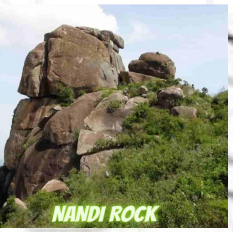
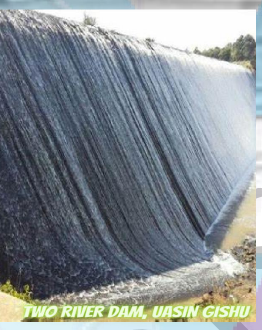
MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT

State Department for Housing and Urban Development

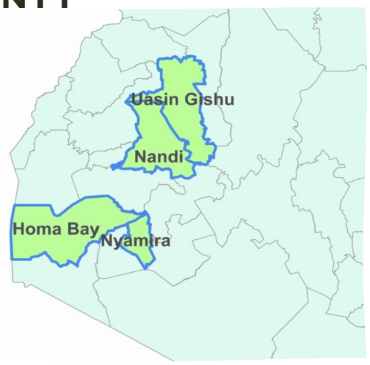
KENYA INFORMAL SETTLEMENT IMPROVEMENT PROJECT (KISIP 2)

CONSULTANCY SERVICES FOR INFRASTRUCTURE UPGRADING PLANS, DETAILED ENGINEERING DESIGNS AND PREPARATION OF PROCUREMENT DOCUMENTS AND CONSTRUCTION SUPERVISION OF INFRASTRUCTURE IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTIES OF HOMA BAY, NYAMIRA, NANDI AND NANDI, CONTRACT NUMBER: KE-MOTI-298201-CS-QCBS





ENVIRONMENT SOCIAL IMPACT ASSESSMENT (ESIA) COMPREHENSIVE PROJECT REPORT FOR UPGRADING OF INFRASTRUCTURE IN MOSORIOT INFORMAL SETTLEMENT LOCATED IN Nandi COUNTY



DECEMBER 2023

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Client

Signed ……. Date…….

COUNTY EXECUTIVE COMMITTEE MEMBER (CEC) INFRASTRUCTURE AND ROADS.

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LIST OF ABBREVIATIONS

AFD	French Agency for Development
ARAP	Abbreviated Resettlement Action Plan
BOD	Biological Oxygen Demand
CIDP	County Integrated Development Plan
CLO	Community Liaison Officer
CSOs	Civil Society Organization
CDF	Constituency Development Fund
CPCT	County Project coordination team
dB	Decibels
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
ESAAP	Environment and Social Audit Action Plan
ESAP	Environmental Social Action Plan
HSP	Healthy and Safety Plan
ESIA	Environmental and Social Impact Assessment
EMCA	Environmental Management & Coordination Act
ESMF	Environmental and Social Management Framework
ESMP	Environment and Social Management Plan
ESMMP	Environmental and Social Management and Monitoring Plan
FGD	Focus Group Discussions
GDP	Gross Domestic Product
GRM	Grievance Redress Mechanism
HIV	Human Immunodeficiency Virus
HSP	Health and Safety Plan
IDA	International Development Association
ICDP	Integrated Development Plan
IEC	Information Education and Communication
ILO	International Labour Organization
IFC	International Finance Agency
KeNHA	Kenya National Highways Authority
KISIP	Kenya Informal Settlements Improvement Project
KURA	Kenya Urban Roads Authority
KeRRA	Kenya Rural Roads Authority
LMP	Labour Management Plan
MCA	Member of County Assembly
MLPWHUD	Ministry of Lands, Public Works, Housing and Urban Development
NEMA	National Environment Management Authority
NAWASCO	Nandi Water and Sanitation Company
NEP	National Environment Policy
NGO	Non-Governmental Organization
NPCT	National Project coordination team
OSHA	Occupational Health and Safety Act
OP	Operations Policy
PAP	Project Affected Person

PDP	Physical Development Plan
PLWD	Persons Living with Disability
PPEs	Personal Protective Equipment
RAP	Resettlement Action Plan
RMLF	Roads Maintenance Levy Fund
RPF	Resettlement Policy Framework
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SFM	Significance following Mitigation
SDGs	Sustainable Development Goals
SEC	Settlement Executive Committee
STD	Sexually Transmitted Diseases
SUP	Social Upgrading Project
SR	Significant Rating
WF	Wight Factor
WB	World Bank
WIBA	Workplace Injuries and Benefits Act
WRA	Water Resources Authority

DISCLOSURE

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Noise and Excessive Vibration Pollution (Control) Regulations, 2009 3
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EXECUTIVE SUMMARY

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E. EXECUTIVE SUMMARY

E.1 Project Information

The Government of Kenya (GoK) through the Ministry of Lands Public Works, Housing and Urban Development (MoLPWH&UD) is implementing the Kenya Informal Settlements Improvement Project II (KISIP II). In Nandi County. The infrastructure upgrade plan (Infrastructure Improvement) under KISIP II will include roads and drainage, secure lighting, Water and Sanitation and social amenities upgrading works. This will be funded by a credit from the World Bank (WB) through Interna Development Association (IDA) and Agence Française de Dévelopement (AFD). The target settlements in Nandi County is Mosoriot which is financed by IDA.

The socio- economic studies, feasibility studies, and the conceptual designs have been completed under the same consultancy. This Report therefore presents findings of Environmental and Social Assessment undertaken for the Proposed Projects, the report presents potential environment and social risks that are likely to be triggered by the Project, appropriate mitigation measures have also been provided in this assessment.

This presents Environmental & Social Impact Assessment (ESIA) Report Comprehensive Project Report prepared for Upgrading of infrastructure in Mosoriot Informal settlement, Nandi County. The ESIA has been prepared as a deliverable under component *1* investments in infrastructure services

E.2 Scope of Works

The project location is situated within Mosoriot trading Centre, Lelmokwo/Ngechek ward in Chesumei sub- county, Nandi County

Proposed Scope of Works: - Construction of 152m of R1 001, 200m of R2 001, 206m of R2 002, 140m of R2 003, 127m of R2 004, 208m of R2 005, 186m of R2 006, 225m of R2 007, 165m of R2 008, 267m of R2 009, 172m of R2 010, 235m of R2 011, 81m of R2 012 and 92m of R2 013 together with the accompanying storm water drainage systems, 5 no. High Mast Lights, 2 no. Water kiosk, Vending platform, Landscaping, garbage receptacles and an Ablution block as summarized in **Table E.1** below.

Table E- 1: Project Scope of Works

PROPOSED INFRASTRUCTURE	CODE ON MAP	DESCRIPTION	QTY
R1 Roads	R1 -001	6m carriageway, drainage and footpath on both side of the carriageway.	152 m
R2 Roads	R2 001	5.5m carriageway, drainage and footpath on one side of the carriageway.	200 m
	R2 002	5.5m carriageway, drainage and footpath on one side of the carriageway.	206 m
	R2 003	5.5m carriageway, drainage and footpath on one side of the carriageway.	140 m
	R2 004	5.5m carriageway, drainage and footpath	127 m

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		on one side of the carriageway.	
	R2 005	5.5m carriageway, drainage and footpath on one side of the carriageway.	208 m
	R2 006	5.5m carriageway, drainage and footpath on one side of the carriageway.	186 m
	R2 007	5.5m carriageway, drainage and footpath on one side of the carriageway.	225 m
	R2 008	5.5m carriageway, drainage and footpath on one side of the carriageway.	165 m
	R2 009	5.5m carriageway, drainage and footpath on one side of the carriageway.	267 m
	R2 010	5.5m carriageway, drainage and footpath on one side of the carriageway.	172 m
	R2 011	5.5m carriageway, drainage and footpath on one side of the carriageway.	235 m
	R2 012	5.5m carriageway, drainage and footpath on one side of the carriageway.	81 m
	R2 013	5.5m carriageway, drainage and footpath on one side of the carriageway.	92 m
Vending platform	1 no. Vending platform		
Water & Sanitation	1 Water Kiosk, Garbage Receptacles, 2 no. Ablution block		
Social Amenities	Green space/ landscaping		
Security Lighting	2 no. High mast flood light, solar street lighting. 8m high poles, along R1 001, R2 001, R2 002 and R2 003 roads, with 63 luminaires, 2 Control Pillars and 1367 m main cable.		
Total Road			**2456 m**
Total footpath and Drainage Length			**2608 m**
Total Street lighting			**63 poles**

A map of target Settlement is presented in **Figure E.1** below

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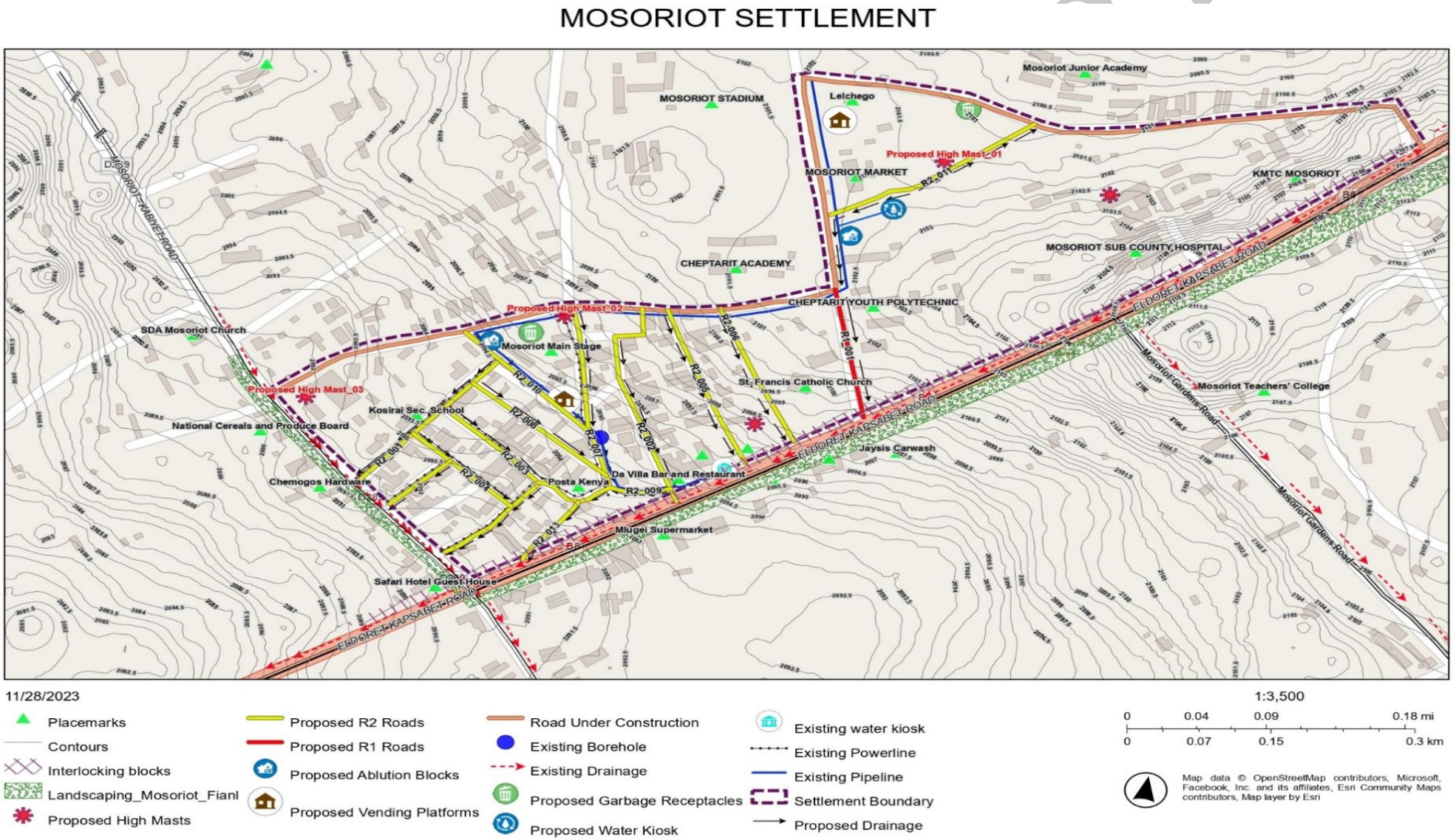

Figure E- 1: Layout of the Proposed Works

E.3 Legal Framework and Policy Provisions

The ESIA study preparation was guided by both national and international legal and policy instruments aimed at ensuring compliance with Environmental and Social Safeguards of the Kenyan Government and the World Bank. A summary of the instruments is presented box **E-1** below;

Box E-1: Legal and Policy Instruments

National Policies and Laws

1. Kenyan Constitution 2010
2. Kenya Vision 2030
3. Sustainable Development Goals
4. Gender Policy 2011
5. HIV and AIDS policy 2009
6. Kenya National Youth Policy 2006
7. Environmental Management and Coordination Act (EMCA), 1999
8. Water Act 2016 and subsequent regulations.
9. County Government Act no 17 of 2012
10. Urban Cities Act of 2011
11. Physical Planning Act 1996 (286)
12. Occupational Health and Safety Act (OSHA 2007)
13. The Public Health Act (Cap.242)
14. Workplace Injuries and Benefits Act 2007

International Instruments

1. Environmental Management and Social Framework (EMSF) KISIP 2 - 2019
2. Resettlement Policy Framework (RPF) KISIP 2 - 2019
3. World Bank OP 4.01 on Environment Assessment
4. World Bank OP 4.12 on Involuntary Resettlement
5. World Bank OP 4.11 on Physical Cultural Resources
6. World Bank Access to Information Policy 2015
7. World Bank Group Environment Health and Safety Guidelines on Water and Sanitation

E.4 Public and Institutional Participation

The assessment involved consultations with relevant stakeholders in the settlement. The aim of stakeholder consultations was to give a platform for information sharing and opinion gathering in relation to the proposed Project. Consultations were done in form of public meetings and key informant interviews. The issues were than analyzed and presented to design team for finalization of Project designs and planning on how best to implement the Project. The main meetings were held within the month of October 2023, attendance of the meetings was from diverse sectors of the society as summarized in **Table E-2** below.

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Table E- 2: Schedule of Public Consultation

Date	Settlement	Stakeholder Consulted	Meeting Attendance
19th September 2023	Mosoriot Assistant County Commissioner's Compound	Settlement Executive Committee members (SEC) for Mosoriot Informal Settlement, County Government Officials, Religious Leaders, E.I.A team, , Area chief and members of the community	Total 48 Male 33 Female 15

In Summary, issues discussed is presented in **Box E-2** below;

Box E-2: Summary of Issues discussed in Public Consultations

#	Topic	Discussion
1	**Sensitization on KISIP 2**	- Meaning of KISIP - Importance of tenure regularization - Components of the project - Need for ownership and support of the project - Inclusivity of all categories in the settlement - Consideration of gender - Mosoriot benefitting from the infrastructure upgrading component - Investment menu; areas of investing; improvement of roads to bitumen standard, storm water drainages, street lighting, high masts, solid waste sorting, beautification, social halls to prevent crime and violence, day care centers, pedestrian walks, vending stalls, water and sanitation - The selection process to be open, inclusive, consultative and fair - Project design; National level, County and Community level committees - Project implementation; By contractor to be procured by the County Government - Local community to be given priority in construction works unless the works/services are specialized - Qualifications for the members to be selected in the committees; above 18 years of age, resident of the settlement, sound mind, no criminal record, respected persons in the society, record of community leadership not active member of a political party - Categories to be considered in SEC; tenants, landlords, youth, widow, widower, physically challenged, Faith Based, NGO's, CBO's, marginalized group - Ex official members; Area Member of Parliament, Chief, Ass County Commissioner, MCA, Ward Administrator - Election options: show of hands, secret ballot, mlolongo and selection of members by respective groups - Committees not entitled to any salary Functions of the respective committees
	Project	- Roads

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	Prioritization	• R1- From Cereals to Slaughter • R2- From Villa-Agriculture offices • R3- From Cereals-Mwei's plot • R4- From R3-to join R2 • R5- From National Road-Police-Joining R2 • R6- From Catholic-St. Franscis primary school gate • R7- From National Road to junction near • R8- From Slaughter to Itigo stage • R9- From Diesel Power -Itigo stage • R10- From Kapchelel-Christopher plot • R11- From Asai Kinyozi-Asai - High Masts (market and bus park)/street lighting - Receptacles/ waste bins at the market and stage - Public toilet at the stage - Vending platforms at the stage - Social Hall/day care centre at Chiefs office compound - Beautification/landscaping/pedestrian walkways along Mosoriot- Kabiyet road and Mosoriot-Eldoret highway - Additional water tank near the junction of R7 - Slaughter house (Land not available) - Water supply- No water supply nearby
2	**Selection of committees**	- Selection of 15 members of SEC and 5 of GRC - SEC members to be comprised of: Landlords/structure owners (2 No. male and female), Tenants in residential premises (2 No. Male and female), Tenant in commercial premises (1 No.), Youth (2 No. Male and female), People with disabilities (I No.), CBO (1 No.), NGO (1 No.), Faith based leaders (2 No. Christian and Muslim), Widow (1 No.), Widower (1 No.), minority (1 No.) - SEC members to select their officials; Chairperson, vice chair, Secretary and organizing secretary. The secretary should have skills in computer operations and should be able to operate a smart phone - SEC to nominate two members to join the GRC. The two should not be officials in SEC - Settlement unanimously agreed to allow the specific interest groups to choose their representatives separately. Where they did not agree, "show of hands" method was used to select a member

E.5 Potential Project Impacts

Benefits of Roads and Drainage Projects

(i) Creation of employment to people living within the informal settlements through improved access.

(ii) Improved living standard of people within the settlement through improved road infrastructure

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(iii) Providing a linkage of the settlement to other parts of the city.
(iv) Provides alternative route to access the settlement, could be used during disaster times example by ambulances and fire engines.
(v) Enhanced access to social amenities like schools and health facilities within the settlement.
(vi) Improved roadside drainage hence reduced risks of flooding.
(vii) The Project will improve the living standard and well-being of the local economy through provision of road and street lighting within the settlements.

Benefits of Flood Lights

(i) The flood lights will lead to Improved Security within the settlement due to provision of floods within the settlement.
(ii) Improving the roads and street lighting infrastructure within the settlement will result to development of associate social services for example health facilities, learning institutions and recreational centre's which will eventually benefit the community.

Benefits of Social Amenities (Market, Public Park, Water and Ablution Block)

(i) The amenities will facilitate community interaction and engagements since they will serve as gathering points.
(ii) Encourage cultural promotion and diversity through the social halls.
(iii) Increased the County revenue through paying of taxes by the market vendors and ablution block operators.
(iv) Improve health, hygiene, and sanitation standards through having designated selling point and availability of washrooms within the settlement.
(v) Improvement of community livelihoods through increased trading in the new markets.

E.5.1 Negative Impacts and Mitigation Measures during Project Construction Period

E.5.3.1 Biophysical Environment Setting

The Project impacts on Biophysical environment setting of the Project area identified during the assessment is presented in **Table E.3** below.

Table E- 3: Negative Impacts on Biophysical Environment

Impacts on Vegetation Cover	Associated Project Works and Level of Impact	Mitigation Measures Summary
Loss of vegetation cover is minimal, vegetation cover within the settlement has been stripped off to	• Roads and Drainage minor impact	• The Contractor will ensure proper demarcation of the Project area to be affected by the construction works. • Strict control of construction vehicles to ensure that they operate only within the area to be disturbed by access routes and other

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Impacts on Vegetation Cover	Associated Project Works and Level of Impact	Mitigation Measures Summary
provide space for construction of structures.		works. • Where the proposed Project route requires the removal of any vegetation, care will be taken to minimize the destruction to marshlands;
Impacts on Soils		**Mitigation Measures Summary**
Soil Erosion Soil Erosion due to clearing of vegetation cover and reduced soil productivity	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact	• The contractor to adhere to the proposed Soil conservation practices. • Proper and compacted back filling of excavated areas • The contractor to stick to clear delineation of the construction to avoid vegetation loss. • Planting of vegetation cover within the Project site.
Soil Compaction Soil compacting caused by construction equipment result in reduced water infiltration	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact.	• Split compacted area to reduce runoff & re-vegetate where necessary. • Vehicles to be kept in designated access roads. • Minimize compaction during stockpiling by working the soil in dry state.
Soil Pollution Soil contamination caused by oils and fuel leaks from construction equipment result in increase in soil acidity.	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Any polluted soil should be handled with care for proper disposal. • Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards. • Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills. • Excavation materials to be stockpiled at the demarcated location. • Rehabilitation of the site after construction.
Impacts on Water Quality within shallow wells in the settlements		**Mitigation Measures**
Reduced water quality in shallow wells within the settlements.	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Checking on Equipment condition and Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures • Use of silt barriers and settling ponds on site • Storing of fuels, oils, and chemicals beneath impermeable away from surface drains • Deep soak pits for septic tanks with all water from ablution and toilets directed into the septic tank.

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Impacts on Vegetation Cover	Associated Project Works and Level of Impact	Mitigation Measures Summary
		• The machines to be properly serviced offsite and maintained to avoid spillage of effluents into the surface runoff channels.
Wastewater Management on Site	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Grey water to be contained and properly channelled on site. • Onsite treatment of grey water by the facility approved resident engineer and Environment Officer. • Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies. • Prompt action to be taken by the contractor in case of any pollution incident.
Solid Wastes Management on Site	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Maximum reuse of excavated material. • Implementation of Soil erosion management in the spoil locations • Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to appropriately. • Contractor's Camps and Construction Sites to have designated waste collection points, • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management

E.5.3.2 Impacts on Social Environment Setting

The Project impacts on social environment setting of the Project area identified during the assessment is presented in T**able E.4** below.

Table E- 4: Anticipated Negative Impacts on Social Environment

Impacts	Associated Project Works and Level of Impact	Proposed Mitigation Measures
Labour Influx and sexual offences	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. • Proper records of labour force on site while avoiding child and forced labour. • Fair treatment, non-discrimination, and equal

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Impacts	Associated Project Works and Level of Impact	Proposed Mitigation Measures
		opportunity of workers. • Comply to provisions of WIBA 2007 • Develop and implement a children Protection Strategy
Human Rights and gender inclusivity	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights
Increased Crime and Insecurity	• Roads and Drainage - – minor impact • Water and Sewerage _minor impact	• Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation. • Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices

E.5.3.3 Impacts on Health and Safety Setting

The project impacts on Health and Safety of workers and community in the Project area identified during the assessment is presented in **Table E-5** below.

Table E- 5: Anticipated Negative Impacts on Health and Safety Setting

Impact	Associated Project Works and Level of Impact	Proposed Mitigation Measures
Noise and Excessive Vibrations.	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact	• Contractor will comply with provisions of EMCA 1999 (Noise and Excessive Vibrations Regulations of 2009) • The Contractor will keep noise level within acceptable limits (60 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas. • Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity
Air Pollution and Dust Generation.	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact	• The contractor shall comply to the provisions of EMCA 1999 (Air Quality Regulations 2014) • Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications.

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Impact	Associated Project Works and Level of Impact	Proposed Mitigation Measures
		• Water sprays shall be used on all earthwork's areas within 200 metres of human settlement especially during the dry season.
Risk of Accidents at Work Sites	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact	• Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the Supervising Engineer. • Provide Personal Protective Equipment including gloves, gum boots, overalls and helmets to workers, use of PPE to be enforced by the Supervising Engineer. • Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles
Risk of Traffic Accidents at workstations within the settlements	• Roads and Drainage - – medium impact • Water and Sewerage _medium impact	• Strict use of warning signage and tapes where the trenches are open and at other active construction sites. • Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site. • Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer

E.5.2 Project Specific Impacts during Project Operation

For purposes of better understanding the impacts of the projects during operation were further categorized into 4 categories namely;

1. Water and sewerage
2. Roads and drainage
3. Floodlights
4. Social Amenities – Water Supply, Ablution Block, Market and vending platforms.

Tables E-6 and E-7, below outline the anticipated impacts and mitigation measures during operation phase.

Table E- 6 : Anticipated Impact and Mitigation measure on Water and Sewerage

Impact	Proposed mitigation measure
Risk of encroachment on Sewerage pipelines and manholes	• Mapping and installation of beacons to illustrate the width of the pipeline reserve. • Regular patrol of the pipeline corridor for encroachment. • Prosecution of encroachers as required by County by Laws on way leaves and road reserves maintenance. • Conduct public sensitization programs on importance does not interfere with way leaves and public reserve land.
Health risks because of burst sewers	• Ensure proper and periodic maintenance of sewer lines and treatment plant.

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Impact	Proposed mitigation measure
	• Activate a community watch group for information sharing on the status of the sewer line. • Regular check, repair, and maintenance of the sewer line • Awareness rising among community members not to dump solids in manholes. • Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris that may lead to sewer backups. • Development of an inventory of system components, with information including age, construction materials, and drainage areas served elevations. • Design manhole covers to withstand anticipated loads and ensure that the covers can be readily replaced if broken to minimize entry of garbage and silt into the system. Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation
Environmental pollution due to sewage blockage	• Regular check, repair and maintenance of the sewer lines • Activate a community watch group for information sharing on the status of the sewer lines. • Awareness rising among community members not to dump solids in manholes. • Ensure embankments around the sewer ponds are properly done to prevent storm water mixing with the sewer. • Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris that may lead to sewer backups. • Develop an inventory of system components, with information including age, construction materials, and drainage areas served including elevations. • Design manhole covers to withstand anticipated loads and ensure that the covers can be readily replaced if broken to minimize entry of garbage and silt into the system. • Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation.

Table E-7: Anticipated Impact and Mitigation measure on Roads and Drainage

Impact	Proposed mitigation measure
Increased Accidents associated with motorcycles over speeding within the settlement due to good roads	• Appropriate signage should be put up on the roads to warn drivers especially in areas where there are children or people crossing the road to reduce accidents. • The County Government to enlighten motorist and cyclist on importance of obeying traffic rules especially in residential areas. • The County Government to enlighten residents and school children on the importance of adhering to provisions of road safety rules. • Regular inspection and maintenances of the road by County Government of Nairobi to ensure the speed control parameters and signage are in good condition. • Regular crackdown, arrest and prosecution of motorists and cyclist who disobey road safety directions.
Pollution from	• Encourage locals to use fuel efficient vehicles and other types such as

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fossil fuels from vehicles	those that run on electricity. • Encourage people do drive less and learn to use public means of transport and bicycles
Flooding due to poor drainage channels	• Maintenance of the drainage channels to ensure that there is no blockage of the channels
Loss of business associated with poor road condition during operation phase	• Regular maintenance and repair of the road by County Government, this should be through regular road marking, sealing of potholes, ensure road signage is in place among other operations

Table E- 7: Anticipated Impact and Mitigation on Floodlights

Impact	Mitigation measure
Risk of electrocution	• Ensuring that all the wires are appropriately insulated and are safe from causing harm to humans • Regular maintenance of the flood light to ensure all exposed electrical lines are repaired
May cause eye problem when there is bad lighting	• Ensure that the lighting system is proper to avoid flipping that can result to eye problems for people • Regular maintenance of the flood light to ensure efficiency

E.6 Environment and Social Assessment Finding

E.6.1: Environment Impact findings

(i) The environment and social screening identified that the KISIP Projects are classified as *Category B***.** This implies that the Projects will have less adverse impacts to natural and human environment; the impacts are easily reversible through appropriate mitigation measures provided in this assessment.

