Employment & business opportunities	• Employment of gender equity during the project
Water Pollution	• Works to be done preferably in the dry season • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater
HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing
Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide proper PPE to workers

Environmental/Socio-economic impact	Mitigation Measure
Increased gender recognition	• Employment of gender equity during decommissioning where possible.
Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.
Social Impacts	• Establish and communicate an effective grievance redress mechanism (GRM) • Engage with local leaders at all times. • Engage the SEC at all the times.
Climate Change	• Planting of trees and other plant ornamentals in the decommissioned contractor camp to provide cooling of the urban environment and thus a healthier, more resilient community.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

8.1 Overview of the ESMP

The purpose of the Environmental/Social Management & Monitoring Plan is to initiate a mechanism for implementing mitigation measures for the potential negative environmental impacts and monitor the efficiency of these mitigation measures based on relevant environmental indicators. The EMMP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures can be implemented, supervised and monitored. Further, it provides a checklist for project monitoring and evaluation. The objectives of the ESMMP are:

- To provide evidence of practical and achievable plans for the management of the proposed project.
- To provide the Proponent and the relevant Lead Agencies with a framework to confirm compliance with relevant laws and regulations.
- To provide community with evidence of the management of the project in an environmentally acceptable manner.

The ESMMP outlined below will address the identified potential negative impacts and mitigation measures on the following project stages:

- Pre-construction and Construction Phases ESMP
- Operation Phase ESMP, and
- Decommissioning Phase ESMP.

Once all the operational activities have ceased, it is necessary to highlight the basic mitigation measures that will be required during the decommissioning phase of the project. Thus, the crucial objectives, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project.

8.2 ESMP Management Plan Principles

This project is geared towards enhancing social and economic benefits to the people living in the informal settlements under the project. The project, however, should also observe environmental protection requirements in accordance to the established laws and regulations to ensure sustainability. To realize this goal, acceptability by a majority of the beneficiaries and minimal effects to the physical environment will require to be integrated in the project through constant consultations, evaluations and review of the design aspects throughout the project coverage. It is recommended that guiding principles specific to this project and the regulations governing water resources management be developed that will allow integration of environmental management considerations in the construction, maintenance of the facility components and public amenities. Among the factors that need to be considered in this particular project implementation will include:

- Ensure prevention of pollutants discharge into the drainage systems and pollution of public water bodies,
- Enhance integration of environmental, social and economic functions in the project implementation,
- Consider preventive measures towards possible social and economic disruptions that may arise from the project implementation in accordance with the laid down guidelines,
- The contractors and other players in the project activities be prevailed upon to implement the ESMP through a sustained supervision and continuous consultations,

8.2 Environmental, Social, Management and Plan

The construction Contractor will be responsible for the implementation of the construction phase ESMMP. The Contractor will identify responsibilities and organization required to implement the accountabilities of the construction phase ESMP. The construction phase ESMP will apply to the Principal Contractor and all Sub-contractors. The Contractor will also be responsible for developing and implementing a site-specific induction for all construction workers. This induction will include all EHS hazards and their control measure. The Contractor will ensure that all construction workers are trained on basic aspects of ESMP.

The environmental management plan is summarized in **Table 20** below.

Table 20 - Environmental and Social Management and Monitoring Plan (ESMP)

Roads

Pre-Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Land Disruption	- Conduct comprehensive land surveys and assessments to identify potential areas of disruption. - Develop resettlement action plans (RAPs) for any affected communities, ensuring fair compensation	Design Engineer, Project Engineer, Contractor	- Percentage of affected land surveyed and documented. - Number of households or individuals affected by land disruption.	
2	Social Discontent	- Implement robust community engagement strategies to communicate project goals and benefits. - Provide clear and transparent information about the project's potential impacts and mitigation plans.	Design Engineer, Project Engineer, Contractor	- Number of community meetings held and attendance records. - Community feedback and satisfaction levels measured through surveys or feedback sessions.	
3	Potential Livelihood Disturbance	- Conduct socioeconomic assessments to understand the dependency of communities on existing infrastructure. - Develop livelihood restoration programs to mitigate any disruptions, providing alternative income opportunities.	Design Engineer, Project Engineer,	- Percentage of households reliant on infrastructure affected by potential disturbances. - Number of livelihood restoration programs implemented and their effectiveness.	
4	Public Opposition	- Implement targeted awareness campaigns to educate stakeholders about the project's importance and benefits. - Address misinformation and	Design Engineer, Project Engineer, Contractor	- Number of informational sessions held and attendance records. - Reduction in	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		misconceptions through factual information and engagement with key influencers.		negative sentiment or opposition as evidenced by community feedback.	
5	Limited Feasibility Focus	- Clearly define the scope and objectives of feasibility studies to ensure comprehensive assessment of project viability. - Allocate sufficient resources and expertise to conduct thorough feasibility studies during the pre-construction phase.	Design Engineer, Project Engineer, Contractor	- Completeness of feasibility studies conducted, including identified risks and mitigation strategies. - Timeliness of feasibility study completion and quality of findings.	
6	Economic Uncertainty	- Conduct rigorous cost-benefit analyses to assess the potential economic impacts and viability of the project. - Develop contingency plans to address unexpected cost increases or revenue shortfalls during the pre-construction phase.	Design Engineer, Project Engineer, Contractor	- Cost projections compared to budget allocations and potential revenue streams identified. - Flexibility of budget allocations and ability to adapt to changing economic conditions.	
7	Perception of Insufficient Analysis	- Communicate the rationale behind the holistic project evaluation approach, emphasizing its importance in early project stages. - Provide opportunities for stakeholders to contribute feedback and suggestions for improving the analysis process.	Design Engineer, Project Engineer, Contractor	- Stakeholder perception surveys measuring understanding and acceptance of evaluation methods. - Number of stakeholders' suggestions incorporated into project evaluation methods.	

Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Displacement and Resettlement:	• Ensure no additional PAPs if any are added after the cut-off date.	Design Engineer, Project Engineer, Contractor	Check register of PAPS	234,000.00
2	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Sensitise workforce • Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide PPE to workers.	Design Engineer, Project Engineer, Contractor	Air quality	
3	Noise pollution and vibrations	• Sensitise workforce • Supervise construction traffic • Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlement.	Design Engineer, Project Engineer, Contractor	Noise levels	
4	Soil erosion	• Construct efficient drainage structures (culverts, mitre drains, scour checks etc.). • Control earthworks through cascading gabions and distribution ch6annels for storm water.	Design Engineer, Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Protect excavated sections of the route of storm water during heavy rains. • Provide erosion channels to natural drains and drainage system to minimize erosion. • Design to incorporate existing drainage pattern and avoid disturbing the same.			
5	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Design Engineer, Project Engineer, Contractor	Bare areas	850,000.00
6	Employment & business opportunities	• Employment of locals in the project as semi-skilled labour.	Design Engineer, Project Engineer, Contractor	Number of women, youth and locals employed	
7	Water Pollution	• Works to be done preferably in the dry season • Solid waste at construction camps, and equipment maintenance workshops should not be dumped in or near any water bodies (rivers, streams, etc.) along the project or area of influence. • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater	Design Engineer, Project Engineer, Contractor	Water quality values according to NEMA Water Quality standards	
8	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Design Engineer, Project Engineer, Contractor	Number of condoms distributed Numbers of seminars held to	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
				sensitise staff and locals	
9	Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide PPE to workers	Design Engineer, Project Engineer, Contractor	Number of PPES issued Number of workers using PPE	
10	Increased gender recognition	• Employment of women for gender equity during the project	Design Engineer, Project Engineer, Contractor	Number of women, youth and locals employed	
11	Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.	Design Engineer, Project Engineer, Contractor	Levels of security: reported numbers of incidences of robbery, theft	
12	Socio-cultural conflicts	• Sensitize migrant workers on key cultural sensitivities of the host community. • Ensure fairness in recruitment of workforce by ensuring that local people get priority of the jobs that they can perform. • Create open communication for people to channel their grievances to avoid rumours and fake news with respect to the proposed project. • Engage with local leaders at all times. • Create a project committee with representation of all actors.	Design Engineer, Project Engineer, Contractor	Number of local community members employed	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
13	Social economic impact-displacement	• Full compensation before the commencement of the works	Design Engineer, Project Engineer, Contractor	Number of people compensated	
14	Climate Change	• Minimize tree cutting in the project areas. • Any remaining riparian areas should be preserved as these act as urban green/blue corridors and support temperature regulation. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks	Design Engineer, Project Engineer, Contractor	Areas planted with vegetation	1,250,000.00

Operation Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Air quality	
2	Noise pollution and vibrations	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Noise levels	
3	Soil erosion	• Maintain shrubs and trees cover to reduce soil erosion on the road slopes.	Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	
4	Vegetation Loss	• Replenish regularly vegetation at the bare areas	Project Engineer, Contractor	Bare areas	
5	Employment & business opportunities	• Implement community engagement programs to address potential social and economic shifts.	Project Engineer, Contractor	Employment opportunities created in the area, for	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
				example number of people starting new businesses	
6	Water Pollution	Establish regular water quality testing and maintenance schedules for the water supply infrastructure	Project Engineer, Contractor	Regular water testing reports, incident reports of water quality issues	
7	Increased Traffic	Implement traffic management measures, such as speed bumps and designated parking areas.	Project Engineer, Contractor	Traffic flow assessments, reported incidents of congestion.	
8	Security	Ensure street lights are working and serviced	Project Engineer, Contractor		
9	Climate Change	• Maintain trees and other plant ornamentals cover along roadsides to provide cooling of the urban environment and thus a healthier, more resilient community. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks	Project Engineer, Contractor	Areas replanted with trees and ornamentals	

