COUNTY GOVERNMENT OF MOMBASA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) PROJECT STUDY REPORT

FOR

THE PROPOSED INFRASTRUCTURE UPGRADING PROJECTS

IN MAJAONI-BAMBURI, KIDUNGUNI, CHAANI AND KISUMU NDOGO INFORMAL SETTLEMENTS, MOMBASA COUNTY

KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROGRAMME (KISIP)
SECOND KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT

This Environmental and Social Impact Assessment (ESIA) Project Study Report is submitted to the National Environment Management Authority (NEMA) in conformity with the requirements of the Environmental Management and Coordination Act, (Cap, 387) and the Environmental (Impact Assessment and Audit) Regulations, 2003

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ACRONYMS/ABBREVIATIONS

BCR	Benefit Cost Ratio
CBO	Community Based Organizations
NG	National Government
CGM	County Government of Mombasa
CPP	Consultative Public Participation
CWSB	Coast Water Services Board
DB	Development Bank
DOSHS	Directorate of Occupational Safety and Health Services
EA	Environmental Audit
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMCA	Environmental Management and Coordination Act
ESMP	Environmental and Social Management Plan
ESO	Environmental and Social Officer
FGD	Focus Group Discussion
GOK	Government of Kenya
HIV and AIDS	Human Immunodeficiency Virus And Acquired Immunodeficiency Syndrome
IPCC	Intergovernmental Panel on Climate Change
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KURA	Kenya Urban Roads Authority
KISIP	Kenya Informal Settlements Improvement Project
KWS	Kenya Wildlife Services
MoWASCO	Mombasa Water and Sewerage Company Ltd
NCCAP	National Climate Change Action Plan
NEMA	National Environment Management Authority
NGO	Non-Governmental Organizations
OSHA	Occupational Safety and Health Advisor
PAP	Project Affected Person
PCT	Project Coordination Team
PIM	Product information management
RAP	Resettlement Action Plan
RE	Resident Engineer
RPF	Resettlement Policy Framework
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SEC	Settlement Executive Committee
WB	World Bank
WIBA	Workers Injury Benefit Act

0.0 EXECUTIVE SUMMARY

This study documents the outcome of the environmental and social impact assessment carried out for Infrastructure Upgrading Projects in Majaoni-Bamburi, Kidunguni, Chaani and Kisumu Ndogo Informal Settlements, Mombasa County. The assessment was conducted by a cross-disciplinary team encompassing: environmentalists, urban planner & surveyors. The study team also tapped into the local knowledge of the communities within the project area through structured questionnaire survey, informal interviews and a public baraza.

Kenya Informal Settlements Improvement Project (KISIP) is a Government project that was started in 2011 to improve the living conditions in informal settlements in 15 urban centers in Kenya and provide security of tenure to residents of those settlements. The project was instituted under the Ministry of Land, Housing, and Urban Development in the Slum Upgrading department. The project is funded through GoK, in cooperation with the World Bank, the Agence Française de Development, and the Swedish International Development Cooperation Agency and is being implemented through participating County Governments.
The overall project development objective of the KISIP is to improve living conditions in informal settlements in selected Counties in Kenya. This will be achieved by enhancing security of tenure and improving infrastructure based on plans developed in consultation with the community.

The project proponent being environmentally conscious commissioned NEMA registered experts to undertake an Environmental and social Impact Assessment (ESIA) Project Report for the proposed Infrastructure Upgrading Projects in Majaoni-Bamburi, Kidunguni, Chaani and Kisumu Ndogo Informal Settlements, Mombasa County. This is in order to comply with the Legal requirement as stipulated in the Environmental Management and Coordination Act cap 387, section 68 and 69; and the need to conserve the environment.

This report therefore presents the type, location, sensitivity and the scale of the proposed infrastructure upgrading projects, as well as the potential environmental impacts, proposed mitigation measures and site - specific environmental management plans for each settlement. The proposed infrastructure upgrading projects, which reflect residents' priority needs, were first identified during socio-economic surveys, through household surveys and consultative focus group discussions.

The Infrastructure Upgrading Projects components which have been considered in this report are presented in the summary table below: -

Table 1.1: Project Cost Summary

STORM WATER DRAINAGE AND QUICK INTERVENTIONS FOR ELNINO PREPAREDNESS				
No	**PROJECT NAME**	**LOCATION**	**PROJECT DESCRIPTION**	**PROJECT ESTIMATES (Kshs)**
1	Construction of 900mm diameter culvert storm water drainage line in Majaoni	Majaoni-Bamburi	This is a 230m long new drain that should be constructed along one of the roads within Majaoni settlement. It commences the junction connecting three roads, being lowest point in the area which frequently floods. It will have an outfall at natural water way that leads to Mtwapa Creek	11,987,350
2	Vertical drainage construction and improvement for Storm water drainage in Kisumu Ndogo	Kisumu Ndogo	Kisumu Ndogo has no storm water drainage outfall. The surface runoff drains into the ground. This project aims to improve the existing vertical drains and construct 10 more to assist in drainage of the forth coming rains	4,968,000
3	900mm diameter culvert construction in Kidunguni	Kidunguni	The area experiences flooding requiring construction of another a new line with outfall towards Mweza creek	28,734,000
Waste Management				
4	Improvement of Waste water management in Mwatate Phase I, Chaani	Chaani	Requires construction of an extension to existing sewerage system and improvement of existing system	4,319,488
5	Improvement of Waste water management in Mwatate section Phase II, Chaani	Chaani	Section 2 is an extension of sewerage line also within the settlements	4,323,517
6	Solid waste management in Mwatate, Chaani	Chaani	Cleaning and management of solid waste damped in drains along the settlement that have outfall at Kipevu	4,216,000
Project Cost estimates				**58,548,355**
Front Cover Photo		**Kisumu Ndogo**	**Flooded drainage channel in Kisumu Ndogo Settlement, Mombasa County. ©Source: field work Photography**	

The public consultations on potential environmental impacts were identified through consultative meetings held during the identification of the infrastructure projects. While scoping and identifying key baseline information for purposes of developing an environmental profile of each settlement, households further provided data on environmental hazards in their settlements, ranking them in terms of their severity.

The environmental impacts expected from the proposed project, that is – physical, ecological, socio- cultural, health and safety were found to be limited. However, since the proposed project is within fully built ecosystem which provides habitat for many people, it requires precautionary measures to avert/ameliorate adverse environmental impacts occasioned by implementation of the proposed project.

0.1 Positive Project Impacts

During consultations, the following positive impacts of proposed projects were highlighted:

- Improved Accessibility- The paved roads will ease access into the settlements. The roads become impassable during the rainy season. In Kisumu Ndogo, for example, the community mentioned that it become very difficult to take patients to Hospitals in case of emergencies due deplorable state of several access roads within the settlement, therefore the project is highly accepted and timely.
- Improved Sanitation and Hygiene Standards-residents will benefit from the proposed new connections to the main water supply which will lead to improved health and hygiene at household level. Cases Diseases outbreak also will reduce as a result of improved drainage of waste that would previously remain stagnant in the unlined side drains. Reduced dust means less respiratory diseases.
- Improved Security-The settlements will be well lit by the flood lighting therefore, residents will feel safe walking at night and businesses will operate until late hours.
- It will lead to improved tenure security for the residents.
- Land Appreciation-Upgrading of infrastructure in the settlements will make the area more appealing, leading to a rise in land prices.
- Improved Livings Standards- living standards in the settlements will improve due to a combination of factors including reduced dust emission from the road, fewer incidence of water-borne illnesses, and more conducive environment to carry out business. i.e. the housing standards within the selected settlements will improve.
- Employment and Improved Livelihoods: Project will provide some employment while flood lights will enable thriving businesses at night. Rent has also will go up earning owners more income.
- Gendered impacts in livelihood improvement: Most of the businesses which will operate at night belongs to women thus benefiting majority of women in those particular settlements due to improved security.
- Improved aesthetics: Infrastructure and associated requirements e.g. clearing of some unplanned structures improved aesthetics in the settlement. Roads will promote better planning i.e. no haphazard building
- Infrastructure will lead to improvements in health and reduced hazards associated with dust and others. Access to clean water will reduce waterborne diseases. Improved drainage channels will improve drainage of storm water in the settlement reducing risk of flooding.

- Infrastructure will attract better and improved housing e.g. high-rise buildings – change in the type of buildings to be put up in those selected settlements.
- Increased interaction and relations between various groups in the settlement due to the project and its institutional framework e.g. SEC which will bring different groups together and working together for long period.

0.2 Negative Impacts

The following negative impacts were highlighted from the consultations:

- Accessibility Challenges- based on community sentiments, accessibility within the settlement during construction is an issue. Contractors often do not provide safe access to buildings and routing/ diversions for vehicular and human traffic. Moreover, persons living with disability and the elderly, have unique accessibility challenges during and after construction, which need to be considered.
- Clogged Drainage Systems - Drainage is clogged with solid wastes from homesteads and small businesses, while in other cases, the drains are clogged with construction debris from plots under development.
- Safety Concerns – There is need to make the proposed access roads safer for the community through proper design, signage, guard rails, and bumps. The residents were reported concerned that in most cases the access roads in many settlements always lead to increased accidents due to motorbikes over-speeding in the settlement as a result of improved roads. Roads also attract children and turning them into playgrounds. Also, road side vendors usually find the improved accessed roads attractive for business thus block better parts of the access roads leading to increased accidents and conflict amongst the road users.
- Gentrification: As property values rise, some project beneficiaries unable to keep up with changing environment are forced to sell out thus may lead to dispossession and increased level of poverty if the proceeds from the sale is not well invested.
- Pollution from dust during construction especially as most contractors don't pour water.
- The infrastructure should be friendly to persons living with disabilities.
- Noise during construction.

0.3 Conclusion and Recommendation

0.3.1 Conclusion

Arising from the analysis by the consultants, it is concluded that the proposed projects will have considerable positive socio- economic impacts and improvement in the quality of life of the residents in the three selected settlements. The proposed project components will respond to the residents' immediate felt needs as prioritized by them in the various collaborative

consultations held with them. The proposed project components will equally have a positive impact on the physical and natural environment. The project is unlikely to generate any irreversible or permanent negative impacts.

The report has provided adequate mitigation measures for the identified temporary' impacts. It should be noted that, the proponent of the proposed project SHALL be committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life cycle of the project as advised in the Environmental and Social Management Plans (ESMP).

0.3.2 Recommendations

The main recommendation of this ESIA report is that during project implementation (i.e. the construction phase) the mitigation measures identified and recommended be closely monitored to ensure that they are being undertaken. All contracts for construction of any of the proposed project components must stipulate the responsibilities of the contractor for implementing the proposed mitigation measures. In this regard, the Environmental and Social Management Plans (ESMPs) developed in this ESIA report consider the impacts of construction and of the operation phases of the infrastructure components. The core responsibilities during the implementation of the ESMP have been allocated.

This report has therefore recommended site-specific mitigation measures and context- specific environmental management plans for each of the four settlements, in line with EMSF categories of KISIP projects under Category B. The report has further recommended that during the implementation of the proposed infrastructure projects, mitigation measures be closely followed and monitored. As set out in Sections 68 and 69 and further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003 of EMCA this report recommends that annual Environmental Audits be carried out in order to mitigate and control environmental damage from completed projects.

CHAPTER ONE: INTRODUCTION

1.1 Project Background

Kenya Informal Settlements Improvement Project (KISIP) is a Government project that was started in 2011 to improve the living conditions in informal settlements in 15 urban centers in Kenya and provide security of tenure to residents of those settlements. The project was instituted under the Ministry of Land, Housing, and Urban Development in the Slum Upgrading department. The project is funded through GoK, in cooperation with the World Bank, the Agence Française de Development, and the Swedish International Development Cooperation Agency and is being implemented through participating County Governments.

Since environmental concerns need to be part of the planning and development process and not an afterthought, it is therefore advisable to institute pro-active measures to avert/ameliorate adverse environmental impacts as stipulated in section 58 and 138 of the EMCA and section 3 of the environmental (Impact Assessment and Audit) Regulation 2003 (Legal No. 101), such developments require an environmental impact assessment project/study reports prepared and submitted to the national environment management authority (NEMA) for review and eventually licensing before the development commences.

To this end, the proponent (the Department of Lands, Housing and Urban Development, County Government of Mombasa) being environmentally conscious commissioned registered environmental experts to undertake an environmental and social impact assessment study for the proposed Projects; within Majaoni-Bamburi, Kidunguni, Chaani and Kisumu Ndogo Informal Settlements, Mombasa County. This is in order to comply with the Legal requirement as stipulated in the Environmental Management and Coordination Act cap 387, section 68 and 69; and the need to conserve the environment.

The exercise identified anticipated environmental impacts and suggested ways to mitigate them through a tailor-made environmental management plan that will sustainably guide implementation of the proposed project.

1.2 Project Description

1.2.1 Project Objectives

The proposed project development objective 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 will be achieved by investing in infrastructure based on plans developed in consultation with beneficiary communities; by supporting planning, surveying and issuance of land documents for residents of informal settlements; and by strengthening capacity of county administrations to deliver on their mandates.

1.2.2 Project Components

The project has the following four components: -

- Component 1: Strengthening institutions and project management.
- Component 2: Enhancing tenure security.
- Component 3: Investing in infrastructure and service delivery.
- Component 4: Planning for urban growth.

This assignment is under component 3 of the KISIP project. The overall project development objective of KISIP is to improve living conditions in informal settlements in selected Counties in Kenya. This will be achieved by enhancing security of tenure and improving infrastructure based on plans developed in consultations with the community.

1.2.3 Scope of the Proposed Project

The scope of work is limited to selected informal settlements within Mombasa County, namely: Majaoni-Bamburi, Kisumu Ndogo, Kidunguni and Chaani settlements within Mombasa county - see table below for the settlements' location, project name and description.

Table 1.2: **Storm Water Drainage and Quick Interventions for El Nino Preparedness**

No	PROJECT NAME	LOCATION	PROJECT DESCRIPTION
1	Construction of 900mm diameter culvert storm water drainage line in Majaoni	Majaoni-Bamburi	This is a 230m long new drain that should be constructed along one of the roads within Majaoni settlement. It commences the junction connecting three roads, being lowest point in the area which frequently floods. It will have an outfall at natural water way that leads to Mtwapa Creek
2	Vertical drainage construction and improvement for Storm water drainage in Kisumu Ndogo	Kisumu Ndogo	Kisumu Ndogo has no storm water drainage outfall. The surface runoff drains into the ground. This project aims to improve the existing vertical drains and construct 10 more to assist in drainage of the forth coming rains
3	900mm diameter culvert construction in Kidunguni	Kidunguni	The area experiences flooding requiring construction of another a new line with outfall towards Mweza creek

Waste Management			
4	Improvement of Waste water management in Mwatate Phase I, Chaani	Chaani	Requires construction of an extension to existing sewerage system and improvement of existing system
5	Improvement of Waste water management in Mwatate section Phase II, Chaani	Chaani	Section 2 is an extension of sewerage line also within the settlements
6	Solid waste management in Mwatate, Chaani	Chaani	Cleaning and management of solid waste damped in drains along the settlement that have outfall at Kipevu

1.2.4 Expected Project Benefits

The project's expected benefits will arise from investments in infrastructure and from tenure regularization. Although a cost-benefit analysis for KISIP I investments has not yet been done, analysis done for similar investments in urban areas in Kenya and in other countries showed significant benefits for the types of investments KISIP I and II are supporting. Examples are as below.

1. Benefits of investments in urban roads. The benefits associated with improved roads are (a) travel time savings; (b) travel cost savings; (c) reductions in vehicle operating costs; (c) enhanced access to jobs, markets, health facilities, schools, and other services at lower cost than otherwise available (reflected in enhanced land values); and (d) promotion of economic growth in the region through enhanced trade, increased efficiency, and higher productivity. The economic rate of return for urban roads under various World Bank-supported projects in Africa ranged from 18 to 33 percent.

2. Benefits of drainage systems. Benefits include (a) reduced number of days of work lost due to flooding; (b) reduced property damage (buildings, roads, furniture, appliances, household goods); (c) increased property values; (d) reduced loss of income from businesses whose hours are curtailed and access reduced; (e) improved travel times on streets that used to flood; (f) lower maintenance costs for vehicles; and (g) reduced costs of illness associated with exposure to polluted and stagnant water. Analysis done for the Kenya Municipal Program showed that investments in a drainage system that considered only reduced number of days lost from work generated an internal rate of return of 32 percent.

3. Benefits of investments in street lighting. Benefits of street lighting include (a) increased perception of safety, (b) reduced accidents, and (c) and increased ability to do business

after dark. People interviewed for the beneficiary analysis of KISIP I noted that they felt a greater sense of security at night and were now walking along streets with lights, rather than taking motorized transport to their destinations. Some participants pointed out that accidents between vehicles and between vehicles and pedestrians had declined. Some mentioned that business hours had expanded and that the appearance and livability of the urban centre had improved.

4. Benefits of tenure security. Benefits of tenure security include (a) increased investments in housing and businesses, (b) increased labour-force participation, and (c) improved health due to reduced stress from fear of displacement and expropriation. People interviewed for the beneficiary analysis of KISIP I noted that they felt much reduced stress and were planning to invest in their properties.

1.3 objectives of the environmental and social impact assessment report

The main objective of this Environmental and Social Impact Assessment Report, in compliance with the Terms of Reference, is to present the type, location, sensitivity and scale of the proposed infrastructure upgrading projects as well as the nature and magnitude of the potential environmental and social impacts. The report is required to:

- Provide an adequate project description, including the project alternatives;
- Present the methodology and approach;
- Present the legal, policy and institutional framework relevant to the proposed projects in the settlements;
- Identify the potential positive and negative environmental and social impacts of the proposed projects
- Prepare the Environmental and Social Management Plan (ESMP).

