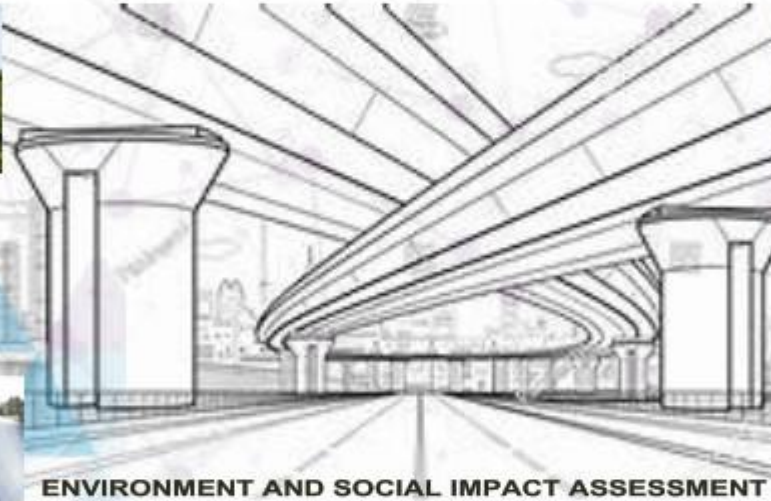




**MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT**  
*State Department for Housing and Urban Development*

**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, UASIN GISHU AND NANDI, CONTRACT NUMBER: KE-MOTI-298201-CS-QCBS**



**ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT  
COMPREHENSIVE PROJECT REPORT (CPR) FOR  
INFRASTRUCTURE UPGRADING OF SHAURI  
SETTLEMENT LOCATED IN UASIN GISHU COUNTY**

**NOVEMBER 2023**



NHC Lang'ata Commercial Centre,  
Junction of Kungu Karumba/Southern  
Bypass, Nairobi  
P. O. Box 2670 – 00100, Nairobi, Kenya  
Tel: +254 20 312931 / +254 733 721855  
E-mail: [info@gaconsultants.co.ke](mailto:info@gaconsultants.co.ke)/  
[gaconsultants2013@gmail.com](mailto:gaconsultants2013@gmail.com)



**Niche**  
Environment Consultants  
(LIMITED)

Muthaiga Office Suites  
Second Floor RM 14  
P.O. Box 18075-00500 NAIROBI,  
KENYA  
Tel: 0723736245/0721686959  
/0729766004  
Email: [info@nichenvironment.co.ke](mailto:info@nichenvironment.co.ke)

## NEMA Report Submission Details

### Prepared By

Signed .....Date.....

**GODWIN LIDAHULISAKWA**  
**LEAD EXPERT NEMA REG NO. 2492**

### Checked by

Signed .....Date.....

**ENG ELISHA AKETCH**  
**FOR: TEAM LEADER,**  
**G A CONSULTANTS LIMITED, KENYA IN ASSOCIATION WITH NICHE ENVIRONMENT**  
**CONSULTANTS LIMITED.**

### Client

Signed .....Date.....

**COUNTY EXECUTIVE COMMITTEE MEMBER (CEC) INFRASTRUCTURE AND ROADS**

## 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
ELDOWAS	Eldoret Water and Sanitation Company
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
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