Decommissioning Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Plant shrubs and trees	Design Engineer, Project Engineer and Contractor	Air quality	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Regular maintenance of plant and equipment. • Provide PPE to workers.			
2	Noise pollution and vibrations	• Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlements	Design Engineer, Project Engineer, and Contractor	Noise levels	
3	Soil erosion	• Protect excavated sections of the route of storm water during heavy rains	Design Engineer, Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	
4	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Design Engineer, Project Engineer, Contractor	Bare areas	
5	Employment & business opportunities	• Employment of gender equity during the project	Project Engineer, Contractor	Number of women employed	
6	Water Pollution	• Works to be done preferably in the dry season • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater	Design Engineer, Project Engineer, Contractor	Water quality values according to NEMA Water Quality standards	
7	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Project Engineer, Contractor	Number of condoms distributed	
8	Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic.	Project Engineer, Contractor	Number of PPES issued Number of workers using PPE	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Provide PPE to workers			
9	Increased gender recognition	• Employment of gender equity during decommissioning where possible.	Project Engineer, Contractor	Number of women, youth and locals employed	
10	Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.	Project Engineer, Contractor	Levels of security: reported numbers of incidences of robbery, theft	
11	Social Impacts	• Establish and communicate an effective grievance redress mechanism (GRM) • Engage with local leaders at all times. • Engage the SEC at all the times.	Project Engineer, Contractor	Number of grievances received and addressed	
12	Climate Change	• Planting trees and other plant ornamentals in the decommissioned contractor camp to provide cooling of the urban environment and thus a healthier, more resilient community.	Design Engineer, Project Engineer, Contractor	Areas planted with trees and ornamentals	535,980.00

Foot paths

Pre-Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Land Disruption	- Conduct comprehensive land surveys and assessments to identify potential areas of disruption. - Develop resettlement action plans (RAPs) for any affected communities, ensuring fair	Design Engineer, Project Engineer, Contractor	- Percentage of affected land surveyed and documented. - Number of households or individuals affected by land disruption.	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		compensation			
2	Social Discontent	- Implement robust community engagement strategies to communicate project goals and benefits. - Provide clear and transparent information about the project's potential impacts and mitigation plans.	Design Engineer, Project Engineer, Contractor	- Number of community meetings held and attendance records. - Community feedback and satisfaction levels measured through surveys or feedback sessions.	
3	Potential Livelihood Disturbance	- Conduct socioeconomic assessments to understand the dependency of communities on existing infrastructure. - Develop livelihood restoration programs to mitigate any disruptions, providing alternative income opportunities.	Design Engineer, Project Engineer,	- Percentage of households reliant on infrastructure affected by potential disturbances. - Number of livelihood restoration programs implemented and their effectiveness.	
4	Public Opposition	- Implement targeted awareness campaigns to educate stakeholders about the project's importance and benefits. - Address misinformation and misconceptions through factual information and engagement with key influencers.	Design Engineer, Project Engineer, Contractor	- Number of informational sessions held and attendance records. - Reduction in negative sentiment or opposition as evidenced by community feedback.	
5	Limited Feasibility Focus	- Clearly define the scope and objectives of feasibility studies to ensure comprehensive assessment of project viability. - Allocate sufficient resources	Design Engineer, Project Engineer, Contractor	- Completeness of feasibility studies conducted, including identified risks and mitigation strategies.	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		and expertise to conduct thorough feasibility studies during the pre-construction phase.		- Timeliness of feasibility study completion and quality of findings.	
6	Economic Uncertainty	- Conduct rigorous cost-benefit analyses to assess the potential economic impacts and viability of the project. - Develop contingency plans to address unexpected cost increases or revenue shortfalls during the pre-construction phase.	Design Engineer, Project Engineer, Contractor	- Cost projections compared to budget allocations and potential revenue streams identified. - Flexibility of budget allocations and ability to adapt to changing economic conditions.	
7	Perception of Insufficient Analysis	- Communicate the rationale behind the holistic project evaluation approach, emphasizing its importance in early project stages. - Provide opportunities for stakeholders to contribute feedback and suggestions for improving the analysis process.	Design Engineer, Project Engineer, Contractor	- Stakeholder perception surveys measuring understanding and acceptance of evaluation methods. - Number of stakeholder suggestions incorporated into project evaluation methods.	

Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Displacement and Resettlement:	• Ensure no additional PAPs if any are added after the cut-off date.	Design Engineer, Project Engineer, Contractor	Check register of PAPS	
2	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Sensitise workforce • Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide PPE to workers.	Design Engineer, Project Engineer, Contractor	Air quality	
3	Noise pollution and vibrations	• Sensitise workforce • Supervise construction traffic • Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlement.	Project Engineer, Contractor	Noise levels	
4	Soil erosion	• Construct efficient drainage structures (culverts, mitre drains, scour checks etc.). • Control earthworks through cascading gabions and distribution ch6annels for storm water. • Protect excavated sections of the route of storm water during heavy rains.	Design Engineer, Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Provide erosion channels to natural drains and drainage system to minimize erosion. • Design to incorporate existing drainage pattern and avoid disturbing the same.			
5	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Design Engineer, Project Engineer, Contractor	Bare areas	850,000.00
6	Employment & business opportunities	• Employment of locals in the project as semi-skilled labour.	Project Engineer, Contractor	Number of women employed	
7	Water Pollution	• Works to be done preferably in the dry season • Solid waste at construction camps, and equipment maintenance workshops should not be dumped in or near any water bodies (rivers, streams, etc.) along the project or area of influence. • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater	Design Engineer, Project Engineer, Contractor	Water quality values according to NEMA Water Quality standards	
8	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Project Engineer, Contractor	Number of condoms distributed Numbers of seminars held to sensitise staff and locals	
9	Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide PPE to workers	Project Engineer, Contractor	Number of PPES issued Number of workers using PPE	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
10	Increased gender recognition	• Employment of women for gender equity during the project	Project Engineer, Contractor	Number of women, youth and locals employed	
11	Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.	Project Engineer, Contractor	Levels of security: reported numbers of incidences of robbery, theft	
12	Socio-cultural conflicts	• Sensitize migrant workers on key cultural sensitivities of the host community. • Ensure fairness in recruitment of workforce by ensuring that local people get priority of the jobs that they can perform. • Create open communication for people to channel their grievances to avoid rumours and fake news with respect to the proposed project. • Engage with local leaders at all times. • Create a project committee with representation of all actors.	Design Engineer, Project Engineer, Contractor	Number of local community members employed	
13	Social economic impact-displacement	• Full compensation before the commencement of the works	Design Engineer, Project Engineer, Contractor	Number of people compensated	
14	Climate Change	• Include green and blue infrastructure into design of the project. • Minimize tree cutting in the project areas. • Any remaining riparian areas should be preserved as these act as urban green/blue corridors and support temperature regulation. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other	Design Engineer, Project Engineer, Contractor	Areas planted with vegetation	1,250,000.00

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks			

Operation Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Air quality	
2	Noise pollution and vibrations	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Noise levels	
3	Soil erosion	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	
4	Vegetation Loss	• Replenish vegetation at the open areas regularly	Project Engineer, Contractor	Bare areas	
5	Employment & business opportunities	Implement community engagement programs to address potential social and economic shifts.	Project Engineer, Contractor	Employment opportunities created in the area, for example number of people starting new businesses	
6	Water Pollution	Establish regular water quality testing and maintenance schedules for the water supply infrastructure	Project Engineer, Contractor	Regular water testing reports, incident reports of water quality issues	
7	Increased Traffic	Implement traffic management measures, such as speed bumps and designated parking areas.	Project Engineer, Contractor	Traffic flow assessments, reported incidents of congestion.	
8	Security	Ensure street lights are working and serviced	Project Engineer,		

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
			Contractor		
9	Climate Change	• Maintain trees and other plant ornamentals cover along roadsides to provide cooling of the urban environment and thus a healthier, more resilient community. • To reduce storm waters, make use of permeable surfaces for parking areas, footpaths and walkways and any other paved area to increase infiltration and reduce flooding (e.g., permeable interlocking blocks	Project Engineer, Contractor	Areas replanted with trees and ornamentals	