(i) The Environmental and Social Impact Assessment undertaken for the projects indicate that the investment will result in low impact on biological environment; however, the Projects triggers World Bank Operation Policy (OP) 4.01 on Environmental Assessment and (OP) 4.12 on Involuntary Resettlement. Chance Find Procedures will be applied to all works contracts as provided for by (OP) 4.11 on Physical Cultural Resources.

(ii) The Projects will have no impact on land; this is because the planned investments in the informal settlements will be implemented within road reserves, water and sewerage wayleaves and open public grounds that is free from encroachment.

(iii) Provisional Budget of Kenya Shillings One hundred and seventy thousand is required for implementation of mitigation measures of potential negative environmental impacts identified in the report. A separate budget is provided for RAP implementation.

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CHAPTER 1: INTRODUCTION

1.1 General Information

The Government of Kenya (GoK) through the Ministry of Lands Public Works, Housing and Urban Development (MoLPWH&UD) is implementing the Kenya Informal Settlements Improvement Project II (KISIP II). In Nandi County. The infrastructure upgrade plan (Infrastructure Improvement) under KISIP II will include roads and drainage, secure lighting, Water and Sanitation and social amenities upgrading works. This will be funded by a credit from the World Bank (WB) through Interna Development Association (IDA) and Agence Française de Dévelopement (AFD). The target settlements in Nandi County is Mosoriot which is financed by IDA.

The socio- economic studies, feasibility studies, and the conceptual designs have been completed under the same consultancy. This Report therefore presents findings of Environmental and Social Assessment undertaken for the Proposed Projects, the report presents potential environment and social risks that are likely to be triggered by the Project, appropriate mitigation measures have also been provided in this assessment.

The project has the following four components as detailed in Table 1-1 below:

Table 1- 1: Schedule of Public Consultation

#	Component	Interventions
1	Component 1: Integrated settlement upgrading.	This component includes a combination of land tenure regularization and investments in infrastructure services.
2	Component 2: Socio-economic inclusion planning.	This component entails development of community-led plans based on socio-economic surveys, as well as linking identified vulnerable populations to existing safety net programs.
3	Component 3: Institutional capacity development for slum upgrading	This includes a set of activities designed to strengthen the capacity of Counties and National government institutions carry out slum upgrading and prevention.
4	Component 4: Program management and coordination	This component supports project management and coordination activities of both national and county governments - including fiduciary (financial management and procurement), environmental and social safeguards compliance, monitoring and evaluation, communication and community development.

This presents Environmental & Social Impact Assessment (ESIA) Report Comprehensive Project Report prepared for Upgrading of infrastructure in Mosoriot Informal settlement, Nandi County. The ESIA has been prepared as a deliverable under component *1* investments in infrastructure services

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1.2 Scope of the ESIA Study

The NEMA regulations requires that all new projects, programmes or activities be subjected to an environmental and social impact assessment at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning of the Project.

1.3 Objectives of the EIA study

This ESIA assessment has been conducted in compliance with the Environmental Impact Assessment Regulation as outlined under the Gazette Notice No. 56 of 2003 of the Environmental Management and Coordination Act (EMCA), 1999 well as the World Bank OP 4.01 on Environmental Assessment. The Environmental & Social Impact Assessment (ESIA) is expected to achieve the following objectives discussed in box 1-1 below;

Box 1-1: EIA Objectives

- To identify all potential significant environmental and social impacts of the proposed Project and recommend measures for mitigation.
- To assess and predict the potential impacts during site preparation, construction and operational phases of the Project.
- To ensure compliance with environmental regulations.
- To generate baseline data for monitoring and evaluation of how well the mitigation measures will be implemented during the Project cycle.
- To allow for public participation as well as stakeholder Consultations.
- To develop an Environmental and Social Management Plan to mitigate the identified impacts so as to ensure sustainability of the proposed Projects.
- To recommend cost effective measures to be implemented to mitigate against the expected impacts.

1.4 Project Relevance and Justification

The decision to prioritize Mosoriot Informal Settlement, as a focal point within the KISIP II (Kenya Informal Settlement Improvement Project Phase II) likely stems from a comprehensive evaluation of numerous factors. These considerations encompass social, economic, environmental, and developmental dimensions. Below are the discernible decisions and project justifications that underpin this choice:

1. **In-Depth Needs Assessment**: The selection of Mosoriot Informal Settlement was based on the findings that the settlement is grappling with significant deficits in terms of infrastructure, housing, basic services, and overall quality of life. This was revealed through an in-depth needs assessment exercise that was conducted.
2. **Population Vulnerability**: priority was attributed to the vulnerability of its residents. Informal settlements frequently house marginalized and economically disadvantaged populations. Addressing the challenges faced by these vulnerable groups is in line with KISIP II's social objectives.
3. **Tailored Environmental and Social Analysis**: The Environmental and Social Impact Assessment (ESIA) process would have scrutinized distinctive characteristics. This analysis

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could have identified the settlement's unique environmental vulnerabilities, social dynamics, and specific infrastructure deficiencies.

4. **Integration with National Goals**: The selection aligns with broader national development goals. Improving informal settlements supports overarching strategies for poverty alleviation, equitable urbanization, and enhanced living conditions.
5. **Community Engagement and Involvement**: Community engagement efforts likely influenced the decision-making process. Collaborating with local residents can unveil settlement-specific needs and help tailor interventions to align with community priorities.
6. **Infrastructure and Service Accessibility**: The feasibility of implementing infrastructure enhancements and basic services that would have been a consideration. The settlement's existing infrastructure and its potential for improvement likely shaped the decision.
7. **Local Government and Stakeholder Collaboration**: The support of local government and key stakeholders is pivotal for project success. The decision to target Mosoriot could be influenced by the backing of local authorities and stakeholders, indicating a conducive environment for implementation.
8. **Equity and Social Justice**: Lakeview's selection may reflect a commitment to addressing disparities within the city. KISIP II's aspiration to uplift marginalized communities is consistent with broader aspirations of social justice and inclusivity.
9. **Learning and Replicability Potential**: The choice of Lakeview might be informed by its potential to be a learning experience for future projects. Insights garnered from Lakeview's development could be invaluable in guiding similar endeavors in other settlements.

To recap, the decision to center on the Mosoriot Informal Settlement within the scope of KISIP II is grounded in a blend of factors. These factors encompass the settlement's unique challenges, alignment with national development objectives, social and environmental considerations, and the opportunity for meaningful impact. The ESIA process would have further honed this decision-making process by highlighting specific site-specific challenges and guiding the formulation of effective interventions to address them.

The construction project proposed within the informal settlement seeks to address critical infrastructural needs while adhering to the Environmental Management and Coordination (Environmental Impact Assessment and Audits) Regulations 2003 and their amendment regulations in 2019.

1.5 ESIA Assessment Methodology

The ESIA study was carried out based on desk review, field assessments and consultations with relevant County and National Government institutions as summarized below;

(i) Definition and Classification of Environmental and Social Impacts

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

- Positive (beneficial) or negative (adverse);

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- Direct or indirect, long-term or short-term in duration, and wide-spread or local in the extent of their effect.

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

For each issue, the analysis is based on its nature, the predicted impact, extent, duration, intensity and probability, and the stakeholders and/or values affected. In accordance with best practice, the analysis includes issues relating to the Project's environmental and social sustainability. Appropriate Impact Rating has been presented for the situation without mitigation.

(ii) Impact Scoring and Rating Criteria

The potential impacts associated with the proposed development in the informal settlements have been preliminary assessed as presented in the matrix below. Precautionary principle was used to establish the significance of impacts and their management and mitigation i.e. where there is uncertainty or insufficient information, the Environmentalist opted to err on the side of caution.

Table 1- 2:: Environment and Social Impact Rating Criteria

Extent		Duration		Intensity		Probability		Weighting Factor (WF)		Significance Rating (SR)		Mitigation efficiency		Significance following Mitigation (SFM)	
Foot print	1	Short term	1	Low	1	Probable	1	Low	1	Low	0-19	High	0,2	High	0-19
Site	2	Short to medium	2			Possible	2	Low to Medium	2	Low to Medium	20-30	Medium to High	0,4	Medium to High	20-30
Regional	3	Medium term	3	Medium	3	Likely	3	medium	3	medium	40-59	medium	0,6	medium	40-59
National	4	Long term	4			Highly likely	4	Medium to high	4	Medium to high	60-79	Low to medium	0,8	Low to medium	60-79
International	5	Permanent	5	High	5	High	5	High	5	High	80-100	low	1,0	low	80-100

Notes:[1]

Definition of Terms in the Table

Extent: An area of influence covered by the impact. In this sense, if the action produces a

[1]Environment and Social Impact Rating Developed by ESIA team for KISIP Projects in Nairobi and Nandi County September 2023

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much-localized effect within the space, it is considered that the impact is low (1). If, however, the effect does not support a precise location within the project environment, having a pervasive influence beyond the project footprint, the impact will be at location level (3) or could be County (5)

Timing: Refers to the moment of occurrence, the time lag between the onset of action and effect on the appearance of the corresponding factor. We consider five categories according to this time period is zero, up to 1 year (short term), or more than two years, which are called respectively medium term (3), long-term (4), and permanent (5).

Intensity: refers to the degree of impact on the factor, in the specific area in which it operates, ranked from low (1) to high (5).
Probability: Refers to the likelihood of the impact occurring during the project implementation, this is also ranked as Probable (1) to highly probable

Approach to Impact Mitigation and Management

The Assessment includes a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse impacts on the environment. The identification of such measures is an interactive process which needs to be undertaken in parallel with the design to aid the incorporation of measures into the design during Project development. Early adoption of appropriate mitigation will help reduce significant environmental impacts to a practicable minimum.

1.5.1 Environment and Social Scoping

The scoping process involved identification of significant environmental and social issues associated with the proposed Works. ESIA Scoping was achieved through reviews of the secondary Documents and available data supported with field evaluations.

The process enabled the assessment team to determine the Project potential risks to Biophysical, Social, Health and Safety of the receptor environment around the proposed Project site. The impacts were determined to less significant and also the geographic scope of the impact was also determined to be less expansive, details of the impacts are discussed in chapter 7 and 8 of this report.

1.5.2 Desk Reviews

A desktop review was conducted prior to site visit. Documents reviewed are illustrated in **Box 1-2** below;

Box 1-2: Literature Review Documents

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(i) Environmental Management and Social Framework (EMSF) KISIP 2 2019
(ii) Resettlement Policy Framework (RPF) KISIP 2 2019
(iii) Project Draft Conceptual Design Report (GA October 2023)

1.5.3 Field Assessment

The physical evaluation of the Project area was carried out within the month of September and October 2023 with specific focus on the environmental and social issues. The environmental issues assessed include,

(i) Biophysical environment (air, water, land)
(ii) Human health and safety
(iii) Traffic Management on Site
(iv) Social issues, including;
- ✓ Labour Influx Management,
- ✓ HIV and other Communicable Diseases Management.
- ✓ Gender and Youth Inclusivity and Empowerment,
- ✓ Human Right Protection and Grievance Redress Mechanism:

1.5.4 Stakeholder Consultations

The aim of stakeholder consultations was to give a platform for information sharing and opinion gathering in relation to the proposed Project. Consultations were done in form of public meetings and key informant interviews. The issues were than analyzed and presented to design team for finalization of Project designs and planning on how best to implement the Project. The main meetings were held within the month September 2023 attendance of the meetings was from diverse sectors of the society as summarized in **Table 1-2** below;

Table 1- 3: Schedule of Public Consultation

Date	Settlement	Stakeholder Consulted	Meeting Attendance
19th September 2023	Mosoriot Assistant County Commissioner's Compound	Settlement Executive Committee members (SEC) for Mosoriot Informal Settlement, County Government Officials, Religious Leaders, E.I.A team, , Area chief and members of the community	Total 48 Male 33 Female 15

1.5.5 Social Infrastructure Mapping

Social mapping was undertaken while doing the community survey using full participation from the local administration and community. The focus of the process was to help in the depiction of location boundaries, roads, drainage systems, schools, drinking water facilities, source of drinking water, community infrastructure, etc. It focused on the spatial dimension of the people's realities as expressed in their background information. This process is done to help in charting the various aspects related to land use and command areas, water bodies, rivers, drainage and health

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1.5.6 Secondary Socio-Economic Data

This information was largely drawn from the Kenya National Bureau of Statistic, Nandi County Integrated Development Plan (CDIP) 2018 -2022 and findings from field survey undertaken during Environmental and Social Impact Assessment (ESIA) process within the month of October 2023.

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CHAPTER 2: PROJECT DESCRIPTION

2.1 Project Context

This chapter presents Project Interventions in the target Informal Settlements of Nandi County, Environment and social screening was therefore based on Projects discussed under this chapter. The infrastructure Project are discussed in the below listed context;

(i) Projects prioritization during community consultations.
(ii) Prioritized interventions in the Conceptual Design Report (IPE/GA October 2023)

2.2 Project prioritization by Community

Based on the project's menu, the settlement prioritized their projects as follows:

1. Roads
   i. R1- From Cereals to Slaughter
   ii. R2- From Villa-Agriculture offices
   iii. R3- From Cereals-Mwei's plot
   iv. R4- From R3-to join R2
   v. R5- From National Road-Police-Joining R2
   vi. R6- From Catholic-St. Franscis primary school gate
   vii. R7- From National Road to junction near
   viii. R8- From Slaughter to Itigo stage
   ix. R9- From Diesel Power -Itigo stage
   x. R10- From Kapchelel-Christopher plot
   xi. R11- From Asai Kinyozi-Asai
2. High Masts (market and bus park)/street lighting
3. Receptacles/ waste bins at the market and stage
4. Public toilet at the stage
5. Vending platforms at the stage
6. Social Hall/day care centre at Chiefs office compound
7. Beautification/landscaping/pedestrian walkways along Mosoriot- Kabiyet road and Mosoriot-Eldoret highway
8. Additional water tank near the junction of R7
9. Slaughter house (Land not available)
10. Water supply- No water supply nearby

2.3 Projects adopted and presented in the Design Report

The project road is situated within Mosoriot trading Centre, Lelmokwo/Ngechek ward in Chesumei sub- county, Nandi County

Proposed Scope of Works: - Construction of 152m of R1 001, 200m of R2 001, 206m of R2 002, 140m of R2 003, 127m of R2 004, 208m of R2 005, 186m of R2 006, 225m of R2 007, 165m of R2 008, 267m of R2 009, 172m of R2 010, 235m of R2 011, 81m of R2 012 and 92m of R2 013 together with the accompanying storm water drainage systems, 5 no. High Mast Lights, 2 no.

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Water kiosk, Vending platform, Landscaping, garbage receptacles and an Ablution block as summarized in Table 2.1 below.

Table 2- 1: Project Scope of Works

PROPOSED INFRASTRUCTURE	CODE ON MAP	DESCRIPTION	QTY
R1 Roads	R1 -001	6m carriageway, drainage and footpath on both side of the carriageway.	152 m
R2 Roads	R2 001	5.5m carriageway, drainage and footpath on one side of the carriageway.	200 m
	R2 002	5.5m carriageway, drainage and footpath on one side of the carriageway.	206 m
	R2 003	5.5m carriageway, drainage and footpath on one side of the carriageway.	140 m
	R2 004	5.5m carriageway, drainage and footpath on one side of the carriageway.	127 m
	R2 005	5.5m carriageway, drainage and footpath on one side of the carriageway.	208 m
	R2 006	5.5m carriageway, drainage and footpath on one side of the carriageway.	186 m
	R2 007	5.5m carriageway, drainage and footpath on one side of the carriageway.	225 m
	R2 008	5.5m carriageway, drainage and footpath on one side of the carriageway.	165 m
	R2 009	5.5m carriageway, drainage and footpath on one side of the carriageway.	267 m
	R2 010	5.5m carriageway, drainage and footpath on one side of the carriageway.	172 m
	R2 011	5.5m carriageway, drainage and footpath on one side of the carriageway.	235 m
	R2 012	5.5m carriageway, drainage and footpath on one side of the carriageway.	81 m
	R2 013	5.5m carriageway, drainage and footpath on one side of the carriageway.	92 m
Vending platform	1 no. Vending platform		
Water & Sanitation	1 Water Kiosk, Garbage Receptacles, 2 no. Ablution block		
Social Amenities	Green space/ landscaping		
Security Lighting	2 no. High mast flood light, solar street lighting. 8m high poles, along R1 001, R2 001, R2 002 and R2 003 roads, with 63 luminaires, 2 Control Pillars and 1367 m main cable.		
Total Road			**2456 m**
Total footpath and Drainage Length			**2608 m**
Total Street lighting			**63 poles**

A map of target Settlement is presented in **Figure 2.1** below

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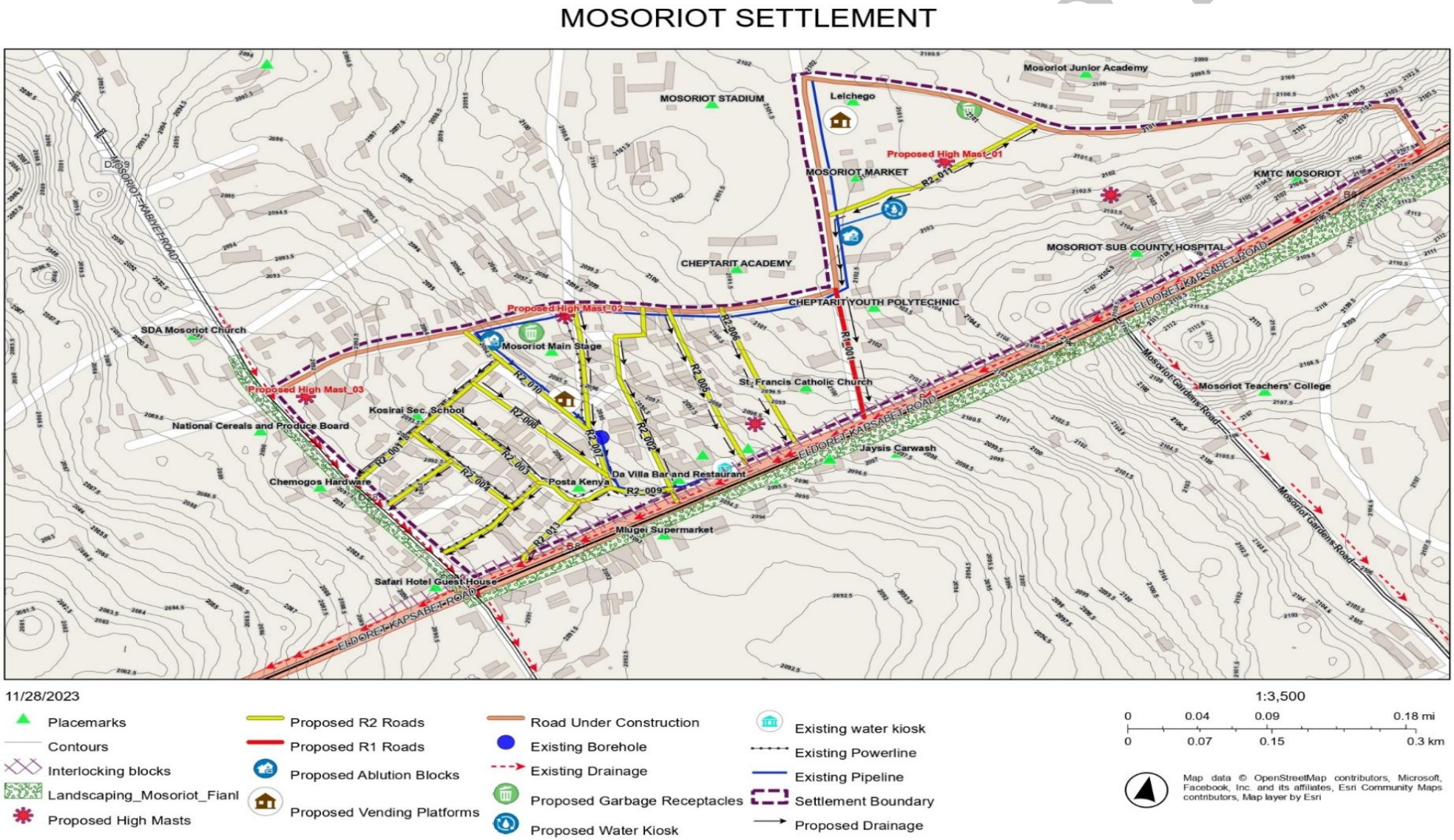

Figure 2- 1: Layout of the Proposed Works

2.4 Design interventions to improve infrastructure resilience.

Table 2-2 below presents Design interventions to improve infrastructure resilience.

Table 2- 2: Design interventions to improve infrastructure resilience

No.	Climate Change Influence	Design intervention
1.	Mitigation efforts towards the reduction of carbon emission during construction	The pavement structure of the roads is designed to use locally available construction materials e.g. gravel, hand packed stones and quarry dust, river sand etc. This reduces the carbon emission by the vehicles since the materials transportation and haulage distances are reduced.
2.	Mitigation efforts towards the reduction of carbon emission during use upon commissioning	The roads design is akin to the 15 minute neighborhood model by Carlos Moreno which is an urban planning concept where neighborhoods provide residents with the basic things they need — shops, schools, parks, leisure options, health care — within a 15-minute radius by foot or bike, usually referred to as active mobility. The roads are designed with cyclist and pedestrian paths to reduce dependency on vehicles thus creates a mono active mobility where people tend to walk more than they drive. This ultimately reduces the carbon emission as they use less motorized transport system. It also promotes social inclusion and interaction thereby improving their overall well-being as per Jeremy Bentham's utilitarianism model.
3.	Flooding	Sizing of the drains and culverts to accommodate the design storm for the entire upstream catchment area has been done to accommodate both extreme situations and mild cases through provision of relief gates hence a faster evacuation of flood waters out of the settlements. In settlements that are likely experience flooding, the finished road level (FRL) is designed above the adjacent ground level. Providing tree covers by planting trees and permeable hand packed stones absorbs part of the water runoff hence reducing flooding. Check walls are placed within the drainage channel to trap solids and debris for efficient flood water flow.
4.	Urban greening for aesthetics and reduction of urban heat island (UHI)	Green urban spaces, provide a wide range of benefits for people and the planet. They provide vital space for physical and mental wellbeing and a very important habitat for nature, including for birds and pollinators. Green space helps reduce air, water and noise pollution, provides protection from flooding, droughts and heat waves among others. This has been integrated in the design to bring nature back to the settlements through; ➢ Planting of trees ➢ Planting grass ➢ Use of colored paving blocks interspersed with green grass at the joints, hence projecting a green view on birds eye.
	Mitigation efforts towards	Nandi County KISIP Team has promised to introduce sustainable practices in the transport and mobility for

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5.	Greenhouse gases emission by motor vehicles	example, use of electric vehicles for inter commute and capacity building in climate proofing through continuous mainstream of the facility.

2.5 Construction Materials

Locally available Construction Materials

The designs identified locally available materials sources and through laboratory testing, and categorized their technical suitability. The design also realized the suitable sources of other construction materials such as aggregates, sand and construction water, and adopted the approach of specifying the required quality such materials.

Pavement structure

The pavement structure design was in light of the findings of the traffic study, subgrade strength, and type and strength characteristics of locally available construction materials.
Based on projected traffic loading and subgrade strength, the following traffic structures have been proposed.

Table 2- 3: Alternative 1 – Type – LVII (LVSR)

Vehicular Carriage way + Shoulders			Pedestrian Foot paths
1		50 mm thick Surfacing - A.C 0/20	60 mm thick paving blocks
2		150 mm thick Hand Packed Stone base course	150 mm thick Hand Packed Stone base course
3		125 mm thick sub-base - Cement Improved Gravel Sub-base (4% cement maximum)	125 mm thick sub-base - Cement Improved Gravel Sub-base (4% cement maximum)
4		Improved subgrade to minimum class S3	Improved subgrade to minimum class S3

Table 2- 4: Alternative 2 – Type 7 (RDM Part III)

Vehicular Carriage way + Shoulders			Pedestrian Foot paths
1		50 mm thick Surfacing - A.C Type II (instead of SD recommended in RDM Part III).	60 mm thick paving blocks
2		125 mm GCS class C (0/40)	150 mm thick Hand Packed Stone base course
3		100 mm thick sub-base - Cement Improved Gravel Sub-base (4% cement maximum)	125 mm thick sub-base - Cement Improved Gravel Sub-base (4% cement maximum)
4		Improved subgrade to minimum class S3	Improved subgrade to minimum class S3

Alternative 1 recommended:

- Hand Packed Stone is labour intensive and technology easily mastered by semiskilled labour and will offer employment to locals.
- Can be trafficked immediately after laying.

2.6 Project Cost

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The project cost as presented in the design report is presented in table below

Table 2- 5:Project Cost

Settlement	Roads, footpaths, drainage	security lighting	water and sanitation	social amenities	daywork s	bill 1	bill 28	CONTRACT 1 TOTALS
Mosoriot Site & Service	180,020,459.96	26,314,095.50	18,612,690.80	16,181,000.00	4,197,875.00	20,948,400.00	7,604,781.25	273,879,302.51

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CHAPTER 3: ANALYSIS OF ALTERNATIVES

3.1 Project Alternatives

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

Analysis of Project Alternatives requires comparison of feasible alternatives for the proposed Project in terms of: Project site, Project technology, Potential Environmental and Social Impacts, capital and recurrent costs, suitability under local conditions, and acceptability by neighboring land users.

The sub chapter below presents the considerations that were analyzed in determining feasible alternatives for the proposed Project as listed below.

(i) Settlement size and density: larger and denser settlements chosen receive priority to ensure that as many people as possible benefit from the investments.
(ii) Scale of potential displacement of residents: physical upgrading of the settlement should not entail large-scale displacement (and, thereby, relocation) of residents.
(iii) Land tenure status: a settlement must be located on land that is owned by the government planned under Component 2 and PDP or LPDP issued.
(iv) Location: a settlement cannot be located on a hazardous site or in an environmentally fragile area.
(v) Proximity to trunk infrastructure: to maximize settlement coverage within a limited budget and to ensure that participating settlements receive connections to the main infrastructure networks and maintenance systems, in the initial years of project implementation settlements that are in close proximity to core trunk infrastructure on the main road was a consideration.
(vi) Sustainability of the proposed rehabilitation is ensured through community's willingness to participate and remain engaged in the program.