## **TABLE OF CONTENTS**

<b>LIST OF ABBREVIATIONS .....</b>	<b>II</b>
<b>E. EXECUTIVE SUMMARY .....</b>	<b>2</b>
E.1 PROJECT INFORMATION .....	2
E.2 SCOPE OF WORKS .....	2
E.3 LEGAL FRAMEWORK AND POLICY PROVISIONS .....	6
E.4 PUBLIC AND INSTITUTIONAL PARTICIPATION .....	6
E.5 POTENTIAL PROJECT IMPACTS .....	7
E.5.1 Positive Impacts during Construction Stage .....	7
E.5.2 Positive Impacts during Operation stage .....	8
E.5.3 Negative Impacts and Mitigation Measures during Project Construction Period .....	9
E.5.3.1 Biophysical Environment Setting .....	9
E.5.3.2 Impacts on Social Environment Setting .....	11
E.5.3.3 Impacts on Health and Safety Setting .....	12
<b>E.5.4 Project Specific Impacts during Project Operation .....</b>	<b>13</b>
E.6 ENVIRONMENT AND SOCIAL ASSESSMENT FINDING .....	15
<b>CHAPTER 1: BACKGROUND INFORMATION .....</b>	<b>1</b>
1.1 GENERAL INFORMATION .....	1
1.2 SCOPE OF THE ESIA STUDY .....	5
1.3 OBJECTIVES OF THE EIA STUDY .....	5
1.4 PROJECT RELEVANCE AND JUSTIFICATION .....	5
1.5 ESIA ASSESSMENT METHODOLOGY .....	6
1.5.1 Environment and Social Scoping .....	8
1.5.2 Desk Reviews .....	8
1.5.3 Field Assessment .....	9
1.5.4 Stakeholder Consultations .....	9
1.5.5 Social Infrastructure Mapping .....	9
1.5.6 Secondary Socio-Economic Data .....	10
<b>CHAPTER 2: PROJECT DESCRIPTION .....</b>	<b>1</b>
2.1 PROJECT CONTEXT .....	1
2.2 EXISTING STATUS OF INFRASTRUCTURE IN SHAURI INFORMAL SETTLEMENT .....	1
2.2.1 Roads and Footpath .....	1
2.2.2 Drainage Infrastructures .....	1
2.2.3 Solid Wastes Management .....	2
2.2.4 Sewerage Infrastructure .....	2
2.2.5 Water Supply .....	2
2.2.7 Lighting and Electric Network .....	4
2.3 PROJECTS PRIORITIZATION DURING THE FOCUSED GROUP DISCUSSIONS (FGD) .....	4
2.3.1 Shauri Informal Settlement: .....	4
2.4 PRIORITIZED INTERVENTIONS .....	4
<b>2.5 DESIGN INTERVENTIONS TO IMPROVE INFRASTRUCTURE RESILIENCE. ....</b>	<b>8</b>
<b>2.6 CONSTRUCTION MATERIALS .....</b>	<b>9</b>
PROJECT COST .....	10
<b>CHAPTER 3: ANALYSIS OF ALTERNATIVES .....</b>	<b>11</b>
3.1 PROJECT ALTERNATIVES .....	11