Decommissioning Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide PPE to workers.	Design Engineer, Project Engineer and Contractor	Air quality	
2	Noise pollution and vibrations	• Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlements	Design Engineer, Project Engineer, and Contractor	Noise levels	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
3	Soil erosion	• Protect excavated sections of the route of storm water during heavy rains	Design Engineer, Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	
4	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Project Engineer, Contractor	Bare areas	
5	Employment & business opportunities	• Employment of gender equity during the project	Project Engineer, Contractor	Number of women, youth and locals employed	
6	Water Pollution	• Works to be done preferably in the dry season • Proper handling, storage and disposal of oil and oil wastes • Proper disposal of wastewater	Project Engineer, Contractor	Water quality values according to NEMA Water Quality standards	
7	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Project Engineer, Contractor	Number of condoms distributed	
8	Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide PPE to workers	Project Engineer, Contractor	Number of PPES issued Number of workers using PPE	
9	Increased gender recognition	• Employment of gender equity during decommissioning where possible.	Project Engineer, Contractor	Number of women employed	
10	Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.	Project Engineer, Contractor	Levels of security: reported numbers of incidences of robbery, theft	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
11	Social Impacts	• Establish and communicate an effective grievance redress mechanism (GRM) • Engage with local leaders at all times. • Engage the SEC at all the times.	Project Engineer, Contractor	Number of grievances received and addressed	
12	Climate Change	• Planting trees and other plant ornamentals in the decommissioned contractor camp to provide cooling of the urban environment and thus a healthier, more resilient community.	Design Engineer, Project Engineer, Contractor	Areas planted with trees and ornamentals	535,980.00

Street Lighting

Pre-Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Land Disruption	- Conduct comprehensive land surveys and assessments to identify potential areas of disruption. - Develop resettlement action plans (RAPs) for any affected communities, ensuring fair compensation	Project Engineer, Contractor	- Percentage of affected land surveyed and documented. - Number of households or individuals affected by land disruption.	
2	Social Discontent	- Implement robust community engagement strategies to communicate project goals and benefits. - Provide clear and transparent information about the project's potential impacts and mitigation plans.	Project Engineer, Contractor	- Number of community meetings held and attendance records. - Community feedback and satisfaction levels measured through	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
				surveys or feedback sessions.	
3	Potential Livelihood Disturbance	- Conduct socioeconomic assessments to understand the dependency of communities on existing infrastructure. - Develop livelihood restoration programs to mitigate any disruptions, providing alternative income opportunities.	Project Engineer, Contractor	- Percentage of households reliant on infrastructure affected by potential disturbances. - Number of livelihood restoration programs implemented and their effectiveness.	

Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Regular maintenance of plant and equipment. • Provide PPE to workers.	Design Engineer, Project Engineer, Contractor and	Air quality	
2	Noise pollution and vibrations	• Sensitise workforce • Supervise construction traffic • Sensitise drivers of construction vehicles • Maintain plant and equipment •	Design Engineer, Project Engineer, Contractor	Noise levels	
3	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project	Project Engineer, Contractor	Number of condoms distributed	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Preventives measures like use of condoms, voluntary counselling and testing		Numbers of seminars held to sensitise staff and locals	
4	Healthy and Safety	• Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Use traffic marshals to direct traffic. • Provide PPE to workers	Design Engineer, Project Engineer, Contractor	Number of PPES issued Number of workers using PPE	
5	Increased gender recognition	• Employment of women for gender equity during the project	Design Engineer, Project Engineer, Contractor	Number of women employed	

Operation Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Energy Consumption	• Reduce energy consumption by use or solar energy photovoltaic cells	Design Engineer, Project Engineer, Contractor	Air quality	
2	Security	Make sure that photovoltaic cells are well secure from theft and vandalism	Project Engineer, Contractor		

Decommissioning Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Provide PPE to workers.	Project Engineer and Contractor	Air quality	
2	Noise pollution and vibrations	• Workers in the vicinity of high-level noises to wear safety & protective gear (PPE).	Project Engineer, and Contractor	Noise levels	

The Drainage system

Pre-Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Land Disruption	- Conduct comprehensive land surveys and assessments to identify potential areas of disruption. - Develop resettlement action plans (RAPs) for any affected communities, ensuring fair compensation	Design Engineer, Project Engineer, Contractor	- Percentage of affected land surveyed and documented. - Number of households or individuals affected by land disruption.	
2	Social Discontent	- Implement robust community engagement strategies to communicate project goals and benefits. - Provide clear and transparent information about the project's potential impacts and mitigation plans.	Design Engineer, Project Engineer, Contractor	- Number of community meetings held and attendance records. - Community feedback and satisfaction levels measured through	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
				surveys or feedback sessions.	
3	Potential Livelihood Disturbance	- Conduct socioeconomic assessments to understand the dependency of communities on existing infrastructure. - Develop livelihood restoration programs to mitigate any disruptions, providing alternative income opportunities.	Contractor, Consultant, County Government, KISIP Team, SEC, GRC	- Percentage of households reliant on infrastructure affected by potential disturbances. - Number of livelihood restoration programs implemented and their effectiveness.	
4	Public Opposition	- Implement targeted awareness campaigns to educate stakeholders about the project's importance and benefits. - Address misinformation and misconceptions through factual information and engagement with key influencers.	Design Engineer, Project Engineer, Contractor	- Number of informational sessions held and attendance records. - Reduction in negative sentiment or opposition as evidenced by community feedback.	
5	Limited Feasibility Focus	- Clearly define the scope and objectives of feasibility studies to ensure comprehensive assessment of project viability. - Allocate sufficient resources	Design Engineer, Project Engineer, Contractor	- Completeness of feasibility studies conducted, including identified risks and	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		and expertise to conduct thorough feasibility studies during the pre-construction phase.		mitigation strategies. - Timeliness of feasibility study completion and quality of findings.	
6	Economic Uncertainty	- Conduct rigorous cost-benefit analyses to assess the potential economic impacts and viability of the project. - Develop contingency plans to address unexpected cost increases or revenue shortfalls during the pre-construction phase.	Design Engineer, Project Engineer, Contractor	- Cost projections compared to budget allocations and potential revenue streams identified. - Flexibility of budget allocations and ability to adapt to changing economic conditions.	
7	Perception of Insufficient Analysis	- Communicate the rationale behind the holistic project evaluation approach, emphasizing its importance in early project stages. - Provide opportunities for stakeholders to contribute feedback and suggestions for improving the analysis process.	Design Engineer, Project Engineer, Contractor	- Stakeholder perception surveys measuring understanding and acceptance of evaluation methods. - Number of stakeholder suggestions incorporated into project evaluation methods.	

Construction Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Displacement and Resettlement:	• Ensure no additional PAPs if any are added after the cut-off date.	Design Engineer, Project Engineer, Contractor	Check register of PAPS	
2	Air/Dust Pollution	• Control speed of construction vehicles • Prohibit idling of vehicles • Sensitise workforce • Water should be sprayed during the construction phase on excavated areas, deviations routes, and temporary access roads • Plant shrubs and trees • Regular maintenance of plant and equipment. • Provide PPE to workers.	Design Engineer, Project Engineer, Contractor	Air quality	
3	Noise pollution and vibrations	• Sensitise workforce • Supervise construction traffic • Sensitise drivers of construction vehicles • Maintain plant and equipment • Workers in the vicinity of high-level noises to wear safety & protective gear (PPE). • Impose speed limits for all vehicles in settlement.	Contractor, Design Engineer, Project Engineer, Contractor	Noise levels	
4	Soil erosion	• Construct efficient drainage structures (culverts, mitre drains, scour checks etc.).	Design Engineer, Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
		• Protect excavated sections of the route of storm water during heavy rains. • Provide erosion channels to natural drains and drainage system to minimize erosion. • Design to incorporate existing drainage pattern and avoid disturbing the same.			
5	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Design Engineer, Project Engineer, Contractor	Bare areas	850,000.00
6	Employment & business opportunities	• Employment of locals in the project as semi-skilled labour.	Project Engineer, Contractor	Number of women, youth and locals employed	
7	Water Pollution	• Works to be done preferably in the dry season	Design Engineer, Project Engineer, Contractor	Water quality values according to NEMA Water Quality standards	
8	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Project Engineer, Contractor	Number of condoms distributed Numbers of seminars held to sensitise staff and locals	
9	Healthy and Safety	• Provide PPE to workers	Project Engineer, Contractor	Number of PPES issued	
10	Increased gender recognition	• Employment of women for gender equity during the project	Project Engineer, Contractor	Number of women, youth and locals employed	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
11	Social economic impact-displacement	• Full compensation before the commencement of the works	Project Engineer, Contractor	Number of people compensated	
12	Climate Change	• Any remaining riparian areas should be preserved as these act as urban green/blue corridors and support temperature regulation.	Project Engineer, Contractor	Areas planted with vegetation	1,250,000.00

Operation Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Soil erosion	• Maintain shrubs and trees cover to reduce noises on the road	Project Engineer, Contractor	Eroded areas with bare soil and have erosion rills	