3.2 KISIP Investments Identification

In the case of KISIP, identification and selection of investments, was a reflection of the community felt needs, as guided by given the following principles:

(i) The service should be selected from the agreed investment menu.
(ii) The investment should be a priority specified in the Physical Development Plan (PDP) of the County.
(iii) The chosen infrastructure investments should be economically justifiable.
(iv) Arrangements for operations and maintenance must be sound and give confidence that service delivery will be sustainable.

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(v) Environmental and social impacts of infrastructure investments are positive.
(vi) Budget and per hectare cost must be within agreed limits.

3.3 Project Option Alternatives

The Project option as described in the ESIA is recommended as it will achieve significant improvements in lives of people working and living in informal settlements.

i) Roads and Footpath Alternatives

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. The roadworks will be made using locally sourced materials that meet the Kenya Bureau of Standards requirements.

The alternative technologies available include the conventional concrete roads, prefabricated concrete panels, Tarmacked roads or even improved marram roads. These may not be desirable from a cost and durability perspective.

On the part of foot paths, can have an alternative of marram road, tarmacked or use of cabros.
The technology to be adopted i.e. tarmacked roads and cabros for footpaths will be the most economical and one sensitive to the environment. The other options will be expensive and environmental degrading due to material to be utilised and dust generation during the time of use.

ii) Lighting and electric Alternatives

High mast lights alternatives

The poles for high mast lights are often much taller than flood lights. The larger the area that you want to illuminate, the higher up your lights will need to be mounted (if you want to keep the total amount of poles to a minimum). Therefore, high mast lights are often the go-to option when illuminating large areas. It is commonly used to illuminate large areas from a very high mounting height, typically on poles ranging in height from 50ft to 150ft and are mounted to those poles via Fixed Rings or Lowering Devices. High mast lights are the ideal option when you want to illuminate a large area with less poles. LED high mast lights are currently the most cost effective and efficient way of providing even and controlled illumination of large outdoor areas due to the high mounting height and multiple luminaire configuration. This option has been adopted to illuminate the settlement of Mosoriot. However, they are prone to vandalism.

Flood light Alternatives

Flood lighting is also used for exterior lighting and is typically mounted on poles or buildings to provide directional illumination to a variety of areas. The fixtures on flood lights can be mounted at a variety of angles, distributing the light accordingly.

Flood Lighting Applications: This type of lighting is often used to provide light to areas for security, vehicle & pedestrian use, as well as used for sports activities and other large areas in need of targeted outdoor illumination.

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Flood lights typically have a mounting height of approximately 15ft-35ft, however, in several applications they can have a pole height greater than the typical max (although rarely reaching the height of high mast lighting). A closer distance will not need a long-range narrow beam, so a wider flood beam will be best. To illuminate an area at a further distance, a narrower, farther-reaching beam is necessary. This option has not been utilized due to the limitation of the area to be illuminated.

Power source alternatives;

Solar powered alternative

The high mast lights and the flood lights need power sources to light up a night. The option of solar power will require solars and batteries for storage of power during the day and be used up at night. The initial cost is high but operation wise, it is sustainable as you are utilizing the renewable energy. It is however prone wear and tear as the time goes by. In addition, they are prone to vandalism. This is the reason why the option was not chosen.

Electricity Grid alternative

This option involves connecting the street lighting to electricity from the grid. This option was chosen because of the already existing power sources within the project areas.

Hybrid system alternative

This alternative involves connecting the streetlights to the Kenyan grid together with solar power alternative. This alternative has a backing in that it utilizes also the renewable energies and also the system can work when there is power blackout in the settlement. However, the alternative was not adopted due to vandalism of solar and their batteries that will render the system un-functional.

iii) Alternative on material and design

Certainly, there are several alternative technologies that can be considered for the design and construction of roads, drainage systems, floodlights, sewer lines, and water pipelines. These technologies often prioritize efficiency, sustainability, and cost-effectiveness. Here are some alternatives to traditional methods:

1. **Road Construction:**
    - **Recycled Materials:** Using recycled materials like reclaimed asphalt pavement (RAP) and recycled concrete aggregate (RCA) can reduce the demand for virgin materials and lower costs.
    - **Porous Pavements:** Porous asphalt or concrete allows water to pass through, reducing runoff and aiding in groundwater recharge.
    - **Geo synthetics:** Geo synthetic materials like geotextiles and geo grids can enhance road stability, reduce erosion, and increase lifespan.
    - **Warm Mix Asphalt:** This technology allows asphalt to be produced and placed at lower temperatures, reducing energy consumption and emissions.
    - **Ues of virgin materials for construction of the roads;** this option uses the required materials from their processed form. They are durable and makes the road last long.

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2. **Drainage Systems:**
    - **Bio retention Cells:** Also known as rain gardens, these landscaped areas collect and treat storm water naturally, promoting filtration and reducing the burden on traditional drainage systems.
    - **Permeable Pavement:** Permeable surfaces like permeable concrete or interlocking permeable pavers allow water to infiltrate, reducing runoff and erosion.
3. **Floodlights:**
    - **Materials for poles:** Utilising concrete poles for the lood mast or using Aluminium materials. Also using Iron is an option. Aluminium was chesen due to its light nature. Iron material is prone to rust and vandalism.

3.4 Land Requirement

The projects have been designed to only utilize the road reserves as designated on the Physical Development Plans (PDPs) developed by KISIP Component 2 for the targeted settlements. No private land will be acquired for the project. This has significantly minimized displacement of populations and livelihoods as a result of the Project and the need to carry out resettlement. A separate RAP has been prepared for the Project components which have an impact to people's assets and sources of livelihood.

3.5 Chosen Alternatives from KISIP Menu

The Project designs were prepared for each of the infrastructure priorities identified by the communities in the settlement during the socio-economic assessment and priority validation forums organized by the design consultants. Factors that determined the choice and design of the infrastructure were based on:

(i) Defining technical, social and environmental feasibility.
(ii) Detailing design standards for each infrastructure component.
(iii) Estimating quantities.
(iv) Preparing unit cost rates and a feasibility design cost estimate.
(v) Evaluating O&M issues and potential costs.
(vi) Revising the scope of the infrastructure components if required.

3.6 No Project Alternative

The No Project Option in respect to the proposed Project implies that the status quo is maintained. The no Project option is the least preferred option from the socio-economic and partly environmental perspective due to the following factors:

(i) There will be no improved accessibility and mobility within the settlements.
(ii) There will be no improved drainage system within the settlements.
(iii) There will be no improved Health and Sanitation within the settlements.
(iv) There will be no improved living standard/well-being, employment and local economy in the target settlements.

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(v) There will be no creation of employment both during construction and operation phases of the projects.
(vi) There will be no increased Land Value within the settlements.
(vii) There will be no improved Access to Social Services within the settlements.

From the analysis above, it becomes apparent that the No Project alternative is not preferred by the community.

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CHAPTER 4: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Introduction

The prioritized Investment under KISIP will be implemented under several Laws, By-laws, Regulations and Acts of Parliament, as well as Policy Documents and. This section is therefore aimed at assessing the existing policies and legislative framework, economic tools and enforcement mechanisms for the management of infrastructure projects at different stages.

4.2 Policy Provision

The proposed investments will be implemented within provisions of various government policies as summarized in **Table 4-1** below; detailed review of the policies will be presented in the ESIA report.

Table 4- 1: Policy Framework

No	Policy	Applicability
1	Constitution of Kenya 2010	The constitution of Kenya provides for sound management and sustainable development of all of Kenya's Projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.
2	Kenya Vision 2030	Kenya Vision 2030 is the current national development blueprint for period 2008 to 2030. The Project will directly contribute towards achievement of objectives of vision under the environment and social pillar through provision of the planned water investments under the master plan.
3	National Environment Policy (NEP)	The revised draft of the National Environmental Policy, dated April 2012, sets out important provisions relating to the management of ecosystems and the sustainable use of natural resources. During construction and operation phases ESMP will be implemented, this will ensure that the ecosystems are not destabilized by the subsequent Project activities.
4	HIV and AIDS Policy 2009	The Policy will be complied with during implementation of the Project, the Contract will in cooperate in tender document and implement HIV awareness initiatives during construction of the Project.
5	Gender Policy 2011	This policy will be referred to during Project implementation especially during hiring of staff to be involved in the project, procuring of suppliers and sub consultants and sub-contractors to the project
6	The Sustainable Development Goals (SDGs)	The concept of the SDGs was born at the United Nations Conference on Sustainable Development, Rio+20, in 2012. The objective was to produce a set of universally applicable goals that balances the three dimensions of sustainable development: environmental, social, and economic. The Investments will therefore contribute towards achieving this goal through the proposed water distribution network project
7	Kenya National Youth Policy 2006	The National Youth Policy 2006 aims at ensuring that the youth play their role, alongside adults in the development of the country. The National Youth Policy visualizes a society where youth have an equal opportunity as other citizens to realize their fullest potential, KISIP Projects will provide direct employment to the youth as required by the policy.

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No	Policy	Applicability
8	Eviction Guidelines 2017	The Government shall ensure that evictions only occur in exceptional circumstances. Evictions require full justification given their potential extremely negative impact on a wide range of international recognized human rights. Under KISIP no evictions are anticipated, RAP will be prepared, and appropriate compensation and livelihood restoration provided to PAPs

4.3 Kenyan Legislations

The proposed investments will be implemented within provisions of various Acts of parliament as summarized in **Table 4-2** below; detailed review of the Acts will be presented in the ESIA report.

Table 4- 2: Acts of Parliament

No	Policy	Applicability
1	EMCA 1999	The Act provides for the establishment of a legal and institutional framework for the management of the environment, this is achieved through various regulations. For KISIP projects the below listed EMCA regulations will be applicable. (i) EMCA (Waste Management) Regulations, 2006 Legal Notice No. 121; (ii) EMCA (Water Quality) Regulations, 2006 Legal Notice No. 120; (iii) EMCA (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61; (iv) EMCA (Air Quality Regulations 2014)
	The Environmental (Impact Assessment and Audit) Regulations, 2003	The regulation provides a framework under which Environment and Social Impact Assessment for the Project will be prepared, Regulation 4(1) further states that: (a)''…no Proponent shall implement a project: likely to have a negative environmental impact; or (b)for which an environmental impact assessment is required under the Act or these Regulations, unless an environmental impact assessment has been concluded and approved in accordance with these Regulations…''
	Environmental Management and Coordination (Water Quality) Regulations, 2006	Regulation 9 of these regulations 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".
	(Waste Management Regulations, 2006	Regulation 4 (1) states that "no person shall dispose of any waste on a public highway, street, road, recreational area or in any place except in a designated receptacle". Regulation 4 (2) further states that "a waste generator shall collect, segregate and dispose such waste in the manner provided for under these regulations". The proponent will use provisions of this regulation to ensure that waste is handled, stored, transported and disposed as per this regulation.
	Conservation of Biological Diversity and Resources, Access to Genetic	This legislation aims at enhancing preservation of biodiversity and safeguarding of endangered and rare plant and animal species within any human activity area. Section 4 of the legislation expressly prohibits any activity which may have adverse effects on any ecosystem, lead to introduction of alien species in a given area or result in unsustainable utilization of available ecosystem resources.

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No	Policy	Applicability
	Resources and Benefit Sharing) Regulations, 2006	
	Noise and Excessive Vibration Pollution (Control) Regulations, 2009	The contractor will be required to ensure compliance with the above regulations in order to promote a healthy and safe working environment throughout the construction phase. This shall include regular inspection and maintenance of equipment and prohibition of unnecessary hooting by vehicles. The regulations provides for a maximum of 60dcl during the day and 35 dcl during the night for a construction site.
	(Wetlands, Riverbanks, Lake Shores and Sea Shore Management) Regulations, 2009	This is a supplementary legislation to EMCA with particular emphasis on management of wetland and wetland resources, riverbanks, lake shores and Sea shores. Sections 4 and 5 of Part II as well as sections 16, 17, 18 of part III of the legislation provide guidelines for conservation and sustainable use and conservation of the said environmental components and enhance them where necessary when carrying out any activity therein.
	The Environmental Management and Coordination (Air Quality Regulations 2014)	These regulations provide a framework for Management of plant and equipment emissions of hydrocarbons on site. The regulations require that all plant and equipment on site should be well serviced to manufacturers specifications to avoid air pollution, the regulation also require monitoring of baseline air quality within construction site and implementation of correction action where the standards are not complied to. Water spray will be used at all times when working in dry areas to avoid risks associated with dust menace.
2	Land Act 2012	It is the substantive law governing land in Kenya and provides legal regime over administration of public and private lands. It also provides for the acquisition of land for public benefit. The government has the powers under this Act to acquire land for projects, which are intended to benefit the general public. The projects requiring resettlement are under the provision of this Act. KISP will trigger minor disturbance to people's assets and sources of livelihood, a RAP will be prepared.
2	Water Act 2016	The Water Act 2002 was amended in the year 2016 to align to the Kenyan Constitution 2010, the Act vest the responsibility of developing water and Sanitation infrastructure to NAWASCO This implies that during implementation of Water and Sewerage Project adequate collaboration between KISIP implementing unit and NAWASCO will be required.
3	County Government Act No. 17 of 2012	The proposed Projects will be implemented within Nandi County Government informal settlements. Part II of the Act empowers the county government to be in charge of function described in Article 186 of the constitution, (county roads, water and Sanitation, Health). The Projects once complete will be handed over to County Government for operation and maintenance.
4	Physical Land Use and Planning Act 2019	Section 29 of the said Act empowers the local Authorities (now county governments) to reserve and maintain all land planned for open spaces, parks, urban forests and green belts as well as land assigned for public social amenities. KISIP projects will be implemented with Part Development Plans (PDP) developed by the County Governments through the support of Component 2 of KISIP Project which deals with planning and land tenure.
5	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

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No	Policy	Applicability
		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). KISIP Projects are within Nandi County CIDP 2018 - 2022.
6	Occupational Health and Safety Act (OSHA 2007)	The Act provides EHS guidelines which shall be followed by both the contractor and supervising consultant during implementation of the project to avoid injuries and even loss of life to workers and neighboring community.
7	The Public Health Act (Cap.242)	The Act provides guideline to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA 1999 for utmost compliance.

4.4 Institutional Structure Arrangement

The proposed investments will be implemented within in liaison with various government institutions mandated to provide various services to the public under various Acts of parliament. Relevant government institutions and their role is presented in **Table 4-3** below.

Table 4- 3: Institutions Assessment

No	Policy	Applicability
1	MoLPWH&UD	Ministry of Transport, Infrastructure, Housing and Urban Development (MoLPWH&UD) is the government ministry responsible for policy formations and implementation in matters related to Transport, Infrastructure, Housing and Urban development. The ministry has established KISIP implementing unit which is responsible for planning and implementing KISIP Project across the county. KISIP is headed by a National Coordinator who is support by various team of experts in the field of: Engineers, Procurement, Sociology, Environment, Monitoring, and evaluation.
2	County Government of Nandi	The County Government assists KISIP implementing unit to implement the Project, County Governments has also established a County Government KISIP implementation unit. The role of developing and approving of the Physical Development Plans (PDPs) is the function of the County Government through the assistance of KISIP component 2 which deals with planning and land tenure.
3	NAWASCO	Nandi Water and Sanitation Company NAWASCO) is the Water Service Providers (WSP) wholly owned by Nandi County, the (WSP) assists in developing water and sanitation designs as well as operating water and sanitation infrastructure after Project completion.
4	Kenya Power	This is a government company charged with responsibility of distribution and managing electric power with the city. During implementation of the Project Kenya Power will be consulted regularly in areas where power installations require relocation.
5	WRA	Water Resources Authority (WRA) is a government parastatal under the Ministry of Water mandated to manage water resources including rivers. WRMA will be consulted regularly in situations where river crossing will be required.

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No	Policy	Applicability
6	KURA	Kenya Urban Roads Authority is a government parastatal under Ministry of Transport, Infrastructure, Housing and Urban Development (MoLPWH&UD. KURA will be consulted regularly where KISIP investments require road crossing
7	NEMA	National Environment Management Authority (NEMA) is a government parastatal under Ministry of Environment mandated to Manage Environment. NEMA will be responsible to approve and license the projects and conduct inspections during project implementation to ensure compliance to provisions of Environment license.

4.5 World Bank Policies

The assessment adopted the standard guideline of the World Bank Safeguard policies in environmental and social screening for the project. The project was therefore checked against the below listed safeguards policies and discussed below in **Table 4-4**;

Table 4- 4: Analysis of potential triggers to World Bank Safeguards Policies

World Bank Operation Policy	Applicability to the Project
Environmental Assessment OP 4.01	This policy is triggered due to proposed KISIP project interaction with natural and human environment. Also, KISIP Projects have been categorized as B which implies that the project impacts are less adverse but require Environment Assessment which defines appropriate mitigation measures.
Involuntary Resettlement OP 4.12	The proposed KISIP project will result to minor impacts to people's assets and sources of livelihood due to population density in the informal settlements. RAP be prepared and implemented prior to commencement of proposed works.
World Bank World Bank Access to Information Policy 2015	The ESIA will be prepared with meaningful stakeholder engagement with the aim of complying with the provision of the policy which requires, maximizing access to information, Setting out a clear list of exceptions, Safeguarding the deliberative process and Providing clear procedures for making information available.
World Bank Group Environment, General Health and Safety Guidelines	The ESIA will be prepared within provisions of general Health and Safety Guidelines
World Bank Group Environment Health and Safety Guidelines on Water and Sanitation	The ESIA will be prepared within provisions of water and sanitation Health and Safety Guidelines

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CHAPTER 5: BASELINE INFORMATION OF TARGET SETTLEMENTS

5.1 General Information

Nandi County is characterized by a hilly topography that includes an outcrop of basement systems rocks. The dissected scarp at the Southern border of the county is another manifestation of rock exposure.

The physiographic outlook of Nandi County is composed of five (5) units with typical topography, namely: The rolling hills to the west of the county, the Kapsabet Plateau (part of Nandi plateau), the wooden highlands and foothills of Tindiret volcanic mass in the south east, the Kingwal Swamp in the centre (Baraton-Chepterit) and the dissected Nyando escarpment at the Southern Border (Aldai sub county).

The project location is situated within Mosoriot trading Centre, Lelmokwo/Ngechek ward in Chesumei sub- county ,Nandi County

5.2 Physical Environment

5.2.1 Climate

The settlement receives high rainfall almost all year round. However, the rainfall is less in intensity between December and February. The annual rainfall ranges from 1,149 – 1,987mm per year. The Sub-County has an almost uniform rainfall distribution. It has high temperatures all the year round. The mean maximum is about 29^0C. The high temperatures and rainfall allow for crop development all year round, enabling farmers to have two cropping seasons. The area has a varying topography with a few hills and valleys dissected by a number of small streams

5.2.2 Topography

The physiographic outlook of Nandi County is composed of five (5) units with typical topography, namely: The rolling hills to the west of the county, the Kapsabet Plateau (part of Nandi plateau), the wooden highlands and foothills of Tindiret volcanic mass in the south east, the Kingwal Swamp in the centre (Baraton-Chepterit) and the dissected Nyando escarpment at the Southern Border (Aldai sub county). Mosorito Settlement is Located at an altitude of 1500 above sea level

5.3 Physical and Social Infrastructure

Electricity is supplied by the Kenya Power Company. However, some individuals have installed back- up generators and solar panels to supplement the Kenya Power supply especially in times of power outages. Many households have access to portable water from unprotected springs. There is no existing Sewerage System in proposed project area. Most of the residential areas are served by pit latrines. The main tarmac road in the project area connects Eldoret town to Kapsabet town. There are other roads such as Mosoriot-Kabiyet

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road.

However, there are feeder roads are dry weather roads and most become impassable during the rainy seasons. Communication is excellent for mobile reception from Safaricom, Airtel, Orange, Telkom Wireless and Yu networks and for landline from Telkom Kenya. There are proper drainage systems that help in managing storm water. Well labelled dustbins have been erected within the Mosoriot trading Centre for proper solid waste management.

5.4 Land Use Pattern

Agriculture, mostly of cash crop nature, is the main land use in the proposed project area. The proposed site is classified for mixed land use, comprising of residential and agricultural. However, at the moment the land uses at the site include agricultural use as well. A major Challenge to the management of land use patterns in the proposed project area is the lack of a master plan to guide development activities and dictate land use activities. This is also evidenced by an unmanaged open air market at various trading centers within the county. The proponent intends to solve the problem by merging growing Mosoriot trading center.

5.5 Socio Economic Profile

The majority of the residents within the settlement are tenants accounting for 98% of the residents in the informal settlement while 1% indicated that they are plot owners and another 1% being structure owners

5.5.1 Ownership/Tenancy

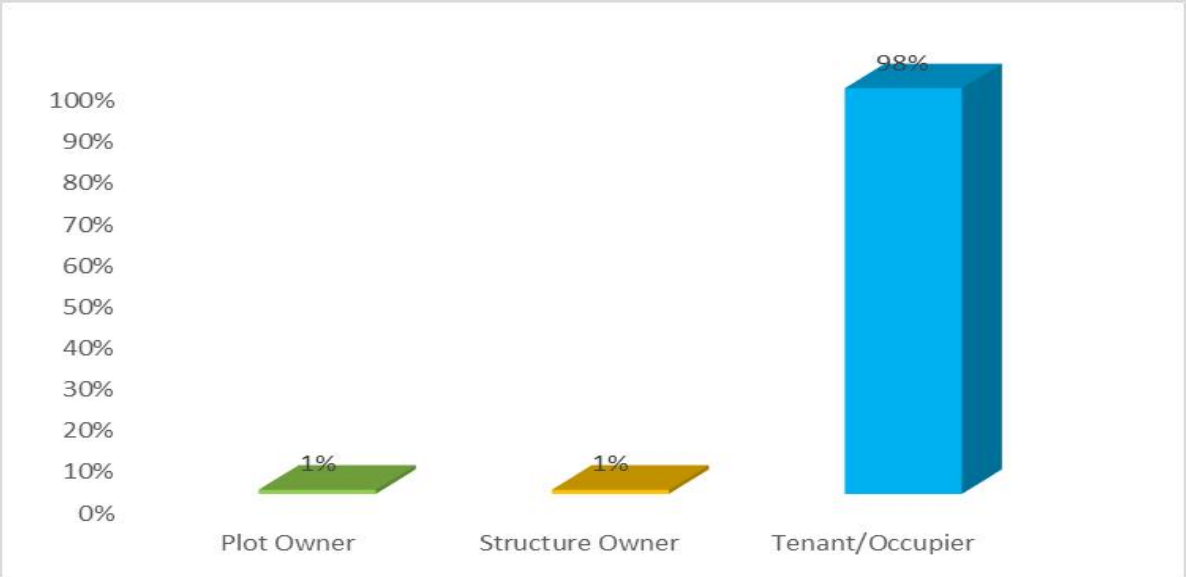

Figure 5.1: Ownership/Tenancy

5.5.2 Accessibility

As indicated in figure 4.2, majority of residents of Mosoriot settlement can only access their structures by walking. It is shown that 93% access their structures through footpaths while only 7% can access using a vehicle through a motorway

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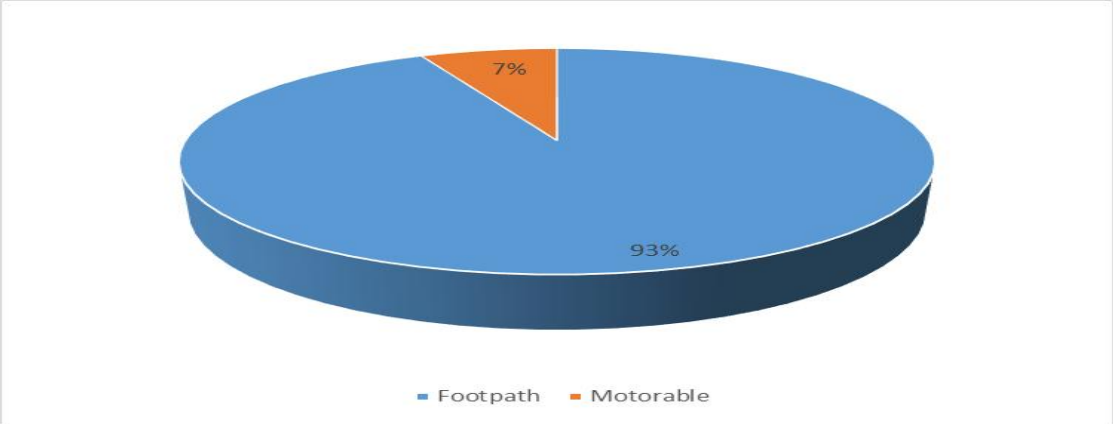

Figure 5.2: Accessibility

5.5.3 Demographic Profile of Households

Age and Gender

The survey showed that the population of the settlement has slightly more females than males, as indicated in figure 4.3.

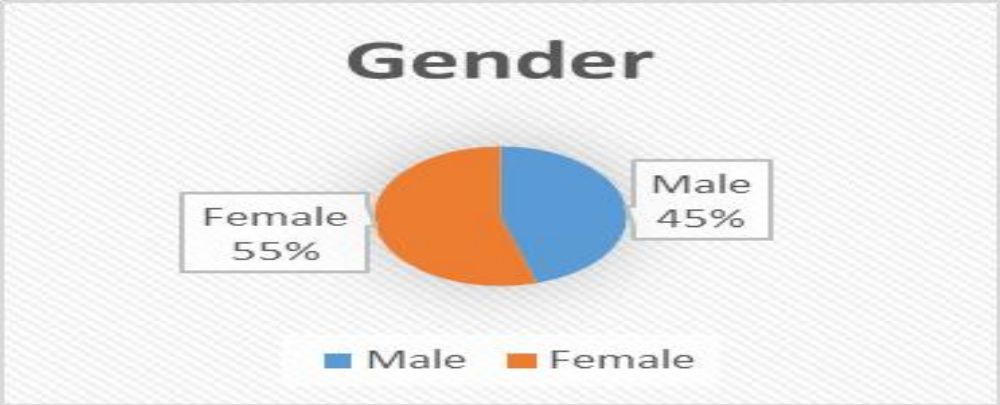

Figure 5.3: Gender

The survey revealed that the gender distribution in the Mosoriot settlement is relatively balanced, with 45.3% of the population identified as male and 54.7% as female. This indicates a slightly higher proportion of females residing in the settlement. Regarding age, the findings of the survey indicates that youths aged 25-29 years old make up to 30.0% of the settlement population, those aged 30-34 are 24.7% and 15-24 account for 20% residents of Mosoriot This signifies the presence of a substantial youth population within the settlement, highlighting the necessity of investing in education, skills development, and youth-focused initiatives to harness their potential as future community contributors.

Age and Marital Status

As far as age is concerned there is presence of a substantial youth population within the settlement and this seems to be reflected on marital status of residents as shown in figure 4.4.