3.2	KISIP INVESTMENTS IDENTIFICATION .....	11
3.3	PROJECT OPTION ALTERNATIVES .....	12
3.4	LAND REQUIREMENT .....	14
3.5	CHOSEN ALTERNATIVES FROM KISIP MENU .....	14
3.6	NO PROJECT ALTERNATIVE .....	15
<b>CHAPTER 4:</b>	<b>POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK .....</b>	<b>16</b>
4.1	Introduction .....	16
4.2	POLICY PROVISION .....	16
	Constitution of Kenya 2010 .....	16
	Kenya Vision 2030 .....	16
	National Environment Policy (NEP) .....	16
	HIV and AIDS Policy 2009 .....	16
	Gender Policy 2011 .....	16
	The Sustainable Development Goals (SDGs) .....	16
	Kenya National Youth Policy 2006 .....	16
	Eviction Guidelines 2017 .....	16
4.3	KENYAN LEGISLATIONS .....	17
	EMCA 1999 .....	17
	The Environmental (Impact Assessment and Audit) Regulations, 2003 .....	17
	Environmental Management and Coordination (Water Quality) Regulations, 2006 .....	17
	(Waste Management Regulations, 2006 .....	17
	Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 .....	17
	Noise and Excessive Vibration Pollution (Control) Regulations, 2009 .....	18
	(Wetlands, Riverbanks, Lake Shores and Sea Shore Management) Regulations, 2009 .....	18
	The Environmental Management and Coordination (Air Quality Regulations 2014) .....	18
	Water Act 2016 .....	18
	County Government Act No. 17 of 2012 .....	18
	Physical Land Use and Planning Act .....	18
	The Urban Areas and Cities Act 2011 .....	18
	Occupational Health and Safety Act (OSHA 2007) .....	19
	The Public Health Act (Cap.242) .....	19
4.4	INSTITUTIONAL STRUCTURE ARRANGEMENT .....	19
4.5	WORLD BANK POLICIES .....	20
<b>CHAPTER 5:</b>	<b>BASELINE INFORMATION OF TARGET SETTLEMENTS .....</b>	<b>1</b>
5.1	GENERAL INFORMATION .....	1
5.2	PHYSICAL ENVIRONMENT .....	1
	5.2.1 Climate .....	1
	5.2.2 Topography .....	1
	5.2.3 Soils and Geology .....	1
	5.2.4 Hydrology .....	2
5.3	BIOLOGICAL ENVIRONMENT .....	2
	5.3.1 Vegetation and Flora .....	2
5.4	TARGET SETTLEMENTS ASSESSMENT .....	3
	5.4.1 Shauri Informal Settlement in Eldoret Town .....	3
<b>5.5</b>	<b>CLIMATE CHANGE IMPACTS IN INFORMAL SETTLEMENTS .....</b>	<b>7</b>
<b>5.6</b>	<b>SOCIO ECONOMIC PROFILE .....</b>	<b>7</b>
	5.6.1 Ownership/Tenancy .....	8
	5.6.2 Accessibility .....	8

5.6.3 Demographic Profile of Households .....	8
(i) Age, Gender and Marital Status .....	8
5.6.4 Education Levels .....	10
5.6.5 Economic Profile of Households .....	10
5.6.6 Structures/Unit Details .....	12
(i) Household Size .....	12
5.6.7 Water Sanitation and Hygiene .....	14
(i) Water Sources, Quality and Cost .....	14
5.6.8 Bathroom Access and Cost .....	14
5.6.9 Access to Toilet Facilities .....	15
5.6.10 Services .....	15
(i) Solid Waste .....	15
5.6.11 Energy .....	17
5.6.12 Transport .....	18
5.6.13 Mode of Communication .....	18
5.6.14 Health .....	19
5.6.15 Education .....	21
5.6.16 Community Facilities .....	23
5.6.17 Disasters Experienced in the Settlement .....	23
5.6.18 Priority Sectors .....	23
5.6.19 Synthesis of Emerging Issues: Opportunities and Constraints .....	24
<b>CHAPTER 6: PUBLIC AND STAKEHOLDER CONSULTATIONS .....</b>	<b>1</b>
6.1 LEGAL AND POLICY PROVISIONS FOR STAKEHOLDER CONSULTATIONS .....	1
6.1.1 EMCA 1999 through the Legal Notice No. 101: The Environmental (Impact, Audit and Strategic Assessment) Regulations, 2003 .....	1
6.1.2 World Bank Group (WBG) Environmental Assessment Policy (OP 4.01) .....	1
6.2 SCHEDULE OF STAKEHOLDER CONSULTATIONS .....	2
6.3 INCLUSION OF OUTCOMES OF STAKEHOLDER ENGAGEMENT IN THE DESIGN OF THE PROJECT .....	3
6.3.1 Employment Opportunities for the Public .....	3
6.4 PUBLIC DISCLOSURE OF ESIA, AND ANNUAL MONITORING REPORTS .....	3
6.5 CONSTRUCTION, OPERATION AND DECOMMISSIONING PHASE CONSULTATIONS .....	4
6.6 COMMUNITY RELATIONS IN CONSTRUCTION PHASE .....	4
6.6.1 Construction Contractor's Role in Community Liaison .....	5
6.6.2 Community Relations in Operational Phase .....	5
6.6.3 Decommissioning .....	5
6.7 GRIEVANCE REDRESS MANAGEMENT PLAN .....	5
<b>CHAPTER 7: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES ....</b>	<b>8</b>
7.1 ANTICIPATED PROJECT POSITIVE IMPACTS .....	8
7.2 RISKS ON BIOPHYSICAL ENVIRONMENT DURING CONSTRUCTION .....	9
7.2.1 Impacts on Water Resources .....	9
7.2.2 Impacts on Soil Resources .....	10
7.2.3 Biophysical Environment Risk Mitigation Measures .....	10
7.3 WORKERS, COMMUNITY HEALTH AND SAFETY RISKS .....	11
7.3.1 Excessive noise and vibrations .....	11
7.3.2 Air Pollution and Dust Generation. ....	12
7.3.3 Risk of Accidents at Work Sites .....	12
7.3.4 Environment Health and Safety Risk Mitigation Measures .....	13
7.4 TRAFFIC MANAGEMENT PLAN .....	13
7.5 SOCIAL RISKS .....	15