Decommissioning Phase

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
1	Air/Dust Pollution	• Provide PPE to workers.	Project Engineer and Contractor	Air quality	
2	Noise pollution and vibrations	• Workers in the vicinity of high-level noises to wear safety & protective gear (PPE).	Project Engineer, and Contractor	Noise levels	
3	Soil erosion	• Protect excavated sections of the route of storm water during heavy rains	Project Engineer, and Contractor	Eroded areas with bare soil and have erosion rills	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
5	Vegetation Loss through Clearance	• Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion	Project Engineer, and Contractor	Bare areas	
6	Employment & business opportunities	• Employment of gender equity during the project	Project Engineer, Contractor	Number of women, youth and locals employed	
7	Water Pollution	• Works to be done preferably in the dry season • Proper handling, storage and disposal of oil and oil wastes and spoil	Project Engineer, and Contractor	Water quality values according to NEMA Water Quality standards	
8	HIV/AIDS	• Sensitisation and awareness campaign in the communities along the project • Preventives measures like use of condoms, voluntary counselling and testing	Project Engineer, and Contractor	Number of condoms distributed	
9	Healthy and Safety	• Provide PPE to workers	Project Engineer, and Contractor	Number of PPES issued Number of workers using PPE	
10	Increased gender recognition	• Employment of gender equity during decommissioning where possible.	Project Engineer, and Contractor	Number of women employed	
11	Security	• Use security guards to safeguard construction properties (plant and equipment, vehicles, etc.) at night.	Project Engineer, and Contractor	Levels of security: reported numbers of incidences of robbery, theft	
12	Social Impacts	• Engage with local leaders at all times.	Project Engineer, and Contractor	Number of grievances received and addressed	

Environmental or Social Impact		Proposed Mitigation and Aspects of Monitoring	Responsibility for Intervention and Monitoring	Monitoring Parameters	Estimated Costs of Environmental and Social Mitigations (KES)
13	Climate Change	• Planting trees and other plant ornamentals in the decommissioned areas	Project Engineer, and Contractor	Areas planted with trees and ornamentals	535,980.00

8.2 ESMP Management Responsibilities

In order to implement the management plan, it is recommended that a supervisor is identified to oversee environment and management aspects including the water abstraction sustainability, pollution control, water loss control and equity access, management of sanitation and hygiene measures throughout the project area. The supervisor would also be expected to co-ordinate and monitor environmental management during construction and provide monitoring schedules during operations. Other recommended participants could include the respective NEMA County Director of Environment, the Physical Planning Offices as well as other relevant offices. The responsibility relationship is as follows:

i. KISIP 2 and Nairobi City County Government will be responsible for coordination activities and liaisons, particularly in regard to the identification of project sites, construction and social linkages.
ii. KISIP 2 and Nairobi City County Government will liaise with NEMA County Director of Environment on matters of environmental and social nature. The beneficiary communities will be responsible for overseeing the implementation of the environmental management plan established under this report.
iii. The National Environmental Management Authority through the County Director of Environment shall be responsible of surveillance of environmental and social aspects of the project implementation. It will be expected that the concerns will be communicated through the public relations person for prompt attention whenever they arise.
iv. Stakeholder project liaison committees will be fully responsible for sensitizing the respective project beneficiaries and local stakeholders on matters associated with the project. The Committees to be established for project areas will be responsible for presenting their interests.

8.3 Monitoring of ESMP

Key features of the Monitoring Plan include an identification of stakeholders responsible for mitigation, source of funds for mitigation and objectively verifiable Indicators (criteria) for monitoring.

Monitoring will take place at **four** levels:

(i) Community Level Monitoring: The Community will be assisted to undertake routine monitoring of operations of their project. Important criteria for monitoring include membership numbers, subscriptions, default rate, status of maintenance, frequency and attendance to meetings, pending maintenance cases and reasons thereof, complaints, emergent environmental concerns, solutions proposed, etc.

(ii) Internal Monitoring: The project will be monitored internally at 2 levels as follows:

County Level: The environmental specialist member of the County PCT will be responsible for all monitoring as follows:

- Pre-ESIA Screening
- Management of the ESIA Stage to develop the ESMP
- Application of the ESMP in routine monitoring
- Overseeing statutory Annual Environmental auditing

Ministry Level: The Environmental and Social Specialists at KISIP PCT will be responsible for establishment of M&E system, capacity building and backstopping counties. The specialist will prepare quarterly and annual reports regarding the application of this ESMF in the project.

(iii) External Monitoring: The KISIP will be subjected to external monitoring by the World Bank.

Both internal and external monitoring will be guided by the ESMP to generate information on:

- Nature of impacts at each project phase and whether the impact was anticipated.

- Proposed Mitigation Activity for anticipated impacts and possible mitigation of emergent impacts.
- General sensitivity of the ESMP to project impacts.
- Responsibility for mitigating old and emergent impacts.
- Success or otherwise in mitigation of anticipated and new impacts and reasons for non-achievement.
- Effectiveness of all players in the ESMP and reasons for non-performance.

Mitigation Measures

- Effectiveness or otherwise of the OVIs (Objectively Verifiable Indicators) in securing implementation of impact mitigation and measures required to tighten the process.
- Flow of information in the monitoring process and reasons for non-achievement.

(iv) Statutory monitoring: Sections 68 and 69 of the Environmental Management and Coordination Act (EMCA-1999) require all projects to prepare Annual Audit reports for Review by NEMA. Part V of the Legal Notice 101 defines the focus and scope of Environmental Audit studies as follows: - 'In carrying out of the Environmental Audit study under these regulations, the auditor shall ensure that an appraisal of all the project activities, including the production of goods and services, is carried out giving adequate consideration to environmental regulatory frameworks, environmental health and safety measures and sustainable use of natural resources.' In line with this requirement, Counties will prepare and submit audit reports for all investments to NEMA at least a year after commissioning, and thereafter as required. Counties are also encouraged to undertake annual self-auditing.

8.4 Periodic review of the ESMP

Based on information accruing from all monitoring, the efficacy of the ESMP will be reviewed and updated accordingly. The observation here is that, the ESMP will be updated periodically by KISIP and counties after Monitoring Missions.

CHAPTER 9: GRIEVANCE REDRESS MECHANISM

9.1 Procedures for Grievance Redress

9.1.1 Overview

Grievance Redress Mechanisms (GRM) are necessary avenues for allowing project affected persons to voice concerns about the resettlement and compensation process as they arise and, if necessary, for corrective action to be taken promptly. Such mechanisms are important to achieve transparency in the resettlement processes. Arising from the above observations, the Consultant proposes that all the grievances be addressed before commencing construction.

A well-defined Grievance Redress Mechanism that provides the PAPs with an avenue of lodging complaints and concerns and receiving quick/timely response is critical. Grievance mechanisms are important to the resettlement process as they allow for RAP implementers to identify disputes in good time and allow for them to be resolved in a transparent and accountable manner. Compensation based disputes are issues also likely to occur during and after the RAP implementation program, hence it is critical to establish this system prior to implementation of the resettlement program. A well established and validated grievance mechanism can also promote good relations between the project proponent and the affected community thus reducing the risk of hostilities and delays in the construction program, both before and after the contractor mobilizes to site.

The Grievance Redress Mechanism involves formation or operationalizing of Grievance Redress and Resettlement Committees. An effective mechanism to redress grievances requires:

- that grievances do not linger on and become contentious issues between project authorities and the affected community and result in opposition to the project;
- Project Affected Households (PAHs) and the overall community appreciate efforts by the project authorities to reach out to hear concerns, proactively address and resolve issues; and
- PAHs particularly demonstrate willingness to support and benefit from the implementation of proposed mitigation measures.

9.2 Objectives of GRM

The main objective is to provide a step-by-step process of registering and addressing grievances. It is expected that this mechanism will ensure redress of disputes through participative process. The specific objectives are:

- To create accessible, responsive and demonstrably fair channels to resolve communities' grievances and complaints in a mutually acceptable process.
- To implement effective dialogue and open lines of communication with the public.
- To create an extra channel for receiving information about community grievances and complaints surrounding the project.
- To serve as a release valve for community and worker grievances and complaints stemming from a project and provides early warning of potential problems that are developing.

- To prevent and address all forms of Gender Based Violence (GBV) and Sexual Harassment (SH) and Sexual Exploitation and Abuse (SEA) incidents that potentially happen at workplace and community level.
- To prevent unrealistic expectations or negative perceptions from the local population towards the Project.
- To prevent grievances and complaints from accumulating and escalating to conflicts such as protests, sabotage or strikes that can be very costly to a project in terms of its reputation and in terms of work time, land access or additional demands.
- To allow the project to understand the project risks associated with a grievance. Protests, campaigns and strikes can arise from 'unfounded' grievances or misunderstandings as well. The grievance mechanism provides one channel that a project proponent can use to rectify these sorts of misunderstandings or explain why a grievance is unfounded or is not within the project's jurisdiction.
- To improve the project social performance through the analysis of grievances and complaints.
- To maintain confidentiality for stakeholders who may need to raise comments/concerns anonymously.

9.3 Justification for Grievance Redress Mechanism

Grievance mechanisms are crucial to the success of any project as they play a crucial role in fostering transparency, accountability, and community involvement at all stages of the project. Throughout the project lifecycle, a well-functioning grievance mechanism serves as a vital tool for conflict resolution and prevention. In the planning phase, it provides an opportunity for stakeholders to express their concerns about potential impacts, facilitating the incorporation of community input into project design. During the implementation stage, the mechanism enables real-time responsiveness to emerging issues, allowing for swift corrective actions and adjustments. In the post-project phase, the grievance mechanism remains relevant for addressing any residual concerns, providing a structured process for the resolution of disputes and ensuring that the community continues to have a voice even after project completion.