1.4 Terms of Reference

In working to achieve the objectives, the following areas shall be our points of consideration:

- Present a socio-economic and cultural evaluation of the proposed development area and its surroundings.
- A description of the project characteristics including project objectives, project design, activities, technology, procedures and processes, materials to be used, products, by-products and waste generated, during the project construction, operation and de-commissioning phases.
- A description of the national environmental legislative and regulatory framework, baseline information and any other relevant information related to the project
- Description of the recipient environment (baseline environment and social setting of the project area and the marine environment.

- The potential environmental effect of the project, including the social and cultural effects and the direct, indirect, cumulative, irreversible, short-term and long-term effects anticipated.

- Project alternative analysis including locations, technologies or process available, analysis of alternatives, and reasons for preferring the proposed option.

- An environmental management and monitoring plan outlaying the activities, associated impacts, mitigation measures, monitoring indicators, implementation timeframes, responsibilities, and cost.

- An action plan for the prevention and management of foreseeable accidents and hazardous activities in the cause of carrying out activities on other development projects.
- Measures to prevent health hazards and to ensure security in the working environment for the employees and for the management of emergencies.
- Conclusions and recommendations

1.5 Structure and organization of this ESIA report

0.0 Executive Summary
Chapter One: Introduction
Chapter Two: Approach and Methodology
Chapter Three: Consultative Public Participation & Feedback
Chapter Four: Policy, Legal and Institutional Framework
Chapter Five: Environmental and Social Baseline Information
Chapter Six: Analysis of Projects Alternatives
Chapter Seven: Environmental and Social Impacts
Chapter Eight: Environmental and Social Management Plans
Chapter Nine: The Environmental and Social Monitoring Plan
Chapter Ten: Conclusions and Recommendations
Annexes

CHAPTER TWO: APROACH AND METHODOLOGY

This Chapter briefly summarizes the approach and methodology used in carrying out the environmental and social impact assessments of the proposed infrastructure upgrading projects for the four settlements of Majaoni-Bamburi, Kisumu Ndogo, Kidunguni and Chaani settlements within Mombasa county.

2.1 Methodology

The ESIA methodology commenced by establishing the necessary levels of review in order to analyze the environmental and social issues with respect to the proposed infrastructure service components. At the start, a check list was prepared to scope and identify the key environmental and social issues and their potential impacts. The check list was used during the physical and socio-economic surveys to collect baseline data in the targeted settlements and to identify any significant environmental and social issues and their potential impacts.

The ESIA process equally assessed the compliance of the projects with respect to the World Bank's Safeguard Policies and Kenya's Environmental Management and Coordination Act (EMCA) Cap 387 and with respect to the legal, policy and institutional framework, which are presented in this report.

The selection of the proposed infrastructure services was carried out through community consultations, described in the next chapter, in collaboration with the County Government and Settlement Executive Committees.

2.1.1 Screening

Environmental and Social Screening was applied during the feasibility stage of the project. The main aim of screening was to determine the applicability of both Government of Kenya (GoK) and World Bank Safeguard Policies and the need for an ESIA. The process determined that the GoK and World Bank Safeguard Policies were applicable to this project. It was however found that a full ESIA report is required to be carried out since the proposed projects fall under Category B[1].

2.1.2 Scoping

Scoping was undertaken to determine the diversity and severity of impacts anticipated so as to determine the scope of investigations needed and the requisite ESIA skills needed. The process identified the main issues and significant environmental impacts to focus on. The methodology was derived from the scoping exercise. The main focus was on the impacts of the projects in specific settlements, especially with regards to the temporary impacts during construction.

2.1.3 Baseline Survey

The baseline survey involved the study of descriptive environmental and social characteristics of the project sites. The ESIA team visited the sites and made observations, took photographs, conducted the socio-economic surveys, engaged the residents and other key stakeholders in consultative forums and focus group discussions. Data from secondary sources was used to

outline the bio-physical features, socio-economic characteristics of the residents, the existing infrastructure services and the forms of land tenure.

2.1.4 Desktop Study

The desktop study mainly focused on relevant legal and policy frameworks, and existing project documents including: The Environmental and Social Management Framework (ESMF) for KISIP projects – Ministry of Land, Housing and Urban Development; and The Resettlement Policy Framework (RPF) for KISIP among other relevant documents listed in the Annex.

The next chapter outlines the consultative public participation methodological process that was employed in the preparation of this ESIA report.

CHAPTER THREE: CONSULTATIVE PUBLIC PARTICIPATION & FEEDBACK

This Chapter summarizes the consultative public participation process employed in carrying out the environmental and social impact assessments of the proposed infrastructure upgrading projects for the four settlements of Majaoni-Bamburi, Kisumu Ndogo, Kidunguni and Chaani settlements within Mombasa County.

3.1 The consultative public participation (CPP)

The Consultative Public Participation (CPP) process summarizes the methodology used to engage the public and other key stakeholders, the key issues identified and the recommendations made.

Consultation with various stakeholders and public participation was done throughout the Environmental and Social Impact Assessment Project Report preparation and compilation. This was in line with the requirements of Legal Notice No. 101, Kenya Gazette Supplement No. 56 of June 13th 2003, the Environmental (Impact assessment and Audit) Regulations, 2003. Consultations and public participation were encompassing, interactive and intensive, so as to ensure that as many stakeholders as possible and the public were reached.

The **consultative public participation (CPP)** was vital as it served to;

- Inform all stakeholders of the proposed development within their locality.
- Explain to the stakeholders the nature of the proposed project, its objectives and scope.
- Give stakeholders a forum to present their views, concerns and issues regarding the proposed development.
- Obtain suggestion from stakeholders on possible ways that potential negative impacts can be effectively mitigated.

3.1.1 Methodology

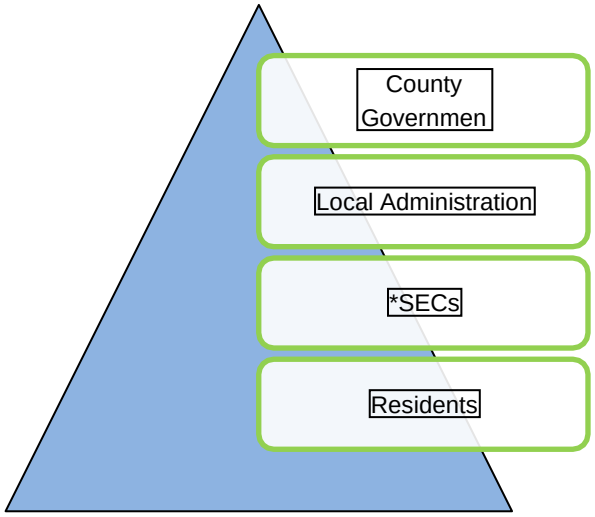
This assignment involved elaborate consultative public participation processes with the residents and key stakeholders including the County Government. It included explaining to the residents the objectives of the project and administering household questionnaires as well as conducting focus group discussions.

The survey methodology involved the preparation of an appropriate research design which entailed:

- Interpretation of the terms of reference and objectives of the study,
- Identification and designing of suitable methods of data collection,
- Determining ways of involving the local community in the survey process;
- Developing suitable tools for qualitative and quantitative data collection,
- Identification of relevant sources of secondary and primary data and information,
- Developing a data analysis process for the qualitative and quantitative data collected,
- Interpretation and generalization, where feasible, of the results and information obtained from analysis, and
- Preparation of the report as per the terms of reference.

Consultations within each settlement were participatory, driven by community representatives in a process that also drew on the knowledge of County officials and the local administration. The process was backstopped by a social scientist and the ESIA Expert, supported by other experts from the consulting team. In the final phase of the assignment, consultations focused on the impacts of the proposed projects based on the final components for detailed designs. This informed the detailed engineering designs and this final ESIA project report. Stakeholder engagement was conducted at all levels with support from the County Government.

Figure3.1: Stakeholder Engagement



The identified infrastructure priorities changed, in some cases, during the consultative process comprising the socioeconomic survey, focus group discussions and the subsequent re- validation processes. The consultation processes contributed to the transfer of knowledge to the residents in the settlements by placing them at the Centre of the prioritization of projects. In particular, the process increased their awareness of the infrastructure projects that were eligible for funding under KISIP.

This final ESIA report sets out the preferred infrastructure to be implemented under this project based on: technical feasibility, economic viability, environmental and social considerations, and availability of land for the proposed investments. The final preferred infrastructure projects in the three settlements were identified as follows: -

1. Water Supply System;
2. Sewerage System;
3. Solid Waste Management;
4. Roads and Drainage;
5. Recreational, ark; and Security Lighting.

3.1.2 Consultation schedule

Table 3.1: Schedule of ESIA public barazas

Meeting	Venue	Date
Public Baraza	Chaani -Church hall	
Public Baraza	Kindunguni -Mwahima stadium	
Public Baraza	Kisumu Ndogo – Church hall	
Public Baraza	Bamburi -Majaoni	

Figure 2.2 ESIA Baraza at Majaoni settlement

Source: public consultative forum photography

Figure 3.3 ESIA Baraza at Majaoni settlement

Source: public consultative forum photography

Figure 3.4: ESIA Public Baraza at Chaani – Church hall

Source: public consultative forum photography

Figure 3.5: ESIA Public Baraza at Kisumu Ndogo – Church Hall

Source: public consultative forum photography

3.1.2 Tools used for Data Collection

3.1.2.1 Focus Group Discussion and Consultative Forums

The first consultative forum was held in the three settlements. At this stage the team identified the existing environmental and social issues affecting the communities and undertook the scoping exercise. The Settlement Executive Committee (SEC) had not been formed and a decision was made that a representative committee from the community be consulted. The selected committee comprised of the local leaders and representatives of women, the youth and disabled members of the community. The summary of the issues discussed including the attendance list are attached in this report in the Annex. The FGD tool used for environmental and social questions is also attached in the Annex.

The infrastructure priorities were identified and validated in consultative forums where the team also engaged the residents on the environmental and social impacts of the proposed infrastructure projects. The attendance lists are attached as Annex.

3.1.2.2 Household Interviews

The households' surveys and other scheduled interviews were conducted. The questionnaire was designed to obtain basic data on household characteristics, social and economic profiles of households, tenure, access to infrastructure services, and the environmental and residents' health conditions in the study settlements. The tool, administered in the three settlements, was prepared in English and translated into Kiswahili for ease of execution.

The existing social and environmental conditions were determined and potential impacts of the project identified. Overall, the residents of four settlements were of the opinion that the proposed projects would have more positive social and economic impacts and they were therefore in favor of the implementation of projects. The upgrading of infrastructure facilities such as roads was especially supported as it would reduce drainage problems in the settlements and enhance access to basic community services. The residents were keen on the proposed infrastructure upgrading projects, as they would provide more permanent structures and in turn will result to enhanced tenure security, therefore, with secure land tenure, those living there can make long – term investments on their land. The proposed waste management project was welcomed as it would enhance health and sanitation in the informal settlements.
A settlement with good road network is attractive for investment and living. Proximity of settlement like Kidunguni Informal Settlement to Mombasa town will also boost the settlement outlook after infrastructure development.

3.3 Outcome of the Community Consultations

The residents when interviewed, were of the opinion that upgrading of infrastructure would improve living conditions but that it would also drive up rents. This is an important caveat since nearly a half of the households are tenants.

In spite of its high population density, the settlement does not have a high satisfactory level of infrastructure services. It is prone to pollution and it has a low quality of community life in general. Water supply is not only erratic but comes with leakages from the pipes which makes water expensive in the informal settlement and there is a propensity for cross-contamination of ground water owing to its close proximity to pit latrines or poor overflowing sewage water. Solid waste management is also a major challenge in the informal settlements *(refer to minutes in the annex for key concerns raised by community members during the settlement consultative meetings).*

3.3.1 Flooding and Waste management problems in the selected settlements

Figure 3.6: Poor Drainage and flooded access road in Kisumu Ndogo settlement

Figure 3.7: Poor Grey Water Disposal and Solid Waste Management problems within the settlements

Source: public consultative forum photography

3.3.2 Positive Project Impacts

During consultations, the following positive impacts of proposed projects were highlighted:

- Improved Accessibility- The paved roads will ease access into the settlements. The roads become impassable during the rainy season. In Kisumu Ndogo, for example, the community mentioned that it become very difficult to take patients to Hospitals in case of emergencies due deplorable state of several access roads within the settlement, therefore the project is highly accepted and timely.
- Improved Sanitation and Hygiene Standards-residents will benefit from the proposed new connections to the main water supply which will lead to improved health and hygiene at household level. Cases Diseases outbreak also will reduce as a result of improved drainage of waste that would previously remain stagnant in the unlined side drains. Reduced dust means less respiratory diseases.

- Improved Security-The settlements will be well lit by the flood lighting therefore, residents will feel safe walking at night and businesses will operate until late hours.
- It will lead to Improved tenure security for the residents.
- Land Appreciation-Upgrading of infrastructure in the settlements will make the area more appealing, leading to a rise in land prices.
- Improved Livings Standards- living standards in the settlements will improve due to a combination of factors including reduced dust emission from the road, fewer incidence of water-borne illnesses, and more conducive environment to carry out business. i.e. the housing standards within the selected settlements will improve.
- Employment and Improved Livelihoods: Project will provide some employment while flood lights will enable thriving businesses at night. Rent has also will go up earning owners more income.
- Gendered impacts in livelihood improvement: Most of the businesses which will operate at night belongs to women thus benefiting majority of women in those particular settlements due to improved security.
- Improved aesthetics: Infrastructure and associated requirements e.g. clearing of some unplanned structures improved aesthetics in the settlement. Roads will promote better planning i.e. no haphazard building
- Infrastructure will lead to improvements in health and reduced hazards associated with dust and others. Access to clean water will reduce waterborne diseases. Improved drainage channels will improve drainage of storm water in the settlement reducing risk of flooding.
- Infrastructure will attract better and improved housing e.g. high-rise buildings – change in the type of buildings to be put up in those selected settlements.
- Increased interaction and relations between various groups in the settlement due to the project and its institutional framework e.g. SEC which will bring different groups together and working together for long period.

3.3.3 Negative Impacts

The following negative impacts were highlighted from the consultations:

- Accessibility Challenges- based on community sentiments, accessibility within the settlement during construction is an issue. Contractors often do not provide safe access to buildings and routing/ diversions for vehicular and human traffic. Moreover, persons living with disability and the elderly, have unique accessibility challenges during and after construction, which need to be considered.
- Clogged Drainage Systems - Drainage is clogged with solid wastes from homesteads and small businesses, while in other cases, the drains are clogged with construction debris from plots under development.

- Safety Concerns – There is need to make the proposed access roads safer for the community through proper design, signage, guard rails, and bumps. The residents were reported concerned that in most cases the access roads in many settlements always lead to increased accidents due to motorbikes over-speeding in the settlement as a result of improved roads. Roads also attract children and turning them into playgrounds.

  Also, road side vendors usually find the improved accessed roads attractive for business thus block better parts of the access roads leading to increased accidents and conflict amongst the road users.

- Gentrification: As property values rise, some project beneficiaries unable to keep up with changing environment are forced to sell out thus may lead to dispossession and increased level of poverty if the proceeds from the sale is not well invested.

- Pollution from dust during construction especially as most contractors don't pour water.
- The infrastructure should be friendly to persons living with disabilities.
- Noise during construction.

3.3.4 Summary of issues raised from the consultation process

i. Dispute over the ownership of a given asset (two individuals claiming to be the owners of this asset).
ii. Lack of compensation
iii. Misidentification of assets or mistakes in valuing them.
iv. Disagreements over the valuation of the asset.
v. Successions, divorces, and other family issues, resulting in disputes between heirs and other family members, over ownership or ownership shares for a given asset.
vi. v Fraudulent practices by PAP's
vii. sustainability of the projects

The certified minutes of the deliberations and resolutions are annexed in this report.

3.4 Consultations beyond ESIA Process

In order to ensure that the development runs smoothly, consultations should be structured to aid the completion of the project implementation. These consultations should therefore be preceded by further engagement of various stakeholders under the following stages:

- ❖ Construction phase and reported through the Initial Environmental Audit; and
- ❖ Operation phases and reported through the Statutory Environmental Audit of the project.

The consultation should address pertinent issues including the sustainability and suitability of the operation and maintenance to ensure acceptable standards

CHAPTER FOUR: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Principles of Environmental and Social Management

This section summarizes the legal, policy and institutional framework for Environmental and Social Impact Assessment within KISIP. The Environmental and Social Screening Report submitted earlier helped to determine that the proposed infrastructure upgrading projects have minimum impacts and that site-specific EIA project reports are required. This is in pursuant to the Legal Notice No. 101 which provides for two scenarios:

- ESIA Project Reports for projects with minimum adverse impacts on the environment; and
- ESIA Study Reports for projects with significant adverse impacts on the environment

The Environmental and Social Screening process classified the infrastructure upgrading projects as Category B; this implies that the projects have minimum adverse impacts on the environment and that only ESIA Project Reports need to be prepared for the four settlements.

4.2 National Environment and Policy Framework

The Legislative frameworks relevant to the project are discussed below;

4.2.1 The Constitution of Kenya

In the Constitution of Kenya, 2010 Part II (Environment and Natural Resources), (I) the State shall:

- Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits.
- Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya.
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities.
- Encourage public participation in the management, protection and conservation of the environment.
- Protect genetic resources and biological diversity.
- Establish systems of environmental impact assessment, environmental audit and monitoring of the environment.
- Eliminate processes and activities that are likely to endanger the environment.
- Utilize the environment and natural resources for the benefit of the people of Kenya. (II) “Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

Chapter 5 on Land and Environment emphasizes:

- Land use and management shall by law benefit local communities.
- Community land is protected from encroachment by State.
- Law shall protect Rivers, forests and water bodies.
- Equitable access to land.
- All lawful land rights are secured; only someone who has stolen land needs to worry.

- ❖ County governments will manage land in trust of the people in accordance with the Constitution. (The Constitution of Kenya, 2010)

Relevance

The Constitution of Kenya champions for sound management and sustainable development of all Kenyan projects, both public and private investments. It also calls for the duty given to the project proponent, to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.