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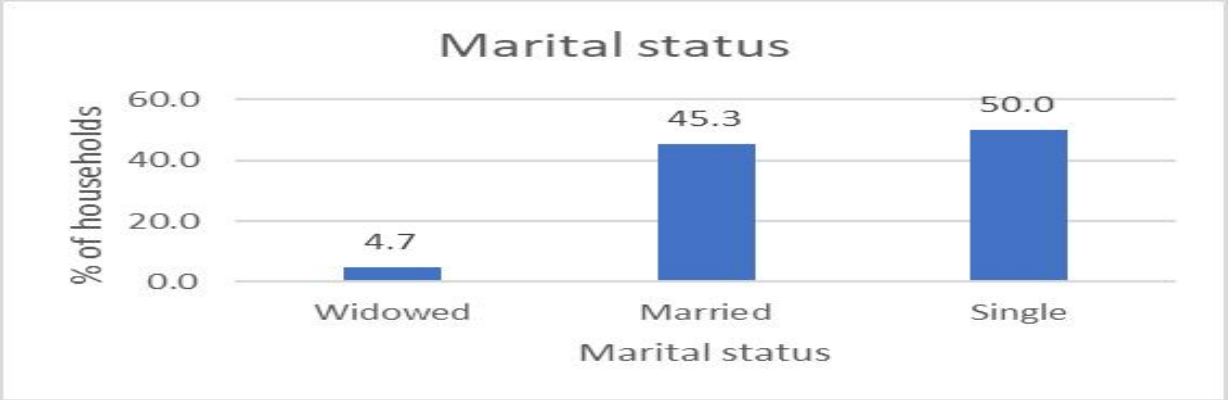

Figure 5.4: Marital Status

As aforementioned, the majority of the population is young and in figure 4.4 it is indicated that 50% of residents are single and 45.3% are married with 4.7% widowed.

Disability

It was critical to establish disabilities among the 150 residents who participated in the study and there were no disabled persons.

5.5.4 Education Levels

During the survey, the educational levels of residents were sought and the results are presented in figure 4.5 below.

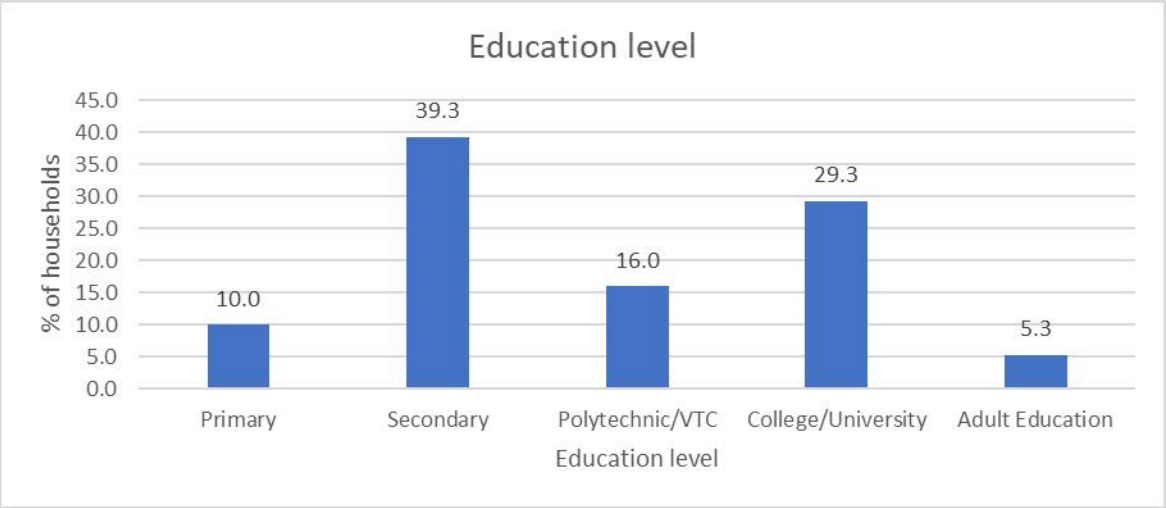

Figure 5.5:: Educational Levels

From figure 4.5, it is shown that a majority of 39.3% residents have a secondary education and 45.3% are tertiary education graduates and 10% have primary education. The highlight is the adult education embraced in the settlement by the 5.3% elderly persons. Given that majority of the population are youths, there is still positive growth of the tertiary educated as they are willing to pursue the further education. 16% of the youth are willingly pursuing skills in polytechnics or vocational training college which are the sought-out skills as the industry grows.

5.5.5 Economic Profile of Households

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Economic profiles of households are determined by individual members' occupation and level of income, and in the survey, this was established and results are given below.

5.5.6 Employment

Household heads within the settlement were asked about their employment and the result is posted in table 5-2.

Table 5- 1:: Employment and Occupation

	Occupation		Members		Percentage
	Casual Labourer		44		
	Civil Servant		24		
	Self-employed		59		
	Student		8		
	Unemployed		15		
	Total		**150**		

Residents of Mosoriot informal settlement mainly work as casual labourers or as self-employed individuals which could include graduates from colleges and universities. The casual labourers work in businesses within or adjacent to the settlement and in factories abutting the informal settlement. The 10% unemployed members of the settlement indicate the need for curated programs for skill transfers to give them a chance for employment. 61% of the employed work within the settlement and 34% outside the settlement. Despite 10% being unemployed and 4.6% being students

5.5.7 Income Levels

Residents were asked to state their monthly income, and according to Table 5.2 and figure 5.6, the 150 individuals indicated what they earn.

Figure 5.6: Monthly income

According to results in figure 4.6, the income levels given by respondents has 33.3% of people living in Mosoriot earning KES 20,001–30,000 and 5.3% earn KES 50,000 or more monthly. 24.7% earn KES 10,001-15,000 which leaves only 26.7% of the employed earning 5,001-10,000.

5.5.8 Expenditure on Food and Clothing

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When asked to state what they spent on both food and clothing the residents responded as indicated in figure 4.7

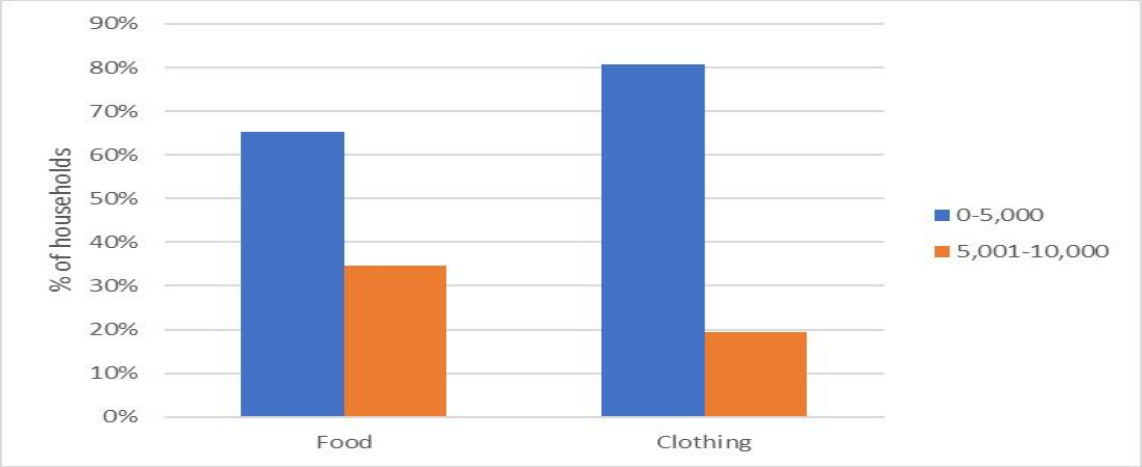

Figure 5.7: Expenditure on Food and Clothing

Expenditure on food and clothes for most residents is KES 5000 or less. It is indicated in Figure 4.6 above that 81% of residents spend KES 0–5000 on clothing and 65% spend the same amount on food. It is also indicated that 19% and 35% spend KES 5001–10,000 on clothing and food.

5.5.9 Structures/Unit Details

Mosoriot settlement has a nucleated settlement pattern with scattered structure.

Household Size.

During the socio-economic survey, respondents were asked to indicate how many people they live with in the same household and results posted in figure 5.12.

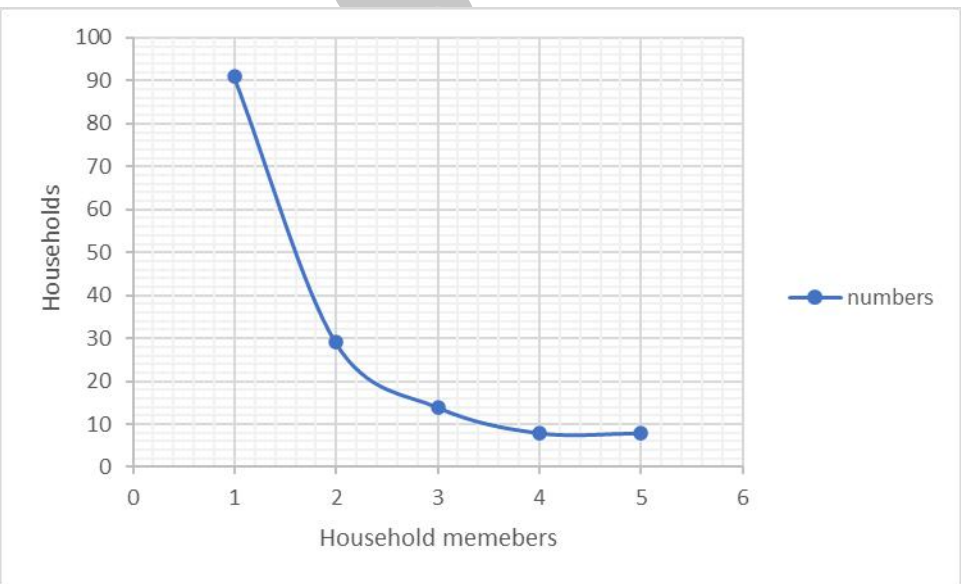

Figure 5.8: Household Size

From figure 5.12, it is indicated that 90 (60%) households 60 are inhabited by two people, 29 (19.3%) having three people, 12 (8%) with four inhabitants and 8 (5%) having five and six individuals respectively. From these results, it is an indication that many families in Mosoriot are couples staying alone or with just one child or a relative.

5.5.10 Nature of Structure, Its wall, Floor and Roof

From Mosoriot settlement information earlier, it was indicated that the structure typology being predominantly bungalows. During the survey, residents were asked what type of structure they occupied, and the results are indicated in Figure 5.8.

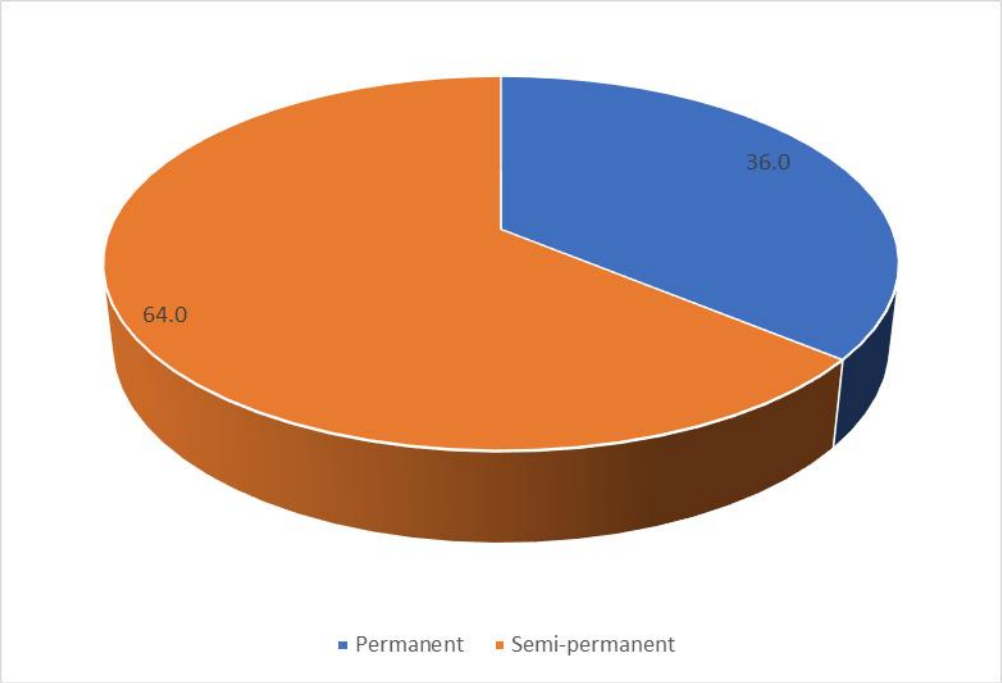

Figure 5.9: Nature of Structures

The socio-economic survey revealed that 64% of the structures within the settlement are permanent and the remaining 36% are semi-permanent structures. The semi-permanent structures include in the area inclusive of the iron sheet and earth structures. Residents were then asked to describe structures in terms of materials used to make walls, floors, and roofs, with the results posted in Table 5.4.

Table 5- 2: Materials

	Part of the Structure		Material		Structures
	Wall		Stones		84%
			Iron Sheets		16%
			Wood		0%
	Floor		Cement		74%
			Earth		0%
			Tiles		26%
	Roof		Tiles		5%
			Iron Sheets		95%
			Wood		0%

The settlement's roof is almost entirely made of iron sheets. Generally, the structures have iron sheet roofs (95%). The walls are mainly made of stones (84%) but some are made of iron sheets (16%), and the floors are predominantly cement (74%) with 26% having tiles as shown in Table 4.4 above. The disparity in the building materials is very evident as the building stone is the main construction material for permanent building walls in the settlement. This indicative of the growth in the areas as semi-permanent structures are getting fewer with time. Some residential properties have concrete fences around them, which also act as the boundaries for plots.

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5.5.11 Water Sanitation and Hygiene

Water Sources, Quality and Cost

The investigation on sanitation and hygiene in this study involved establishing the source and quality of water as well as its cost. The source of water in the settlement is posted in figure 4.9.

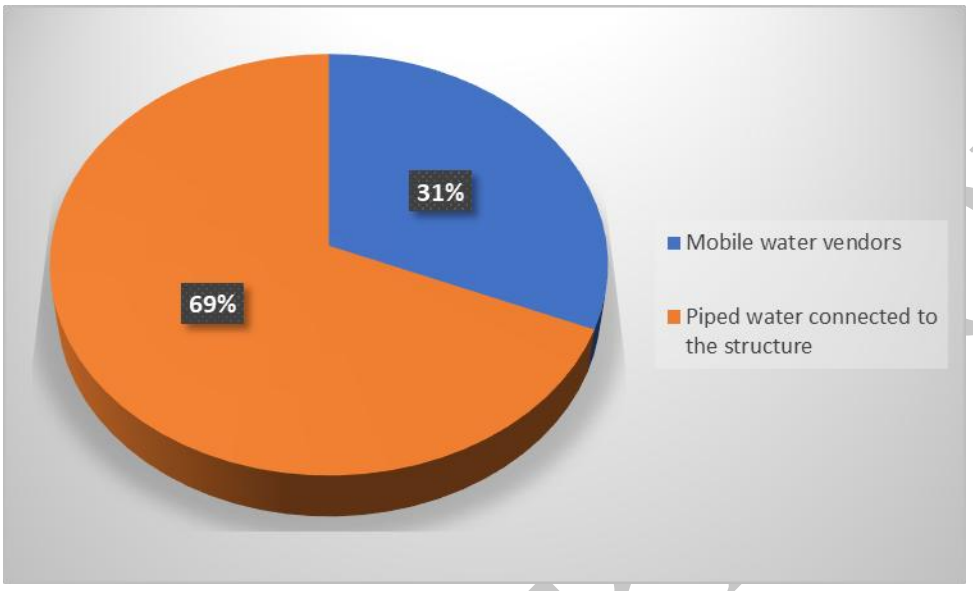

Figure 5.10: Source of Water

Residents of Mosoriot mainly depend on piped water (69%) connected to the structures and water vendors (31%). The main drinking water source is the piped water. The water vendor kiosks were opened and thrive on the period when the piped water has a shortage. Those who depend on piped water to respective structures were asked what they spend monthly, and the results are posted in Figure 5.10.

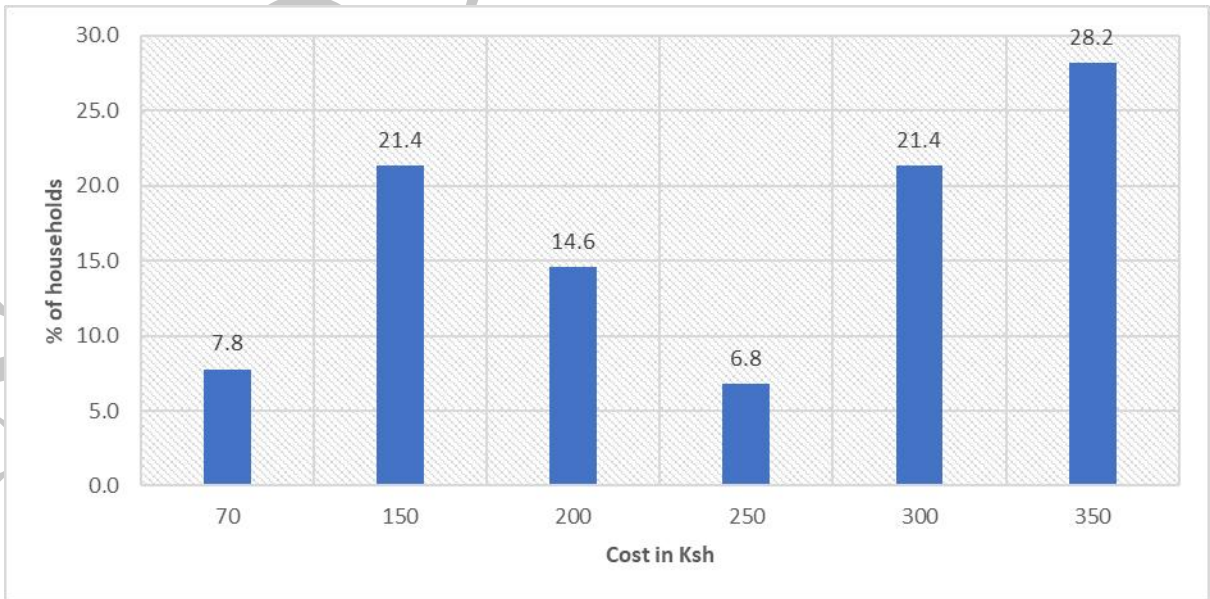

Figure 5.11:: Monthly Cost of Piped Water

Most residents with piped water spend up to KES 350. According to figure 4.10, 28.2% of residents spend KES 301–350 and 21.4% spend KES 251–300 monthly on water. However, 6.8% spend KES 201–250, 14.6% spend KES 151–200, 21.4% spend KES 101-150 and 7.8% spend less than KES 70. Meanwhile, those

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who depend on water vendors were asked what they pay to get a 20-liter jerricans of water per day, with the results posted in Figure 5.8.

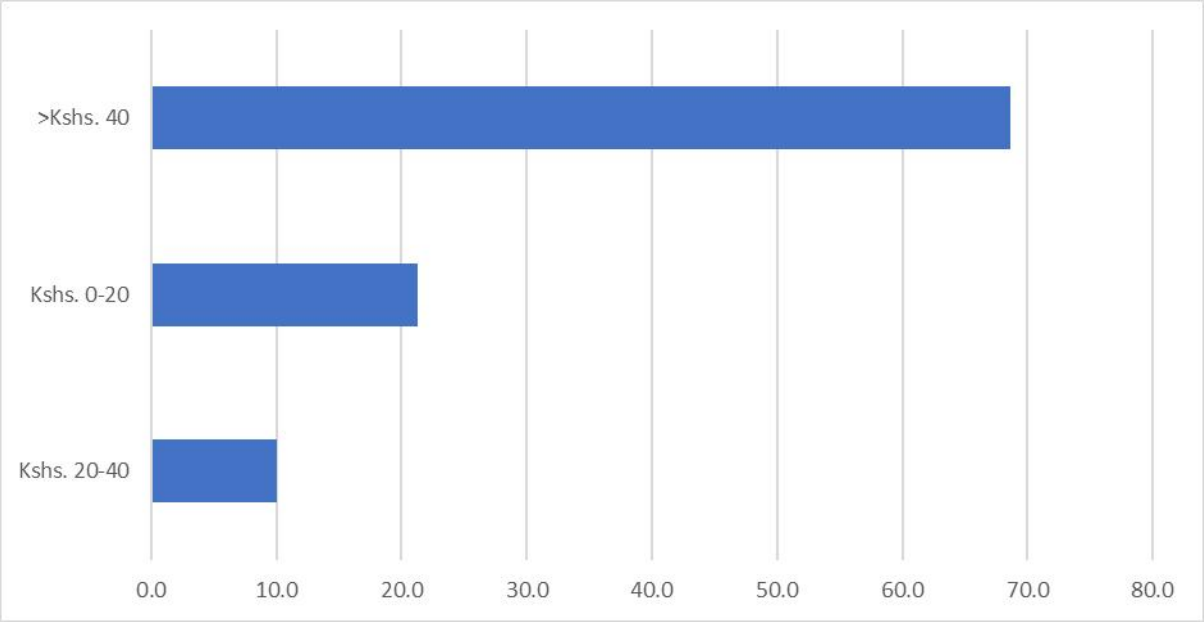

Figure 5.12: Cost of 20 Lt Jerrican of Water

Water vendors supply and sell water in a 20-litre jerrican, which commonly costs KES 20 according to 21% of households. However, 10% of households buy the water quantities amounting to KES 20–40 daily with another 69% paying more than KES 40 daily.

4.4.3.2 Bathroom Access and Cost

Residents were then asked if they have access to bathroom facilities, with the results posted in Figure 4.12.

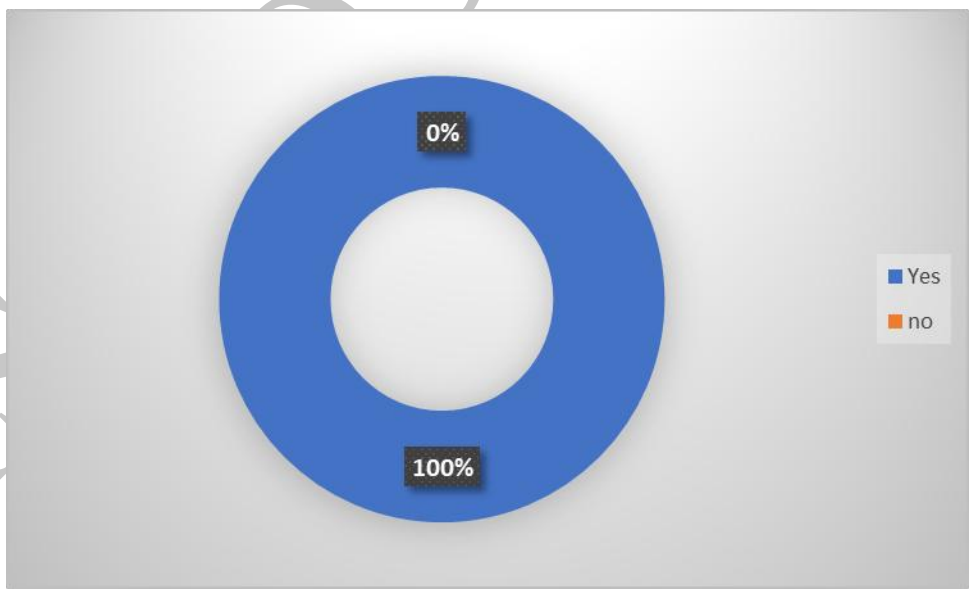

Figure 5.13:: Bathroom Access

In the figure 5.18 above, it is indicative that all of residents have access to bathrooms. On where the facilities are located, residents' and answers posted in figure 5.19 below.

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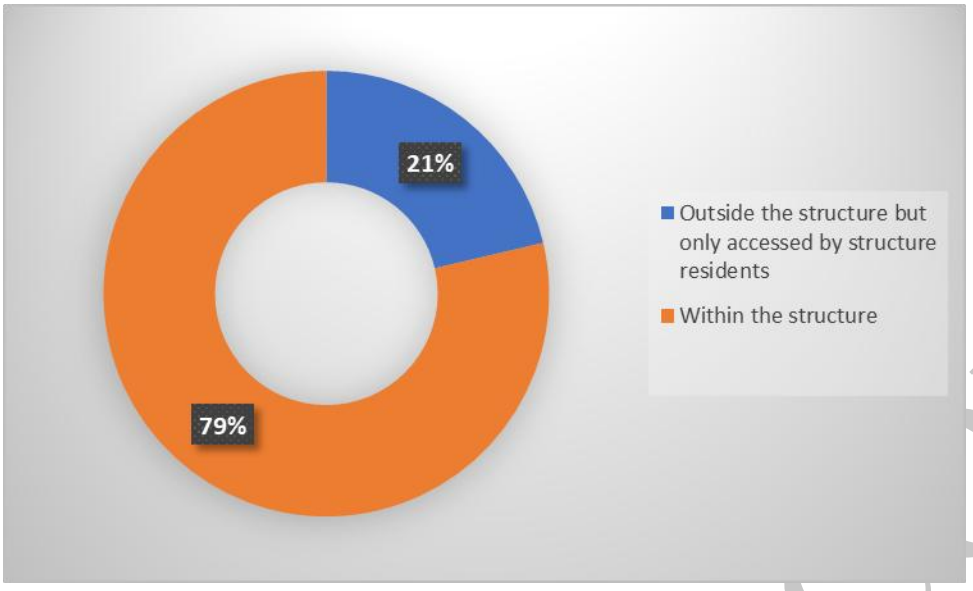

Figure 5.14::: Bathrooms Location

A majority of 79% of respondents indicated they have bathroom facilities within the structures and 21% have bathrooms outside the structure for residents only.