9.4 Characteristics of the Proposed GRM

1. **Should be Accessible:** An accessible and functional grievance mechanism is important in addressing community or stakeholder concerns as well as receiving feedback on a project so that it can be improved. It is a requirement for all World Bank projects and the responsibility of all project staff, any of whom may receive the grievance.
2. **Should have multiple channels:** It is preferable that grievances are resolved in person at the lowest level, however different levels and channels of registering grievances should be available so that even the most marginalised person feels comfortable raising a grievance. GBV/SEAH related complaints should be referred immediately the GBV specialist.
3. **Confidentiality to avoid reprisal:** Grievances should be dealt with confidentially, on a need-to-know basis only, and without fear of backlash. Grievances can be submitted anonymously by any complainant, and personal data should be anonymised for all complainants who raise GBV issues.
4. **Open to receive any type of Grievance:** Grievances can be raised by community members, workers and other stakeholder concerning project implementation including: adverse social or environmental impacts, misuse of funds; staff behaviour, workers' conditions or safety, quality of service issues, sexual exploitation and abuse, forced or child labour etc.

5. **Timelines:** Grievances should be addressed within a reasonable time. Hence, grievances will be acknowledged within a week (7 days) of receipt and resolved, if possible, within 21 days including feedback to the complainant. The complaint will be addressed as fully and precisely as possible

9.4.1 Principles Guiding Grievance Redress Mechanism

- Acknowledge dissatisfaction: Accept that the displacement due to a development shall generate grievances, rather than ignore or turn away
- Effective listening: Careful listening to elicit information regarding the grievance shall help to accurately define the problem
- Separate facts from fiction: Ask for facts and record it (preferably by the PAH himself). If illiterate, provide support as necessary;
- Quick turn-around: Take optimum time to analyze, ascertain and decide and finally communicate the decision to the PAP. Keep communicating with PAHs in case of delays
- Follow-up: If decision requires a follow up action, take it soonest to instill confidence in the PAP regarding the grievance mechanisms and process
- Grievances will be recorded by using a Grievance Form in the local language and English. Grievance forms will be available for recording complaints and will contain details regarding the grievance as well as the name and address of the applicant, application date, type of application and the name of the persons receiving the grievance. The forms will be logged in a register where they will be tracked through to a suitable resolution. Grievances can be submitted orally (and will be recorded) or in written form.
- Devised keeping in mind the socio-cultural setting such as making use of village elders too in resolution of disputes;
- Take cognizance of impacts on female PAHs and ensures their adequate representation;
- Is independent of the implementing agencies to allow affected individuals to voice concerns and seek redressal;
- Is accessible and is well-supported by an effective information dissemination mechanism to prevent occurrence of a grievance in the first place due to lack of information;
- Is timely and responsive i.e. its recommendation and decisions are implemented by the project authorities; and
- Is transparent;
- Free of charge.

9.4.2 Grievance Procedure and Rationale

A grievance is any dissatisfaction or sense of injustice or unfairness felt by a person in this respect a PAP or his/her representative in connection with his/her compensation entitlements, RAP implementation process or other scenarios related to Project implementation. Grievance procedures may be invoked at any time, depending on the complaint and on the people involved. Grievances might be triggered due to the following reasons among others:

1. Misidentification of assets or mistakes in Valuation.
2. Dispute over the ownership of a given asset (more than one individual claiming one asset)
3. Disagreement over the valuation of the asset

4. Successions, divorces, and other family issues, resulting in disputes between heirs and other family members, over ownership or ownership shares for a given asset.
5. Grievances related to the titling process.

9.5 Grievance Redress Tiers

The ARAP provided a grievance redress mechanism in a 3-tier arrangement as indicated below:

I. The First Tier will allow for amicable review and settlement of the grievance at the settlement level with assistance of SEC members who will discuss and agree on amicable resolutions. This level is called the Settlement Grievance Redress Committee (SGRC).
II. The Second Tier will involve the Resettlement Implementation Committee (RIC) of KISIP in case the grievance cannot be solved at the first level.
III. The Third Tier will be the option of allowing the grieved party to seek redress at the court of law.

Levels I and II are costs free. The legal redress option, however, may incur some costs for the parties involved.

9.5.1 Grievance Redress Steps

The procedure of receiving and resolution of complaints is summarized in Table 23 below:

Table 21 - Grievance Redress Steps

Steps	Grievance Redress Steps Details
Step 1: Receipt of complaint/grievance	• A verbal or written complaint from a PAP or community member will be received by the Grievance Officer (GO) on behalf of the First Tier
Step 2: Determination of Corrective Action	• If in their judgment, the grievance can be solved at this stage, the GO and SGRC will determine a corrective action in consultation with the aggrieved person. A description of the action, the time frame within which the action is to take place, and the party charged with implementing the action will be recorded in the grievance register
Step 3: Meeting with the complainant	• The proposed corrective action and the time frame in which it is to be implemented will be discussed with the complainant within 14 days of receipt of the grievance. Acceptance of the agreement and corrective action will be documented
Step 4: Implementation of Corrective Action	• Agreed corrective actions will be undertaken by the party agreed by SGRC within the agreed time frame. The date of the completed action will be recorded in the grievance register.

Steps	Grievance Redress Steps Details
Step 5: Verification of corrective action	• To verify satisfaction, the aggrieved person will be approached by the GO and SGRC to verify that the corrective action has been implemented. A signature of the complainant will be obtained and recorded in the grievance register

9.5.2 Grievance Redress Mechanism

The consultant has proposed a Settlement Grievance Redress Committee (GRC) as detailed through the Three-Tier Grievance Redress Mechanism GRM. **Figure 29** gives a presentation of the grievance redress mechanism.

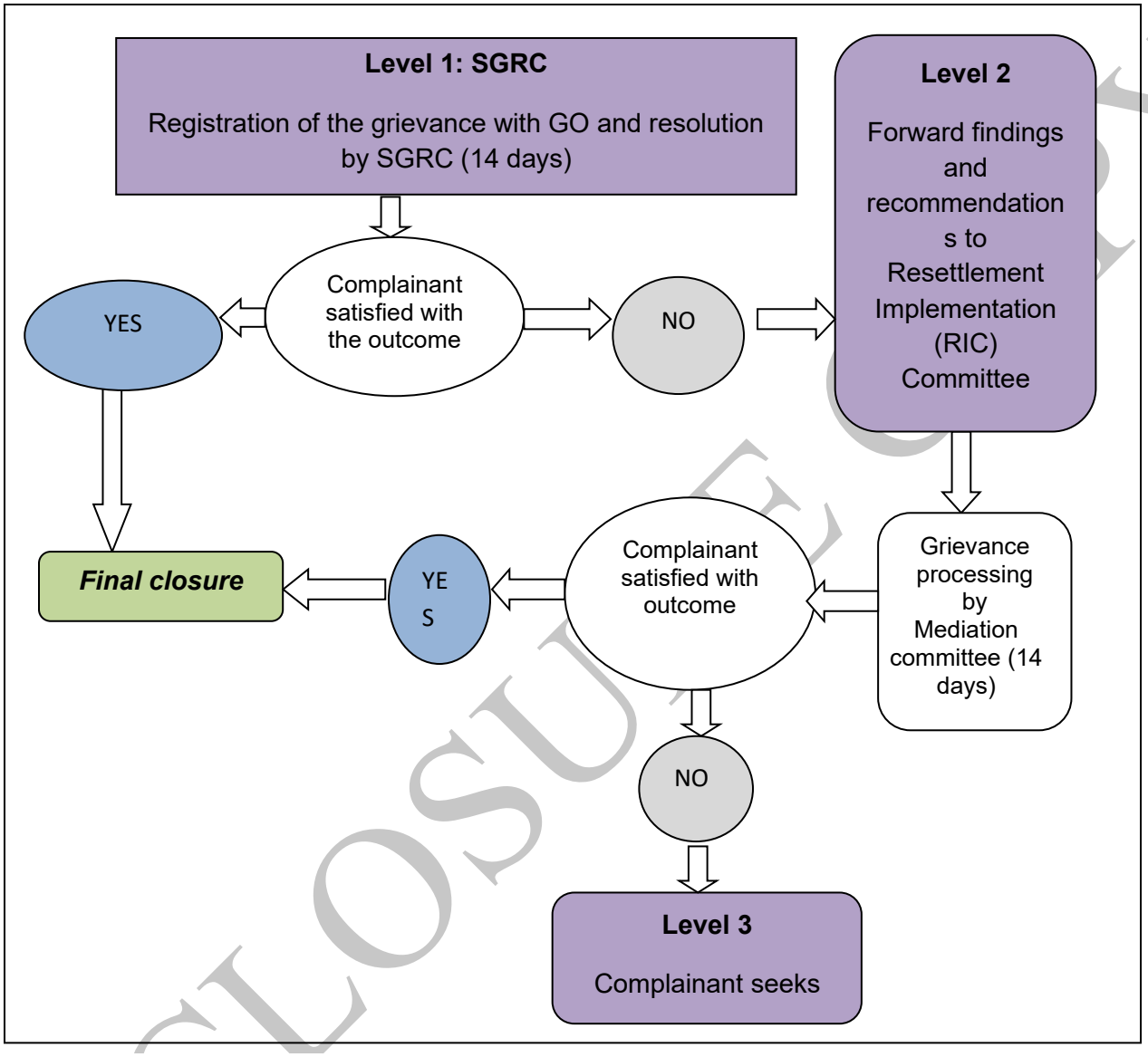

Figure 24 - Grievance Redress Procedure

CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

This ESIA report drew the following conclusions and recommendations for this project:

10.1 Conclusion

The Matopeni Kayole Settlement infrastructure upgrade project is a commendable initiative aimed at enhancing the well-being and livelihoods of the local community through the development of roads, drainage systems, water supply extension, and street lighting infrastructure. While the project holds positive intentions, it is crucial to acknowledge and address potential negative impacts such as resettlement and demolition, noise and air pollution, disruptions to daily activities, and the risk of flooding and social vices. The existing open sewer further adds to the challenges, necessitating a thorough assessment through an ESIA.