7.5.1 Loss of Temporal Assets and Disruption of Sources of Livelihood .....	15
7.5.2 Disruption of Public Utilities .....	16
7.5.3 Labour Influx Effects .....	16
7.5.4 Human Right and Gender Inclusivity .....	17
7.6 LABOUR MANAGEMENT DURING CONSTRUCTION STAGE .....	17
7.6.1 Increase in prevalence of communicable diseases .....	18
7.6.2 Social Risks Mitigation Measures .....	18
7.7 SPECIFIC PROJECT RISKS DURING OPERATION .....	19
<b>CHAPTER 8: ENVIRONMENT AND SOCIAL MANAGEMENT AND MONITORING PLAN .....</b>	<b>1</b>
8.1 MANAGEMENT PLAN PRINCIPLES .....	1
8.2 SPECIFIC MANAGEMENT ISSUES .....	1
8.2.1 Management Responsibilities .....	1
8.2.2 Environmental Management Guidelines .....	2
8.2.3 Environmental Education and Awareness Rising .....	2
8.2.4 Decommissioning Process .....	2
8.3 DECOMMISSIONING FLOW CHART .....	18
<b>CHAPTER 9: CONCLUSION .....</b>	<b>1</b>
9.1 Conclusion .....	1
INTRODUCTION AND OPENING REMARKS .....	10
ESIA AND RAP .....	10
PLENARY .....	11