Access to Toilet Facilities

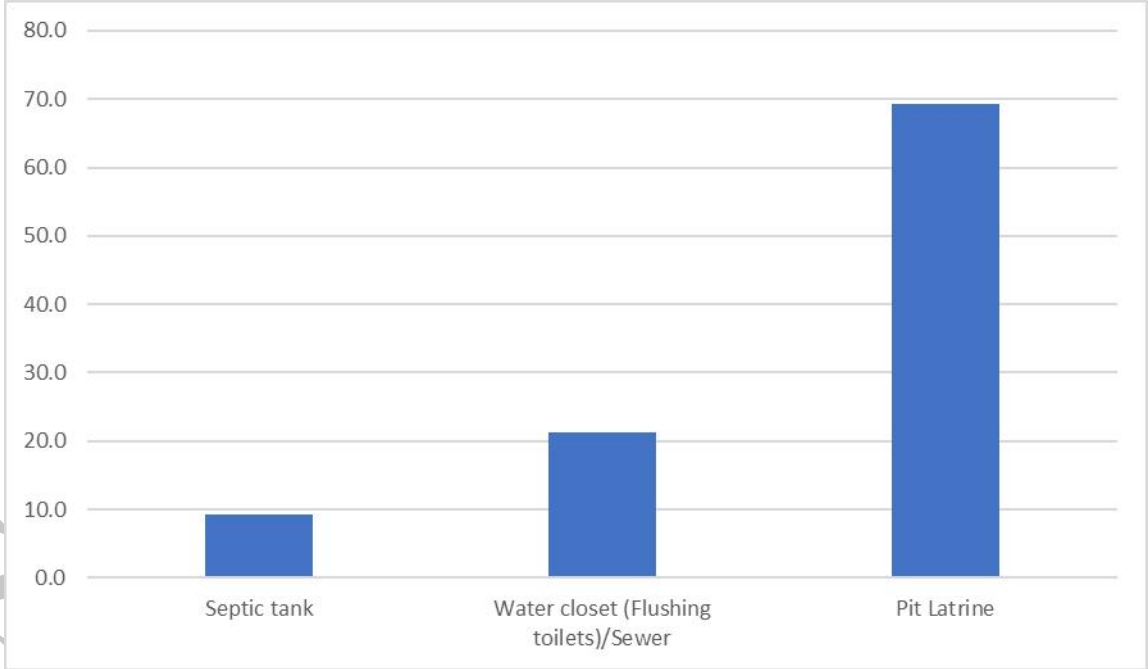

Figure 5.15: Toilet Facilities

Most residents have access to pit latrines as toilet facilities in the settlement. It is indicated in figure 4.11 above that 69% access pit latrines, 9% use septic tanks, 21% flush toilet facilities, and 9% access septic facilities.

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5.5.12 Solid Waste

Residents were asked how they dispose of solid waste and gave the responses posted in Figure 4.14.

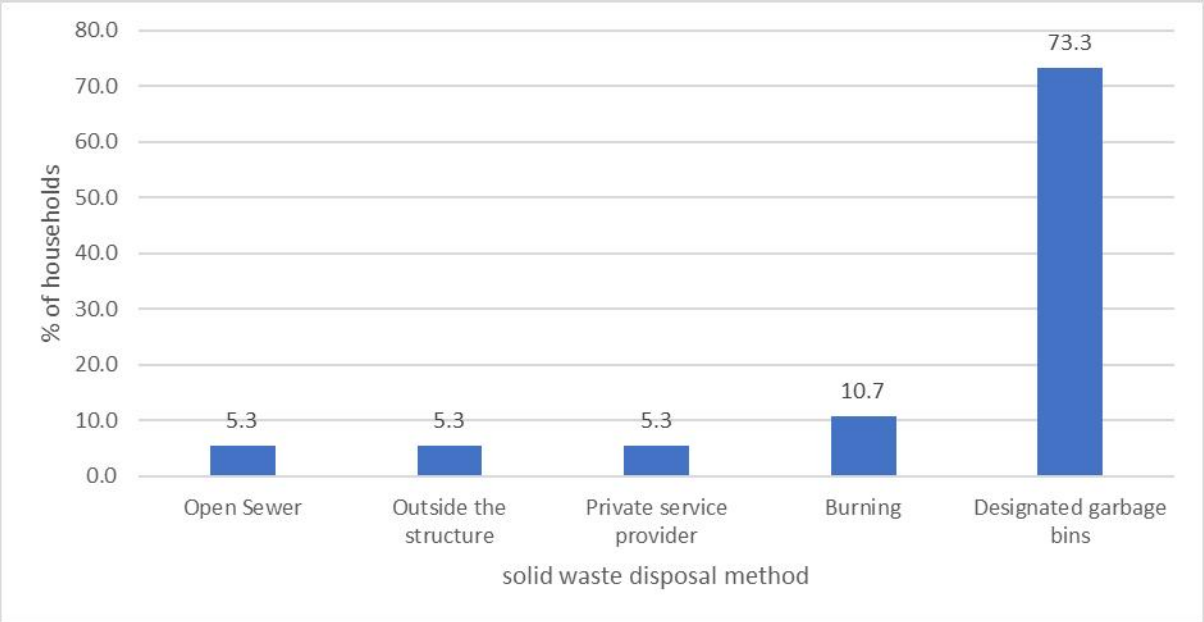

Figure 5.16:: Garbage Disposal

From figure5.20 , it is shown that 73.3% of households dispose garbage in designated bins, 5.3% dispose in designated dumpsites through private service providers and 10.7% dispose by burning. There is 10.6 % indiscriminately dump the waste by disposing outside their structure (5.3%) or into open sewers and drainage (5.3%). Poor disposal of solid waste in open drains has led to flooding and clogging of these drains, making the sites very hazardous and prone to the breeding of mosquitoes. Solid waste dumped is mainly composed of household refuse which includes organic waste, plastics, glass, paper and electronic waste.

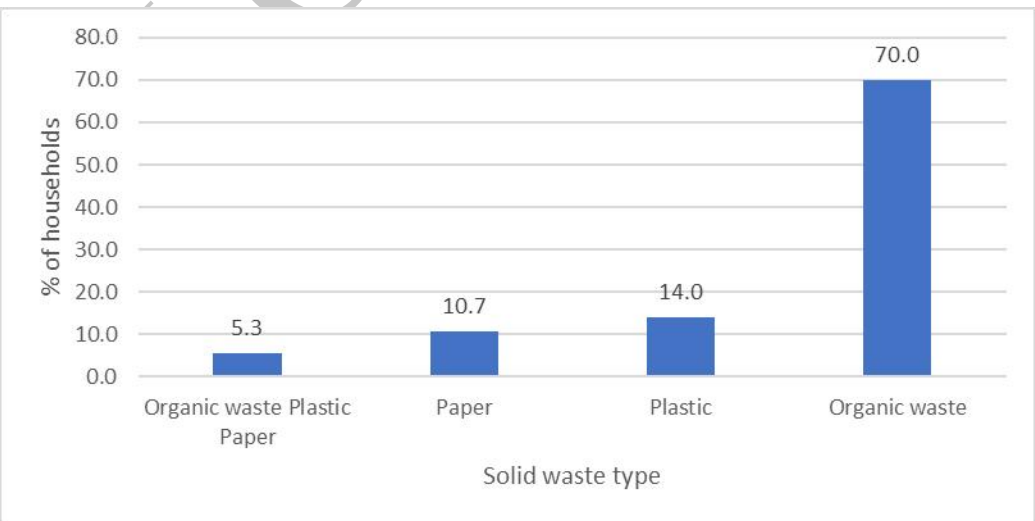

Figure 5.17: Types of Waste

The study revealed that 70% of the residents indicated that they generate organic waste as garbage, 14% generating plastics and 10.7% are paper. Approximately 5.3% of households generate a combination of

organic waste and plastics. Meanwhile, before disposal, garbage is stored within the household, and residents were asked whether they sort them with responses posted in figure5.21 below.

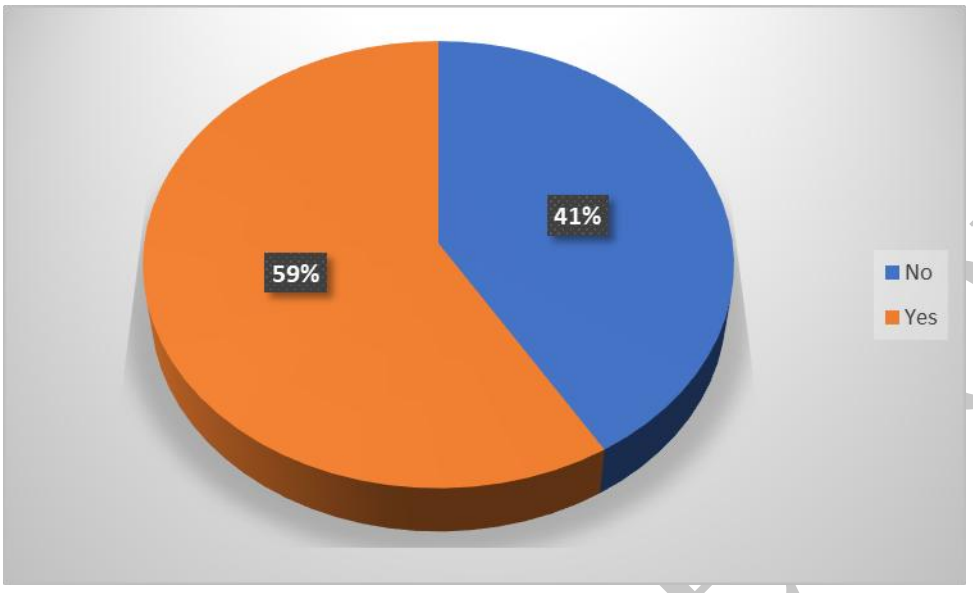

Figure 5.18:: Sorting of Garbage

Figure 4.22 indicates that 59% of the residents do sort their garbage and 41% do not. 58% of the residents sorting their waste re-use but 42% do not. Those that re-use organic waste has it as compost manure.

Waste Management Services

There is low level of garbage sorting and what is sorted totals about 2% of solid waste generated within the settlement which include Plastic (0.9%), organic waste (0.9%) and paper. Secondly, re-using garbage is not a common practice within settlement because only 1% of solid waste is being re-used. All the residents are not involved in selling garbage. In this regard, residents were asked to rate solid waste management services at the household level in the settlement and results posted in figure 5.23

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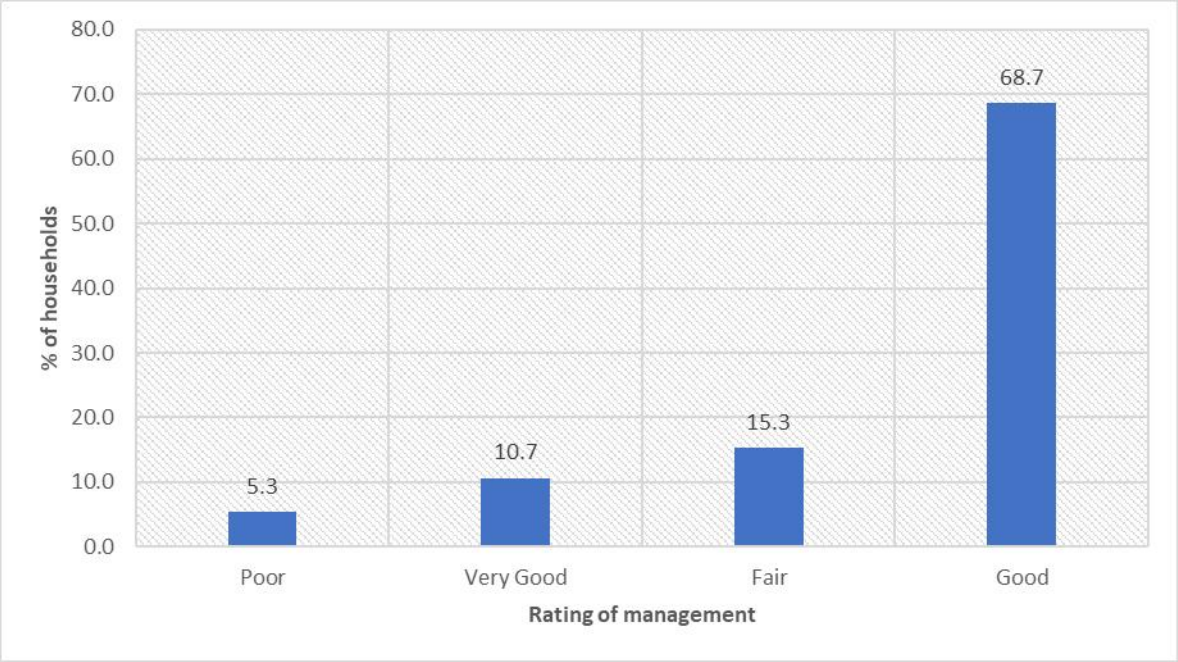

Figure 5.19:: Waste Management

Otherwise, there is need for betterment of the waste management service because significant amount of garbage is still indiscriminately disposed or burnt. From figure 4.18, residents' rate household solid waste management service as very good (68%) or poor (5.3%). This is indicative of limited garbage handling beyond dumping which necessitates a management system. When asked how much they would be willing to pay if provided with solid waste management services, residents' responses were as given in figure 5.24.

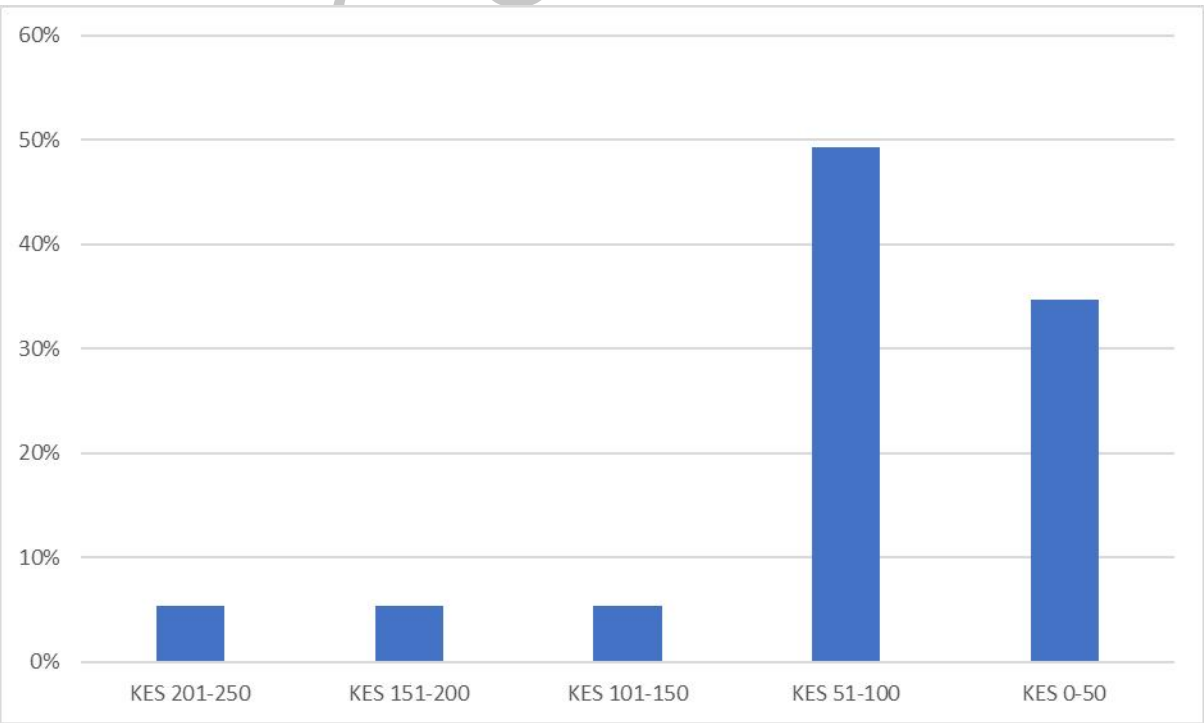

Figure 5.20:: Amount Residents willing to pay for Waste Management Services

49% of the residents suggested a monthly payment of KShs 51-100 for waste management.

5.5.13 Energy

Mosoriot settlement is connected to the national grid through the Kenya Power Eldoret substation. Power is supplied through a 440-volt, three-phase power line that runs along tarmac Road. During the survey, the residents were asked their main source of lighting energy. The main source of lighting energy in the settlement is electricity, as confirmed by 89.3% of the residents. The remaining 10.7% depends on candles or solar, as shown in figure 4.20.

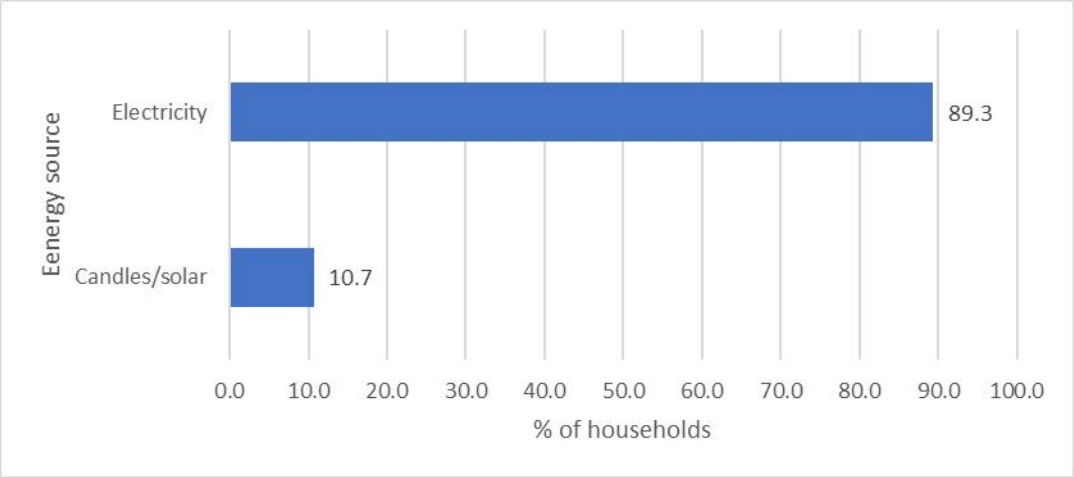

Figure 5.21:: a: Monthly Cost of Electricity

When asked what they spend monthly on electricity, the responses were varied as follows:

Figure 5.22: b: Monthly cost of electricity

Mosoriot residents depend on Kenya Power for electricity, and the majority (29.1%) spend KES 101–170 monthly, followed by 26.9% who pay KES 301-500 and 5.2% who pay KES 500 or more.

Cooking Energy

Residents were asked to state the main source of cooking energy and gave responses in Figure 5.26.

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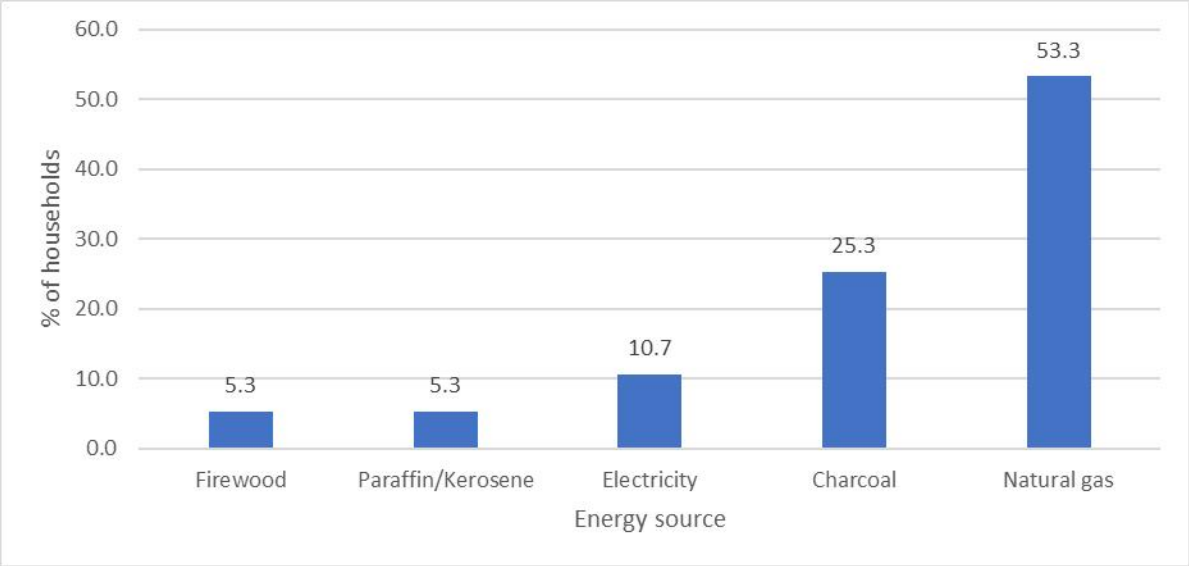

Figure 5.23: Cooking Energy

When it comes to energy for cooking, residents depend mainly on natural gas (53.3%), as noted in figure 4.21. Other sources include 25.3% charcoal, 10.7% electricity, 5.3% paraffin/kerosene and 5.3% firewood. The firewood and charcoal sources are quite significant for the 21st century because of the great forest cover in the settlement surrounding.

5.5.14 Transport

On transportation, residents were asked the most common mode used, and responses are posted in Figure 4.22 below.

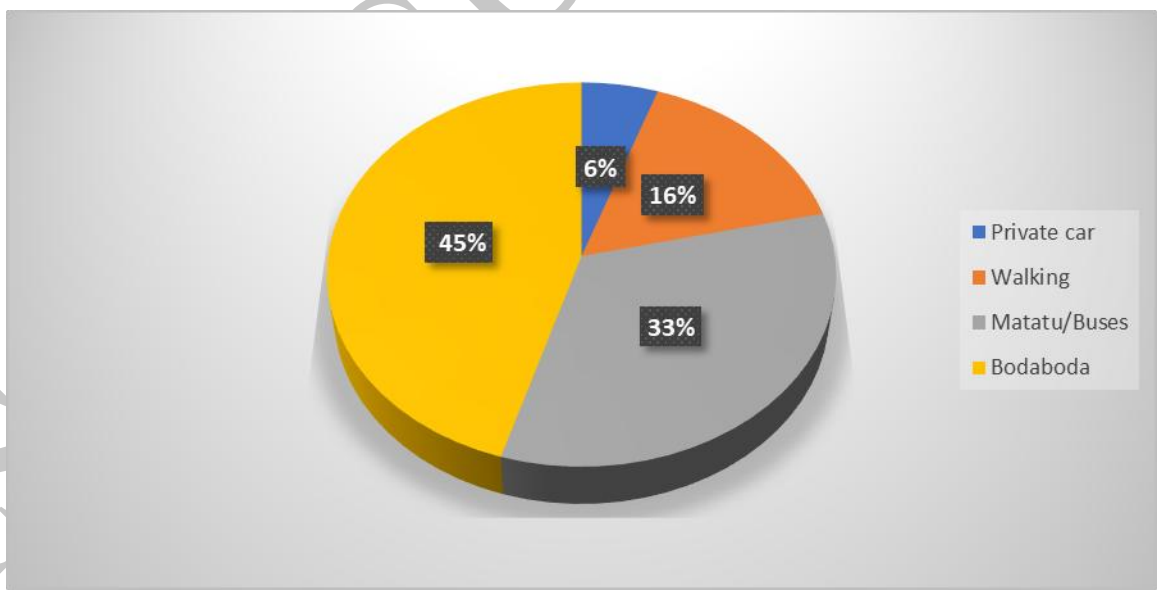

Figure 5.24: Transport Services

Majorly, as indicated in figure 5.28, residents mostly use Bodaboda (45%), Matatu/Buses (33%), or walk (16%), in that order. Meanwhile the remaining 6% of the residents use private cars.

5.5.15 Mode of Communication

Residents primarily use mobile phones for communication, according to 95% of survey respondents with the rest choosing physical contact as given in Figure 4.23. When asked for the preferred network provider, their response was one mobile network which is Safaricom.

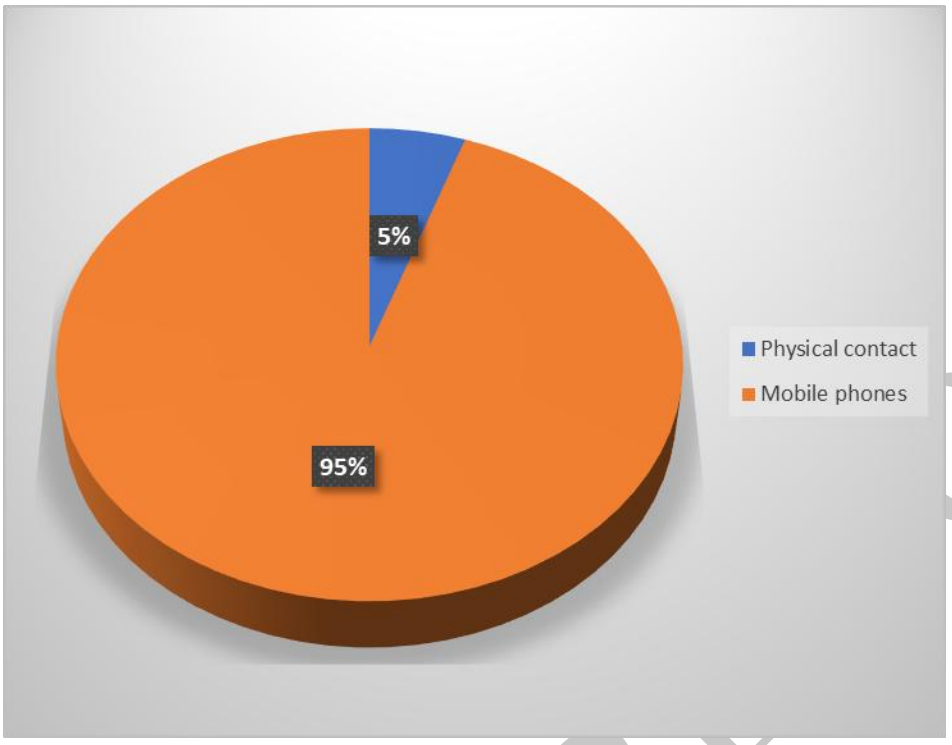

Figure 5.25: Communication Services

5.5.16 Health

The respondents overall receive medical treatment from health facilities as indicated in figure 5.30

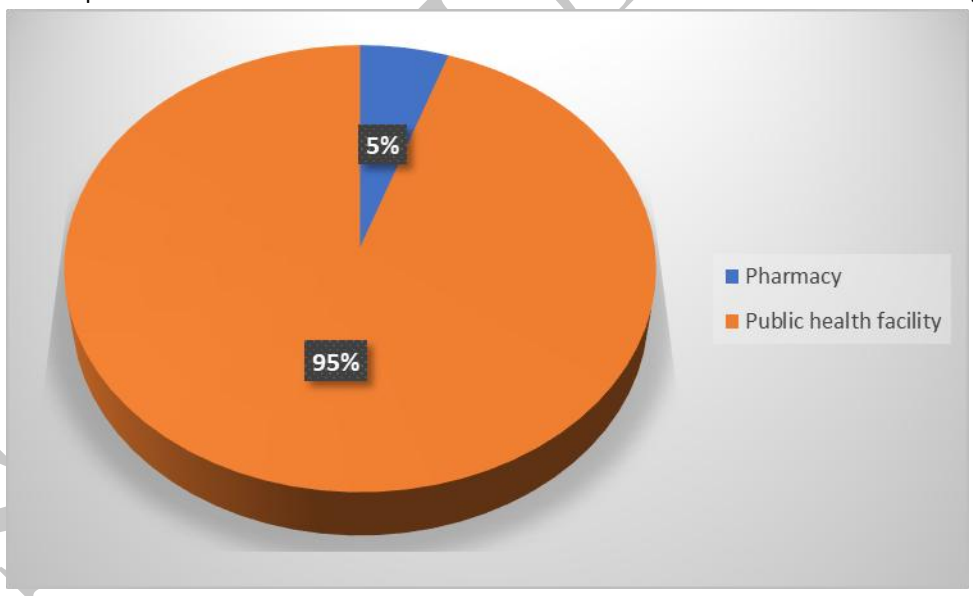

Figure 5.26: Health Facilities

Most respondents (95%) visit public health facilities, which are mainly found outside the settlement. It is indicated in figure 4.24, that rest of the residents (5%) visit private facilities like pharmacies. Residents were the required to state the nearest health facilities and responses indicated that 110 (73%) households are 2-5 Kms away from the nearest hospital while 40 (27%) are less than 2Kms to the nearest hospital. Finally, residents were to name prevalent diseases which were stated as indicated in figure 5.30.