10.2 Recommendations

Stakeholder Engagement: Enhance stakeholder engagement throughout the ESIA process. Involve local communities, governmental bodies, and other relevant stakeholders in the decision-making process. Establish effective communication channels and a grievance redress Mechanism to address concerns and feedback.

Pollution Control Measures: Implement pollution control measures, including the use of low-emission construction equipment and dust control strategies. Prioritize the reduction of environmental pollution to create a healthier living environment for the settlement.

Employment Opportunities: Maximize the positive impact of the project by creating employment opportunities during the construction phase. Foster local development and economic activities to contribute to the overall improvement of the community.

Monitoring and Reporting: Establish a robust monitoring and reporting framework to track the implementation of the ESMP and ensure compliance with environmental and social standards.

Regularly communicate progress and findings to relevant stakeholders, fostering transparency and accountability.

i. By adhering to these recommendations, the project can strike a balance between achieving its positive outcomes and mitigating potential negative impacts, ultimately contributing to the sustainable development and improvement of the Matopeni Kayole Settlement and its residents' quality of life.

10.3 Duties of the Proponent

It will be the duty of the proponent to ensure that all legal requirements as pertaining to the development are met as specified by the law, including World Bank Safeguards and specifically OP4.01 (Environmental Assessment).

- The proponent shall hand over the site to the Contractor for implementation of the project.
- The proponent will fund the project.
- The Proponent will acquire the NEMA license.
- The proponent will supervise the project and will also ensure its satisfactory implementation.
- The proponent shall ensure that there is a functional stakeholder engagement plan and grievance redress mechanism.

- The proponent shall define the area of the site, which will be occupied by the contractor for construction purposes.

10.4 Duties of the Contractor

- Prepare and maintain an approved time and progress work-chart, showing clearly the period allowed for each section of the work.
- The contractor is to comply with all regulations and by-laws of the local authority including serving of notices and paying of the fees.
- The contractor shall make good at his own expense any damage he may cause to the public and private roads, drainages and pavements in the course of carrying out the parking lot work.
- The contractor shall provide at his own risk, and cost all water required for use in connection with the works including the work of subcontractors, and shall provide temporary storage tanks , if required.
- The contractor shall make his own arrangements for sanitary conveniences for his workmen. Any arrangements so made shall be in conformity with the public health requirements for such facilities and the contractor shall be solely liable for any infringement of the requirements.
- The contractor shall be responsible for all the actions of the subcontractor in the first instance.
- The contractor shall take all possible precautions to prevent nuisance, inconvenience or injury to the neighbouring properties and to the public generally, and shall use proper precaution to ensure the safety of wheeled traffic and pedestrian.
- All work operations which may generate noise, dust, vibrations, or any other discomfort to the workers and/or guests of the client and the neighbours must be undertaken with care, with all necessary safety precautions taken.
- The contractor shall take all effort to muffle the noises from his tools, equipment and workmen to not more than 80dBA. This should also comply with the requirements of the WBG EHS Guidelines, whichever is the more stringent.
- The contractor shall upon completion of working, remove and clear away all plant, rubbish and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the Proponent. He shall also remove from the site all rubbish and dirt as it is produced to maintain the tidiness of the premises and its immediate environs.
- No blasting shall be permitted without the prior approval of the proponent and the local authorities.
- Borrow pits will only be allowed to be opened up on receipt of permission from the proponent and with NEMA ESIA license.
- The contractor shall maintain good working relationship with the community and implement the stakeholder engagement plan and the grievance redress mechanism.
- The Contractor shall provide and engage a Safety Officer on site to manage occupational health and safety matters.
- The contractor shall also submit and commit to comply with an Environmental and Social Health and Safety (ESHS) Plan and a Code of Conduct regarding Contractor Environmental and Social Management Plan, CESMP.
- This section will be reviewed carefully against the contract documentation to ensure it is included in the contract documentation. As well, the contractor has to submit and have approved by the proponent the ESHS and the Code of Conduct.

REFERENCES

1. Republic of Kenya, 1999; Environmental Management and Coordination Act, 1999, Amended 2015
2. Republic of Kenya, National Population and Economic Census Report, 20019.
3. Republic of Kenya, 1999; Environmental Management and Coordination Act, 1999, Amended 2015
4. 2019 Kenya Population and Housing Census, Kenya Bureau of Statistics

ANNEXES

Annex 1: Lead EIA Expert NEMA Licence

EAE 23061629

FORM 7 (r.15(2))

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/20603

Application Reference No: NEMA/EIA/EL/27380

M/S **PROF. JENESIO I. KINYAMARIO**
(individual or firm) of address
P.O. Box 17788 - 00100 NAIROBI

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

registration number **0134**

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

Issued Date: 1/25/2024 Expiry Date: **12/31/2024**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001 : 2015 Certified

Annex 2: Public Participation Documents

Community participation during participatory GIS crime mapping on 5th March 2024

Annex 3: Abbreviated Resettlement Action Plan (ARAP)

CHAPTER 11: A-RAP- MATOPENI KAYOLE SETTLEMENT

11.1 Actual Census Survey of PAPS and Valuation of Affected Assets

11.1.1 Introduction

A key early task in resettlement planning is the identification of Project's adverse impacts on those that will be affected. The ultimate goal of a ARAP is to enable those affected by a Project to improve their standard of living; a goal that requires an examination of social, environmental and economic conditions. This chapter provides an assessment of the potential socio-economic impacts that the Project will have on those affected. Knowledge of these likely impacts enables appropriately targeted compensation and livelihood restoration plans to be formulated, to support affected people to re-establish their structures and means of livelihood.

The chapter draws on:

- The socio-economic surveys and subsequent baseline produced for the project.
- The affected asset valuation work, that has been conducted to inform the entitlement requirements and compensation parameters of each eligible group and
- Stakeholder engagement activities that have been undertaken with affected PAPs regarding the effects of the project and development opportunities.

The assessment of impacts takes into account the assets being impacted; the number of PAPs affected, the extent of their vulnerability; and their ability to replace lost assets or the livelihood generated from them.

The proposed projects will in some instances result to negative impacts on Project Affected Persons (PAPs) whose properties will be affected. Therefore, the impact will be physical displacement of the Project Affected PAPs.

The type of loss that will be experienced by PAP will be loss of structure.

11.2 Resettlement Impacts

11.2.1 Impacts on PAPs

Detailed category of impacts in numbers is presented in **Table 22** below.

Table 22 - Summary of Resettlement Impacts by wards

Type of Loss	Total
PAPs losing business structures	1
PAPs losing extended veranda	2

11.2.2 Impacts on PAPs with Structures

The Project will impact **3 PAPs** whose structures will be affected. These structures are made of different materials including rough cemented stone wall, timber wall and iron sheet walls all with iron roofs. The structures are mainly business premises. 2 PAPs have their extended verandas affected.

Mitigation Measures

- Cash compensation for loss of structures (calculated at replacement cost).
- Or In-kind compensation through replacement of the structure
- Right to salvage.

11.2.3 Total number of Vulnerable PAPs

No PAP was considered vulnerable in the entire Matopeni Kayole settlement.

11.2.4 Mitigation of Negative Impacts

Table 23 below provides mitigation measures adopted by this ARAP for the negative impacts identified:

Table 23 - Mitigation of Impacts

Impact	Mitigation
Loss of Structures	Loss of Structures will be replaced at full replacement cost; the owners will also be given three months' notice to remove the affected asset and the right to salvage materials.
Loss of Business Income/Rental income	Affected businesses will be given total replacement Value (CMV + 15% Disturbance Allowance + 15% Cost of Relocation).

11.2.5 Valuation Methods

Valuation of Structures

To establish the replacement cost, the coordinates, type of structure, construction details, built up areas, and occupancy status of the different structures were recorded during the data

collection phase. This was aimed at establishing the replacement cost of the different structures for compensation purposes. As a result, the structures have been valued based on the 'reproduction cost' i.e., the cost of reconstructing an identical structure by using the same materials and design at the time of appraisal without depreciation.

11.3 Compensation Measures Agreed With The Paps And Other Resettlement Assistance To Be Provided.

11.3.1 Eligibility for Compensation

The proposed project will lead to economic displacement by affecting PAPs' business structures. The affected persons, irrespective of their tenure status, are eligible for assistance if their assets will be affected by infrastructure development or engaged in any livelihood income-generating activity in the settlement.