4.2.2 The Environment Management and Coordination Act, CAP 387

The Environment Management and Coordination Act, Cap 387 provides for the establishment of an umbrella Legal and Institutional Framework under which the environment in general is to be managed. EMCA is implemented by the guiding principle that every person has a right to a clean and healthy environment and can seek redress through the High court if this right has been, is likely to be or is being contravened.

Section 58 of the Act makes it a mandatory requirement for an EIA study to be carried out by proponents intending to implement projects specified in the second schedule of the Act. Such projects have the potential of causing significant impacts on the environment. Similarly, section 68 of the same Act requires operators of existing projects or undertakings to carry out Environmental Audits in order to determine the level of conformance with statements made during the EIA study. The proponent is required to submit the EIA and Environmental Audit reports to NEMA for review and necessary action.

Relevance

The proponent has undertaken an ESIA report to ensure compliance and will undertake subsequent annual environmental audits. EMCA has provided for the development of several subsidiary legislations and guidelines that govern Environmental Management which are relevant to the current project.

a) The Environmental Management and Co-ordination Act (Water Quality) Regulations, 2006)

These Regulations were published in the Kenya Gazette Supplement No. 68, Legislative Supplement No. 36, and Legal Notice No. 120 of 29th September 2006. The Regulations provides for sustainable management of water resources including prevention of water pollution and protection of water sources (lakes, rivers, streams, springs, wells, and other water sources). It is an offence under Regulation No. 4 (2), for any person to throw or cause to flow into or near a water resource any liquid, solid, or gaseous substance or deposit any such substance in or near it, as to cause pollution. Regulation No. 11 further makes it an offence for any person to discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit the dumping or discharge of such matter into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards for effluent discharge into the environment.

Regulation 9 provides for water quality monitoring. It states that the Authority in consultation with the relevant lead agency, shall maintain water quality monitoring for sources of domestic water at least twice every calendar year and such monitoring

records shall be in the prescribed form as set out in the second schedule to these regulations. (Environmental Management and Coordination Act, 2006 (2012))

Relevance

During the construction phase, the contractor will ensure installation of that mobile sanitary facility for use by workers to comply with the standards specified in this regulation.

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

These Regulations were published in the Kenya Gazette Supplement No. 69, Legislative Supplement No. 37, and Legal Notice No. 121 of 29th September 2006. The regulations provide details on management (handling, storage, transportation, treatment, and disposal) of various waste streams Regulation No. 4 (1) makes it an offence for any person to dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle. (Environmental Management and Coordination Act, 2006(2012))

Relevance

During construction & decommissioning phases, the proposed project will generate solid waste including metal cuttings, rocks and plastic membrane. The proponent will see to it that the wastes will be disposed as per the guidelines in the regulations

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

These regulations were published as legal Notice No. 61 being a subsidiary legislation to the Environmental Management and Co-ordination Act, 1999. The regulations provide information on the following: i. Prohibition of excessive noise and vibration. ii. Provisions relating to noise from certain sources. iii. Provisions relating to licensing procedures for certain activities with a potential of emitting excessive noise and/or vibrations and iv. Noise and excessive vibrations mapping. According to regulation 3 (1), no person shall make or cause to be made any loud unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Regulation 4 prohibits any person to (a) make or cause to be made excessive vibrations that annoy, disturb, injure, or endanger the comfort, repose, health, or safety of others and the environment; or (b) cause to be made excessive vibrations that exceed 0.5 centimetres per second beyond any source property boundary or 30 meters from any moving source.

Regulation 5 further makes it an offence for any person to make, continue or cause to be made or continued any noise in excess of the noise levels set in the First Schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property. Regulation 12 (1) makes it an offence for any person to operate a motor vehicle which-(a) produces any loud and unusual sound; and (b) exceeds 84 dB (A) when accelerating. According to sub-regulation 2 of this regulation, no person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident. Regulation 13 (1) provides that except for the purposes specified in sub-Regulation (2) there under, no person shall operate construction equipment (including but not limited to any pile

driver, steam shovel, pneumatic hammer, derrick or steam or electric hoist) or perform any outside construction or repair work so as to emit noise in excess of the permissible levels as set out in the Second Schedule to these Regulations

Regulation 19 (1) prohibits any person to carry out activities relating to fireworks, demolitions, firing ranges or specific heavy industry without a valid permit issued by the Authority. According to sub-regulation 4, such permit shall be valid for a period not exceeding three months. (Environmental Management and Coordination Act, 2006 (Rev 2012)).

Relevance

The proposed project sites neighbor's other residential developments residential developments/settlements. Noise & vibration nuisance will be highly avoided and in the case of excess noise and vibration. The contractor /sub-contractor for civil works will be required to ensure compliance with the above regulations in order to promote a healthy and safe working environment throughout the construction phase. This shall include undertaking baseline noise surveys before construction works begins, regular inspection and maintenance of equipment and prohibition of unnecessary hooting of vehicles.

4.2.4 Physical & Land Planning Act 2019

This is the main Act that governs land planning and all proposed developments must be approved by the respective local authority and certificate of compliance issued accordingly. Under the Act, the director of physical planning advises the commissioner of lands on land alienation issues that fall under Government Lands Act and Trust Land Act. The director also advises the commissioner of lands and local authorities on land use, sub-division and or amalgamation of land; prepares regional and local physical development plans.

At the County level, the County physical planning liaison committee comprises heads of the various departments and is chaired by the County Commissioner. One of the major functions of the liaison committee is to determine development applications for change of user or subdivision of land that could have significant impact on adjacent land and or breach registered conditions in a given title deed; and also, industrial location which could have negative impact on the environment and adjoining land. The director is required to publish the regional physical development plan and also notify the local authority within whose jurisdiction the plan is to be affected.

Section 36 states that if in connection with a development application a local authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an environmental impact assessment report.

Section 30(1) requires a developer in any local authority to be granted development permission by the respective local authority, failure to which heavy fines will ensue; and the land registrar shall decline to register such a document. No sub-division of private land shall take place within a local authority unless the sub-division is in accordance with the requirements of an approved local physical development plan. (The Physical and Land use Planning Act, 2018)

4.2.5 The Water Act 2016

The Water Act No. 8 of 2016 provides for the management, conservation, use and control of water resources and for acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services. Section 18 of this Act provides for national monitoring and information systems on water resources. Following on this, sub-Section 3 mandates the Water Resources Management Authority 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 site operator and the information thereof furnished to the authority.

Section 73 of the Act provides that a person who is licensed to supply water have a responsibility of safeguarding the water sources against degradation. According to section 75(1) such a person is required to construct and maintain drains, sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing pollution of water sources within his/her jurisdiction. Section 94 of the Act also makes it an offence to throw or convey or cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive or unwholesome matter or thing into or near to water resource in such a manner as to cause, or be likely to cause, pollution of the water resource. (Laws of Kenya- Water Act, 2016 [2012] [2002])

4.2.6 The Public Health Act (Cap. 242)

This is an Act of Parliament to make provision for securing and maintaining health. Section 115 of this act prohibits causing nuisance or other condition liable to be injurious or dangerous to health. Section 118 provides a list of nuisances that includes any noxious matter, or wastewater, flowing or discharged from any premises, wherever situated, into any public street, or into the gutter or side channel of any watercourse, irrigation channel or bed thereof not approved for the reception of such discharge. (Laws of Kenya- Public Health Act, 2012[1986])

4.2.7 Occupiers' liability CAP 34

This statute dictates that the occupier of premises owes the same duty, the common duty of care, to all his visitors, except in so far as he is free to and does extend, restrict, modify or exclude his duty to any visitor or visitors by agreement or otherwise. (Laws of Kenya- Occupiers' Liability Act, 2012[1980])

4.2.8 The Public Health (Drainage and Latrine) Rules

Rule 85 provides that every owner or occupier of every workshop, workplace or other premises where persons are employed shall provide proper and sufficient latrines for use by employees. Rule 87 requires every contractor, builder or other person employing workers for the demolition, construction, reconstruction, or alteration of any building or other work in any way connected with building to provide an approved position sufficient and convenient temporary latrine for use by such workers. Rule 91 provides that no person shall construct a latrine in connection with a building other than a water closet or a urinal, where any part of the site of such building is within 200 feet of a sewer belonging to the local authority that is at a suitable

level, and where there is sufficient water supply. (Laws of Kenya- Public Health Act, 2012[1986])

Relevance

This Act is applicable to the project since the contractor for civil works will be required to provide sanitation facilities for use by workers and visitors to the site during the construction.

4.2.9 The Penal Code (Cap. 63)

Section 191 of the Penal Code makes it an offence for any person or institution that voluntarily corrupts, or foils water for public springs or reservoirs rendering it less fit for its ordinary use. Similarly, section 192 of the same act prohibits making the atmosphere in any place to make it noxious to health of persons/institution in dwellings or business premises in the neighborhood or those passing along a public way. (Kenya Law)

Relevance

The main contractor for civil works and the proponent will be required to ensure strict adherence to the environmental Management Plan throughout the project cycle in order to mitigate against any possible negative impact associated with dust, noise, and effluent discharge.

4.2.10 The County Governments Act 2012

The local government act was repealed after the final announcement of all the results of the first elections held under the Constitution as per the County Governments Act of 2012. Under section 134 subsection (1), The Local Government Act is repealed upon the final announcement of all the results of the first elections held under the Constitution. It further states in section 134, subsection (2) reads "All issues that may arise as a consequence of the repeal under subsection (1) shall be dealt with and discharged by the body responsible for matters relating to transition".

The project will according to the County Government act of 2012 ensure that the project activities conform to the regulation that shall be passed.(section 135 (1) The Cabinet Secretary may make regulations for the better carrying out of the purposes and provisions of this Act and such Regulations may be made in respect of all county governments and further units of decentralization generally or for any class of county governments and further units of decentralization.) comply to the set regulations and by laws. (The County Government Act, 2012)

Relevance

The County Government Act Mandates County Governments to carry out spatial planning within their counties. Section 110 gives guidelines as to what the spatial plan for the county should contain a strategic assessment of environmental impact of the spatial development framework

The Mombasa County Government is obligated to provide a clean and safe environment within its area of jurisdiction.

4.2.11 Employment Act

This is an Act of parliament that applies to all employees employed by any employer under a contract of service. The Act came in operation in June 2008. Employment of children in the following forms is prohibited in the following sections of the Act: 53. (1) notwithstanding any provision of any written law, no person shall employ a child in any activity that constitutes worst form of child labour. 56. (1) No person shall employ a child who has not attained the age of thirteen (2) A child of between thirteen years of age and sixteen years of age may be employed to perform light work which is (a) Not likely to be harmful to the child's health or development; and (b) Not such as to prejudice the child's attendance at school, his participation in vocational orientation or training programmes approved by Minister or his capacity to benefit from the instructions received. (Laws of Kenya- Employment Act, 2012[2007])

Relevance

The contractor will need to understand the requirements of the Act during employment. Equal opportunity should be given to all communities in project area so as to improve the socio-economic status of the area around the proposed project.

4.2.12 Work Injury Benefits Act (WIBA)

It is an act of Parliament to provide for compensation to workers for injuries suffered in the course of their employment. It outlines the following: Employer's liability for compensation for death or incapacity resulting from accident;

- Compensation in fatal cases
- Compensation in case of permanent partial incapacity
- Compensation in case of temporary incapacity
- Persons entitled to compensation and methods of calculating the earning
- No compensation shall be payable under this Act in respect of any incapacity or death resulting from a deliberate self-injury;
- Notice of an accident, causing injury to a workman, of such a nature as would entitle him for compensation shall be given in the prescribed form to the director. (The Work Injury Benefits Act, 2007)

Relevance

The contractor will need to abide by all the provisions of WIBA

4.2.13 The Occupational Safety and Health Act, 2007

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

The purpose of this Act is to:

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

The Occupational Safety and Health Act 2007 (OSHA 2007) Kenya Gazette Supplement No.111 (Acts No.15) dated October 26, 2007 revokes the Factories and Other Places of WorkCap.514. The scope of OSHA 2007 has been expanded to cover all workplaces including offices, schools, academic institutions, factories, and plantations. It establishes codes of practices to be approved and issued by the Directorate of Occupational Safety and Health Services (DOSHS) for practical guidance of the various provisions of the Act. (health.go.ke)

Relevance

The contractor and Proponent will be required to comply with all the provisions of the Act throughout the project cycle.

4.2.14 Climate change act of 2016

This Act shall be applied for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya.(2) Without prejudice to subsection (1), this Act shall be applied 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 programmes 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; facilitate capacity development for public participation in climate change responses through awareness creation, consultation, representation and access to information. (The Climate Change Act, 2016).

Relevance

This project can be viewed as a climate change adaptation measure that has been triggered by the rising sea level and changing shorelines in Mombasa county. The sea erosion control intervention is seen to be in line with the climate change act.

4.2.15 The Roads Act, 2007

The legal and institutional aspects of the new road sub-sector policy were subsequently incorporated in the Kenya Roads Act 2007 which provides for the establishment of three independent Road Authorities namely:

i. Kenya National Highways Authority (KeNHA) responsible for the administration, control, development and maintenance of all class A, B and C roads in Kenya.
ii. Kenya Rural Roads Authority (KeRRA) responsible for rural and small-town roads including class D, E roads and Special Purpose Roads.
iii. Kenya Urban Roads Authority (KURA) is significant for KISIP as it is in charge of all city and municipal roads. This is the Authority that LAs will co-ordinate with in the design and implementation of investments targeting improvement of roads.

The Authorities fall under the Ministry of Transport, Infrastructure, Housing and Urban Development which will retain the role of policy formulation and general oversight of public roads including regulatory aspects such as technical standards. The County Governments also

have a role to play in the development and maintenance of local roads within their areas of jurisdiction. This was previously under the local authorities.

4.2.16 The Traffic Act, Cap 403

This Act consolidates the law relating to traffic on all public roads. The Act also prohibits encroachment on and damage to roads including land reserved for roads.

Relevance

This law is applicable in this assignment as upgrading of roads within the settlement has been prioritized by most of the settlements.

4.2.17 The 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 ongoing activity. Notice, however, will be given one month before carrying out any such works (section 4) with full description of the intended works and targeted place for inspection. Any damage caused by the works would then be compensated to the owner as per this section. Finally, section 8 states that any person without consent causes any building to be newly erected on a way leave, or cause hindrance along the way leave shall be guilty of an offence and any alteration will be done at his/her costs.

4.2.18 The Urban Areas and Cities Act 2011

This Law passed in 2011 provides legal basis for classification of urban areas (City) when the population exceeds 500,000; a municipality when it exceeds 250,000; and a town when it exceeds 10,000) and requires the city and municipality to formulate County Integrated Development Plan (Article 36 of the Act).

4.3 Mombasa County Legislations

4.3.1 Mombasa County Public Participation Act 2017

AN ACT of the County Assembly of Mombasa to provide for the establishment of a legal framework for facilitating public participation in the County Government processes; and for connected purposes.

The purpose of this legislation is to give effect to the principles of public participation, provide a framework for participation by the public in the affairs of the County through actively informing the form and content of legislation, policy and development plans formulated by the County Government, provide a framework for informed, efficient and sustainable engagement of the public in the County in the formulation of policy, legislation and development plans, among other purposes. The Act provides for a Committee of the County Assembly responsible for providing general direction to the public participation processes in the County Assembly, preparing reports on County Assembly public participation and provide link between the Public

Participation Office and the County Assembly. The Act also establishes a Department of Public Participation in the County public service to serve as a point for the coordination of public participation within the County Executive.

Relevance;
The proposed project has carried out public participation meetings in the areas of the project so as to inform and alert the affected stakeholders regarding the project.

4.3.2 The Mombasa County Disaster Preparedness And Emergency Management Act 2017

An Act of the County Assembly of Mombasa to establish and provide for the maintenance and operation of an effective system for the anticipation, preparedness for, prevention, coordination, mitigation, management, response to and recovery from emergencies and disasters in Mombasa; and for connected purposes.

This Act designs and establishes the county disaster management structure and provides with respect to disaster prevention and mitigation in the Mombasa County. It establishes the Disaster and Emergency Management Committee and the County Disaster Management Fund, defines functions and powers of the Committee and provides with respect to the administration of the Fund. The objects of this Act are to —advance disaster preparedness and emergency management measures establish an efficient structure for the management of disasters and emergencies; enhance the capacity of the county government to effectively manage the impacts of disasters and emergencies and to take all necessary action to prevent or minimize threats to life, property health and the environment from natural disasters and other emergencies; ensure that the county government effectively coordinates with other relevant agencies to mitigate the impacts of disasters and emergencies; vest authority in persons to act during times of disaster and emergencies in accordance with this Act, and to require the observance and implementation of directives given and initiatives taken by persons authorized under this Act; and implement mechanisms to reduce risks and hazards that may cause, contribute to or exacerbate disaster situations in the county.

4.3.3 The Mombasa County Water and Sewage Services Act, 2016

AN ACT of the County Assembly of Mombasa to provide for a legal and institutional framework for provision of water and sewerage services; for mechanisms of ensuring high quality services to citizens, and commercial viability of the water service provider, and for connected purposes ENACTED by the County Assembly of Mombasa.
3. (1) This Act shall be applied for the administration and delivery of water and sewerage services in County Government of Mombasa.
(2) Without prejudice to the generality of subsection 1 above, this Act shall be applied to— (a) give effect to the Constitution and national law as regards the provision of water and sewerage services by the County Government of Mombasa; (b) establish and maintain a financially sustainable mechanism for delivery of water and sewerage services; (c) ensure the provision and delivery of potable water to consumers; (d) enhance and expand the provision of water and sewerage services;
(e) secure and sustain progressive realization of the human right to water; (f) scale-up and maintain investments for the development of water and sewerage services; (g) develop and

expand water sources available for water service provision in the County Government of Mombasa; (h) secure and increase availability of bulk water for service provision in Mombasa; (i) provide an equitable financing mechanism for development, expansion and sustenance of pro-poor water and sewerage services; (j) secure public participation in decision making regarding the provision of water and sewerage services, including consumer rights mechanisms; (k) provide incentives for private sector contribution in service provision, and in investments for infrastructure development.