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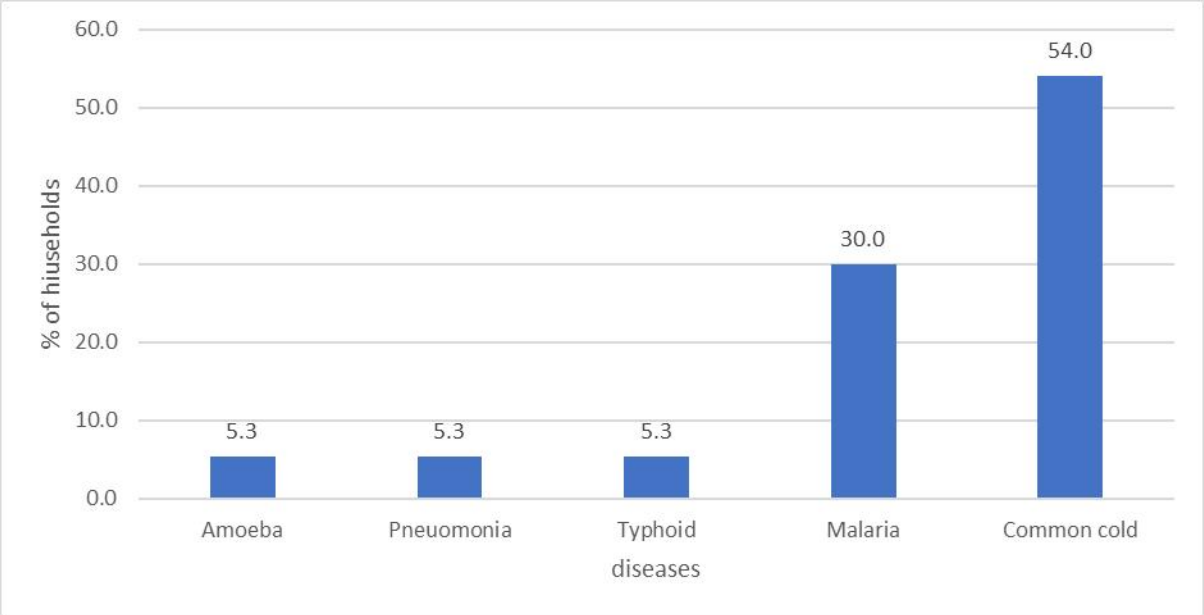

Figure 5.27: Prevalent Diseases

From fig.4.25, the most prevalent disease is Common cold (54%) followed by Malaria (30%), Pneumonia (5.3%), Typhoid (5.3%) and Amoeba (5.3%).

5.5.17 Education

Educational services were investigated in from ECDE to tertiary institutions.

ECDE

Residents were asked to state the distance of the nearest ECDE Centre and results posted in figure 4.26

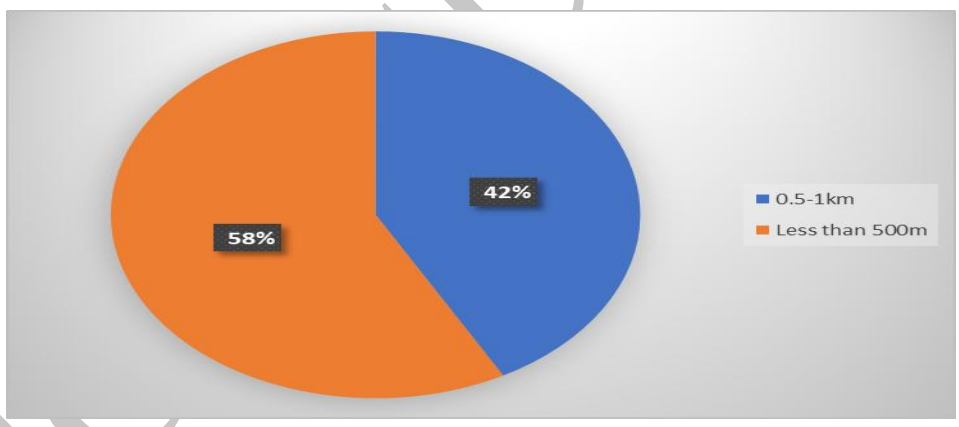

Figure 5.28: ECDE Centers

ECDE schools are within proximity to the settlement as indicated in figure 5.32. Specifically, 42% of the residents stated that the nearest ECDE is 0-500m away and 58% noted they are about 0.5-1Km to nearest ECDE. Residents stated they only have one ECDE centre which is Mosoriot ECDE.

Primary Schools

Residents were asked to state the distance of the nearest primary schools and results posted in figure 5.32

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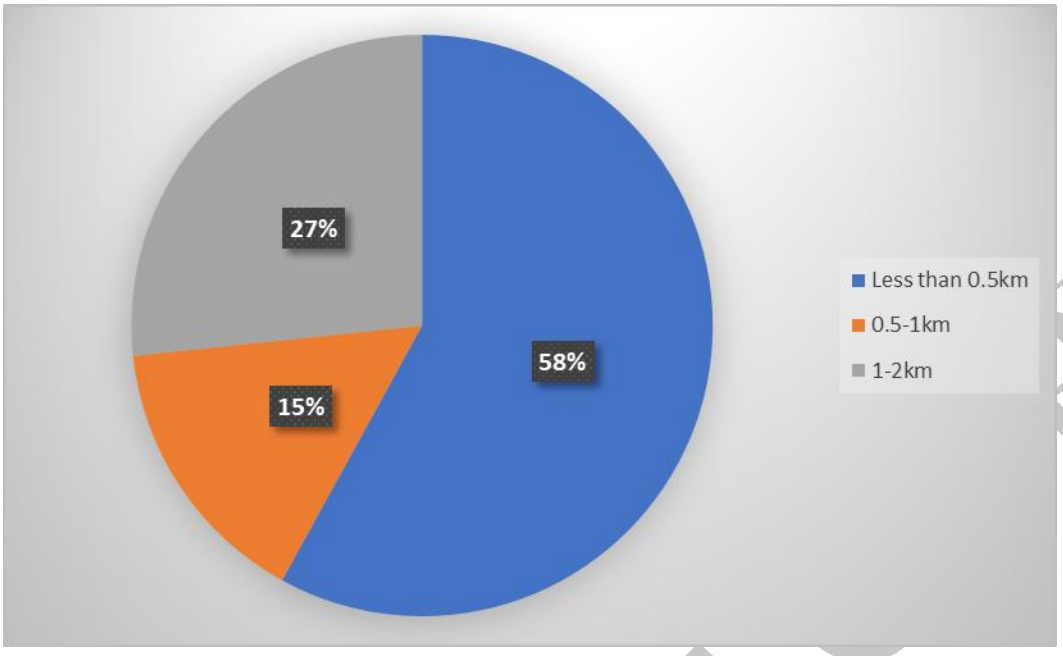

Figure 5.29: Primary Schools

Most respondents (58%) stated that primary schools are less than 0.5km from the settlement, while 15% said they are just 1km away to the nearest institution. The rest (27%) said they were less than 2km away. Residents did state that Mosoriot primary school was the only within.

Secondary Schools

Residents were asked to state the distance of the nearest secondary schools and results posted in figure 5.34

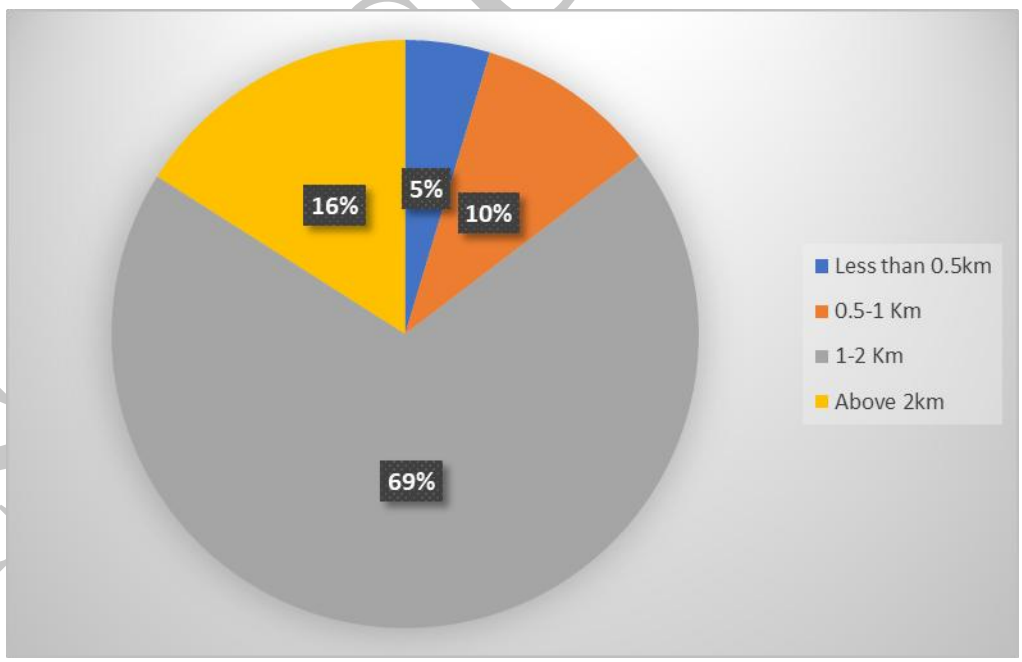

Figure 5.30:: Secondary Schools

Unlike ECDE and primary schools, most secondary schools are more than 1-2kms away from 69% of households within settlement. However, as indicated in figure 4.27, the nearest secondary schools are 0-0.5Km to 5% of household and 0.5-1Km to another 10% households within the settlement. The other 16%

of the residents have more than 2km distance to secondary school. Residents stated that Mosoriot secondary school was the only one within.

Tertiary Institutions

Residents were asked to state the distance of the nearest tertiary institution and results posted in figure 4.29

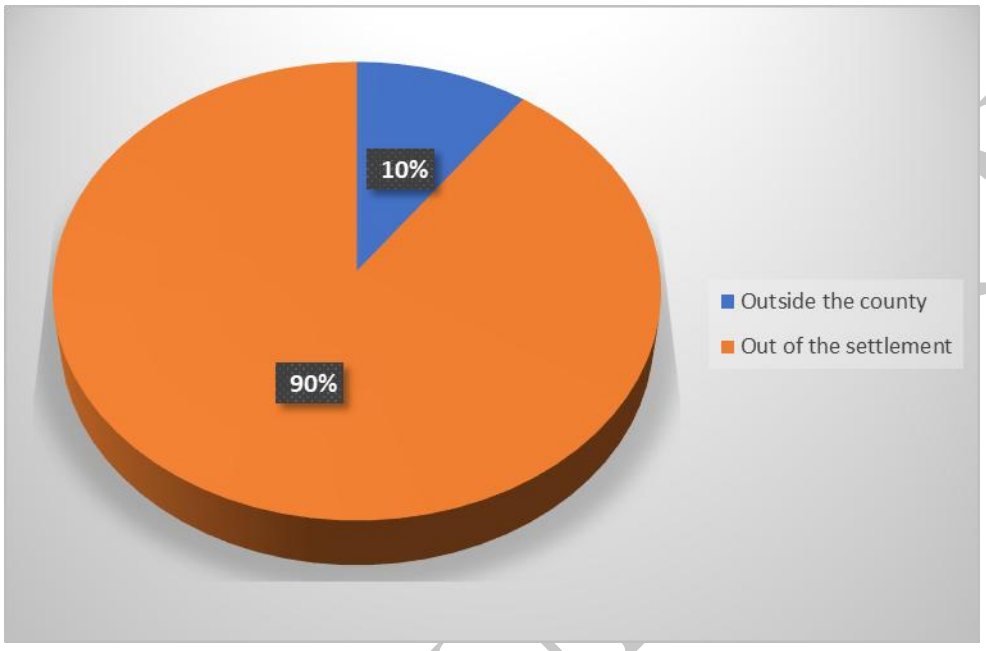

Figure 5.31: Tertiary Institutions

When asked about tertiary institutions, 90% of the respondents stated that most tertiary institutions were located outside the settlement, as shown in the figure 5.35. The respondents said that Mosoriot vocational Training was the only tertiary institution which was outside the settlement.

5.5.18 Community Facilities

There exist empty spaces within the settlement mostly used by children as playgrounds. It was suggested by residents that such free spaces could be used to put up facilities such as social halls, youth centres or libraries which are absent in settlement.

5.5.19 Disasters Experienced in the Settlement

Residents were requested to name three most recent disasters of which their response was they have faced no disaster in the recent past.

5.5.20 Priority Sectors

The priority matrix in table 5-5 below shows the sectors that require immediate attention in Mosoriot.

Table 5- 3: Priority matrix for sectors

SECTOR	SUB-SECTOR	CHALLENGE	PRIORITY
Physical Infrastructure	Solid waste management	Inadequate provision of garbage bins. Inadequate collection services. Indiscriminate dumping	Very urgent
	Transport	Inconsistent road	Very urgent

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SECTOR	SUB-SECTOR	CHALLENGE	PRIORITY
		widths. Earth roads flood during rainy seasons and emit dust during dry seasons.	
	Water	Inadequate provision of piped water.	Very urgent
Social Infrastructure	Social hall	Unavailable	Urgent
	Library	Unavailable	Urgent
	Playgrounds	No designated space	Urgent
	Green spaces	Inadequate recreational green public spaces	Low urgency
Education	Primary, secondary and tertiary	Inadequate facilities	Very urgent

5.5.21 Synthesis of Emerging Issues: Opportunities and Constraints

Table 5- 4: Opportunities and Constraints

OPPORTUNITIES	CONSTRAINTS
Fertile land for agriculture	High costs of inputs
Adequate road way leave size for upgrading	Irregular road sizes of minor access ways
Availability of youthful labour	Need more adequate employment opportunities.

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CHAPTER 6: PUBLIC AND STAKEHOLDER CONSULTATIONS

6.1 Legal and Policy Provisions for Stakeholder Consultations

6.1.1 EMCA 1999 Cap 385 through the Legal Notice No. 101: The Environmental (Impact, Audit and Strategic Assessment) Regulations, 2003

The principle Act of Parliament is the Environmental Management and Coordination Act (EMCA) 1999 amended in 2015 and the subsequent Regulation, the Environmental Impact Assessment and Audit Regulations 2003

The regulation requires that during the process of conducting Scoping, Environmental Impact Assessment the Proponent shall in consultation with the Authority here in referred to National Environment Management Authority (NEMA); seek the views of persons who may be affected by the Project. In seeking the views of the public, after the approval of the scoping report, of the proposed project by the Authority, the proponent shall publicize the project and its anticipated effects and benefits by;

- Posting posters in strategic public places in the vicinity of the site of the proposed project informing the affected parties and communities of the proposed project.
- Publishing a notice on the proposed project for two successive weeks in a newspaper that has a nation-wide circulation.
- Making an announcement of the notice in both official and local languages in a radio with a nation-wide coverage for at least once a week for two consecutive weeks.
- Hold at least three public meetings with the affected parties and communities to explain the project and its effects, and to receive their oral or written comments; ensure that appropriate notices are sent out at least one week prior to the meetings and that the venue and times of the meetings are convenient for the affected communities and the other concerned parties; and
- Ensure, in consultation with the Authority that a suitably qualified co-coordinator is appointed to receive and record both oral and written comments and any translations thereof received during all public meetings for onward transmission to the Authority.

6.1.2 World Bank Group (WBG) Environmental Assessment Policy (OP 4.01)

The **World Bank Group's Environmental Assessment Policy (OP 4.01, January 1999)** requires that project-affected groups and local non-governmental organizations (NGOs) be consulted during the impact assessments process about the project's potential environmental and social impacts.

The purpose of this consultation is to take local views into account in designing the environmental and social management plans as well as in project design. For complex projects where the environmental impacts and risks are high, the policy requires public

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consultation at least twice: first, shortly after Environmental Screening and before the terms of reference for the EIA are finalized and secondly, once a draft EIA Report is prepared. Consultation during project execution is also required. Section 5 summarizes the consultation programme for the EIAs and confirms that the project meets and indeed exceeds these requirements.

6.2 Schedule of Stakeholder Consultations

Table 6- 1: Schedule of Public Consultation

Date	Settlement	Stakeholder Consulted	Meeting Attendance
19th September 2023	Mosoriot Assistant County Commissioner's Compound	Settlement Executive Committee members (SEC) for Mosoriot Informal Settlement, County Government Officials, Religious Leaders, E.I.A team, , Area chief and members of the community	Total 48 Male 33 Female 15

In Summary, issues discussed is presented in **Table 6-2** below;

Table 6- 2: Summary of Issues discussed in Public Consultations

#	Topic	Discussion
1	**Sensitization on KISIP 2**	- Meaning of KISIP - Importance of tenure regularization - Components of the project - Need for ownership and support of the project - Inclusivity of all categories in the settlement - Consideration of gender - Mosoriot benefitting from the infrastructure upgrading component - Investment menu; areas of investing; improvement of roads to bitumen standard, storm water drainages, street lighting, high masts, solid waste sorting, beautification, social halls to prevent crime and violence, day care centers, pedestrian walks, vending stalls, water and sanitation - The selection process to be open, inclusive, consultative and fair - Project design; National level, County and Community level committees - Project implementation; By contractor to be procured by the County Government - Local community to be given priority in construction works unless the works/services are specialized - Qualifications for the members to be selected in the committees; above 18 years of age, resident of the settlement, sound mind, no criminal record, respected persons in the society, record of community leadership not active member of a political party - Categories to be considered in SEC; tenants, landlords, youth, widow, widower, physically challenged, Faith Based, NGO's, CBO's,

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		marginalized group - Ex official members; Area Member of Parliament, Chief, Ass County Commissioner, MCA, Ward Administrator - Election options: show of hands, secret ballot, mlolongo and selection of members by respective groups - Committees not entitled to any salary Functions of the respective committees
	Project Prioritization	- Roads • R1- From Cereals to Slaughter • R2- From Villa-Agriculture offices • R3- From Cereals-Mwei's plot • R4- From R3-to join R2 • R5- From National Road-Police-Joining R2 • R6- From Catholic-St. Franscis primary school gate • R7- From National Road to junction near • R8- From Slaughter to Itigo stage • R9- From Diesel Power -Itigo stage • R10- From Kapchelel-Christopher plot • R11- From Asai Kinyozi-Asai - High Masts (market and bus park)/street lighting - Receptacles/ waste bins at the market and stage - Public toilet at the stage - Vending platforms at the stage - Social Hall/day care centre at Chiefs office compound - Beautification/landscaping/pedestrian walkways along Mosoriot- Kabiyet road and Mosoriot-Eldoret highway - Additional water tank near the junction of R7 - Slaughter house (Land not available) - Water supply- No water supply nearby
2	**Selection of committees**	- Selection of 15 members of SEC and 5 of GRC - SEC members to be comprised of: Landlords/structure owners (2 No. male and female), Tenants in residential premises (2 No. Male and female), Tenant in commercial premises (1 No.), Youth (2 No. Male and female), People with disabilities (I No.), CBO (1 No.), NGO (1 No.), Faith based leaders (2 No. Christian and Muslim), Widow (1 No.), Widower (1 No.), minority (1 No.) - SEC members to select their officials; Chairperson, vice chair, Secretary and organizing secretary. The secretary should have skills in computer operations and should be able to operate a smart phone - SEC to nominate two members to join the GRC. The two should not be officials in SEC - Settlement unanimously agreed to allow the specific interest groups to choose their representatives separately. Where they did not agree, "show of hands" method was used to select a member

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6.3 Grievance Redress Management Plan

This ESIA provides for a Grievance redress mechanism (GRM) includes instruments, methods, and processes by which a resolution to a grievance is sought and provided. The processes are as shown in the sections below.

(i) Local Residents Complaints Procedure

The purpose and scope of local resident's complaints procedure is to ensure all complaints from local residents are dealt with appropriately with corrective actions being implemented and the complainant being informed of the outcome. It will be applicable to all complaints received from any local within the project area. The communities have already established a functional Settlement Executive Committee (SEC) and a Grievance Redress Committee (GRM) in all the target informal settlements. The contractor will employ a Community Liaison Officer and or sociologist who will be responsible for collating written complaints and co-coordinating responses to all complaints with the SEC and GRC

(ii) Procedure

All complaints shall be handled in accordance with the flowchart in **Figure 6.1** below. Both verbal and written complaints are to be entered a Grievance Complaint Log

When receiving a complaint all employees shall refer the complainant to the Community Liaison Officer (CLO) or the resident engineer. The person receiving a complaint shall ensure that the Grievance Complaint Log is completed. The form shall then be forwarded to the Community Liaison Officer who will assign it a number. The Community Liaison Officer shall ensure that all actions are made to close out the complaint in consultation with the SEC and GRC in the Settlements.

(iii) Grievance Complaint Log

Ensures that each complaint has an individual number and that tracking and recording actions are carried out. It also records who is responsible for an individual complaint and records dates for the following actions:

- Date the complaint was reported;
- Information on proposed corrective action sent to complainant (if appropriate);
- The date the complaint was closed out; and
- Date response sent to complainant.

(iv) Responding to a Complaint

All complaints shall be responded to in writing, though a verbal response will be provided as well if this is more appropriate in the circumstances (e.g., where the complainant cannot read). All complaints must be responded to within two weeks of being received, even if the response is just a summary of what is planned and when it is likely to be implemented. Further correspondence should be given once the complaint is closed out.

(v) Monitoring Complaints

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The CLO through the contractor will be responsible for providing MoLPWH&UD with a Monthly report detailing the level of complaints and any outstanding issues to be addressed. Monthly reports will include analysis of the type of complaints, levels of complaints and action taken to reduce complaints. The CLO shall file all documentation related to complaints in a file in his office.

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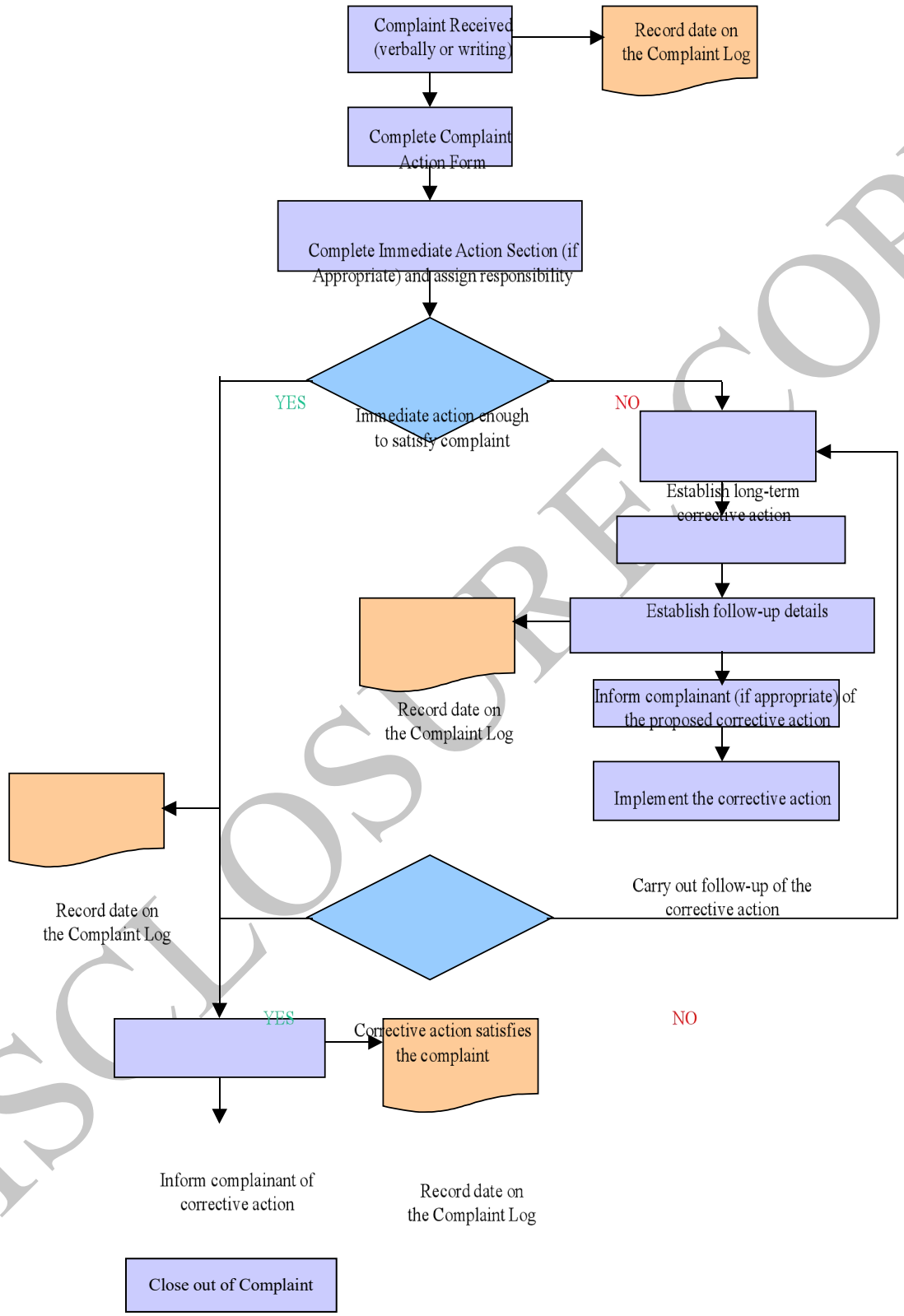
Figure 6- 1: Grievance Resolution Flow Chart



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CHAPTER 7: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES

7.1 Environment and Social Screening Findings

This Chapter presents an assessment of the issues likely to arise as a result of implementation of the proposed Projects in respective informal settlements.

The screening assessment was adopted from the Environmental and Social Screening Report (ESSR) prepared for the Project. The report provides that, to identify the impacts, the screening exercise adopted the standard Environmental and social screening template provided in the KISIP EMSF[2]. The screening template was used to assess potential KISIP projects impacts to natural and human environment within the settlements.

Annex 1 of this report provides summary of the Environmental and Social Screening findings for the settlement.