11.3.2 Cut-Off-Date

The cut-off date for the project was declared to be **29th November 2023** which was disclosed through the SEC. Those who encroach on the area after the established cut-off date will not be eligible for compensation or assistance. Updates of project information will be made regularly based on information provided by the SEC.

11.3.3 Principles Guiding Compensation

The entitlement matrix defines the type of compensation and assistance to be provided to the different categories of Project Affected Persons. The following principles will guide payment of compensation for lost assets

- Compensation shall be paid prior to displacement.
- Compensation shall be extended to all PAPs irrespective of tenure status.
- Compensation will be at replacement cost meaning that replacement of assets with an amount sufficient to cover full cost of lost assets and related transaction costs.
- Compensation for structures shall include the full cost of materials and labor required for reconstructing a building of similar surface and standing. In other words, the affected person must be able to have their structure rebuilt in a different location using the compensation paid for the old building. Depreciation will not be taken into account while calculating the cost of affected structures.

11.3.4 Vulnerable Groups

Vulnerable PAPs are a distinct group of people who might suffer disproportionately or face the risk of being marginalized as a result of resettlement and specifically include: (i) female- and child-headed households, (ii) disabled household heads, (iv) Households headed by elderly persons with no means of support.

This ARAP assessment further analyzed vulnerability using several indicators which included:

- Gender dimension with regard to ensuring equal right to knowledge and decisions on ARAP process and management of compensation funds eligible to a household.
- This ARAP provides that PAPs will open joint account with their spouses in order to ensure collective management of compensation funds.
- The rights of dependents especially children to be involved in the ARAP process and management of compensation funds eligible to a household. There was NO vulnerable PAP in Matopeni Kayole Informal Settlement.

11.3.5 Entitlement Matrix

The entitlement matrix is designed to ensure all eligible PAPs are compensated appropriately depending on the loss incurred. All persons affected by the Project and meeting the cut-off date requirements will be entitled to a combination of facilitation packages and resettlement assistance depending on the nature of ownership rights on lost assets and scope of the impacts. The entitlement matrix developed for this assessment is presented in **Table 24.**

Table 24 - Entitlement Matrix

Type of Loss/Impact:	Category of Affected Person	Proposed Entitlements / Mitigation – Resettlement, Compensation and Assistance
Dwellings used for secondary purposes (rental houses, free accommodation for relatives, etc.)	Owner of residential structure	• Cash compensation for all structures at replacement cost, based on professional valuation. • Statutory Disturbance Allowance of 15% of compensation amount. • Materials from the affected structure may be salvaged at the owner's expense within the notice period to vacate defined by the project schedule and prior to demolition.
Fully affected/Partly affected remaining structures not viable	Squatter	• Cash compensation at replacement cost for the structure. • One time shifting allowance of Ksh 10,000. • Right to salvage materials.
	Tenant	• Housing allowance for two months equivalent rental value

Type of Loss/Impact:	Category of Affected Person	Proposed Entitlements / Mitigation – Resettlement, Compensation and Assistance
		• A one-time shifting allowance of Ksh 5,000.
Part affected structures with remaining portion viable	Squatter	• Cash compensation of affected area at replacement Cost without depreciation. • Repair Cost at 25% of the total compensation. • Right to salvage materials.
Loss of Income	Business operators Loss of Rental income	• Cash compensation based on a calculated average loss of income over an appropriate period • Subsistence allowance equivalent to 2 months rental income.
Sanitation facilities (Pit latrines & bath shelters).	Owners of buildings (residential)	• Cash compensation for all structures at replacement cost, based on professional valuation. • Statutory Disturbance Allowance of 15% of compensation amount. • Materials from the affected structure may be salvaged at the owner's expense within the notice period to vacate defined by the project schedule and prior to demolition.
Moveable and other structures such as fences, business kiosks, livestock enclosures, livestock water	Owner of structures	• Cash compensation for all structures at replacement cost, based on professional valuation. • Statutory Disturbance Allowance of 15% of compensation amount. • Materials may be salvaged at the owner's expense within the notice

Type of Loss/Impact:	Category of Affected Person	Proposed Entitlements / Mitigation – Resettlement, Compensation and Assistance
points, etc.		period to vacate defined by the project schedule and prior to demolition.

11.4 STAKEHOLDER CONSULTATION AND PARTICIPATION

11.4.1 Objectives of Stakeholder Consultations

The aim of Stakeholder Consultation and Public Participation is to disseminate information to interested and affected parties, solicit their views and consult on sensitive issues. The specific aims of the Public Consultation and participation process during preparation of the ARAP include:

- To inform the residents, local administration and other stakeholders about the proposed projects and its objectives
- Obtain the main concerns and perception of the community and their representatives about the project.
- To promote project ownership by the proponent and beneficiaries in order to minimize conflicts.
- Receive comments and suggestions from the directly affected persons on the project impacts and best suited measures to mitigate them.
- To facilitate the development of appropriate and acceptable entitlements options
- To increase long term project sustainability and ownership
- To help in institutional coordination, especially at the different government levels.

11.4.2 Stakeholder Inventory

During the public consultations, multiple groups of stakeholders were consulted. The stakeholders were those who have an interest in the project development, and who will be involved in the further consultative process. The main groups of stakeholders consulted were:

(i) Project Affected Persons

These are the people who reside in the settlement or derive their livelihood from the settlement. These people will partially or fully lose their structures or lose shelter due to the infrastructure development activities in Matopeni Kayole Informal Settlement.

(ii) Government Agencies consulted These included the following:

- KISIP

- Area chiefs
- County Government of Nairobi
- Ministry Of Lands, Housing and Urban Development

11.4.3 Stakeholder Consultations Held

The initial public consultations and sensitization were done on 14th November 2023. They involved county government administration, community leaders and community groups in Matopeni Kayole informal settlement, Provincial Administration through the assistant chief and the SEC. These consultations provided views, opinions and suggestions on the proposed projects including feeder roads, sewer line, completion of social hall, erection of high mast security light and water supply in the informal settlement. Further, the consultations provided views (comments, suggestions, fears and concerns) on the proposed projects in these settlements. Detailed public consultations involved conducting public meetings and key informants' discussions with the target beneficiaries and other stakeholders. The meetings were facilitated by the SEC.

11.4.4 Impacts of the Proposed Project During Construction and Operation.

Positive Impacts

- Increased land value in the settlement
- Improved road network and drainage system.
- Improved security because of the installation of high mast security lights (mulika mwizi)
- Attraction of investors due to better infrastructure and improved security
- Employment creation during the project implementation
- Increased business due to long operation hours due to improved security
- Improved sewerage will reduce water borne diseases
- Construction of dispensary will improve the health status of the community

Negative impacts

- Disruption of businesses during the construction
- Dust pollution during the construction
- Influx of people as infrastructure will attract people from other areas into the settlement
- Increased HIV infections as human influx is likely going to attract sex workers during and after construction
- Disposal of waste materials during the construction period
-

11.4.5 Conclusion

Generally, there is an overall appreciation for the proposed projects having emanated from the community members within the Matopeni Kayole informal settlement. However, the community emphasizes the need to be involved in the overall project. SEC is the entry point into the community hence the Contractor should ensure that members are involved at all stages of the project. In so doing, this will go a long way in ensuring the smooth implementation of the project.

11.5 INSTITUTIONAL ARRANGEMENT AND IMPLEMENTATION

11.5.1 RAP Implementation Procedures and Process

Implementation of this RAP will include several Institutions with and without statutory mandate. This Chapter describes the different Institutions that will be involved in the implementation of the ARAP including their roles and responsibilities. Implementing this ARAP involves several key procedures and processes:

11.5.2 Validation

Validation of the asset and PAP register will be undertaken by the KISIP project coordination team to ensure its correctness.

11.5,3 Disclosure Process for the RAP

Public disclosure of the RAP will be made to PAPs and other stakeholders for review as well as monitoring of the implementation. Disclosure will be in the form of:

- Public disclosure meeting organized in the target locations. As a requirement this ARAP will be disclosed in a form, manner and language comprehensible to PAPs and at a place accessible to PAPs and other stakeholders e.g., Location Chiefs Offices.
- A half day workshop will therefore be conducted in the target estates by the consultant with the PAPs, stakeholders, local leaders with the objective of disclosing the ARAP. During this disclosure meeting, a summary of the main findings and recommendations, entitlements, and PAP register will be presented. Once disclosed, the PAPs will be notified about the availability of the ARAP document.
- The ARAP will be posted on the ministry website.

11.5.4 Capacity Building

Implementation of the ARAP will entail capacity building and orientation of the officers in charge of its implementation as well as the GRM institutions described in previous Chapter. Therefore, it is planned that training and orientation on the ARAP implementation will be organized after the final approvals of the document as detailed in the implementation schedule.

11.5.5 Sensitization

This will cover a number of issues including appropriate use of compensation funds and avoidance of gender-based violence related to compensation funds.

11.5.6 Resettlement Implementation Institutions

This ARAP will be implemented within a period of not more than 60 days upon approval from the World Bank. At implementation phase, KISIP will ensure all PAPs are adequately facilitated according to the provisions of this ARAP before the project commences. The

implementation tasks will be carried out by KISIP Resettlement Implementation Committee (RIC) for Nairobi County whose composition is outlined in this ARAP.