4.4 International guidelines on Environmental and social Management (Environmental safeguards for funding agencies)

In addition to the NEMA Guidelines the study will conform to the International Finance Corporation (IFC) performance standards on environment and social sustainability (IFC 2012). The Performance Standards provide direction on how to identify risks and impacts. They are intended to aid in avoidance, mitigation, and management of risks and impacts as a way of doing business in a sustainably. This includes stakeholder engagement and disclosure obligations of the proponent in relation to project-level activities (IFC 2012). The standards are briefly discussed below.

4.4.1. Assessment and Management of Environmental and Social Risks and Impacts

Performance standard 1 emphasizes the significance of managing a project's environmental, social risks and impacts in a structured way on an ongoing basis (IFC 2012). It further calls for community engagement throughout the project implementation cycle. For the current project, this standard was applied by undertaking an environmental impact assessment. In doing so, the consultant incorporated (i) policy-in section 4; (ii) identification of risks and impacts – in section 6; (iii) management programs-section 7 and 8; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement – in section 5; and (vii) monitoring and review-in section 9.

4.4.2. Labour and Working Conditions

Performance Standard 2 recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental1 rights of workers (IFC 2012). The requirements set out in this Performance Standard have been in part guided by several international conventions and instruments, including those of the International Labour Organization (ILO) and the United Nations (UN)[1].

[1] These conventions are:
ILO Convention 87 on Freedom of Association and Protection of the Right to Organize
ILO Convention 98 on the Right to Organize and Collective Bargaining
ILO Convention 29 on Forced Labour
ILO Convention 105 on the Abolition of Forced Labour
ILO Convention 138 on Minimum Age (of Employment)
ILO Convention 182 on the Worst Forms of Child Labour
ILO Convention 100 on Equal Remuneration
ILO Convention 111 on Discrimination (Employment and Occupation)

The main objectives of this performance standard are:

- To promote the fair treatment, non-discrimination, and equal opportunity of workers.
- To establish, maintain, and improve the worker-management relationship.
- To promote compliance with national employment and labour laws.
- To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain.
- To promote safe and healthy working conditions, and the health of workers and
- To avoid the use of forced labour.

The proponent is advised to implement the project by appointing a reputable contractor. The contractor must be made aware of the high standards of labour and working conditions that must be maintained. Central to this will be non-discrimination, proper wages and compensation, a mechanism for resolving work related conflicts, adherence to occupational health and safety laws among others.

4.4.3. Resource Efficiency and Pollution Prevention

Performance standard 3 requires that the proponent apply appropriate measures and technologies to sustainably use resource, prevent pollution emission of greenhouse gases (GHG) (IFC 2012). The main objectives of performance standard 3 are:

- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To promote more sustainable use of resources, including energy and water.
- To reduce project related GHG emissions (IFC 2012).

4.4.4. Community Health, Safety and Security

Performance Standard 4 addresses the client's responsibility to avoid or minimize the risks and impacts to community health, safety, and security that may arise from project related-activities, with particular attention to vulnerable groups (IFC 2012). Its core objectives are:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

The proponent through the EIA process has identified risks and impacts and proposed mitigation measures that are commensurate with their nature and magnitude. These measures will favour the avoidance of risks and impacts over minimization.

4.4.5. Land Acquisition and Involuntary Resettlement

Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic

displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) because of project-related land acquisition and/or restrictions on land use (IFC 2012).

The RAPs have been undertaken for the representative sub projects in the four settlements of Kisumu Ndogo, Kidunguni, Mwatate – Chaani and Majaoni. Refer to the annex for copies of the RAP reports.

4.4.6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

Performance Standard 6 identifies that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development (IFC 2012). The main objectives of performance standard 6 are:

- To protect and conserve biodiversity.
- To maintain the benefits from ecosystem services.
- To promote the sustainable management of living natural resources through the

  adoption of practices that integrate conservation needs and development priorities (IFC 2012).

4.4.7. Indigenous Peoples

Performance Standard 7 recognizes that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population (IFC 2012). Its key objectives are:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.
- To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.
- To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.
- To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle.
- To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present (IFC 2012).
- To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.

  The proposed project area of influence is built up. There are no communities of Indigenous Peoples within the project area of influence who may be affected by the project.

4.4.8. Cultural Heritage

Performance Standard 8 recognizes the importance of cultural heritage for current and future generations (IFC 2012). Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that proponents protect cultural heritage during their project activities. In addition, the requirements of this Performance Standard on a project's use of cultural heritage are based in part on standards set by the Convention on Biological Diversity (IFC 2012). Objectives for this performance standard are:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To promote the equitable sharing of benefits from the use of cultural heritage.

Cultural heritage under this standard refers to

a) Tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values;

b) Unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and

Certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

4.4.9 The World Commission on Environment and Development

The commission commonly referred to as "the Brundtland Commission" is focused on the environmental aspects of development. Economic sustainable development is development for which progress towards environmental and social sustainability occurs within available financial resources. Social sustainable development maintains the cohesion of a society and its ability to help its members work together to achieve common goals, while at the same time meeting individual needs for health and wellbeing, adequate nutrition, shelter, cultural expression, and political involvement.

4.4.10 The Rio Declaration on Environment and Development

The Rio Declaration on Environment and Development was adopted by more than 178 governments at the United Nation Conference on Environment and Development, known as the earth summit, held in Rio de Janeiro, Brazil from 3rd to 14th June 1992. Under Agenda 21, Principle No. 10 of the declaration underscores that environmental. Issues are best handled with participation of all concerned citizens at all relevant levels. At the national level, each individual shall have appropriate access to information concerning environment that is held by public authorities. States shall encourage and facilitate public participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy shall be provided.

The foregoing discussion is relevant to the proposed development because Kenya legislation demands that public must be involved before any development project that is likely to have adverse impacts to the environment is initiated by a project proponent. The environment Act has further established public complaints committee (PCC) where the issues raised by the public regarding any proposed development can be addressed.

4.5 The World Bank Environmental Safeguards

4.5.1 OP/BP 4.01 (Environmental Assessment)

The World Bank has well-recognized environmental assessment processes, which apply to its lending activities and to the projects undertaken by borrowing countries, in order to ensure that development projects are sustainable and environmentally sound. Although its operational policies and requirements vary in certain respects, the World Bank follows a relatively standard procedure for the preparation and approval of an environmental assessment study, which:

a) Identifies and assesses potential risks and benefits based on proposed activities, relevant site features, consideration of natural/human environment, social and trans-boundary issues
b) Compares environmental pros and cons of feasible alternatives
c) Recommends measures to eliminate, offset, or reduce adverse environmental impacts to acceptable levels (sitting, design, technology offsets)
d) Proposes monitoring indicators to implement mitigation measures
e) Describes institutional framework for environmental management and proposes relevant capacity building needs.

The environmental assessment evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The assessment takes into account: the natural environment (air, water, and land); human health and safety) social aspects (involuntary resettlement, indigenous peoples, and physical cultural resources); and trans-boundary and global environmental aspects. Preventive measures are favoured over mitigation or compensatory measures, whenever feasible. This approach is universally applied in many institutional projects[2].

The World Bank considers environmental impact assessment (EIA) as one among a range of instruments for environmental assessment. Other instruments used by the World Bank include regional or sectoral environmental assessment, strategic environmental and social assessment (SESA), environmental audit, hazard or risk assessment, environmental management plan (EMP) and environmental and social management framework (ESMF). The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of environmental assessment. Proposed projects are classified into one of three categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts:

[2] www.worldbank.org/safeguards

1. Category A: the proposed project is 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. For a Category A project, the Proponent is responsible for preparing an EIA report.
2. Category B: the proposed project has potential adverse environmental impacts on human populations or environmentally important areas such as wetlands, forests, grasslands, and other natural habitats - but these are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases, mitigation measures can be designed more readily than for Category A projects. Like Category A the environmental assessment examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.
3. Category C: the proposed project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further environmental assessment action is required for a Category C project.

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. The proposed infrastructure upgrading projects is a category B project. Thus, an EIA was required.

4.5.2 OP/BP 4.04 (Natural Habitats)

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 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. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water area where most of the native plant and animal species are still present).

4.5.3 OP/BP 4.11 (Physical Cultural Resources)

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. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people’s cultural identity and practices.

4.5.4 OP/BP 4.10 (Indigenous Peoples)

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 broad support of the project by the affected Indigenous Peoples such as Bank-financed projects includes;

a) Preventive measures to adverse effects to the indigenous cultures and practices,
b) Avoid potential adverse effects on the Indigenous Peoples' communities;
c) When avoidance is not feasible, minimize, mitigate, or compensate for such effects.

Bank-financed projects are also designed to ensure that the Indigenous peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

The objective of this policy is to design and implement projects in a way that fosters full respect for Indigenous Peoples' dignity human rights and cultural uniqueness and so that they receive culturally compatible social and economic benefits and do not suffer adverse effects during the development process. Space intensive sub-projects such as solid waste dumping sites and wastewater disposal areas has a potential for disruption of indigenous people. Improved Social and economic systems across the metropolitan leads to potential intrusion to existing cultures.

4.5.5 OP/BP 4.12 (Involuntary Resettlement)

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 at least restoring the economic base for those relocated. Experience indicates that cash compensation alone is normally inadequate. Voluntary settlement may form part of a resettlement plan, provided measures to address the special circumstances of involuntary resettlement are included. Preference should be given to land-based resettlement strategies for people dislocated from agricultural settings. If suitable land is unavailable, non-land-based strategies built around opportunities for employment or self-employment may be used".

4.6 World Bank Operational Policies (OP 4.01 and 4.12)

The World Bank requires social and environmental assessments (SEA) of projects proposed for financing by the bank. The Bank further requires Environmental and Social Screening of all proposed projects to determine the appropriate extent and type of SEA required. The Bank uses four categories depending on the type, location, sensitivity and scale of the project and the magnitude of its potential environmental impacts.

a) Category A: A proposed project is classified as Category A if it is likely to have significantadverse environmental impacts that are sensitive, diverse, or unprecedented.
b) Category B: A proposed project is classified as Category B if its potential adverse

environmental impacts on human populations or environmentally important areas--including wetlands, forests, grasslands, and other natural habitats - are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. ***The EMSF categorizes KISIP projects under Category B***.

c) Category C: A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

d) Category FI: A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

The OP 4.01 is triggered in this project as it's likely to have impacts on its area of influence. The OP 4.01 covers impacts on the natural environment, human health and safety, physical and cultural resources and trans-boundary and global environment concerns.

OP 4.12 Involuntary Resettlement, the objective of this policy is to:

i. avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs;

ii. assist displaced persons in improving their former living standards, income earning capacity and production levels, or at least in restoring them;

iii. encourage community participation in planning and implementing resettlement; and

iv. Help affected people regardless of the legality of land tenure.

This policy covers not only physical relocation but also loss of livelihoods and has being applied in this assignment. A resettlement action plan report has been prepared and submitted to the client that addresses those affected by the project. The affected persons included mainly those with activities and structures encroaching on designated project sites, land acquisition was required for implementation of this project.

There are other operational policies by the World Bank related to the environment. These are summarized in the Annexes World Bank policies on environment are key in this project as it is the principal financier.

4.7 Institutional Arrangements

4.7.1 National Environment Management Authority (NEMA)

The NEMA is the supreme regulatory and advisory body on environmental management in Kenya. NEMA is required to coordinate and supervise the various environmental management activities being undertaken by various statutory institutions with a view to promoting their integration into projects that provide sustainable development and a safe and healthy environment.

The Key functions of NEMA include: responsibility for policy formation and direction for the purpose of the Act; 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 programs; and perform such other functions as are assigned by the Act. NEMA will remain in charge of coordinating all activities related to environmental management in the proposed project. This includes enforcement of EIA as well as EA.

4.7.2 The County Government of Mombasa

This is the principle lead agency in all matters pertaining to physical development within the county. The County Government Act, 2012, clearly defines the functions of this key institution. PART XI, on County Planning empowers the local authority to be responsible for local planning and development control.

The physical planning Act (Cap 286) also confers upon the local authority the powers to control development in this area of jurisdiction. Accordingly, section 29 (a) has granted all local authorities the power to prohibit or control the use and development of land of building thereon.

4.7.3 Directorate of Physical planning

The Physical Planning Act (Cap 286) establishes the office of the Director of Physical Planning. The duties of the Director of Physical Planning shall include the following:

- Formulate national, regional and local physical development policies, guidelines and strategies.
- Be responsible for the preparation of all regional, local and national physical development plans.
- From time to time, initiate, undertake or direct studies and research into matters concerning physical planning.
- Advise the commissioner of lands and local authorities on the most appropriate use of land including land management such as change of user, extension of user, extension of leases, subdivision of land, and amalgamation of land, and require local authorities to ensure proper execution of physical development control and preservation orders.

4.7.4. Ministry of Environment and Forestry

The mission of the Ministry is to “Develop, Conserve, Protect and sustainably manage environment and natural resources for national development”. The Ministry is charged with the responsibility of protecting, conserving and managing the environment and natural resources through sustainable development, social-economic development, must aim at eradicating poverty, improving living standards and ensuring that a clean environment is sustained now and in the future.

4.7.5. Kenya Power Co. Ltd

The Kenya Power will be responsible for transmitting and distributing electricity to the proposed development. The proponent is in talks with the institution so as to install a power station at the facility to serve power needs.

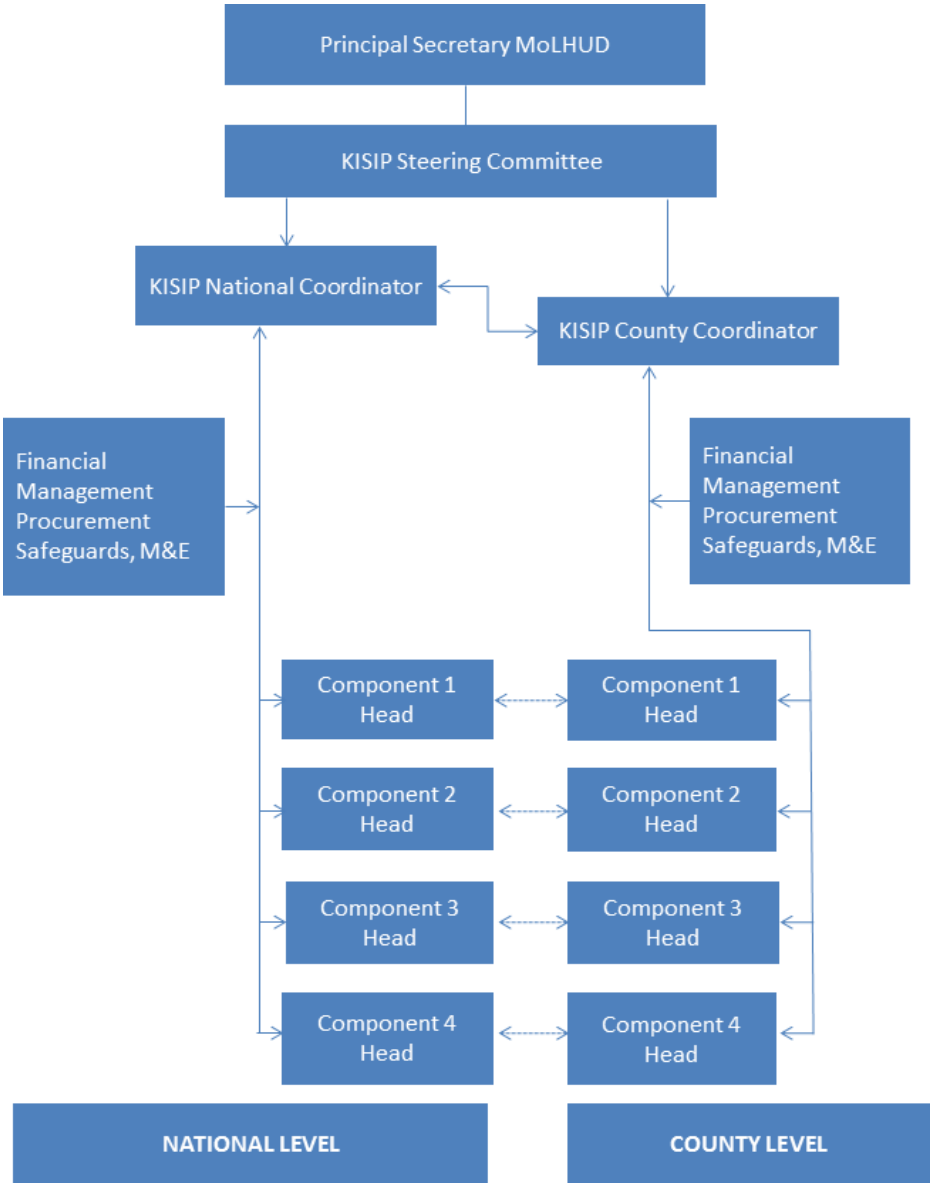
4.7.6 Kenya Informal Settlements Improvement Project (KISIP)

KISIP is currently under the Ministry of Transport, Infrastructure, Housing and Urban Development. Within the Ministry, KISIP operates under the overall supervision of the Principal Secretary, and the Project Coordination Team (PCT) comprising diverse components namely: Social and Community Development, Monitoring and Evaluation, Finance, Procurement, Institutional Development, Tenure Security, Environment, Infrastructure; and Planning for pro-poor growth, see Table 4.1.