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7.2 Anticipated Project Positive Impacts

The Project will result in both direct and indirect benefits to the residents of Mosoriot as summarized below;

Benefits of Roads and Drainage Projects

(i) Creation of employment to people living within the informal settlements through improved access.
(ii) Improved living standard of people within the settlement through improved road infrastructure
(iii) Providing a linkage of the settlement to other parts of the city.
(iv) Provides alternative route to access the settlement, could be used during disaster times example by ambulances and fire engines.
(v) Enhanced access to social amenities like schools and health facilities within the settlement.
(vi) Improved road side drainage hence reduced risks of flooding.
(vii) The Project will improve the living standard and well-being of the local economy through provision of road and street lighting within the settlements.

Benefits of Water Sewerage Project

(i) The sewerage Project will lead to improved status of drainage system within the settlement, this will reduce incidences of flooding and stagnant water normally experienced during rain seasons.
(ii) Reduced Water and Sanitation Burden to Women
(iii) The water projects will lead to Improved Accessibility to Clean and Reliable Water Supply
(iv) Water and sewerage will Improve Hygiene and Sanitation in the Project Areas
(v) Reduced Cases of Water Related Diseases
(vi) Reduced Pollution of drainage channels within the project areas by Raw Sewerage.
(vii) Increased Land Values in the Project Area

Benefits of Flood Lights

(iii) The flood lights will lead to Improved Security within the settlement due to provision of floods within the settlement.
(iv) Improving the roads and street lighting infrastructure within the settlement will result to development of associate social services for example health facilities, learning institutions and recreational centre's which will eventually benefit the community.

Benefits of Social Amenities (Market, Public Park, Ablution Block)

- The amenities will facilitate community interaction and engagements since they will serve as gathering points.

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- Encourage cultural promotion and diversity through the social halls.
- Increased the County revenue through paying of taxes by the market vendors and ablution block operators.
- Improve health, hygiene, and sanitation standards through having designated selling point and availability of washrooms within the settlement.
- Improvement of community livelihoods through increased trading in the new markets.

7.3 Risks on Biophysical Environment during construction

7.3.1 Impacts on Water Resources

The assessment identified that the main water resources within the settlements are shallow wells; also drain channels drain water directly into Mosoriot stream. Therefore, the assessment also identified that less significance impacts are anticipated on Water resource as discussed in **Table 7-1 below**.

Table 7- 1: Impacts on Water Resources

Impact Sources	Terrestrial and aquatic Ecosystem Pollution by effluents caused by construction activities and water losses through over abstraction, infiltration and evaporation		**Mitigation Efficiency**	**High**
Nature of impact	• Reduced availability of safe domestic water, water wastage, infiltration, and evaporation • pollution of existing water resources including aquifers by construction effluents • Increase water borne related illness due to consumption of unsafe water			
Reversibility of impact	Yes			
Mitigation	As summarized in table 7-7 below			
Affected stakeholders /areas	Aquatic and terrestrial ecosystems			
Magnitude	*Extent*	Site – 2		
	Intensity	Medium-3		
	Duration	Medium term-3		
	Probability	Likely – 3		
Significance	**Weighting**	(Extent+ Intensity +Duration + Probability)x WF(2+3+3+3) x1=11 (Low)		Low

7.3.2 Impacts on Soil Resources

The impacts that are likely to be triggered by the project activities in the settlements include;

(i) Destruction of Soil Structure due to blasting or rock breaking
(ii) Soil contamination caused by oils and fuel leaks from construction equipment.
(iii) Soil Erosion and mud slides due to clearing of vegetation cover and trenching activities.

The assessment also identified that less significance impacts are anticipated on Soil resource as discussed in **Table 7-2** below.

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Table 7- 2: Impacts on Soil Resources

Impact Sources	Construction activities which could lead to soil compacting and interference with soil structure hence making topsoils loose and susceptible to agents of erosion.	**Mitigation Efficiency**	**High**
Nature of impact	• Movement of plant and equipment could result to soil compacting which inhibits soil aeration leading to death of soil microorganisms. • Soil contamination caused by oils and fuel leaks from construction equipment's leading to Oil Acidity increase. • Soil Erosion due to clearing of vegetation cover and trenching activities which results to death of soil microorganism and reduced soil productivity		
Reversibility of impact	Yes		
Mitigation	As discussed in table 7-7 below		
Affected stakeholders /areas	Terrestrial ecosystems		
Magnitude	*Extent*	Site – 2	
	Intensity	Medium-3	
	Duration	Medium term 3	
	Probability	Likely – 3	
Significance	**Weighting**	(Extent+ Intensity +Duration + Probability) x WF(2+3+3+3) x1=11 (Low)	Low

7.3.3 Biophysical Environment Risk Mitigation Measures

The preliminary Environment and Social Screening report proposes the below listed mitigation measures to identified biophysical environment setting as summarized in table 7-3 below.

Table 7- 3: Mitigation of Biophysical Environment Impacts

Impacts	Proposed Mitigation Measures
Destruction of Vegetation in the Project Areas	• Site Clearance and Construction activities will be limited to available reserves within the settlements, Projects will be implemented within existing reserves and wayleaves minimize destruction to vegetation cover • Reinstatement of the project sites to their original state to be carried out once construction works are completed to allow growth of vegetation. • Replant eco friendly grass and trees along the projects after completion of the civil works.
Contamination of Surface Water Sources by Effluents from Construction Plant and Equipment	• Ensure Construction Equipment is well maintained and serviced according to manufacturers' specifications to prevent oil leaks. • Cleaning / repair of Construction Plant and Equipment to be carried out at designated yards • Contractor to have designated storage areas for oils, fuels etc. that is protected from rain water and away from nearby surface water courses
Soil Erosion resulting to loss of top soil	• The risk of Soil Erosion will be lowered through provision of soil Erosion prevention structures i.e. gabions in areas susceptible to Soil Erosion
Solid Wastes Generation from Construction Activities	• Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to designated Solid Waste Dumping Sites approved by the Nandi County Government • Contractor's Camps and Construction Sites to have designated waste

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Impacts	Proposed Mitigation Measures
	collection points, • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management

7.4 Workers, Community Health and Safety Risks

Workers, Community Health and Safety risks are often triggered by project activities during project construction phase. These risks often affect both workers on site as well as general community in close proximity to the work site.

Management of these risks is required to be as provided for by the Occupational Health and Safety Act (OSHA 2007) and World Bank Environment Health and Safety Guidelines discussed in chapter 3 of this assessment.

This assessment identified potential Environment, Health and Safety in the below listed context.

(i) Excessive noise and vibrations
(ii) Air Pollution and Dust Generation.
(iii) Risk of Accidents at Work Sites

7.4.1 Excessive noise and vibrations

This risk often affect both workers on site and community at large, common sources noise and excessive vibrations are as a result of use of un-serviced plant and equipment as well as activities associated with blasting and rock breaking. As required by OSHA 2007 and EMCA1999 Noise and Excessive Vibration 2009 as well as World Bank EHS Guidelines.

7.4.2 Air Pollution and Dust Generation.

The risk of air pollution often affects both workers on site and community at large, common sources air pollution include use of un serviced plant and equipment which emit hydrocarbons through equipment exhaust system. Poor workmanship example failure to use water sprays during dry season could also result to air pollution.

As required by OSHA 2007 and EMCA 1999 (Air Quality Regulations 2014) as well as World Bank EHS Guidelines.

7.4.3 Risk of Accidents at Work Sites

The risk of accidents at worksites often affects both workers on site and community at large, these risks at times can be fatal as they could lead to death or permanent disability of victims. The risks are commonly caused by failure to observe safety requirements as provided for by as required by OSHA 2007 and the World Bank EHS Guidelines

Table 7-4 presents Environment, Health and Safety Impact Identification and Ranking

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assessment while table 7-5 presents a summary of mitigation of potential EHS risks.

Table 7- 4: Impacts on Workers, Community Health and Safety

Impact Sources	**Failure to comply to provisions of OSHA 2007 and World Bank EHS Guidelines**		**Mitigation Efficiency**	**High**
Nature of impact	- noise and excessive vibrations due to un-serviced plant and equipment and Activities associated with blasting and rock breaking. - Open trenches within the settlement which pose health hazards to workers and community. - Failure to use required correct signage and safety marshal on site - Un-serviced plant and equipment which emit hydrocarbons through equipment exhaust system. - Poor workmanship & failure to use water sprays during dry season could also result to air pollution. - Failure to observe safe work environment requirements like use of PPEs, Warning Taps, site labelling. - Hearing impairment and respiratory related illness - Can cause death or permanent disability of victims			
Reversibility of impact	Yes			
Affected stakeholders /areas	Workers and Community			
Magnitude	*Extent*	Site – 2		
	Intensity	Medium-5		
	Duration	Medium term-4		
	Probability	Likely – 4		
Significance	**Weighting**	(Extent+ Intensity +Duration + Probability)x WF(2+5+4+4) x4=60 (Medium to High)		Medium to high

7.4.4 Environment Health and Safety Risk Mitigation Measures

The Environment and Social Screening report proposes the below listed mitigation measures to identified workers, Community Health and Safety risks as summarized in table 7-5 below.

Table 7- 5: Mitigation Measure to Workers, Community Health and Safety Risks

Impact	**Proposed Mitigation Measures**
Noise and Excessive Vibrations.	• Contractor will comply with provisions of EMCA 1999 (Noise and Excessive Vibrations Regulations of 2009) • The Contractor will keep noise level within acceptable limits (60 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas • Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity
Air Pollution and Dust Generation.	• The contractor will comply to the provisions of EMCA 1999 (Air Quality Regulations 2014) • Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications • Water sprays shall be used on all earthworks areas within 200 metres of human settlement especially during the dry season.
Risk of Accidents at	• Contractor to provide a Healthy and Safety Plan prior to the commencement

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Impact	Proposed Mitigation Measures
Work Sites	of works to be approved by the Supervising Engineer. • Provide Personal Protective Equipment including gloves, gum boots, overalls and helmets to workers. Use of PPE to be enforced by the Supervising Engineer. • Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles
Risk of Traffic Accidents along the Pipeline Route	• Strict use of warning signage and tapes where the trenches are open and at other active construction sites • Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site • Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer

7.5 Traffic Management Plan

This ESIA provides for the below listed key management principles that will be complied by the Contractor when dealing with traffic on Site during the construction of the identified infrastructure Project in the Informal Settlements with the understanding that the Works will be constructed within Informal Settlements which are densely populated and roads encroached.

(i) Keeping Pedestrians and Vehicles Apart
(ii) Minimizing vehicles movement
(iii) People on Site
(iv) Turing of Vehicles
(v) Visibility
(vi) Signs and Instructions.

Table 7-6 below provides details on how traffic will be managed on site under the above discussed principles

Table 7- 6: Traffic Management Plan

TRAFFIC MANAGEMENT PLAN
Keeping Pedestrians and Vehicles Apart on Site
- **Entrances and exits-** provide separate entry and exit gateways for pedestrians and vehicles; - **Walkways-** provide firm, level, well-drained pedestrian walkways that take a direct route where possible; - **Crossings**- where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly; - **Visibility-** make sure drivers driving out onto public roads can see both ways along the footway before they move on to it; - **Obstructions**– do not block walkways so that pedestrians have to step onto the vehicle route; and - **Barriers**- think about installing a barrier between the roadway and walkway
Minimizing vehicles movement
- Limit the number of vehicles on site - Provide car and van parking for the workforce and visitors away from the work area; - Control entry to the work area; and - Plan storage areas so that delivery vehicles do not have to cross the site.
People on Site

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- Contractor will take steps to make sure that all workers are fit and competent to operate the vehicles, machines and attachments they use on site by, for example:
  - checks when recruiting drivers/operators or hiring contractors;
  - training drivers and operators;
  - managing the activities of visiting drivers
- Accidents can also occur when untrained or inexperienced workers drive construction vehicles without authority.
- Access to vehicles will be managed and people alerted to the risk

Turning of Vehicles

The need for vehicles to reverse will be avoided where possible as reversing is a major cause of fatal accidents.
  - One-way systems will be adopted by the contractor as this can reduce the risk, especially in storage areas.
  - A turning circle could be installed so that vehicles can turn without reversing

Visibility

If vehicles reverse in areas where pedestrians cannot be excluded the risk is elevated and visibility becomes a vital consideration.
This ESIA provides for:
  - **Aids for drivers-** mirrors, CCTV cameras or reversing alarms that can help drivers can see movement all round the vehicle;
  - **Signallers**- who can be appointed to control manoeuvres and who are trained in the task;
  - **Lighting**- so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after sunset or in bad weather;
  - **Clothing**- pedestrians on site should wear high-visibility clothing.

Signs and Instructions
- Make sure that all drivers and pedestrians know and understand the routes and traffic rules on site. Use standard road signs where appropriate including the Heavy Vehicles turning sign - Provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit

7.6 Social Risks

The Project activities as described in the report have the potential of triggering various social risks both at both Project construction phase and operation phase.

This assessment has identified potential social risks associated with the Project as listed below

(i) Loss of Temporal Assets and disruption of sources of Livelihood
(ii) Disruption of Public Utilities like cables, access culverts,
(iii) Labour Influx and sexual offences including minor abuse
(iv) Human Rights and gender inclusivity
(v) Increased Transmission of communicable diseases including HIV/AIDS
(vi) Increased Crime and Insecurity

7.6.1 Disruption of Public Utilities

This impact is likely to be triggered during Project construction phase whereby contractors often damage infrastructure installations such as access culverts to homes, drainage channels, communication cables and power lines power lines. Disruptions of public utility infrastructure often trigger grievances from the users if not promptly mitigated.

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7.6.2 Labour Influx Effects

This impact is triggered during Project construction phase due to the Project attracting various categories of workers from local, national and international markets. This therefore leads to concentration of people in one area drawn from diverse social and cultural background often results to a number of issues as listed below;

(i) Strain on various resources (example water, sewerage and accommodation services)
(ii) Grievances from local community members over job opportunities.
(iii) Sexual Offences
(iv) Teenage Pregnancies

Table 7-9 provides Social Impact Identification and ranking that includes labour influx management while Table 7-10 presents possible mitigation measures of the identified social risks

7.6.3 Human Right and Gender Inclusivity

This impact is triggered during Project construction phase due to the potential of the contractor failure to comply with the following provisions;

(i) Gender Inclusivity requirements in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule.
(ii) failure to protect Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights

7.6.4 Increase in prevalence of communicable diseases

This impact is triggered during Project construction phase due to the Project attracting various categories of workers from local, national and international markets. This therefore leads to concentration of people in one area drawn from diverse social and cultural background often results to people engaging in risky sexual activities.

Table 7-7 below provide Social Impact Identification and ranking that includes HIV/AIDS management while table 7-8 presents possible mitigation measures of the identified social risks

Table 7- 7: Impacts on Social Setting

Impact Sources	**Project Impacts to people's assets and sources of livelihood and concentration of people with diverse cultural and social background in one location**	**Mitigation Efficiency**	**High**
Nature of impact	(i) Loss land Assets and Sources of Livelihood including trees and crops (ii) Disruption of Public Utilities like cables, access culverts, (iii) Labour Influx and sexual offences including minor abuse (iv) Human Rights and gender inclusivity (v) Increased Transmission of communicable diseases including HIV/AIDS and other communicable diseases		
Reversibility of impact	Yes		
Mitigation	As detailed in table 7-11 below		

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Measures			
Affected stakeholders	Workers and Community		
Magnitude	*Extent*	Site – 2	
	Intensity	Medium-5	
	Duration	Medium term-4	
	Probability	Likely – 4	
Significance	**Weighting**	(Extent+ Intensity +Duration + Probability)x WF(2+3+3+3) x1=11 (Low)	Low

7.6.5 Social Risks Mitigation Measures

The Environment and Social Screening report proposes the below listed mitigation measures to identified Social risks as summarized in Table 7-8 below.

Table 7- 8: Mitigation of Social Impacts

Impacts	Proposed Mitigation Measures
Loss of Temporal Assets and Sources of Livelihood	• Prepare a detailed Resettlement Action Plan (RAP) report which documents the nature and magnitude of project impact to people's assets and sources of livelihood, the report should also propose adequate compensation and livelihood restoration measures to affected Project Persons.
Disruption of Public Utilities	• Contractor to carry out piloting to locate services such as pipes and cables along the Pipeline Route before commencing excavation works. • The relevant Services Providers and Agencies to be notified prior to commencement of Works so that any relocation works can be carried out before the Pipeline Construction Works begin. • Length of excavation to be restricted to sections that can be reinstated within the shortest period possible to minimize time of disruption of services
Increased Transmission of HIV/AIDS	• HIV/AIDS Awareness Program to be instituted and implemented as part of the Contractor's Health and Safety Management Plan to be enforced by the Supervising. This will involve periodic HIV/AIDS Awareness Workshops for Contractor's Staff • Access to Contractor's Workforce Camps by outsiders to be controlled • Contractor to provide standard quality condoms to personnel on site
Labour Influx and sexual offences	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour • Fair treatment, non-discrimination, and equal opportunity of workers. • Comply to provisions of WIBA 2007 and IFC PS 2 on labour and Working Conditions, and ILO Conventions 87, 98, 29,105,138,182,100,111 • Develop and implement a children Protection Strategy
Human Rights and gender inclusivity	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights
Increased Crime and Insecurity	• Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation. • Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices

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7.7 Labour Management During Construction Stage

This ESIA provides that implementation stage the contractor will prepare a Labor Management Plan (LMP) that includes mandatory requirement to procure all unskilled (and as much as possible, semi-skilled) labor as well as locally available materials from the local community while ensuring equal pay for equal work for men, women and people with disability. Measures listed below will be implemented:

- The contractors will reduce labor influx by tapping into the local workforce. Depending on the size and the skill level of the local workforce, a share of the workers required for the project may be recruited locally. This may be easier for unskilled workmen. Specialized workmen may be hired from elsewhere. Local workers may also be trained especially if they are required for the operation of the project.
- The contractor will ensure effective community engagement and strong grievance mechanisms on matters related to labor with a discrete mechanism for safely and confidentially reporting issues of SEA and GBV at the community level triggered by the Sub Project
- Effective contractual obligations for the contractor to adhere to the mitigation of risks against labor influx, the contractor should engage a local community liaison person
- The contractor will ensure proper records of labor force on site while avoiding child and forced labor
- The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law as well as to the World Bank Code of Conduct guidelines where applicable.
- The contractor will ensure comply to provisions of Work Place Injuries and Benefits Act (WIBA) 2007
- The contractor will develop and implement a children Protection Strategy, this strategy will ensure that no child under the legal age of 18years is employed to the Project.
- The contractor will ensure SEA is addressed in all employment contracts and a COC is signed by all workers;
- The contractors will develop training and sensitization of workers on SEA and ensure specific signage on SEA zero tolerance in all work sites;

7.8 Specific Project Risks during Operation

This sub chapter discusses specific Project risks associated with the Projects during operation phase as summarized below.

Table 7- 9: Mitigation of Impacts During Operations

impact	Mitigation measure
Risk of electrocution	• Ensuring that all the wires are appropriately insulated and are safe from causing harm to humans Creation of awareness to the locals to avoid getting into contact with dangerous electrical current
May cause eye problem when there is bad lighting	• Ensure that the lighting system is proper to avoid flipping that can result to eye problems for people

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CHAPTER 8: ENVIRONMENT AND SOCIAL MANAGEMENT AND MONITORING PLAN

8.1 Management Plan Principles

This Project is geared towards enhancing social and economic benefits to the people living in the Project area who will directly improving infrastructure in the settlements.

However; the project should also observe environmental protection requirements in accordance to the established laws and regulations to ensure sustainability. To realize this goal, acceptability by a majority of the beneficiaries and minimal effects to the physical environment will require to be integrated in the Project through constant consultations, evaluations and review of the design aspects throughout the Project coverage. Among the factors that need to be considered in this particular project implementation will include:

(i) The contractor will hire qualified community liaison officers who will be act as an inter-phase between the contractor and community. The community liaison person will be responsible for implementing components of the Stakeholder engagement requirements which require continuous engagement of the community.
(ii) Enhance integration of environmental, social and economic functions in the project implementation.
(iii) Consider preventive measures towards possible social and economic disruptions that may arise from the project implementation in accordance with the laid down guidelines.
(iv) The contractors and other players in the project activities be prevailed upon to implement the EMP through a sustained supervision and continuous consultations.

8.2 Specific Management Issues

8.2.1 Management Responsibilities

In order to implement the management plan, it is recommended that a supervisor is identified to oversee environment and management aspects during construction of the project. The supervisor would also be expected to co-ordinate and monitor environmental management during construction and provide monitoring schedules during operations.

The contractor will be required to submit, under due consideration of the ESMMP as part of the ESIA the below listed management plans.

Project Specific Sub Plans to be developed by the Contractor.

- ✓ Occupational health and safety plan
- ✓ Traffic management plan
- ✓ Public health and safety management plan
- ✓ The provisions for the workers grievance mechanism
- ✓ Environmental and social monitoring plan (with further detail to the outline of monitoring indicators as presented in the ESMMP) below.

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8.2.2 Environmental Management Guidelines

Upon completion and commissioning the Project, it will be necessary to establish appropriate operational guidelines on environmental conservation and social linkages to enable the operations' management identify critical environmental and social issues and institute appropriate actions towards minimizing associated conflicts.

Basically, the guidelines should cover among other areas

- ✓ Environmental management progammes
- ✓ Standard Operation Procedures (SOP) Environment, Health and Safety
- ✓ Compliance monitoring schedule provided in the ESMMP
- ✓ Initial and Self Environmental audit schedules as required by EIA/EA Regulation of 2003
- ✓ Continued stakeholder engagement as discussed in chapter 6 of this assessment.

8.2.3 Environmental Education and Awareness Rising

The Nandi Government field staff and the other beneficiaries will understand the basic environmental principles associated with the projects. In this regard, therefore, the following steps will to be considered:

Environmental Education and Awareness Rising

- ✓ Creation of liaisons on all matters related to environment management of the facilities once commissioned
- ✓ Encourage contribution of improvement ideas from the beneficiaries on specific issues related to the management of the facilities
- ✓ Establish initiatives that would instil a sense of ownership of the facilities and related components to all beneficiaries,

8.2.4 Decommissioning Process

Due to the long-term life of the intervention facilities and related components, a decommissioning audit will be undertaken at least 1 year before the process for any of the components commences, following a notice to decommission. The decommissioning process will be guided by a comprehensive decommissioning plan developed through the decommissioning audit process. However, the following features will be decommissioned upon completion of the works:

- Contractor's camp and installations that will be removed without compromising on the safety and general welfare of the immediate residents. Special care to be given to associated wastes and dust emitted in the process,
- Materials stores that will comprise fresh materials and used items. Each category will be moved safely out of site ensuring minimal or no impacts to the related environment and social setting,
- Wastes and debris holding sites will be cleared with maximum re-use of the debris either on surfacing the passageways or other grounds such as schools and church compounds.

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Table 8- 1: Construction Phase: Environmental and Social Management and Monitoring Plan

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
Seeking approvals from NEMA for ESIA, approval of campsite by Directorate of Occupational Health and Safety (DOSH)	Delay in implementation of the Project due to objections and stop orders	Low	▪ The Contractor shall ensure that all pertinent permits, certificates and licences have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to; ▪ The Contractor shall maintain a database of all pertinent permits and licences required for the contract as a whole and for pertinent activities for the duration of the contract	All the Project components Responsibility MoTIH & UD & Contractor	• Number of approvals / permits issued	~KShs.100,000
Environmental and Social Training and Awareness	Risks of Environmental and Social degradation risks and occupational health and safety related accidents	Medium	▪ The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP ▪ The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming ▪ An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project	All Workers Responsibility Contractor(s)	• Number of Trainings Held • Availability of Training reports • Attendance list of participants during the trainings sessions	KShs. .100,000
HIV/AIDS awareness and prevention campaign	Risks of Increased HIV and Aids transmission in the area	Medium	▪ The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, contracting an implementing organisation, with preference for an organisation already working on this issue in the Project area; ▪ The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of	All Workers Responsibility Contractor(s)	• Number of Trainings Held • Availability of Training reports • Attendance list of participants during the training sessions	KShs.100,000

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			promotional material (T-shirts and caps), availability of condoms (free), and theatre groups			
Local Labour / Employment	Delay in Project implementation due to opposition from aggrieved community members	Medium	▪ Wherever possible, the Contractor shall use local labour, and women must be encouraged to be involved in construction work ▪ The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule ▪ Prioritize hire of locals for all unskilled labour. ▪ Implement a local recruitment plan that is fair and transparent (including recruitment processes that ensure inclusivity of both men and women, vulnerable individuals, minority clans, ethnic groups etc. ▪ Adhere to labour laws, and labour management practices (timely renumeration, equitable compensation for both genders for equal work etc.) ▪ Create awareness to workers and the community on worker and project grievance redress mechanisms.	All the Project Lots <u>Responsibility</u> Contractor	• Number of workforce employed from the local community • Number of female employed	No direct costs associated
Earth moving and excavations (Vegetation clearance, channeling and site preparations)	Vegetation Cover destruction	Low to medium	▪ Construction activities will be limited to Project sites / routes which already exist therefore limited destruction to vegetation cover, ▪ Compensatory planting of trees i.e. plant at least twice the number of trees	All work areas <u>Responsibility</u> Contractor(s)	• Soil erosion extend and intensity on site	No direct cost
	Impacts on Water Resources - water pollution	Low to medium	• No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) to adjacent storm water shall be permitted; • Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be	All work areas <u>Responsibility</u> Contractor(s)	• Water quality flowing through storm	No direct cost

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			discharged into a conservancy tank for removal from site where applicable • The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to storm water channels			
	Siltation and Sedimentation Control	low	• Any work along storm water channels will be isolated to prevent silt propagating downstream; • Debris and other material will be prevented from entering Storm water channels ; contamination by other pollutants); • Sand/silt traps should be used so as to prevent silt and any other sediments from getting into storm water channels • Site compounds and stockpiles will be located away from shallow wells and storm water channels	civil works areas <u>Responsibility</u> Contractor(s)	• Silt load in storm water channels	No direct cost
	Soil Erosion Impacts	low	• Earthworks should be controlled so that land that is not required for the Project works is not disturbed; • Wherever possible, earthworks should be carried out during the dry season to prevent soil from being washed away by the rain. • Excavated materials and excess earth should be kept at appropriate sites approved by the Supervising Engineer. • The contractor should adhere to specified cut and fill gradients and planting embankments with shrubs and grass to reduce erosion	civil works areas <u>Responsibility</u> Contractor(s)	• Extend of soil erosion on site	No direct cost
Site Activities	Risk of Accidents at Work Sites	High	▪ Contractor to provide a Healthy and Safety Plan (HSP) prior to the commencement of works to be approved by the Supervising Engineer. ▪ Provide Personal Protective Equipment (PPE)	civil works areas <u>Responsibility</u> Contractor(s)	• Number of fatalities and accidents	KShs.300,000