## **List of Tables**

Table E- 1: Project Scope of Works .....	2
Table E- 2: Schedule of Public Consultation .....	7
Table E- 3: Negative Impacts on Biophysical Environment .....	9
Table E- 4: Anticipated Negative Impacts on Social Environment .....	11
Table E- 5: Anticipated Negative Impacts on Health and Safety Setting .....	12
Table E- 6 : Anticipated Impact and Mitigation measure on Water and Sewerage .....	13
Table 1- 1: Components of KISIP Project .....	1
Table 1- 2:: Environment and Social Impact Rating Criteria .....	7
Table 1- 3: Schedule of Public Consultation .....	9
Table 2- 1: Status of Road and Foot Path in Shauri Informal Settlement .....	1
Table 2- 2: Status of Road and Foot Path in Shauri Informal Settlements .....	1
Table 2- 3: Solid Waste Management in Shauri Settlement .....	2
Table 2- 4: Sewerage Infrastructure .....	2
Table 2- 5: Water Supply Situation .....	2
Table 2- 6: Lighting and Electric Network .....	4
Table 2- 7: Shauri Informal Infrastructural Prioritization .....	4
Table 2- 8: Project Scope of Works for Shauri Informal Settlements .....	5
Table 2- 9: Design interventions to improve infrastructure resilience .....	8
Table 2- 10: Alternative 1 – Type – LVII (LVSR) .....	9
Table 2- 11: Alternative 2 – Type 7 (RDM Part III) .....	9
Table 2- 12: Project Cost .....	10
Table 3- 1: Scoring of Priority Interventions in the Settlements .....	14
Table 4- 1: Policy Framework .....	16
Table 4- 2: Acts of Parliament .....	17
Table 4- 3: Institutions Assessment .....	19
Table 4- 4: Analysis of potential triggers to World Bank Safeguards Policies .....	20
Table 5- 1: Target Settlements .....	1
Table 5- 2: Age and Marital Status .....	9
Table 5- 3: Materials .....	13
Table 5- 4: Priority matrix for sectors .....	23
Table 5- 5: Opportunities and Constraints .....	24
Table 6- 1: Schedule of Public Consultation .....	2
Table 6- 2: Detailed Issues Discussed during Public Consultations .....	2
Table 6- 3: Stakeholder Consultations during Project Construction and Operation Phase .....	4
Table 7- 2: Impacts on Water Resources .....	9
Table 7- 3: Impacts on Soil Resources .....	10
Table 7- 4: Mitigation of Biophysical Environment Impacts .....	11
Table 7- 5: Impacts on Workers, Community Health and Safety .....	12
Table 7- 6: Mitigation Measure to Workers, Community Health and Safety Risks .....	13
Table 7- 7: Traffic Management Plan .....	14
Table 7- 8: Impacts on Social Setting .....	18
Table 7- 9: Mitigation of Social Impacts .....	19
Table 7- 10: Anticipated risk and Mitigation measures for Flood mast and streetlights .....	19
Table 8- 1: Construction Phase: Environmental and Social Management and Monitoring Plan .....	3
Table 8- 2: Operational Phase: Environmental and Social Management and Monitoring Plan .....	15
Table 8- 3: Decommissioning Flow Chart .....	18

## List of Figures

Figure E- 1: Layout of the Proposed Works .....	5
Figure 1- 1: Shauri Informal Settlement Location Map .....	3
Figure 2- 1: Shauri Layout Plan .....	7
Figure 5- 1: Environmental Situation in Shauri Informal Settlement .....	4
Figure 5- 2: Existing Infrastructure in Shauri Informal Settlement .....	5
Figure 5- 3: Commercial Business in Shauri Informal Settlement .....	6
Figure 5- 4: Public Facilities in Shauri Informal Settlement .....	6
Figure 5- 5: Ownership/Tenancy .....	8
Figure 5- 6: Accessibility .....	8
Figure 5- 7: Gender .....	9
Figure 5- 8: Educational Levels .....	10
Figure 5- 9: Level of Education and Occupation .....	11
Figure 5- 10: Monthly Income .....	11
Figure 5- 11: Household Size .....	12
Figure 5- 12: Nature of Structures .....	13
Figure 5- 13: Monthly Cost of Piped Water .....	14
Figure 5- 14: Bathrooms Location .....	14
Figure 5- 15: Toilet Facilities .....	15
Figure 5- 16: Garbage Disposal .....	15
Figure 5- 17: Amount Residents willing to pay for Waste Management Services .....	16
Figure 5- 18: Suggestions on Waste Management Service .....	16
Figure 5- 19: Monthly Cost of Electricity .....	17
Figure 5- 20: Cooking Energy .....	17
Figure 5- 21: Transport Services .....	18
Figure 5- 22: Network Service Providers .....	19
Figure 5- 23: Health Facilities .....	19
Figure 5- 24: nearest Health Facility .....	20
Figure 5- 25: Health Facilities .....	20
Figure 5- 26: Prevalent Diseases .....	21
Figure 5- 27: ECDE Centres .....	21
Figure 5- 28: Primary Schools .....	22
Figure 5- 29: Secondary Schools .....	22
Figure 5- 30: Disaster occurrence .....	23
Figure 6- 1: Grievance Resolution Flow Chart .....	7
Figure 7- 1: Sample Encroachment .....	16

## EXECUTIVE SUMMARY

## 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 Eldoret town – Uasin Gishu 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 Développement (AFD). The target settlements in Uasin Gishu County are 8nr including Maili Nne, Segero, Shauri, KK, Kasarani, Mwanzo and Ngomongo are 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 report presents environmental and social impact assessment Comprehensive Project Report for proposed infrastructure investments in Sahuri Informal Settlement in Eldoret Town Uasin Gishu County.