Table 4.1: The KISIP Project Coordination Team (PCT)

Title	Main Tasks
Program Management and Coordination	
Project Coordinator	Overall project management
Finance Head	Financial management
Procurement Specialist	Procurement and stores management
Monitoring and Evaluation	Project management, monitoring and evaluation
Environmental Specialist	Mainstreaming environmental issues in the project to minimize adverse effects
Social and Community Development	Community participation and social issues
Component Managers	
Head of Component 1: Institutional Development	Responsible for implementation of Component 1
Head of Component 2: Tenure Security	Responsible for implementation of Component 2
Head of Component 3: Infrastructure	Responsible for implementation of Component 3
Head of Component 4: Planning forPro-poor growth	Responsible for implementation of Component 4

Figure 4.1: KISIP Organizational Structure



Implementation of KISIP will involve a three-tier institutional arrangement (National, County and Community).

a) National level: The project will be implemented by the KISIP I Project Coordination Team (NPCT) that has over the years developed a good level of awareness and improved capacity to address Environmental and Social (E&S) risks. Whereas, the KISIP National Coordinator has overall responsibility for project management, on a day-to-day basis, general responsibility for environmental and social safeguards management will be discharged by the Head of Safeguards Section. It is proposed that the Safeguards Team will be composed of:

    1) Head of Environmental and Social Safeguards to provide overall coordination of all safeguard issues and be responsible for reporting both to the National PCT and the World Bank.

2) Social Safeguards Officer who will be responsible for managing all the social impacts and issues of the project including RAP preparation, implementation and monitoring in collaboration with the Counties.
3) Environmental Safeguards Officer who will be responsible for managing environmental issues and impacts of the projects including ensuring the preparation, implementation, monitoring and reporting of ESIAs/ESMPs in collaboration with the Counties.
4) Community Development Officer who will ensure full participation of communities in safeguards management.

b) County level: The county governments will be the executing agencies of the project. They will establish County Project Coordination Teams (CPCTs) which mirror the PCT in personnel. Unlike KISIP I, the Counties will play an enhanced role in safeguards management. They will be in charge of implementation of RAPs and ESIAs where applicable. To enable them perform these enhanced roles, they are expected to enhance their capacity. The County Safeguards Team will mirror the National Team, but in addition, it is recommended to have additional personnel to handle community liaison and grievance redress.

c) Community level: Communities will form Settlement Executive Committees (SECs) to provide an interface between the communities and the project. This approach has been successful in promoting community participation in KISIP I. The SECs provide an important link and avenue through which the community can participate in safeguards management. Moreover, communities will form community-level grievance redress committees to improve access to simple, appropriate, and effective grievance redress mechanism.

In addition, task mapping and capacity assessment of those responsible for implementation of safeguards in both the NPCT and the participating Counties will be conducted. The findings will inform measures to strengthen staffing and safeguards capacity. Moreover, the National Safeguards team will use their experience in KISIP I to mentor and build capacity of the County Teams.

Third party monitoring will be considered, given the large number of settlements and counties in which KISIP II will be engaged in, including those with unknown capacities to manage environmental and social risks. The detailed roles and responsibilities of the national, county and community institutions will be provided in the Project Implementation Manual (PIM).

CHAPTER FIVE: ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION

5.1 Environmental Baseline Information

Baseline conditions of the proposed project site were assessed and documented for the purposes of determining the future impacts of the proposed project on the environment and livelihoods of the local community. The baseline survey was done through literature review, site visits and baseline environmental monitoring in collaboration with Proponent (County Government of Mombasa).

5.2 Proposed Site Location and Neighborhood Character

5.2.1 Project location and Neighborhood

This section outlines the baseline information for the three selected settlements in Mombasa County - see Table 5:1.

Table 5.1: Selected settlements in Mombasa County

Settlement	Size Hectare	Population
Majaoni-Bamburi		
Kindunguni	**19**	**2390**
Chaani	**10.82**	**3729**
Kisumu Ndogo	**3.97**	**5000-8000**

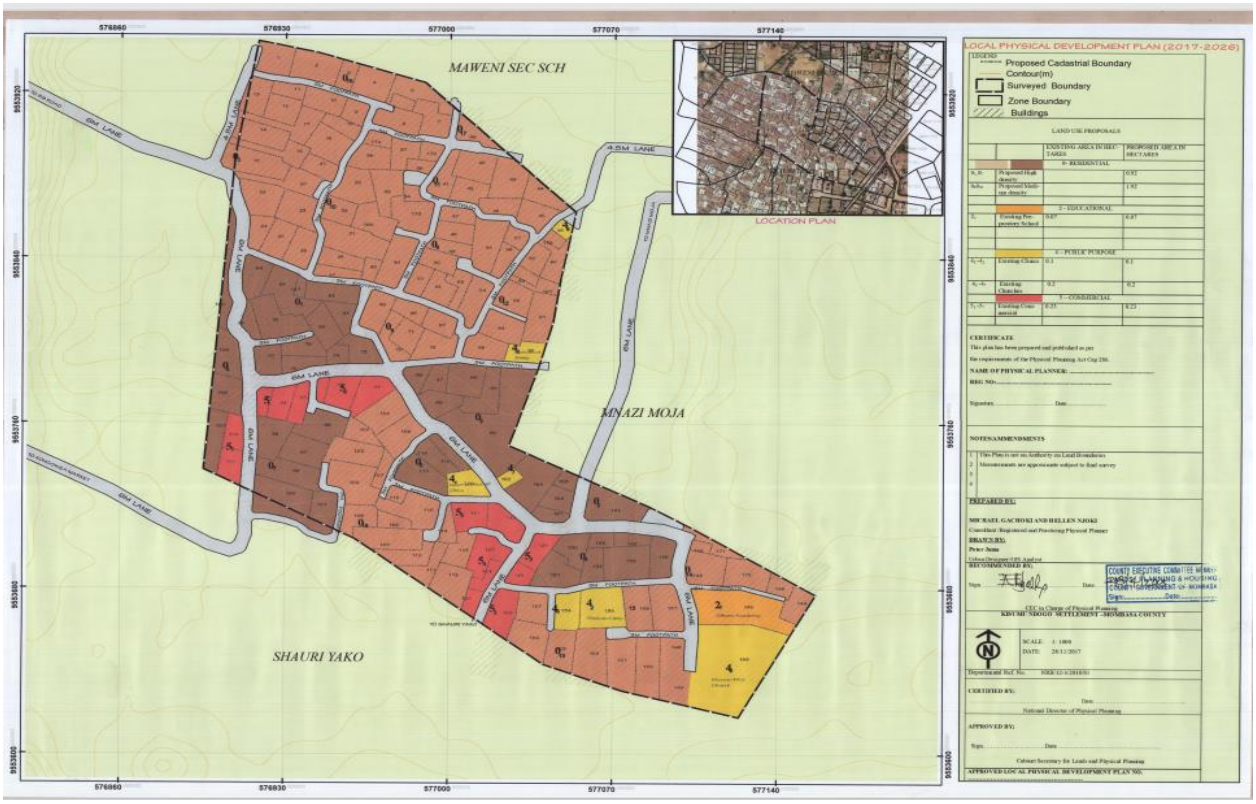


Figure 5.1: Kisumu Ndogo settlement

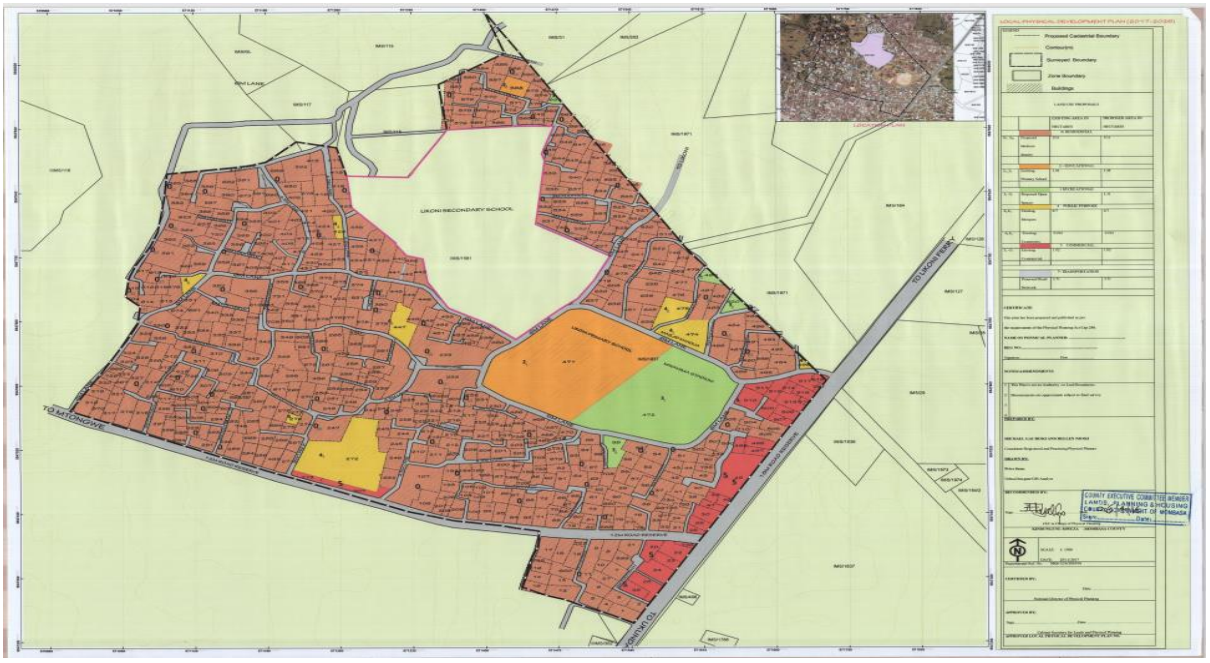


Figure 5.2: Kindunguni settlement

Overall, the environmental and social impact assessment considered the physical and natural environment of the wider area where the settlements are situated. Although the impacts of the proposed projects lie within the settlements it is important to understand the wider area and its physical characteristics. The crucial environment to look at is the human environment which includes the settlements with their resident population and their socio-economic conditions. This aspect was covered in detail in the Socio-Economic Reports already prepared and presented to the client. A summary of the key indicators is provided in this section.

5.3 Physical and Natural Environment

The Mombasa County is located in the South Eastern part of the Coastal region of Kenya. It covers an area of 229.9 Km2 excluding 65 Km2 of water mass which is 200 nautical miles inside the Indian Ocean. It borders Kilifi County to the North, Kwale County to the South West and the Indian Ocean to the East. The County lies between latitudes 30 56' and 40 10' South of the Equator and between longitudes 390 34'and 390 46'east of Greenwich Meridian. The County also enjoys proximity to an expansive water mass as it borders the Exclusive Economic Zone of the Indian Ocean to the East.

Mombasa County is unique owing to its location on an island on the Indian Ocean Coastline. The island and adjoining mainland support a thriving commercial and industrial economy driven by tourism, oil trade and the Kilindini harbor and associated commodity handling and transport business. Mombasa suffers inadequate drainage and sewerage coverage and has no mechanism to handle non-motorized transport. The Town however hosts numerous cultural heritage sites such as Fort Jesus, Kengeleni, Makinon Market, Vasco

5.3.1 Geology, Topography and Soils

The geology of Kenya's coastal strip was determined by the rifting and break-up of the palaeozoic Gondwana continent. Jurassic rifting of a Permo-Triassic basin filled with terrestrial clastic material into a pre-marine basin on the eastern edge of the African plate. These characteristics are generically the same as Southern Africa's Karoo sediments. Reworking and uplift led to the deposition of marine and peri-marine sediments, culmination in an erosive hiatus from Cretaceous to mid Neogene times (the Pliocene). Fresh uplift led to the deposition of fluviatile pebble beds, gravels and sands of the Magarini/ Kilindini formation on older competent sediments.

At Pleistocene times, sea level changes led to transgressions and regressions, leaving behind raised sands and fossil coral limestones (Horkel et al., 1984). Consequently, the hydrogeology of corals is characterized by good interconnectivity of pores which subsequently result into good permeability hence poor fair discharge & recharge of the aquifers in this region.

Sandy dunes & beaches

The beaches are formed from eroding corals, shells and terrigenous sediments from the hinterlands by rivers. There are an estimated 27,000 ha of beach and sand dunes in Kenya. Dunes are stabilized by associated vegetation by binding loose sand with their root system (ICZM Action Plan for Kenya 2019-2023 pg 17). Beaches provide nesting grounds for sea turtles and offer important habitat for shore and migratory birds while providing access points to the sea for fishing recreation and tourism. Additionally, they support fresh water provision in underground aquifers and help buffer against sea level rise and storm surges. On the social side, the sand dunes and beaches support economic activities notably tourism and fishing.

Sea grass beds

Seagrass beds are found predominantly in the sheltered tidal flats, lagoons and creeks and cover approximately 33,600 ha with the most extensive cover occurring in Lamu-Kiunga area, Malindi-Ugwana Bay, Watamu, Mombasa, Diani-Chale and Shinoni-Funzi bay. (KWS 2013). These provide nurseries, breeding and feeding grounds for commercially important fishery species. They also provide important feeding grounds for threatened and endangered species such as green turtles Chelonia mydas, the hawksbill turtle Eretmochelys imbricate and the Dugong dugon (IUCN 2010). Seagrass beds also provide buffer against wave action thus reducing coastal erosion while the structure of their leaves act as traps for suspended sediments (Bjork et al 2008)

Tidal Regime and Waves

Kenya coastal inshore waters experience semi-diurnal tides with a spring tidal range of about not exceeding 4 meters (Brakel 1982: Tychsen 2006)

5.3.2 Winds and wave action

The wind experienced at any given location is highly dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages. The average hourly wind speed in Mombasa experiences significant seasonal variation over the course of the year. The windier part of the year lasts from April 30 to October 6, with average wind speeds of more than 12.0 miles per hour. The windiest month of the year in Mombasa is

July, with an average hourly wind speed of 15.6 miles per hour. The calmer time of year lasts from October 6 to April 30. The calmest month of the year is November, with an average hourly wind speed of 8.6 miles per hour.
Predominantly, the average hourly wind direction in Mombasa varies throughout the year. The wind is most often from the south, from April to November, with a peak percentage of 100% in July.

The wind is most often from the east from November to April with a peak percentage of 64% in January. The wind systems influence the impact of the wave attack on the shoreline, the stronger the winds the higher the wave heights causing a relatively greater impact on the shoreline. Weak wind systems are associated with a calm ocean and consequently less wave attack.

5.3.3 Coastal erosion

Shoreline changes occur due to natural activities as a result of amalgamation of waves, currents, tides and river flow often leading to conflict in the process of coastal /beach erosion. Short-term variations of shoreline positions are primarily seasonal and periodical, whereas long-term variations are generally due to sea level fluctuations or changes in the coastal sedimentary budget. The increasing population and unplanned development/human activities along the coastal area have been reported to majorly contribute to these changes. In addition, various development projects made along the coastal areas have placed great pressure on the shoreline, leading to various coastal hazards like sea erosion, seawater intrusion, coral bleaching and shoreline change. Human activities seem to have aggravated the wave erosion; where human activities are dominant it is observed that there is remarkable shoreline retreat and beach instability. The problem has been noted to be more serious in the areas that are most attractive for tourism and residential development. Along the Kenya coastal shoreline, many properties are being protected from wave attack with walls of sand sacks and vertical walls. These mitigation measures exacerbate the erosion problem if not well set up and maintained. (lCAM 1996).

5.3.4 Climate

The climate of Mombasa is tropical, with a cooler season from June to September and a hot, muggy season from November to April. The county is located in southern Kenya, on the coast of the Indian Ocean, not far from the border with Tanzania.

As regards to the rainfall, it is not particularly abundant, in fact, it amounts to about 1,000 millimeters (40 inches) per year, however, there are two rainy seasons due to the two annual zenith passages of the sun (that is, when it shines directly overhead in the sky at mid-day), as often happens at the Equator.
The presence of the sea, however, complicates a bit the situation. The rains are abundant in April and May, in the so-called "long rains season", and reach a peak in May, of about 235 mm (9.3 in). During some years, the rains can be torrential, and can cause flooding and power outages.