(i) The National Treasury

The treasury has a role of managing finances on behalf of the borrower. The government, through the treasury will avail resources for the project including funding allocated for RAP implementation.

(ii) Ministry of Lands, Public Works, Housing and Urban Development. ((State Department for Housing and Urban Development)

It houses the KISIP project and provides for policy direction.

The Ministry has the role implementation of infrastructure improvement in the planned Settlements and this ARAP

(iii) Ministry of interior

The ministry through the County Commissioner's office will mobilise the PAPs and guide in the process of their verification.

The ministry will get involved during the process of sensitisation

The Grievance Redress Mechanism consist of the County Commissioners' Representative (Chief) and will support the project in dispute resolution

11.5.7 ARAP implementation at KISIP

(a) KISIP Project Coordination Team

The overall coordination of the whole process is provided by the KISIP Project Coordinating Team (PCT). The National KISIP Coordinating Unit has the following roles:

a. Coordinate the effective implementation of the ARAP as provided for by the RPF.
b. Prepare Progress Reports on the implementation of the Social Safeguards.
c. Procure and supervise consultants for Social safeguards.
d. Build the capacity at all levels to implement the RAP.
e. Supervise RAP implementation during and after project implementation.
f. Ensure integration of RAPs into Contract and Bid Documents.
g. Ensure adequate community participation.

(b) KISIP RAP Implementing Committee

Resettlement Implementations Committee, appointed by the Project Coordinator has been incorporated in the GRM and has the overall responsibility of Monitoring and Evaluation of the resettlement process. The following are the recommended members:

<u>From KISIP National PCT</u>

a. Head of Component 1.
b. Social Safeguard Specialist.
c. Community Development Specialist.
d. 3 members from Component 2 – Surveyor, Land Administrator and Valuer.

e. KISIP Finance Officer.

From the County

a. County KISIP Coordinator who will be the chairman.
b. Assistant County Commissioner.
c. Community Development Officer.
d. County Surveyor.
e. A representative from enforcement department.
f. Ward Administrator.

The committee works with the Project Affected Persons for each settlement.

The committee's roles are as presented below.

a. The Resettlement Implementation Committee shall ensure the list of all PAPs has been verified and documented in the PAP register. The register shall have, among other parameters, (1) the name of the person, (2) type of loss (structure / Livelihood)
(3) identification number of the PAP, (3) Compensation Amount (3) Bank Details or M-pesa details of the PAP.

b. The Resettlement Implementation Committee will verify the identity of each PAP as stated in the register and ascertain that every identity card holder is correctly documented in the register.

c. Resettlement Implementation Committee and SEC will carry out sensitization about opening of joint accounts and appropriate use of compensation funds for households. RIC will support PAPs in opening individual and joint accounts with financial institutions of their choice. RIC will follow up on PAPs to ensure they have received their compensation.

d. On completion of the PAP Audit and resolution of any grievance, the committee shall recommend compensation. Payments will be made according to locations and adequate information will be made available to all affected persons prior to payment. Such information will include: dates and locations of payment, list of eligible people and mode of payment, etc.

(c) County KISIP teams

For effective implementation of the project, Counties have established County KISIP Teams whose composition is a replica of the national team. The county team was crucial in development of this ARAP and they will also be important during implementation of the ARAP prior to commencement of civil works.

The role of the County KISIP Team includes:

i. Validation of assets and PAPs before compensation.
ii. Formation of the Grievance Redress Committee.
iii. Capacity building of ARAPs committee.
iv. Sensitization of PAPs on bank accounts and use of compensation funds.
v. Gender based violence sensitizations in use of compensation funds.
vi. Monitoring of ARAP activities.
vii. Oversight and supervision of rebuilding of structures owned by vulnerable PAPs who need assistance.

(d) Nairobi County Government

The county's role includes:

i. Facilitate implementation of ARAP and ensuring project success.
ii. Delivery of other assistance to PAPs will be the responsibility of County Government under the coordination of respective RIC.
iii. Responsibility for appropriate and suitable measures to prevent further encroachments after the cut-off date and before facilitation is made.
iv. Oversight and quality control of rebuilding of structures for vulnerable PAPs identified for this additional assistance.
v. Clearance of structures after expiry of self-demolition period and compensation.
vi. Part of Grievance Redresses Mechanism through County KISIP office.
vii. Maintaining infrastructure and safeguarding them from encroachment after ARAP Implementation.

(e) Settlement Executive Committee

This was instrumental in mobilizing the community and providing a link between KISIP and the community. The Committee has been involved in all stages of ARAP development and is expected to continue playing an active role in monitoring its implementation.
The Settlement Executive Committee role in the ARAP process as follows:

i. It provides an entry point into the informal settlement.
ii. It is the crucial link between the community and other institutions.
iii. Plays an important role in the formulation of the community resettlement committee and other engagement structures.

11.6 IMPLEMENTATION TIMETABLE AND BUDGET FOR THE ARAP IMPLEMENTATION

11.6.1 Gender Empowerment Activities

Gender mainstreaming is one of the guiding principles of this ARAP and women rights are important in this ARAP, to enhance these rights, initiatives tailored to sensitize women on tenure rights, Land Laws and enhancing land related decision making for women within the settlement was done.

In implementing these initiatives, key stakeholders including KISIP and Nairobi County; Gender Department; local women and men-based organizations; SEC; and local community will participate in the sensitization exercise. These Sensitization exercises during implementation of this ARAP will include but not limited to:

i. Enhancing women's economic empowerment rights and making sure the female headed households are not disenfranchised during compensation;
ii. Sensitizations on sexual and gender-based violence in use on Compensation Funds.

11.6.2 RAP Implementation Schedule

The implementation schedule for this ARAP covers the period from the preparation of the ARAP to the conclusion of the envisaged projects in Matopeni Kayole Informal Settlement. As part of ARAP implementation, disclosure of RAP will be a critical task, disclosure will be

achieved through meetings organized at settlement level coordinated by the KISIP Resettlement Implementation Committee.

In the disclosure meeting, a summary of the main findings and recommendations, entitlements and PAPs register will be presented to the community with interpretation in the local language if required. The process of RAP implementation will also involve other tasks as summarized below.

- Audit of PAP register and compensation package due to each PAP.
- Resolution of emerging grievances
- Notification and sensitization of PAPs.
- Commencement of Project operations.
- Monitoring and evaluation, including baseline information update.

Table 25 - ARAP Implementation Schedule

S/No.	Activity	Period (Month)														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Task 1	**ARAP PREPARATION**															
1.1	RAP Preparation and Submission of Draft ARAP to KISIP															
1.2	Finalisation of RAP															
Task 2	**RAP DISCLOSURE**															
2.1	Sensitization of the PAPs on the project															
2.2	Capacity building of GRM committees															
2.3	Distribution of ARAP summaries to local administration offices															
2.4	Holding ARAP disclosure meetings															
Task 3	**VALIDATION OF PAPS**															
3.1	Dispute resolutions by GRCs															
3.2	Sensitization of PAPs on bank accounts and financial management															
3.3	Sorting out PAPs challenges such as missing IDs, account details															
3.4	Putting together the required machinery, legal and educational processes, and training of resettlement staff															
4	**PAYMEMNT OF COMPENSATION**															
4.1	Issuance of 30 days notice of self demolition															
4.2	Self demolition within the 30 days notice															
4.2	Demolition of any structure that have not been demolished															
5	MONITORING ACTIVITIES															
5.1	Monitoring and evaluation of resettlement of PAPS especially vulnerable groups			◆	◆	◆	◆	◆		◆	◆◆	◆		◆	◆	◆

- This schedule is subject to amendment subject to the final activities to be determined at the commencement of the projects.

11.6.2 Itemized Budget

This section contains a summary of the costs as shown in **Table 26** for implementing the Resettlement Action Plan and a high-level Implementation Schedule. Critically, it also lists the assumptions that underpin both the cost estimate and the schedule. See details in **Appendix 3** of this Report.

Table 26 - RAP Budget

Description	Details	Amount (Ksh)
Structures	3 structures	187,200.00
live fence		
Sub Total 1		187,200.00
Facilitation of Grievance Redress and Resettlement Committees (5%)		9,360.00
Monitoring and Evaluation 5%		9,360.00
Contingency Costs (15%) to deal with unforeseen costs.		28,080.00
Sub Total 2		46,800.00
Grand Total		**234,000.00**

Table 27 - PAP Register

	Name of the HH Owner	ID	Telephone	Gender	Plot Number	Ownership/ Rented	Coordinates	Age	Photo
1	Brian Mutahi Mutua	32524330	0720486751	Male	A200	Owner	-1.261261, 36.927866	35	
2	Lucy Waithera	1520677	0723925273	Female	139	Owner	-1.261261 36.927866	65	

	Name of the HH Owner	ID	Telephone	Gender	Plot Number	Ownership/ Rented	Coordinates	Age	Photo
3	Jirma Buro	10126718	0722844113	Male	A153	Owner	-1.261261, 36.927866	68