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			including gloves, gum boots, overalls and helmets to workers. Use of PPE to be enforced by the Supervising Engineer. ▪ Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles ▪ Strict use of warning signage and tapes where the trenches are open and at other active construction sites ▪ Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site	Supervision	recorded in the incidence book	
	Solid Wastes impacts	High	▪ The contractor shall develop a comprehensive Waste Management Plan (WMP) prior to commencement of works ▪ Properly labelled and strategically placed waste disposal containers shall be provided at all places of work ▪ Litter bins should have secured lids to prevent animals and birds from scavenging ▪ All personnel shall be instructed to dispose of all waste in a proper manner ▪ Recycling of construction material shall be practiced where feasible e.g. containers and cartons ▪ Earth spoils shall be disposed of in pre identified sites	civil works areas Responsibility Contractor(s) Supervision	• Quantity of solid Wastes Generated and appropriately disposed	KShs.100,000
	Liquid Wastes Impacts	High	▪ Water containing pollutants such as concrete or chemicals should be directed to a conservancy tank for removal from the site where applicable ▪ Potential pollutants of any kind and form shall be kept, stored and used in such a manner that any escape can be contained ▪ In case of any form of pollution the contractor	civil works areas Responsibility Contractor(s) Supervision	• Quantity of liquid Wastes Generated and appropriately disposed	KShs.100,000

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			should notify the Resident Engineer (RE) ▪ Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas including groundwater are not polluted ▪ No grey water runoff or uncontrolled discharges from the site or working areas to any adjacent Storm water channels .			
	Sanitation issues resulting from both solid and liquid wastes on site Risks associated with water born diseases exposed to community and workforce	High	▪ The Contractor shall -laws relating to public health and sanitation ▪ All temporary/ portable toilets or pit latrines shall be secured to the ground to the satisfaction of the RE to prevent them from toppling over ▪ A wash basin with adequate clean water and soap shall be provided alongside each toilet. Staff shall be encouraged to wash their hands after use of the toilet, in order to minimise the spread of possible disease	All work areas <u>Responsibility</u> Contractor(s) Supervision	Incidence of reported cases of water related diseases among the workforce and neighbor community	No direct cost associated
	Fuels, Oils and other hydro-carbons	High	▪ The contractor shall ensure that the machines and equipment are in good condition when on site. ▪ Ensure proper handling of lubricants, fuels and solvents while maintaining the plant and equipment. ▪ Any chemical or fuel spills shall be cleaned up immediately. The spilt liquid and clean-up material shall be removed, treated and transported to an appropriate site licensed for its disposal.	civil works areas <u>Responsibility</u> Contractor(s) Supervision	• Quantity of waste fuels and oils appropriately disposed	KShs.25,000
	Storage of fuel oils, lubricants, chemicals and flammable	High	▪ Follow specifications of the Occupational Health and Safety Act 2007, EMCA 1999 and others in the development and operation of stores.	All work areas <u>Responsibility</u> Contractor(s)	Incidence of reported cases of fuel leaks and fire incidences	No direct cost associated

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
	materials Hazards of fire outbreak, oil and chemical spills.			Supervision		
	Noise and Vibration control from plant and equipment Risk to health and safety of community and workers	High	▪ The Contractor shall keep noise level within acceptable limits and construction activities shall, where possible, be confined to normal working hours in the residential areas ▪ hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity ▪ Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE ▪ The Contractor must adhere to Noise Prevention and Control Rules of April 2005	civil works areas and access roads <u>Responsibility</u> Contractor(s) Supervision engineer	Reported complaints from neighbor community and institutions	No direct cost associated
	Air Quality Control Air pollution causing respiratory disorders to human	High	▪ Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications ▪ The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilised as soon as practically possible ▪ The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds ▪ Vehicles delivering soil materials shall be covered to reduce spills and windblown dust ▪ Water sprays shall be used on all earthworks areas within 200metres of human settlement.	All work areas <u>Responsibility</u> Contractor(s) Supervision	Cases of respiratory complication at nearby health centre	No direct costs (integrated in the works costs)
Traffic management on	Risks of Accidents, Injuries or death of	high	▪ Strict use of warning signage and tapes where the trenches are open and active sites	.civil works areas and access	Accidents occurrence incidences	No direct cost

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
site	workers or community member		▪ Employ and train road safety Marshalls who will be responsible for management of traffic on site ▪ Contractor to provide a traffic management plan during construction to be approved by the resident engineer	roads Responsibility Contractor(s) Supervision engineer		
Materials sourcing, from burrow pits and quarries delivery and storage	Environmental and Safety risks associated with burrowing and opening up of new quarry sites	Medium to High	• Ensure that appropriate authorization to use the proposed borrows pits and quarries has been obtained before commencing , • This should be achieved through preparation of specific Environment and Social Impact Assessment for identified quarries and burrow pits to inspected and approved by NEMA. • Carry out inspection of each of the site's soil stability before excavation; • Borrow pits and quarries shall be located more than 20 meters from watercourses in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse; • The Contractor shall give a 14 day notice to nearby communities of his intention to begin excavation in the borrow pits or quarries;	Burrow Pits and Quarry Site Responsibility Contractor(s) Supervision	• Environmental Status of reinstated burrow pits • Complains from the community on burrow pits and material transportation	Cost to be identified once the burrow areas are determined
	Labour Influx to Project settlements	Medium to High	• The contractor awarded the Project will develop a labour Management Plan (LMP) in consultation with local leaders. • The contractor will ensure effective community engagement and strong grievance mechanisms on matters related to labour • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx, the contractor should engage a local community liaison person. • The contractor will ensure proper records of	Project Corridor Responsibility Contractor(s) Supervision	• Number of grievances recorded by disgruntled works force and community	No direct cost

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			labour force on site while avoiding child and forced labour • The contractor will ensure comply to provisions of Work Place Injuries and Benefits Act (WIBA) 2007			
	Gender Inclusivity in Project activities	Low	• The contractor will mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule. • The existing community structures headed by location chiefs should be involved in local labour hire, emphasize the requirement of hiring women, youth and people with disability and VMGs • Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights and interfering with Labour Rights	Project Corridor <u>Responsibility</u> Contractor(s) Supervision	• women and Men employed by the Project	No direct cost
	Children abuse impacts	High	• The contractor will develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project. • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour • Children under the age of 18years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014	Project Corridor <u>Responsibility</u> Contractor(s) Supervision	• Number of cases reported involving abuse of children • Develop a child protection Code of Conduct. • Number of staff who have signed the code of conduct. • Number of refresher trainings on child protection code. •	No direct cost

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
	Ineffective Grievance Management	Medium to high	• Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. • Implement a worker's grievances mechanism. • Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs. • Log, date, process, resolve, and close-out all reported grievances in a timely manner. • Ensure proportionate representation of disadvantaged persons in the local grievances committee. • Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.	Project Corridor Responsibility Contractor(s) Supervision	• Local grievance Committees • Number of cases received and logged • Number of GRC meetings conducted • Number and type of facilitation done by SEC/GRC • Number of grievances timely resolved • Number of Grievances escalated to national court and WB Redress services	
	Gender-Based Violence Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium to high	• Develop and implement a plan to manage the risk of SEA/SH. • Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH. • Ensure the GRM is SEA/SH-responsive. • Ensure all those with physical presence on site sign and understand the Code of Conduct. • Put in place measures for monitoring GBV/sexual harassment.	Project Corridor Responsibility Contractor(s) Supervision	• Number of Inductions sessions on SEA/SH and signed code of conduct • Number of SEA and SH cases reported and resolved. • Number of community sensitization sessions on SEA	No direct anticipated

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
					and SH • Number of continuous training and awareness done through tool boxes talks • Number of IEC material done to create awareness • Number of stakeholder engagements conducted. • Establishment of a grievance response GRM.	
	Child Exploitation and Abuse		•		•	
	Increase of communicable diseases including HIV and Aids	High	• HIV/AIDS Awareness Program and other communicable diseases to be instituted and implemented as part of the Contractor's Health and Safety Management Plan to be enforced by the Supervising Engineer. • This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor's Staff • Access to Contractor's Workforce Camps by outsiders to be controlled • Contractor to provide standard quality condoms to personnel on site	All Workers <u>Responsibility</u> Contractor(s)	• Number of Trainings Held • Availability of Training reports • Attendance list of participants during the training sessions	Budgeted above in row(5) on page 8.5
Contractor de-mobilization	Associated risks of environmental	Medium	▪ The site is to be cleared of all construction materials, including litter prior to hand over	All work areas	Closeout audit report findings	No direct anticipated

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Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
and site reinstatement	degradation		▪ Fences, barriers and demarcations associated with the construction phase must be removed from the site ▪ Fences, barriers and demarcations associated with the construction phase must be removed from the site ▪ Rehabilitation Activities of Environmental Cases identified must continue throughout the defect liability period	Responsibility Contractor(s) Supervision		
Total Estimated Cost for ESMMP					**EMP**	**Khs 800,000.00**

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Table 8- 2: Operational Phase: Environmental and Social Management and Monitoring Plan

Roads and Drainage

No.	Issue	Action required	Responsibility	Provisional Budget
1	Loss of business associated with poor road condition during operation phase	• Develop a capacity building plan or program for road maintenance team who are mandated to operate and maintain the road • Regular maintenance and repair of the road by County Government, this should be through regular road marking, sealing of pot holes, ensure road signage is in place among other operations	Nandi County Government	To be established at operation phase and included in the operation of the Projects
2	Loss of business associated with breakdown of flood lights	• Develop a capacity building plan or program for flood lights maintenance team who are mandated to operate and maintain the flood lights • Regular maintenance of the flood lights by County Government, this should be through regular replacement of bulbs	Nandi County Government	To be established at operation phase and included in the operation of the Projects
2	Increased Accidents associated with motor cycles over speeding within the settlement due to good roads	• Develop a capacity building plan or program on road safety campaign that targets road users. • The County Government to enlighten motorist and cyclist on importance of obeying traffic rules especially in residential areas. • The County Government to enlighten residents and school children on the importance of adhering to provisions of road safety rules • Regular inspection and maintenances of the road by County Government of Nandito ensure the speed control parameters and signage are in good condition. • Regular crackdown, arrest and prosecution of motorists and cyclist who disobey road safety directions.	Nandi County Government	To be established at operation phase and included in the operation of the Projects

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Flood Mast and Street Lights

No.	Issue	Action required	Responsibility	Monitoring Indicator	Provisional Budget
1	Risk of encroachment and construction of Flood Mast	• Mapping and installation of beacons to which illustrate the width and extent of land for Flood mast • Conduct public sensitization programs on importance not interfering with way leaves and public reserve land	Nandi County	Number of encroachment cases reported	To be established at operation phase and included in the operation of the projects
2	Risk of Flood mast falling due to heavy wind	• Regular check, repair and maintenance of the Flood mast • Proper designs and construction of the base • Activate a community watch group for information sharing on the status of the pipeline	Nandi County	Properly build Base Number of inspections on the flood mast	To be established at operation phase and included in the operation of the projects
3	Risk of illegal power connection to the flood mast	• This will require constant inspection by Nakuru County • Conduct public sensitization programs on importance not interfering with power for flood mast	Nandi County	Number of illegal connection cases reported	To be established at operation phase and included in the operation of the projects
4	Interference with sleep on locals at night	• Regular inspections, repair and maintenance of the required lights • Use lights that are not too bright to affect the	Nandi County	Number of complains recorded over lighting	To be established at operation phase and included in the

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No.	Issue	Action required	Responsibility	Monitoring Indicator	Provisional Budget
		locals			operation of the projects
5	Improved business	• The Flood lights to work effectively the moment the darkness comes in and switch off in the morning	Nandi County	Number of business operating till late night Number Reported security issues in the area	To be established at operation phase and included in the operation of the projects
6	Energy use	• Proposed and scheduled time for on and off of the flood mast	Nandi County	Amount of bills paid to Kenya power monthly	Operation budget for the County.

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8.3 Decommissioning Flow Chart

The project has been designed to operate effectively for over 20years. In the event that the infrastructure will be required to be overhauled, then the following steps should be considered in order to undertake the procedure in a structured manner with minimum impact to both human and natural environment.

Table 8- 3: Decommissioning Flow Chart

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

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CHAPTER 9: CONCLUSION

9.1 Conclusion

Key findings of the Environment and Social Impact assessment of the proposed KISIP investments in Mosoriot Informal settlement are as follows:

(i) The Project has an overall positive impact on the informal settlements as it will improve the living conditions of people living and working in the informal settlements, through improving accessibility, drainage, waste, and security.

(ii) The Project does not have significant and potentially irreversible negative impacts on the environment and people. The few identified negative impacts associated with construction Projects can easily be mitigated, and an Environmental and Social Impact Management Plan has been prepared as part of this report, whose implementation will be monitored to ensure compliance and protection of the environment. A monitoring plan to ensure this happens has also been developed.

(iv) The Projects will have no impact on land; this is because the planned investments in the informal settlements will be implemented within road reserves, water and sewerage wayleaves and open public grounds that is free from encroachment.

(v) The Projects will have no impact on land; this is because the planned investments in the informal settlements will be implemented within road reserves, water and sewerage wayleaves and open public grounds that is free from encroachment.

(iii) The EMP should be fully implemented and should form part of the contract with the selected contractors who will undertake the works. The implementation of the EMP should be monitored in accordance with the monitoring plan in this report. The Resident engineer should supervise and report on the implementation regularly as provided.

(iv) Provisional Budget of Kenya Shilling One hundred and Seventy thousand should be included in the bidding documents for implementation of mitigation measures of potential negative impacts.

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ANNEXES

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ANNEX 1 ENVIRONMENT AND SOCIAL SCREENING MATRIX

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Annex 1: Environment and Social Screening Matrix

Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
Part A: Triggers to EMCA				
Applicability of Second Schedule of EMCA	Yes (all settlements)	Project activities fall within provisions of EMCA schedule 2	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4, 7.5 and 7.6) below
Part B: Details of Site location	**Yes/No**	**Description**	**GoK/ WB Policies applicable**	**Proposed Mitigations or Enhancements**
Site of ecological importance as described in environment screening checklist	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Are there vulnerable or endangered species (terrestrial or aquatic) in the area?	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Are there natural habitats in the site? Or in its proximity	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
If there are natural habitats, are they fragile, unique, limited in size? Are these world heritage / Ramsar sites	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Are there wetlands, areas of saturated soils (permanent or temporary), or evidence of ponding (cracks, high clay content in soils, dead vegetation, water marks)?	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4, 7.5 and 7.6) below
Is the site already degraded (low groundwater, poor soil quality)?	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Are there steep slopes in the proximity of the investment site?	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Do people live on the proposed site?	Yes (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
List existing land uses (ranching, farming)?	All Settlements	Human Urban Settlement	N/A	N/A
Is there existing site access (roads)?	All Settlements	Human Urban Settlement	N/A	N/A
Is the site vulnerable to natural hazards (in floodplain, near volcano, on seismic fault, near coastline in hurricane zone)?	No (all settlements)	Sites located within human urban settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Are there land title conflicts?	No (all settlements)	No conflict – KISIP component 2 has addressed land tenure	N/A	N/A

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Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
		issues		
Are there known archaeological, historical or other cultural property? Are any of these world heritage/ UNESCO designated etc	No (all settlements)	Sites located within human urban settlements no archeological site indentified	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Do indigenous peoples live on or near the site?	No (all settlements)	No indigenous people indentified on site	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Part C: Analysis of likely physical Impacts				
(i) Scope of proposed activities				
Will the investment generate an increase in solid wastes or machine wastes (oil, etc)?	Yes (All settlements)	Wastes from construction activities including plant and equipment and materials on site	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
(ii) Water Resource Impacts				
Could the investment result in a modification of groundwater levels by altering flows, paving surfaces or increasing water extraction?	No (All settlements)	Nature of anticipated project activities are small and less adverse to ground water resources	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Could it affect groundwater quality?	No (All settlements)	Nature of anticipated project activities small and less adverse to ground water resources	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Could it affect quality (through sediment, wastewater, storm discharge or solid waste) of nearby surface waters (lake, rivers, streams)?	yes(All settlements)	This impact is anticipated during construction (siltation, increase in turbidity), however this impact can be mitigated as discussed in 4.4 and 4.5 below.	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Will it affect water quantity in nearby water bodies (lake, river, stream)?	yes(All settlements)	During construction, the contract will be expected to abstract water for construction activities from nearby water resources, the contractor	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below

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Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
		will be required to obtain water abstraction permits from sub regional WRMA offices. (the nearest water body is the Sabaki River which the contractor might abstract water from)		
Are there nearby potable water sources that need to be protected?	No (All settlements)	Settlements located in humans settlements with no natural habitat	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
(iii) Ecosystem Impacts				
Could the investment affect natural habitats or areas of high ecological value?	No (All settlements)	Settlements located in humans settlements with no natural habitat.	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Could it affect natural characteristics of adjacent or nearby sites?	No (All settlements)	Settlements located in humans settlements with no natural habitat, .	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Could it affect wildlife or natural vegetation?	No (All settlements)	No game parks and reserves in the settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
(iv) Drainage Impacts				
Will the investment in storm water drainage affect existing drainage patterns?	Yes (All settlements)	The settlements have challenges in storm water as discussed in chapter 2, investing in storm water drainage will resolve the problem. However, during construction minor impacts on existing storm water drainage will be experienced	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below

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Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
Will it cause standing water, which could cause public health risks?	yes (All settlements)	Storm water drainage will help drain stagnant water existing in the settlements However, during construction minor impacts on existing storm water drainage will be experienced	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Will erosion result in sediment discharge to nearby water bodies?	Yes (all settlement)	However less significant erosion which can be mitigated	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Will surface drainage patterns be affected in borrow pits and quarries?	Yes (All settlements)	Project activities will not directly lead to burrow pits and quarries within the settlement, however on the areas where burrow pits will be opened, drainage patterns of likely to be impacted.	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Will infiltration patterns be affected?	No (All settlements)	The settlement pattern is dense, less impact is anticipated on infiltration patterns	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4 and 7.5) below
Socio-economic impacts				
Will the project entail resettlement of population?	No (All settlements)	No persons will be physical resettled, however, the project will trigger partial impacts to structures encroaching into road reserves, business and other sources of livelihood	Applicable as discussed in chapter (4))	As discussed in sub chapter (7.4 and 7.5) below

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Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
		encroaching on the reserve will be affected		
Will the project affect indigenous peoples?	No (all settlements)	No indigenous people identified on site	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Will it limit access to natural resources to local populations?	No (all settlements)	No natural resources were identified with the target settlements	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
Will it have an impact on land use?	Yes (all settlements)	Once upgrading of infrastructure in the settlements is completed, the land use in the settlements will improve with better housing, attraction of other social amenities such as schools, hospitals, shops.	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.6) below
Will it induce further encroachment of nearby areas?	No (all settlements)	The projects will in fact help to clear road reserves and water / sewerage wayleaves in the settlement which are encroached	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.6) below
Will it cause any health impacts?	No (all settlements)	Minor construction activities related impacts will be mitigated	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.5) below
Will it disturb nearby communities during construction?	Yes (all settlements)	Minor disturbance during construction which can be mitigated	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.5) below
Could cultural resources be affected?	No (all settlements)	No cultural resources were identified	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.5) below
Could it affect nearby properties?	Yes (all settlements)	Less significant impacts to people's assets and sources of livelihood as discussed above which will be appropriately	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.5) below

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Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
		compensated as presented in the RAP assessments for the Project		

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ANNEX 2 PUBLIC PARTICIPATION MINUTES AND LIST OF PARTICIPANTS

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MINUTES OF SELECTION OF SETTLEMENT EXECUTIVE AND GRIEVANCE REDRESS COMMITTEES OF MOSORIOT SETTLEMENT HELD ON TUESDAY 19TH SEPTEMBER 2023 AT MOSORIOT ASSISTANT COUNTY COMMISSIONER'S COMPOUND

PRESENT

1. National CPCT Team
2. Hon. Julius Arusei — MCA Lelmokwo/Ngechek ward
3. Dr. Philemon Bureti — CECM in charge of Lands and Physical Planning
4. County CPCT Team
5. Daniel Sitienei — Sub County Administrator-Chesumei
6. Naumy Keter — County Director of Public Participation
7. Mosoriot Settlement as per the attendance list

Agenda

1. Sensitization on KISIP 2
2. Selection of SEC and GRC
3. Prioritization of projects

AGENDA	
Min 1/19/09/2023	Preliminaries
	Start time: 12.45pm
	Introductions
Min 2/19/09/2023	Sensitization on KISIP 2
Min 3/19/09/2023	Selection of committees
Min 4/19/09/2023	Prioritization of projects
DELIBERATIONS	

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Sensitization on KISIP 2	**NCPT** - Meaning of KISIP - Importance of tenure regularization - Components of the project - Need for ownership and support of the project - Inclusivity of all categories in the settlement - Consideration of gender - Mosoriot benefitting from the infrastructure upgrading component - Investment menu; areas of investing; improvement of roads to bitumen standard, storm water drainages, street lighting, high masts, solid waste sorting, beautification, social halls to prevent crime and violence, day care centers, pedestrian walks, vending stalls, water and sanitation - The selection process to be open, inclusive, consultative and fair - Project design; National level, County and Community level committees - Project implementation; By contractor to be procured by the County Government - Local community to be given priority in construction works unless the works/services are specialized - Qualifications for the members to be selected in the committees; above 18 years of age, resident of the settlement, sound mind, no criminal record, respected persons in the society, record of community leadership not active member of a political party - Categories to be considered in SEC; tenants, landlords, youth, widow, widower, physically challenged, Faith Based, NGO's, CBO's, marginalized group - Ex official members; Area Member of Parliament, Chief, Ass County Commissioner, MCA, Ward Administrator - Election options: show of hands, secret ballot, mlolongo and selection of members by respective groups - Committees not entitled to any salary - Functions of the respective committees

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Selection c

SELECTION OF COMMITTEES (Led by the CPCT)

- Selection of 15 members of SEC and 5 of GRC
- SEC members to be comprised of: Landlords/structure owners (2 No. male and female), Tenants in residential premises (2 No. Male and female), Tenant in commercial premises (1 No.), Youth (2 No. Male and female), People with disabilities (I No.), CBO (1 No.), NGO (1 No.), Faith based leaders (2 No. Christian and Muslim), Widow (1 No.), Widower (1 No.), minority (1 No.)
- SEC members to select their officials; Chairperson, vice chair, Secretary and organizing secretary. The secretary should have skills in computer operations and should be able to operate a smart phone
- SEC to nominate two members to join the GRC. The two should not be officials in SEC
- Settlement unanimously agreed to allow the specific interest groups to choose their representatives separately. Where they did not agree, "**show of hands"** method was used to select a member
- The following members were selected to different committees as follows:

Mosoriot Settlement Executive Committee

Category	Name	ID No.
Structure Owner	Christopher Chumba	0449763
	Jacklyn Louis	14724085
Tenants (Residential)	Susan Barno	22548701
	Philemon Chumba	1458890
Tenant (Commercial)	Robert Kiptoo	22967117
Youth	Eunice Kosgey	26154528
	Godfrey Kipchirchir	29582220
PWD	Boaz Kiplagat	32220639
CBO	Paul Choge	22078669
NGO	Elias Kipkoech	34524113
Widow	Irene Sang Jemeli	21130379
Widower		
Marginalized	Naftali Chebii	12853068
Chief	Rogers Cheruiyot	26126253
MCA	Alexander Kirwa	35501717
Ward Administrator	Chemwor	

Mosoriot Grievance Redress Committee

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- By show of hands method, the following 3 members were selected to GRC committee
  1. Beatrice Karan 24 Votes
  2. Isaac Yego 8 Votes
  3. Lucy Lemayan 16 votes
- The SEC nominated the following two members to GRC
  1. Susan Barno
  2. Philemon Chumba

The composition of the GRC is as below:

	Name	ID No.	Mobi No	.
1	**Beatrice Karan**	**13110368**	**0723777425**	
2	**Isaac Yego**	**21893513**	**0723649391**	
3	**Lucy Lemaiyan**	**3260591**	**0721877393**	
4	**Susan Barno**	**22548701**	**0729648447**	
5	**Philemon Chumba**	**1458890**	**0721522448**	

Prioritization of projects

Based on the projects menu, the settlement prioritized their projects as follows:

11. Roads
    i. R1- From Cereals to Slaughter
    ii. R2- From Villa-Agriculture offices
    iii. R3- From Cereals-Mwei's plot
    iv. R4- From R3-to join R2
    v. R5- From National Road-Police-Joining R2
    vi. R6- From Catholic-St. Franscis primary school gate
    vii. R7- From National Road to junction near
    viii. R8- From Slaughter to Itigo stage
    ix. R9- From Diesel Power -Itigo stage
    x. R10- From Kapchelel-Christopher plot
    xi. R11- From Asai Kinyozi-Asai
12. High Masts (market and bus park)/street lighting
13. Receptacles/ waste bins at the market and stage
14. Public toilet at the stage
15. Vending platforms at the stage
16. Social Hall/day care centre at Chiefs office compound

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	7. Beautification/landscaping/pedestrian walkways along 8. Additional water tank near the junction of R7 9. Slaughter house (Land not available) 10. Water supply- No water supply nearby The NPCT, CPCT and the selected committees jointly inspected sites for the selected projects.
Adjournment	The CPCT to conduct training to the selected committee members The meeting ended at 05.56pm

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ANNEX 3 CHANCE FIND PROCEDURES

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CHANCE FIND PROCEDURES

KENYA INFORMAL SETTLEMENTS IMPROVEMENT

ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Policy and Legal Provision

World Bank OP 4.11 on Physical Cultural Resource and National Museums and Heritage Act 2006 laws of Kenya provides for; *'if you believe that you may have encountered any archaeological materials or any material national importance stop work in the area and follow the procedure box below'*

Chance Find Procedures

(i) All construction activity in the vicinity of the remains is to cease immediately.
(ii) The Supervising engineer or Environment Officer shall contact Kenya National Museums Immediately

Public relations:
E-mail: publicrelations@museums.or.ke
Director General:-
Email: dg@museums.or.ke
Fax: +254 -20-3741424
Tel:+254-20-8164134/35/36

(iii) The find location will be recorded and all remains will be left in place.
(iv) Potential significance of the remains will be assessed and mitigative options will be identified.
(v) If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the Director of Kenya National Museums will determine the appropriate course of action
(vi) In the case of human remains, if the remains are assessed to be archaeological, then Director of Kenya National Museums will determine how to handle them.
(vii) Options could include avoidance or respectful removal and reburial.
(viii) If human remains are encountered and they are not archaeological, then Nandi County Government will be contacted immediately for appropriate reburial.

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ANNEX 4 LEAD EXPERT 2023 LICENSE

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FORM 7 (r.15(2))

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/18651

Application Reference No: NEMA/EIA/EL/24565

M/S **Godwin Lidahuli Sakwa**
(individual or firm) of address
P.O. Box 18075 - 00500 NAIROBI

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

registration number **2492**

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

Issued Date: 1/23/2023

Expiry Date: 12/31/2023

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001:2015 Certified