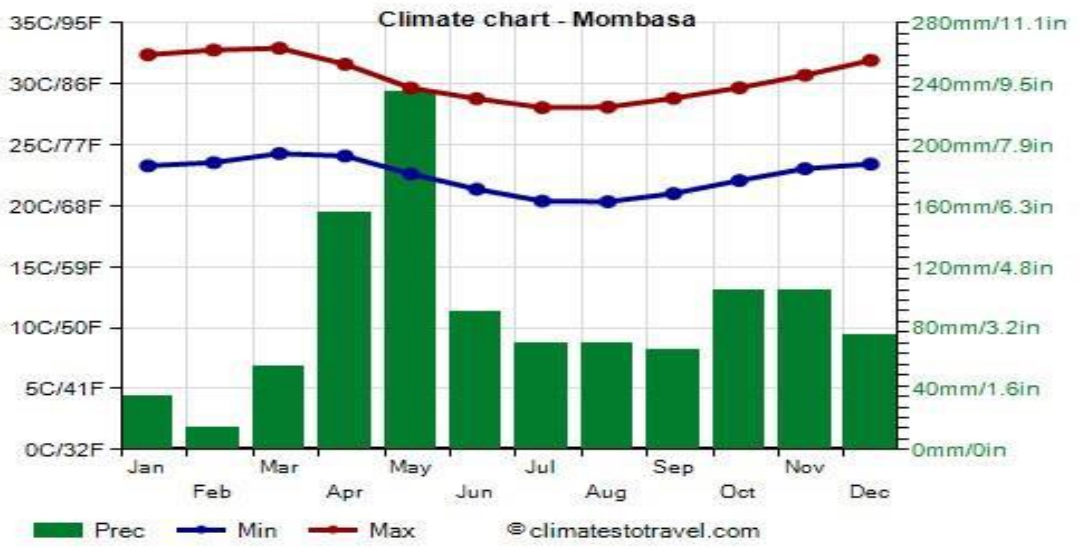


Figure 5.3. Mombasa Rainfall annual data

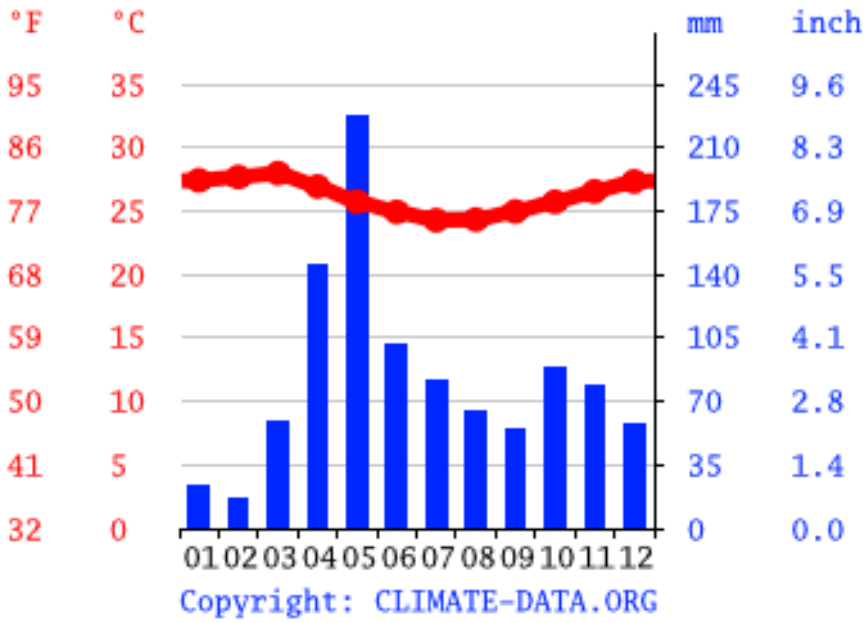


Figure 5.4: Mombasa Rainfall annual data

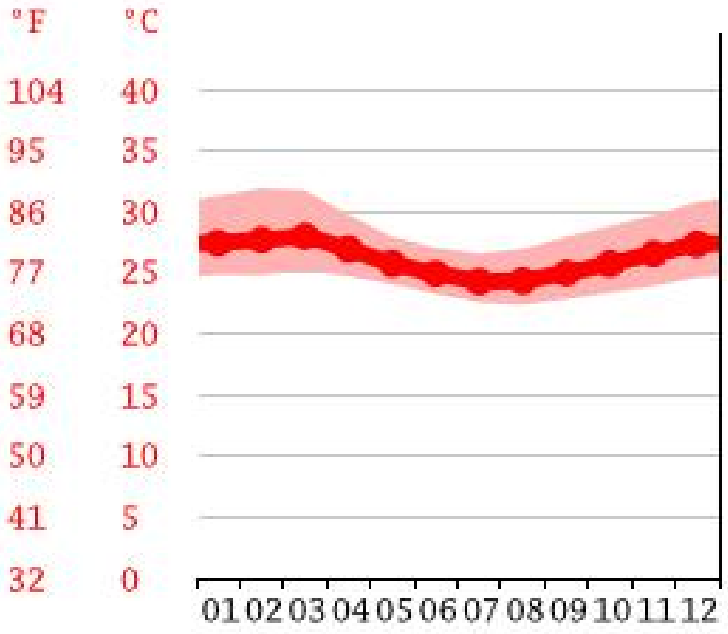


Figure 5.5: Mombasa annual temperature graph

This city of Mombasa has a tropical climate. During the cold season, precipitation levels are significantly lower compared to those experienced in the dry seasons. According to the Köppen-Geiger classification, the prevailing climate in this region is categorized as Aw. The mean yearly temperature observed in Mombasa is recorded to be 26.1 °C | 79.1 °F. Annually, approximately 997 mm | 39.3 inch of precipitation descends.
Because Mombasa is located near the equator, the summers are not easy to define. According to our analysis, the optimal period for embarking on a journey is during January, February, March, April, June, July, August, September, October, November, December (climatedata.org).

The average temperature of the coldest month (August) is of 24.2 °C (75.6 °F), that of the warmest month (March) is of 28.6 °C (83.5 °F). Here are the average temperatures.

5.3.5 Climate change and sea level rise

The National Climate Change Action Plan (NCCAP) 2018-2022 highlights that Kenya's economy is very dependent on climate-sensitive sectors such as tourism, agriculture, water, energy, wildlife and health whose vulnerability is increased by climate change. The Kenya coastal erosion will be exacerbated by Global Warming-induced, sea-level-rise. Although this is presently just over 2.5mm per year, it is expected to rise and will lead to a sea-level increase of 20-60cm (possibly significantly more) in the next 100 years according to the International Panel for Climate Change (IPCC, 2007). This will lead to greater levels of, and more frequent changing patterns of shoreline erosion, coastal flooding, increased salinity of coastal aquifers, and modification of coastal ecosystems such as beaches, coral reefs and mangroves. According to the Bruun Rule (Bruun, 1962), which is a widely applied model for predicting coastal recession due to sea level rise, the rising sea level will cause sand from the near shore zone to

move offshore, resulting in beach/cliff erosion. Hence, beaches run the risk of diminishing or even disappearing with possible detrimental effects on the beach amenity, tourism, economy, beachfront development, safety and ecology. A way to mitigate these effects is beach rehabilitation.

Furthermore, rising sea temperatures in the Western Indian Ocean influence the coastal conditions associated with Kenya. Sea temperatures have increased by 0.6 °C between 1950 and 2009, triggering mass coral bleaching and mortality on coral reef systems over the past two decades. This is likely to change the abundance and composition of fish species, with a negative impact on coastal fisheries. The Kenya government has initiated a number of strategies to address climate change through development of the NCCAP 2018 - 2022, ratification of United Nations Framework Convention on Climate Change (UNFCCC) in 2015, the Kyoto Protocol and the Paris agreement.
The ICZM Action Plan will therefore mainstream the contribution of the marine sector towards the attainment of the country's Indented Nationally Determined Contributions in line with UNFCCC and the IPCC guidelines for National Greenhouse Gas Inventories and the Ocean and Cryosphere in a Changing Climate among others.

5.3.5.1 Climate Change profile of Mombasa County

Observations show that global average temperatures have now increased by more than 1°C since preindustrial times. The atmosphere and oceans have warmed, the amount of snow and ice has reduced, and sea levels have risen as the concentrations of greenhouse gases have increased. The projections of future global and regional climate change indicate that continued emissions of greenhouse gases will cause further warming and changes to our climate. Kenya has experienced the impacts from climate change from rising temperature, extreme storms and rainfall, decline in the amount of rainfall, prolonged dry periods, pest and disease outbreaks and strong winds. The extreme weather conditions have resulted to food and nutrition insecurity, damage on infrastructure and homesteads, loss of lives, loss of livelihoods. This has consequently affected the country's development and economy as funds that will otherwise be used in development is used in disaster management due to climate change.
Mombasa County being an island is one of the most impacted ecosystems by climate change. Thus the County developed the Mombasa County Climate Change Action Plan to guide the county in mitigation and adaptation of climate change impact. The changes in climate have caused and will cause extensive direct and indirect harm to the county's ecosystem and its people which include:

- Rising sea-levels threatening habitable land and particularly coastal infrastructure
- Extreme weather, including more intense rainfall affecting the land, coastline and sea
- Further pressure on the scarce water resources and food production systems with associated impacts on coastal ecosystems
- Increased chance and scale of coastal flooding
- Heightened risk of the arrival of new pests and diseases and
- Poorer water quality

5.3.5.2 Vulnerability of Mombasa County to Climate Change

Mombasa County lies within the coastal strip in the hot tropical region where the climate is influenced by monsoon winds. The climate is characterized of high temperatures and high humidity at 80%. Mombasa's annual average temperature is 30℃ while the average low is 21.3℃. The highest recorded temperature annually is 37.6℃. January is the warmest month in the year with a temperature of 32℃ and the lowest month is July. Mombasa experiences seasonal variation in rainfall. The rainfall patterns are characterized of long and short seasons with annual average precipitation of 1260mm. The long rains occur in April to June at an average of 1,040 mm and correspond to South Eastern monsoon winds. While the short rains begin at the end of October until December at an average of 240mm. The short rains correspond comparatively to dry North Eastern Monsoon winds. The annual rainfall for the county is at an average of 640mm. Temperatures have risen throughout the country with Mombasa County being no exception. It has been observed that since the early 1960s, both minimum (night time) and maximum (daytime) temperatures have been on an increasing (warming) trend. The minimum temperature has risen generally by 0.7 – 2.0oC and the maximum by 0.2 – 1.3oC, depending on the season and the region of the country. It is projected that the mean surface temperature across the country will increase by 1-1.5°C by 2030,1.5-2.0°C by 2060s, 1.5-5.0°C by 2090s. Thus, rising temperatures trend is expected to continue in Kenya in all seasons. Rainfall has become irregular and unpredictable, and when it rains, downpour is more intense. The frequency and magnitude of extreme weather events is projected to increase with far reaching impacts across the country, including Mombasa Count

5.3.6 Water Resources

The county of Mombasa lacks a source of portable, within its boundaries. The fresh water used in the county is sourced from neighboring Kwale County, Kilifi County and Taita Taveta County. The amount of water these sources can provide to Mombasa is less than what the county needs to supply its growing population of people, offices and industries. As of December 2018, the daily freshwater needed was 200,000 cubic meters (200,000,000 L), but prevailing sources could only supply 42,000 cubic meters (42,000,000 L)

5.3.7 Natural Habitats

The settlements in the county are all situated in densely populated areas with poor infrastructure which requires improvement.

5.3.8 Water quality

The available information on groundwater quality in the Mombasa District suggests that the aquifer is experiencing contamination primarily due to the use of on-site sewage disposal systems, in particular pit latrines and septic tank / soak pit systems. The degree and extent of aquifer contamination in the island is variable, with sewered areas showing least groundwater pollution. It is apparent that areas of Kisauni are experiencing serious groundwater contamination attributed to sewage disposal practices. The situation in Kisauni is expected to worsen with the increasing population pressure, inadequate waste management practices and over-dependence on groundwater for potable needs.

5.3.9 Air Quality

Initial results show relatively good air quality for the months of July (~10 µg m-3 average) at the urban and residential sites, perhaps modulated by pristine air mixing in from the Indian Ocean. Concentrations at the industrial cement site are significantly elevated, with a July average of ~13 µg m-3 and peak hourly concentrations reaching 70 µg m-3.

According to IQAir, Air quality index (AQI) is 78 AQI and the main pollutant being PM2.5. The PM2.5 concentration in Mombasa is currently 5 times the WHO annual air quality guideline value.

5.3.10 Sanitation and drainage

According to the County Government of Mombasa, the drainage system has always been a nightmare in Mombasa and to address this the County Government constructed storm water drainage systems in Majengo, Old Malindi Road, Hongera road and drainage works at Soko Mjinga, Sisi kwa Sisi, Flamingo, Wayani , Mwijabu Primary, Likoni flats, among other areas which has reduced flooding and ensured road safety.

The sewerage system in the Island covering about 105 hectares was built to serve the Old Town and the Central Business District with a Population equivalent of 33,000 people. The system consists of sewers and tunnels running close to 23 km with diameters ranging from 150 mm to 600 mm made of pitch fiber, concrete, steel and asbestos cement and consists of 495 manholes.

5.4 The Human Environment

Mombasa County has a transitional population structure due to a shrinking child population, where 0-14 year olds constitute 33%. The county also has a high youthful population, where 15-34 year olds constitute 46% of the total population. This is a result of low fertility rates among women as shown by the highest percentage household size of 0-3 members at 59%. Labour migration from the rural areas in search of jobs has also increased the proportion of the working age population of those aged between 15-64 years old which is very high at 65%.

The residents of the informal settlements of Majaoni, Chaani, Kindunguni and Kisumu Ndogo were cumulatively recognized as vulnerable groups rather than disaggregated into specific categories. In an effort to have a fair representation the disabled, women, religious groups were among those groups represented in the Settlement Executive Committees (SECs) in the four settlements. The needs of these vulnerable groups were discussed in depth and a consensus reached during the validation workshops conducted in the settlements.

The estimated population is based on information given by the client to the consultant and no census was conducted in the four settlements.

5.5 HIV/AIDS

Kenya has experienced a notable decline in HIV prevalence over the last decade. The country has a current HIV/AIDs prevalence of 6% from the previous 10% in the late 1990s. Mombasa County has a population of 1,145,259, comprising of 52% males and 48% females. HIV prevalence in Mombasa (7.5%) is higher than the national prevalence of 5.9% (Kenya HIV Estimates 2015). The county contributed 5% and 3% of the total new HIV infections in Kenya among children and adults respectively.

This KISIP project is expected to improve the lives of those living in the three informal settlements and beyond by proving infrastructure which will contribute to improved living conditions and open up the area for economic development. Women who are more vulnerable will benefit from well-lit streets, proper drainage and sanitation. This will give eventhose living with HIV/AIDs a better chance to enjoy longer lives from living in conducive environment.

CHAPTER SIX: ANALYSIS OF PROJECT`S ALTERNATIVES

This chapter presents the environmental and social impact assessment of the proposed infrastructure upgrading projects in Majaoni, Kisumu Ndogo, Kindunguni and Chaani Settlements in Mombasa County. The Chapter also considers the project's alternatives.

6.1 Social and Environmental Justification of the Proposed Projects in the settlements

6.1.1 Solid Waste Management

There are no designated solid waste collection points in the settlements. During the field visit heaps of uncollected solid wastes were spotted in the settlements. If the project is not implemented, the likely consequences are likely to be:

- ✓ Proliferation of diseases;
- ✓ Continued pollution of the waterways;
- ✓ Pollution of the soil and ground water;
- ✓ Blockage of drainage system by uncollected solid waste posing a danger of water borne diseases.

Figure 6.1: ***Litter of uncollected solid wastes***

6.1.2 Roads and Drainage

Some parts of the settlement have all weather roads and have some cases of encroachment. If no project intervention is done, this could lead to:

- ❖ Continued encroachment on the road reserves;
- ❖ Higher chances of contracting diseases from the dusty roads;
- ❖ Low income from the developments due to poor access;
- ❖ Poor drainage, posing the danger of communicable diseases and danger of physical injury and negative effects of soil erosion

Figure 6.2: An overflowing sewer man hole within the settlement

Table 6.1: Social and Environmental justification for roads and drainage within the settlements

Roads and drainage options	Social justification
Development of all the roads as per the area part development plan and in compliance withstandard road reserves	✓ Opening the settlement by building roads will improve the lives of population and increase access. ✓ Increased access will improve other services such as public transport, firefighting and ambulance. ✓ Improve storm water, reducing cases of stagnant water, reducing soil erosion. ✓ This option will have positive environmental impact and is recommended.
Selective development of the roads to avoid resettlement of people and consideration of narrow widths for one-way carriageway	✓ This will evade social disturbance caused byresettlement

6.2 Economic Justification of Proposed Infrastructure Projects

The proposed infrastructure has been subjected to economic analysis in order to determine whether or not it is economically justified. This analysis falls into three main parts. The first is a qualitative analysis of the economic costs and benefits of each type of infrastructure that has been proposed. The purpose of this type of analysis is to give insight into the main costs and benefits of infrastructure provision, with and without the project. No quantitative test is applied as to whether or not the infrastructure is justified.

Secondly, a cost-effectiveness analysis of each type of infrastructure is conducted. In this analysis, the capital cost of provision per person, or unit cost, is calculated. This comparison gives a rough idea as to whether or not the costs of the proposed infrastructure are “reasonable”

relative to unit costs for the other settlements. This is a rough and ready method for examining the cost-effectiveness of the proposed infrastructure.

Thirdly, a cost-benefit analysis is conducted of all the infrastructure upgrading proposed for the Chaani, Majaoni-Bamburi, Kindunguni and Kisumu Ndogo. The aim is to compute the benefit/cost ratio (BCR), a metric that allows one to determine whether or not the infrastructure is economically justified. If the BCR is greater than 1 (one), the investment is economically justified.

The cost-effectiveness and cost-benefit analyses, and a detailed cost-benefit methodology, are set out in the Final Settlement Upgrading Plan Report, submitted separately.

6.3 Project's Alternatives

The proposed project development involves the improvement of access to basic services and tenure security of residents in participating urban informal settlements and strengthening the institutional capacity for slum upgrading in Kenya. This will be achieved by investing in infrastructure based on plans developed in consultation with beneficiary communities; by supporting planning, surveying and issuance of land documents for residents of informal settlements; and by strengthening capacity of county administrations to deliver on their mandates. The proposed project is earmarked to take place in four settlements of Majaoni-Bamburi, Kisumu Ndogo, Kidunguni and Chaani settlements within Mombasa county.

6.3.1. Analysis of the Project's Alternatives

Different alternatives for the proposed project have been considered, i.e Choice between Technologies, Choice Between Conflicting Needs, Location/relocation alternatives, expansion and rehabilitation and the 'No action' alternative.

6.3.2 The proposed development alternative

Under the proposed development alternative, the developer/proponent of the proposed project would be issued with an EIA License. In issuing the license, NEMA would approve the proponent's proposed project development, provided all environmental measures are complied with during the entire project cycle, i.e construction period, operation phase and decommissioning phase.

6.3.3 Location/ Relocation Option

A relocation option to a different site is currently not feasible to the project proponent owing to the nature of the project involving Infrastructure Upgrading Projects in Majaoni-Bamburi, Kidunguni, Chaani and Kisumu Ndogo Informal Settlements. An alternative location consideration is therefore not feasible.

6.3.4 Alternative design

Alternative designs and technologies with the help of the project engineers have been explored; i.e, if there can be an alternative design option available for the project implementation. The

proponent's engineers will at the long run implement the most cost-effective design that will minimize land acquisition and simplify the construction.

6.3.5 The 'No Action' Alternative

The no Project option regarding the proposed project implies maintaining the status quo. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. However, it will deny more than one million people in Mombasa City access to clean drinking water and derail the achievement of the sustainable development goal 6.

The 'No Action' Alternative is the least desirable option and will therefore not be considered.

6.4 Impact Assessment of the Proposed Project Alternatives

The anticipated negative and positive impacts of the projects are expected to be minor during the construction phase and very few to none during the operational phase. These are summarized in Table 6.2 below;

Table 6.2: Identification of the Environmental and Social Impacts and Mitigation Measures in the Settlements

Description			
Environmental aspect	**Current Situation**	**Project Specific Impacts**	**Mitigation Measures**
1. Physical Environment			
1.1 Climate	• Hot and dry climatic conditions with two rainy seasons	• Potential infrastructure projects are unlikely to cause impacts on the climate	• None
1.2 Air quality			
1.2.1 Dust	• Primary road is paved. Internal roads are unpaved and dust is produced during dry season which has negative impacts on theresidents' health	• There is a possibility of slight to modest increase of dust during the construction phase for roads but it will decrease once the proposed roads are upgraded to improved surface standards. Slight negative impact.	• Construction site management to involve sprinkling water on roads
1.2.2 Exhaust gases from traffic and industries	• Primary road is busy with vehicular traffic,thus emission of smoke • No large industries in the neighbourhood but small wood work and welding workshops exist within the settlement	• There is a possibility of slight increase of exhaust gases during the construction of any of the project components. Slight negative impact.	• Machines and vehicles to be maintained in good working order in the construction
1.2.3Cooking fires (indoor pollution)	• Negative impacts on households using various fuels for cooking such as firewood, charcoal and paraffin	• No project components currently selected that have an impact on such fuel use or use of energy in general	• None

1.2.4 Foul smell from Solid Waste	• Solid waste is currently disposed of outside residents' houses and on undeveloped plots • Residents have dug pits for disposal of solid waste	• Solid waste currently posing a significant negative impact to the densely populated settlement. Proposed provision of solid waste collection and transfer points will	• Transfer station to be cleared of solid waste twice weekly and high levels of cleanliness maintained • Construction waste to be safely disposed of in county land fill site
	• Town of Mombasa generally clean and urban- wide solid waste disposal sites exists	• Significantly reduce solid waste management problems • Solid waste collection bins have potential of becoming mini-dumpsites if waste collection system is dysfunctional. Slight negative impact • Potential pollution from construction waste	
1.3 Noise	• Noise not currently perceived as a problem apart from plots close to major spine roads	• Some noise may be caused by potential projects' construction activities as well as from the likely traffic increase due to improved road conditions. Slight negative impact.	• Machines to be maintained in good working order and statutory standards to be met in the construction phase • Personal protection equipment to be provided to workers exposed to noise during construction

1.4 Water	• Storm Water – tertiary and secondary drainage system is undeveloped at settlement level • Drinking Water – limited piped water and water from shallow wells • Waste Water – no infrastructure provided but residents use pit latrines and septic tanks	• Proposed secondary storm water drainage along with roads to collect tertiary storm water at plot/unit level – positive impact • Proposed water supply project component to improve potable water at household level – positive impact • Proposed sewer lines to improve sanitation and waste water disposal at household level – positive impact	• Mitigation measures will be required. See sections below for the specific mitigation measures during the construction and operation phase
1.4.1 Surface and Ground Water	• Settlement topographical character has gentle slope • Flooding has notable negative impacts on houses located in the lower areas of settlement • Stagnating pools of water are breeding grounds for mosquitoes and other water-related diseases • Solid waste disposed of in the open spaces is prone to mixing with storm water run-off which eventually ends up in the nearby stream • Dense settlement without infrastructure leads to increased pollution and low quality of life	• By improving the management of secondary and tertiary storm water drainage system, potential project components will have an overall positive impact on the resident population	• During the construction phase potentially harmful toxic products to be suitably stored to reduce risk of contamination to ground water • Tertiary and secondary storm water drainage system to be linked up to the town-wide storm water drainage system during the operation phase

1.4.2 Waste water	• Shallow pit latrines have propensity to contaminate surface and ground water. Proximity of pit latrines and shallow water wells may result in cross- contamination • Black cotton soils not compatible with pit latrines which become water logged • Plots are developed to 70 % ground coverage leaving very little space for pit latrines or disposal of liquid waste • Where solid waste is disposed in open spaces there is propensity of pollution of run-off storm water and surface water	• Proposed sewerage project components selected will improve sanitation and the management of waste water at household and settlement levels which has positive impacts on the resident population • Potential pollution from contractor's waste water	• Appropriate Mitigation measures to be developed for anticipated impacts from contractor's waste water management during construction.
2. Natural (biological) environment			
2.1 Vegetation and flora	• Settlement is not a natural habitat • Limited natural vegetation cover, mainly fruit trees and flower beds • Reeds and riparian vegetation near stream	• Potential project components to be responsive to vegetation present. Slight negative impact	• Residents to be involved in re-planting adequate ground cover with grass, shrubs and tree cover • Potential project components to be responsive to natural vegetation present
2.2 Terrestrial fauna	• Settlement is not a habitat for wildlife	• No impact by potential project components	• None
2.3 Aquatic fauna	• Settlement is not a habitat for aquatic fauna	• No impact by potential project components	• None
3. Human Environment			

3.1 Resettlement	• The settlement is largely a highly densely populated and building density is high as well • Residents living in precarious living conditions in the lower sections of the settlement along the riparian reserve which is prone to flooding and their shallow wells are a health hazard • Residents have encroached on road reserves and other wayleaves	• The creation of a recreation park along the riparian reserve will improve quality of life of the residents and significantly reduce the vulnerabilities of residents to flooding and other health related problems. Positive impact. • Potential negative impacts on resident population with residential structures along the riparian reserve and those who have encroached on roads needs mitigation measures	• Unavoidable resettlement mitigation measures are specified in the abbreviated RAP
3.2 Local economy	• Unemployment is high among the youth and the lower income bracket of the population in the active working age cohorts	• Project components will integrate training and skills transfer to the youth and the active working age cohorts. Positive impact.	• Tendering documents to include contractor's obligation to hire local human labour as part of income
3.3 Infrastructure Services	• Water vendors operating water kiosks as an entrepreneurial economic activity • Servicing, emptying and cleaning pit latrines is an entrepreneurial economic activity as well • Public-paying toilet not present but could be useful as an entrepreneurial economic activity	• Project components will consider employment and income generating aspects during and after construction for the benefit of women, the youth and men in the active working age cohorts. Positive impact. • Overall project components will have direct and indirect positive impacts in improving the socio-economic	• Generation during the construction phase • High priority to be accorded to local residents for permanent jobs at construction and operation and maintenance of all project components • To ensure that settlements enjoy increased accessibility and mobility, maintenance of the developed infrastructure projects is key

		conditions of the residents • Overall the project will improve access in the settlements and led to increased property value	
	• Infrastructure services namely storm water drainage, waste water, street lights, fresh drinking water, generally inadequate	• Potential project components including roads and storm water drainage infrastructure upgrading, Recreation Park, potable water and waste water sewer lines, security lighting, street lights and solid waste management system will have overall improvement in the quality of life and general community life of the resident population. Positive impact. • Potential disruption of access to property and interference with access to services during the construction phase	• Potential short-term negative impacts with long-term gains to residents • Residents/local community to be communicated to during the construction phase by contractor • For the sustainability of the projects residents to be involved through training on the operation and maintenance of all project components

3.4 Health	• Poor solid waste disposal, proximity of shallow water wells to pit latrines and flooding have potential for health risks toresident population • Malarial diseases are a high risk in the settlement. Eliminating the risks of flooding and stagnant pools of water and mosquito-breeding grounds are basic ways to improve residents' health • Risks of pest and insect related and water- related diseases such as cholera, diarrhea, typhoid and malaria are high in the settlement. Improving sanitation and general hygiene are basic ways to improve residents' health	• The recreation park on the riparian reserve will significantly reduce flooding, manage storm water drainage system and eliminate propensity for stagnant pools of water, thus reducing the risk of malarial, sanitary and water related diseases. Positive impact.	• All potential negative impacts from dust, noise and road accidents to be minimized during the construction phase • Employ skilled and trained workers and provide all construction workers with personal protection equipment and training on construction site safetyprocedures • Enforce occupational health and safetystandards • Have adequate worker insurance cover

CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL IMPACTS

7.1 Positive impacts

7.1.1 Improved Accessibility

The paved roads will ease access into the settlements as the roads become impassable during the rainy season. In Kisumu Ndogo, for example, the community mentioned that it becomes very difficult to take patients to hospitals in cases of emergencies due to deplorable state of several access roads within the settlement, therefore the project is highly accepted and timely.

7.1.2 Improved Sanitation and Hygiene Standards

The residents will benefit from the new proposed connections to the main water supply which will lead to improved health and hygiene at the household level. Cases of diseases outbreak will also reduce as a result of the improved drainage of waste that would previously remain stagnant in the unlined side drains. Reduced dust means less respiratory diseases.

7.1.3 Improved wastewater management

Kenya ratified the sustainable development goals in 2015, committing to achieving universal and equitable access to safe and affordable drinking water for all and improving the capacity to safely dispose of wastewater by 2030 (SDG6).

As the urban population grows, pollution increases and the capacity to safely dispose of wastewater is increasingly compromised. The proposed project will enhance the appropriate management of waste water in Mombasa County.

7.1.4 Improved Security

The settlements will be well lit by the flood lights therefore, residents will feel safe walking at night and businesses will operate until late hours, thus leading to an improved tenure security for the residents.

7.1.5 Land Appreciation

An upgrade of the infrastructure in the settlements will make the area more appealing, leading to a rise in land prices. This is an overall benefit to the area residents who will gain from improved land sales.

7.1.6 Improved Livings Standards

The living standards in the settlements will improve due to a combination of factors including reduced dust emission from the road, fewer incidence of water-borne illnesses and a more conducive environment to carry out businesses. i.e. the housing standards within the selected settlements will improve.

7.1.7 Employment and Improved Livelihoods:
The proposed project will provide employment while flood lights will enable businesses to continue into the night. Rent is also projected to go up thus earning home owners more income.

7.1.8 Gendered impacts in livelihood improvement:
Most of the businesses which will operate at night are owned by women thus benefiting majority of the women in those particular settlements due to improved security.

7.1.9 Improved aesthetics:
The proposed infrastructure and associated requirements such as clearing of some of the unplanned structures will lead to improved aesthetics in the settlements. Clearer roads will promote better planning i.e. no haphazard buildings.

7.1.10 Infrastructural development
The proposed infrastructure improvement will have several benefits key among them; it will lead to improvements in health and reduced hazards associated with dust and others. Access to clean water will reduce waterborne diseases. Improved drainage channels will improve drainage of storm water in the settlement reducing risk of flooding. In addition, the infrastructure will attract better and improved housing e.g. high-rise buildings; change in the type of buildings to be put up in those selected settlements, increased interaction and relations between various groups in the settlement due to the project and its institutional framework e.g. SEC which will bring different groups together and working together for longer periods. Overall, the project has several benefits to the community.

7.2 Negative impacts
The following negative impacts are anticipated:

7.2.1 Accessibility Challenges
Based on the community sentiments, accessibility within the settlement during construction has often been an issue over time. Contractors often do not provide safe access to buildings and routing/ diversions for vehicular and human traffic. Moreover, persons living with disability and the elderly, have unique accessibility challenges during and after the construction phases which needs to be considered.

7.2.2 Clogged Drainage Systems
The drainage is clogged with solid wastes from homesteads and small businesses, while in other cases, the drains are clogged with construction debris from plots under development. If not well handled, the construction waste could end up causing blockages to the drainage systems.

7.2.3 Safety Concerns
The residents have reported concerns that in most cases, the access roads in many settlements always lead to increased accidents due to motorbikes over-speeding in the settlement as a result

of improved roads. Roads also attract children and turning them into playgrounds. Also, road side vendors usually find the improved accessed roads attractive for business thus block better parts of the access roads leading to increased accidents and conflict amongst the road users.
There is need to make the proposed access roads safer for the community through proper design, signage, guard rails and bumps.

7.2.4 Gentrification

As property values rises, some project beneficiaries unable to keep up with the changing environment are forced to sell out their property thus may lead to dispossession and increased level of poverty if the proceeds from the sale is not well invested or used to look for alternative settlement areas.

7.2.5 Extraction of Materials

Materials such as ballast, cement, stone, and sand required for the construction of the project will be obtained from quarries, hardware shops and sand harvesters who extract such materials from natural resource banks such as rivers and land. Since substantial quantities of these materials will be required. the availability and sustainability of such resources at the extraction sites will be negatively affected, as they are not renewable in the short term.

7.2.6 Noise pollution and vibrations

The construction works on site will most likely have noise due to the moving machines used in the construction, incoming vehicles to deliver construction materials, workers to the site and other normal construction activities. This may prove to be a potential disturbance to the surrounding neighbors and a health hazard to the workers. In addition, the use of machinery/equipment, including bulldozers, generate terms of reference, metal grinders and concrete mixers, will contribute to high noise and vibration levels within the construction site and the surrounding area.

7.2.7 Dust emissions

Particulate matter pollution is likely to occur during the site clearance, excavation and loading and transportation of the construction waste. During construction, the project will generate substantial dust at the construction site and its surroundings. The sources of dust emissions will include excavation and levelling works and, to a small extent, transport vehicles delivering materials. The emission of large dust may significantly impact construction workers and residents, which will be accentuated during dry weather conditions.

7.2.8 Generation of exhaust emissions

Exhaust emissions are likely to be generated during the operation phase from the backup generator and during the construction period by the various construction machinery and equipment. Motor vehicles used to mobilize the workforce and materials for construction would cause a potentially significant air quality impact by emitting pollutants through gaseous exhaust emissions. Such emissions can lead to several environmental impacts, including global warming and health impacts.

7.2.9 Accidents and hazards during construction

Because of the intensive engineering and construction activities, including erection and fastening of roofing materials, metal grinding and cutting, concrete work, steel erection and welding, among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets among others. Therefore, all necessary health and safety guidelines should be adhered to avoid such circumstances.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

This chapter presents the environmental and social impact, the proposed mitigation measures, the responsible party in the Environmental and Social Management Plans and the estimated cost of implementing the ESMPs. Towards the end of the chapter the responsible parties for the monitoring of the ESMPs is laid out.

8.1 Overview of the Environmental and Social Mitigation Measures Plan

8.1.1 Environmental Impacts during the Construction Phase

The selected projects in the settlements have minor negative environmental impacts that will generally manifest themselves during the construction phase. The Environmental and Social Management Plan (ESMP) is based on the settlement upgrading plan and final selected projects derived from the detailed engineering designs. The mitigation measures have been proposed to be implemented during the construction phase.

8.1.2 Socio-economic Impacts and Resettlement

All the three settlements are densely populated and building density is high as well. Residents living in precarious living conditions in the lower sections of the settlements along the riparian reserve which is prone to flooding and their shallow wells are a health hazard. In the three settlements residents have encroached on road reserves and other wayleaves. In all the three settlements there are insignificant negative impacts on resident population with respect to resettlement issues. Any unavoidable resettlement issues are addressed in the abbreviated RAP, which is submitted as a separate report to KISIP. Any anticipated negative impacts whilemoving those with structures on road reserves will be mitigated. See Annex - 8

8.1.3 Responsibilities

The responsibilities for the implementation of the mitigation measures are split between KISIP, the project proponent and the main contractor (Tables 8-1 and 8-2). The main contractor will be directly responsible for the implementation of the environmental mitigation measures. The ESMF highlights the generic code of practice that contractors are required to comply with, which is provided in Annex 4. The project proponent will be responsible for overseeing that the projects are implemented according to best practice, regularly monitor the works progress and its compliance with adopted mitigation measures and statutory standards.

The key stakeholders involved in the implementation of this ESMP:

- Ministry of Transport, Infrastructure, Housing and Urban Development (Kenya Informal Settlements Improvement Project –KISIP);
- National Environmental Management Authority (NEMA);
- Resident Engineer;
- The County Government;
- Contractor

8.1.3.1 The National Environment Management Authority (NEMA)

The responsibility of the National Environment Management Authority (NEMA) is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment and to ensure that all mitigation measures proposed are actually implemented.

8.1.3.2 The Resident Engineer and Environmental and Social Officer

The Resident Engineer (RE) will be appointed by the client (KISIP) or the Supervising Consultant to oversee the construction program and construction activities performed by the contractor, in compliance to the EMSP. It is hereby proposed that the RE, have an Environmental and Social Officer (ESO) in its team to co-ordinate all aspects of the environment during the project implementation.

The ESO under the RE will be responsible for the following tasks:

- ❖ Ensuring the implementation of the ESMP and where required updating it to cover environmental and social issues not captured during the preparation of the ESIA and ESMP;
- ❖ Auditing environmental and safety issues at the project sites;
- ❖ Participate and oversee the HIV/AIDS awareness and prevention Campaign every three months, during the project implementation phase. The cost will be bore by theContractor and included in the cost of the project;
- ❖ Participate and oversee the training of community members on safety and healthconcerns as well as traffic management;
- ❖ Liaise with the NEMA on the level of compliance with the ESMP achieved by theContractor on a regular basis for the duration of the contract;
- ❖ Preparing quarterly environmental and social progress or "audits" reports on thestatus of implementation of measures and management of work sites.

8.1.3.3 The County Government

The relevant departmental officers in the County Government of Mombasa should be called upon where necessary during project implementation to provide the necessary permits and advisory services to the project implementers. The County Government will be required to liaise with the SEC to assist in the sensitization campaigns for HIV/AIDs and safety and health.

8.1.3.4 The Contractor

The client will appoint the Contractor and will be required to comply with the requirements of the ESIA/ESMP and other relevant laws, policies and standard specifications such as Standard Specifications for Road Works in Kenya, Environmental Protection and Waste disposal, Borrow Pit and Quarry Acquisition and Exploitation, Landscaping and grassing among others. The provisional cost of implementation of the ESMP is included in the Bill of Quantities.

8.2 Basic attributes of environmental monitoring

The proponent and or their appointed agents and other relevant parties will undertake to conduct sustained environmental monitoring of the project areas putting into consideration the following attributes:

1. Monitor changes in the environmental conditions of the project area through collection and analysis of appropriate environmental data throughout the life of the project;
2. Check the extent to which the mitigation and benefit enhancement measures have been adopted and their effectiveness in practice;
3. Provide a mechanism whereby unforeseen or unexpected impacts during the ESIA study can now be identified and provide measures to mitigate the unexpected negative impacts;
4. Prepare periodical reports and liaise with relevant bodies and authorities through an established forum in order to discuss and resolve issues arising from the monitoring process; and
5. Prepare the quarterly, semiannual or annual EA reports that should be submitted to NEMA and implement any subsequent recommendations arising from the EA reports.

8.3 Significance of environmental monitoring

The significance of monitoring stems from the fact that the inputs derived from the ESIA into the project design and planning, including mitigation measures and environmental management plan are largely based on "predictions". It is therefore essential that the basis for the choices, options and decisions made in formulating or designing the project and other environmental and social safeguard measures are verified for adequacy and appropriateness during the monitoring process. Monitoring verifies the effectiveness of impact management, including the extent to which mitigation measures are successfully implemented. The results of environmental monitoring will determine the success and efficacy of the proposed mitigation measures in protecting the environment.

8.4 Monitoring arrangement and the way forward

Environmental monitoring will commence at the commissioning of works and the recruitment of the project Contractor, the Resident Engineer and Environmental Monitoring Firm. Once the project is underway, the proponent (as represented by the Environmental and Social Development Manager and Resident Engineer) and representatives of NEMA, local administration, relevant Government officers, community leaders and other relevant stakeholders will regularly visit the project areas to review and ascertain that the clauses and conditions set by NEMA for the protection of the environmental are adhered to by the Contractor.

As part of regular project activity, monitoring will involve systematic collection of data through a series of repetitive measurements and observations. Monitoring reports prepared by Environmental monitoring team will be reviewed by NEMA to ensure that proposals contained in the EMP are being implemented by the Contractor as required. Details on the responsibility for monitoring and monitoring indicators are presented in **Error! Reference source not found.** below. Finally the environmental monitoring team will analyse the collected data and

information collected and subsequently compile and formalize the monitoring report in accordance with the set guidelines and timeframes and submit it to NEMA.

8.5 Grievance redress mechanism and its objective

The Grievance Redress Service (GRS) is an avenue for individuals and communities to submit complaints directly to the World Bank if they believe that a World Bank-supported project has or is likely to have adverse effects on them, their community, or their environment. The GRS enhances the World Bank's responsiveness and accountability to project-affected communities by ensuring that grievances are promptly reviewed and addressed.

The IFC Stakeholder Engagement Handbook defines stakeholder engagement as "a means of describing a broader, more inclusive, and continuous process between a company and those potentially impacted that encompasses a range of activities and approaches and spans the entire life of a project." The specific objectives of the SEP are:

- Identification and analysis of the stakeholder groups and their profiles, interests, issues/impacts and concerns relevant to the Project;
- Identification of specific measures to allow meaningful engagement with the different stakeholder groups in a manner that is transparent and accessible and using culturally appropriate communication methods with a specific focus on vulnerable groups;
- Allow for a relationship to be built with the various stakeholders of the Project based on mutual respect and trust;
- Facilitate adequate and timely dissemination of information to the stakeholder groups in a culturally appropriate manner;
- Provide systems for prior disclosure/dissemination of information and consultation, including seeking inputs from affected persons, incorporation of inputs, as applicable and providing feedback to affected persons/groups on whether and how the input has been incorporated;
- Providing mechanisms for feedback and dispute resolution; and
- Providing a mechanism for documentation of the activities undertaken and the reporting and monitoring of the same.

8.5.1 Principles of the Stakeholder Engagement and Grievance Redress

The stakeholder engagement and grievance Redress process for the Project will be based on the following principles:

- **Transparency and fairness**: The process for grievance resolution shall be transparent, in harmony with the local culture and in the appropriate language. It should explicitly assure potential users that the mechanism will not impede their access to other judicial or administrative remedies.
- **Accessibility and cultural appropriateness:** Every member of the community or groups should have access to the grievance procedure. Any individual or group that is directly or indirectly affected by the Project's and its contractors' activities, as well as

those who may have an interest in the Project or the ability to influence its outcome, either positively or negatively, can raise a grievance. To allow all stakeholders to have access to the mechanism, the grievance Redress procedure will be made available in the local languages of Kikuyu and any other languages preferred by the community.

- **Meaningful Information**: As part of the engagement process, meaningful information should be disclosed to the stakeholders to allow for active and informed engagement.
- **Openness and communication regularity:** There are multiple channels available for individuals and groups to choose their preferred method of lodging grievances.
- **Channels of communication** are kept open throughout the process of addressing each grievance and up to three months after the situation has been resolved.
- **Written records:** All grievances are registered on a Grievance Form and tracked through to resolution.
- **Dialogue and site visits:** All grievances are considered to warrant discussions with the complainant and a site visit, if required, to gain a first-hand understanding of the nature of the concern. The purpose of the visit is to verify the validity and severity of the grievance.
- **Timely resolution:** The Project aims to resolve all grievances within the shortest time possible.
- **Incorporation of feedback:** The feedback received to-date from the engagement and grievance Redress process shall be incorporated into the Project and program design and the same shall be reported back to the relevant stakeholders.

8.5.2 Key Stakeholder Groups' Mapping

Key stakeholders will be identified and mapped into the following categories and with a targeted plan to reach out to them all.

i. **PAPs** (Project Affected Persons); these include the project neighbours who are inclusive of both the plot owners and business operators; these will be engaged through interviews and wide public consultation community meetings.
ii. **Government Agencies**; including the local administration (Local Chiefs), the County government (Planning department), local leadership (inclusive of the local MCAs, MP and women Rep) and authorities such as the NCA, WRA, DOSH and NEMA; these will be contacted through consultative meetings, compliance reviews correspondences, permits and license applications
iii. **Local CBOs, NGOs** (if operating in the area), youth groups, these will be engaged through planned stakeholder meetings.

iv. **Local contractors and professionals** in the water sector industry; these will be engaged continuously in consultative meetings and formal correspondences.

v. **The General Public**; this will be reached through advertisements in Kenya's Dailies, radio and in the Kenya Gazette.

8.5.3 Approach to Stakeholder Engagement

It is important to note that a significant proportion of stakeholders within the communities identified within the Project Area have been previously engaged (and some recently engaged) either directly by the project's consultants and/or by the local administration that are in the process of conducting the resettlement and land acquisition process.

Taking into account previous engagement sessions and meetings, a two-step process for stakeholder engagement has been suggested that includes the following:

- Engagement to inform **general stakeholders and authorities** and disclose important project details to them with respect to potential impacts.

- Engagement to inform **directly project affected people** and disclose important project details including the socio-economic area of influence as addressed in EIA report.

In consideration of the local communities literacy level the ESIA team organized a number of meetings where relevant information was presented verbally in the use of the local language on the proposed Project development. This included a series of focus group discussions and one-to-one interviews with affected people.

Table 7.1: **The ESMP for the Selected Projects in Mombasa for the Construction Phase**

Activity/Task	Site-Specific Impacts and Mitigation Measures				
	Impacts	**Mitigation Measures**	**Responsibility**	**Cost**	**Timeline**
Deployment of Construction Workers onSite	Occupational Health and Safety concerns for construction crew and others. Risk of accidents – fire, road and construction activity	Deploy sober qualified staff under competent supervision.Must provide personal protection equipment PPEs Provide first aid material on site and instruction in first aidto workers. Have emergency phone numbers (ambulance, firesquad) available.	Contractor	Cost Included in Contractor Bid	During Construction Mobilization and Construction Works
	Sanitation concerns for construction crew	Provide onsite sanitationfacilities Define "code of conduct" forworkers.	Contractor	Cost Included in Contractor Bid	During Construction Mobilization and Construction Works
	Influx of speculative job seekers	Include obligation to recruitlocally in the contracts. No on-the-spot recruiting ofnon-residents	County Government of Mombasa /KISIP	No additional Cost	During Construction Mobilization
	Proliferation of social concerns (commercial sex, alcohol and drug abuse, multiple homes, etc.) Small concern, since construction sites are rather small, no living	Local hiring of workers coupledwith an awareness-raising program If required, provide transportfor workers from outside to and from worksite.	Contractor	Cost Included in Contractor Bid	During Construction Mobilization and Construction Works

	Exposure to HIV/AIDS and other vices Small concern, since construction sites are rather small, no living facilities for workers provided on site.	Local hiring of workers who go home after work coupled with awareness raising programs. If required, provide transport for workers	Contractor	Cost Included in Contractor Bid	During Construction Mobilization and Construction Works
Material borrowing and transport	Contractor will source materials from approved existing quarries. Impact anticipated is low	N/A	Contractor	Cost Included in Contractor Bid	During Construction
Storage of fuel oils, lubricants, chemicals and Flammable materials	Hazards of fire outbreak, oil and chemical spills. Low impact; storage of major quantities of fuels and lubricants onsite is not foreseen.	Follow specifications of the Occupational Health and Safety Act, EMCA 1999 and others in the development and operation of stores. Good maintenance of vehicles and machines for preventing loss of oils.	Contractor	Cost Included in Contractor Bid	During Construction
Opening up sites for construction	Disruption of existing natural vegetation No concern: all activities in already used/degraded areas,	N/A	Contractor	Cost Included in Contractor Bid	During Construction

	no natural habitats or ecologically sensitive areas to be touched.				
Excavations and demolition activity	Generation of debris, waste soil and rubble. Only small quantities of material to be disposedof will remain.	Disposal as appropriate. Reusein civil works, landfills etc. Some material might be usedlocally, e.g. to fill in depressions where runoff water accumulates.	Contractor	Cost Included in Contractor Bid	During Construction
Operation of plants, equipment and big labour force.	Generation of nuisances: dust, noise and vibrations. Impact will generally be small: no very large works, short duration, small workforce.	Prior warning to residents followed by effective management to shorten period of construction activity.Wet curing to control dust. Measures for dust preventionwill be important. PPE for workers exposed to noise	Contractor	Cost Included in Contractor Bid	During Construction
Maintenance of plant and equipment	Generation of waste oil, filters and spare parts maintenance of machine /equipment. Potential pollution from construction machinery	All repairs in designatedgarages. Apply the 3Rs principle (Reduce, re-use and recycle) in waste management	Contractor	Cost Included in Contractor Bid	During Construction
Excavation, levelling and general civil works	Damage to existing infrastructure (water, electricity).	Map and zone out all infrastructures for preservation. Budgetary allocation for replacement.	Contractor	Cost Included in Contractor Bid	During Construction
Road transport	Risk of accidents especially within settlements where	Impose strict traffic rules (maximum speed to be respected) on all drivers.	Contractor	Cost Included in Contractor Bid	During Construction

	there is usually not much traffic). Small risk, but with potentially major consequences Pollution from transportation, storageand handling of construction materials	Have emergency plan ready incase of an accident. Containment of noisy operations and limiting construction work to day hoursonly Construction work to takeminimal time possible			
General Solid waste management	Waste (other than surplus material) will be generated on site.	Waste must be disposed of properly, and recycled where feasible. Provide waste bins onsite.	Contractor	Cost Included in Contractor Bid	During Construction
Waste Water Manage ment	Waste water generated during construction is likely to pollute the ground water	Contractor to arrange for mobile toilets on site which will be emptied in accordance to the County Government of Mombasa and NEMA regulations	Contractor	Cost Included in Contractor Bid	During Construction
Asphalt, **Bitumen and** **Paving**	Poorly stored Asphalt and Bitumen could result in water and ground pollution	The plant should be situated on flat ground; Topsoil shall be removed prior to site establishment and stockpiled for later rehabilitation of the site; Bitumen drums / products shall be stored in an area approved by the RE. This area shall be indicated on the construction camp layout	Contractor Resident Engineer	Cost Included in Contractor Bid	During Construction

		plan. The storage area shall have a smooth impermeable (concrete or thick plastic covered in gravel) floor. The floor shall be bunded and sloped towards a sump to contain any spillages of substances; The area shall be covered to prevent rainwater from contacting the areas containingfuels, oils, bitumen etc The plant shall be secured from trespassers and animals through the provision of fencing and a lockable gate to the satisfaction of the Resident Engineer (RE); Materials requiring disposal shall be disposed of at an appropriate waste facility.			

CHAPTER NINE: THE ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Table 8.1: The Environmental and Social Monitoring Plan

Issue	Measures	Monitoring/Key Performance Indicator	Means of Verification	Responsibility	Timeline Frequency
Deployment of Workers on Site					
Occupational Health and Safety	Deploy sober qualified staff under competent supervision. Must provide personal protection equipment PPEs Provide first aid material on site and instruction in first aid to workers. Have emergency phone numbers (ambulance, fire squad) available.	All occupational health and safety equipment is available Staff are perpetually sober and use personal protection equipment	Visual inspection If necessary, use alcohol tests	Contractor County Government to oversee implementation	Construction Phase Daily
Sanitation	Provide onsite sanitation facilities Define "code of conduct" for workers.	Sanitation facilities are available Workers are aware of "code of conduct"	Visual inspection of equipment and use of facilities	Contractor CGM to enforce implementation	Construction Phase Daily
Proliferation of social decay and exposure to HIV/AIDS and other concerns (commercial sex, alcohol and drug abuse, multiple homes, etc.)	Local hiring of workers coupled with an awareness-raising program If required, provide transport for workers from outside to and from worksite.	Ensure awareness-raising program is in place	Inspection of awareness-raising program	CGM/KISIP	Whenever applicable

Influx of speculativejob seekers	Include in the contract bids the contractor's obligation to recruitlocally	Only local job-seekers arerecruited	Inspection of recruitment records	CGM/KISIP	Whenever applicable
Generation of Construction waste debris, waste soil and rubble	Disposal of construction waste as appropriate. Reuse in civil works, landfills and recycle/reuse wherenecessary Some material might be re-used locally e.g. to fill in depressions where run-off water accumulates	Ensure that construction waste, debris and rubble are disposed of appropriately	Visual inspection	Contractor CGM to enforce implementation	Daily
Hazards of fire outbreak, oil and chemical spillage	Follow specifications of the Occupational Health and Safety Act,EMCA 1999 and others in the development and operation of stores. Good maintenance of vehicles and machines for preventing loss of oils.	Storage and maintenance is appropriate and follows laid-down specification	Visual inspection	Contractor CGM/KISIP to oversee implementation	Daily
Generation of waste oil, filters and spare parts **Maintenance of machine and equipment**	Apply the principle of 3Rs (reduce, re-use and recycle) in managementof waste All repairs to be conducted indesignated garages	Ensure a waste managementplan is in place Ensure repairs are undertakenin designated garages only	Visual inspection	Contractor CGM to enforce implementation	Daily
Construction waste	Waste to be disposed of properlyand recycled where feasible Appropriate waste bins to beprovided on site	Ensure waste bins are provided on site and thatcontents are recycled or disposed of appropriately	Visual inspection	Contractor CGM to enforce implementation	Daily

Generation of nuisances (dust, noiseand vibrations)	Residents to be given prior warningof potential nuisances Construction period to be as short aspossible Damping down of site to reduce dust	Ensure that local populationhas no complaints due to nuisances	Visual and acoustic inspection	Contractor CGM to enforces implementation	Whenever applicable
Damage to existing infrastructure	Map and zone out all infrastructuresfor preservation. Ensure budgetary allocation forreplacement.	Ensure that map and budgetare available Ensure damaged infrastructureis replaced	Visual inspection	CGM/KISIP	Whenever applicable
Risk of accidents	Have emergency plans in place incase of an accident	Ensure rules are in place and communicated to local residents	Visual inspection	CGMK/KISIP/Contractor	Whenever applicable

CHAPTER TEN: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions and recommendations emerging from the environmental and social impact assessment of the proposed infrastructure upgrading projects in the three settlements of Majaoni – Bamburi, Kisumu Ndogo, Mwatae - Chaani and Kindunguni in Mombasa County.

10.1 Conclusions

This Environmental and Social Impact Assessment Report has outlined a broad overview of the potential impacts of infrastructure services components proposed for implementation in the three settlements of Majaoni – Bamburi, Kisumu Ndogo, Chaani and Kindunguni in Mombasa County.

The findings of the Environmental and Social Impact Assessment that was carried out in the three settlements of Majaoni – Bamburi, Kisumu Ndogo, Mwatae - Chaani and Kindunguni in Mombasa County. has established that

- ✓ There are significant adverse impacts on the residents and on the environment emerging from the inadequate provision of infrastructure services in the three settlements
- ✓ During the construction phase the infrastructure service projects prioritized by the residents and proposed for implementation in the three settlements have minimum adverse impacts on the environment
- ✓ There are minimum adverse negative impacts on the human environment during and after the implementation of the proposed infrastructure service projects
- ✓ There are significantly positive impacts that are accruable on the human environment after the implementation of the proposed infrastructure service project

10.2 Recommendations

This report has outlined site-specific Environmental and Social Impacts for each of the settlements based on the final detailed engineering designs and the final settlement upgrading plans of Majaoni – Bamburi, Kisumu Ndogo, Chaani and Kindunguni settlements in Mombasa County. The report has further recommended site-specific mitigation measures and context-specific environmental and social management plans for each of the settlements. This is in line with EMSF categoriesof KISIP projects under Category B.

This ESIA report recommends that during the implementation of the proposed infrastructure projects mitigation measures be closely followed and monitored. During this construction phase the responsibilities for implementing these mitigation measures have been allocated to the contractor and the client.

This report recommends that as set out in Sections 68 and 69 and further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003 of the EMCA, Annual Environmental Audits be carried out in order to mitigate and control environmental damage from completed projects. This responsibility has been allocated to the County Government of Mombasa (with KISIPfinancing).

10.3 Sustainability

The proposed infrastructure upgrading projects will accrue full benefits to the local communities when they are fully operational in the long term period. Sustainability in the long term will be achieved when full and adequate maintenance of the project components is undertaken in the operational phase. Sensitization, technical assistance and capacity building of the local community by professional staff are crucial for knowledge transfer and skills exchange between the technical experts and residents. This ESIA report has recommended surveillance and monitoring of all project components. In particular solid waste and waste water are components that technical staff will provide technical assistance to the local community and build capacity within the CBOs involved in solid waste management. Availability of technical staff and funding from KISIP is needed to fulfil this undertaking.

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