### E.2 Scope of Works

Based upon prioritized intervention set, the Project scope for Shauri informal settlement is as presented in the Project Design Report is summarized in **Table E.1** below.

**Table E- 1: Project Scope of Works**

PROPOSED	CODE ON MAP	DESCRIPTION	QTY
R1 Roads	R1 -001	6m carriage way, drainage and footpath on both side of the carriage way.	1051.64 m
	R1 002	6m carriage way, drainage and footpath on both side of the carriage way.	180.69 m
	R1 003	6m carriage way, drainage and footpath on both side of the carriage way.	716.69 m
	R1 004	6m carriage way, drainage and footpath on both side of the carriage way.	446.45 m
R2 Roads	R2 002	5.5m carriage way, drainage and footpath on one side of the carriage way.	139.38 m
	R2 003	5.5m carriage way, drainage and footpath on one side of the carriage way.	583.07 m
	R2 004	5.5m carriage way, drainage and footpath on one side of the carriage way.	602.06 m
	R2 005	5.5m carriage way, drainage and footpath on one side of the carriage way.	481.70 m

	R2 006	5.5m carriage way, drainage and footpath on one side of the carriage way.	232.43 m
	R2 007	5.5m carriage way, drainage and footpath on one side of the carriage way.	344.14 m
	R2 008	5.5m carriage way, drainage and footpath on one side of the carriage way.	138.76 m
	R2 009	5.5m carriage way, drainage and footpath on one side of the carriage way.	299.66 m
	R2 010	5.5m carriage way, drainage and footpath on one side of the carriage way.	357.56 m
	R2 011	5.5m carriage way, drainage and footpath on one side of the carriage way.	225.52 m
	R2 012	5.5m carriage way, drainage and footpath on one side of the carriage way.	514.31 m
	R2 013	5.5m carriage way, drainage and footpath on one side of the carriage way.	149.29 m
	R2 014	5.5m carriage way, drainage and footpath on one side of the carriage way.	140.98 m
	R2 015	5.5m carriage way, drainage and footpath on one side of the carriage way.	189.58 m
	R2 016	5.5m carriage way, drainage and footpath on one side of the carriage way.	232.87 m
	R2 017	5.5m carriage way, drainage and footpath on one side of the carriage way.	61.10 m
	R2 018	5.5m carriage way, drainage and footpath on one side of the carriage way.	99.35 m
	R2 019	5.5m carriage way, drainage and footpath on one side of the carriage way.	139.60 m
	R2 020	5.5m carriage way, drainage and footpath on one side of the carriage way.	198.92 m
	R2 021	5.5m carriage way, drainage and footpath on one side of the carriage way.	475.72 m
R3 Road (Footpath along Fafa Roo Riverbank)	R3 001	4m footpath, drainage on one site of the road, street lighting	629.2 m
High mast flood light	30m high mast with an approximate coverage radius of 150 m		4 Nr
Street lighting along all the proposed R1Roads	8 m high poles, along the proposed roads, with 28 luminaires, 2 Control Pillars and 1870 m main cable		
Vending platforms	200 port vending platform with a total plinth coverage of 340 m <sup>2</sup>		
Ablution Block at Shauri Market	1 No. 5-door toilet ablution block		
Social hall	A multi-purpose social hall with a total plinth coverage of 1,000 m <sup>2</sup>		

Public Park	Landscaped green zone along Fafa Roo Riverbank, total area of 50,000 m <sup>2</sup>	
<b>Total Road</b>		<b>8,001 m</b>
<b>Total Footpath and Drainage Length</b>		<b>10,396 m</b>
<b>Total Street lighting</b>		<b>80 poles</b>

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

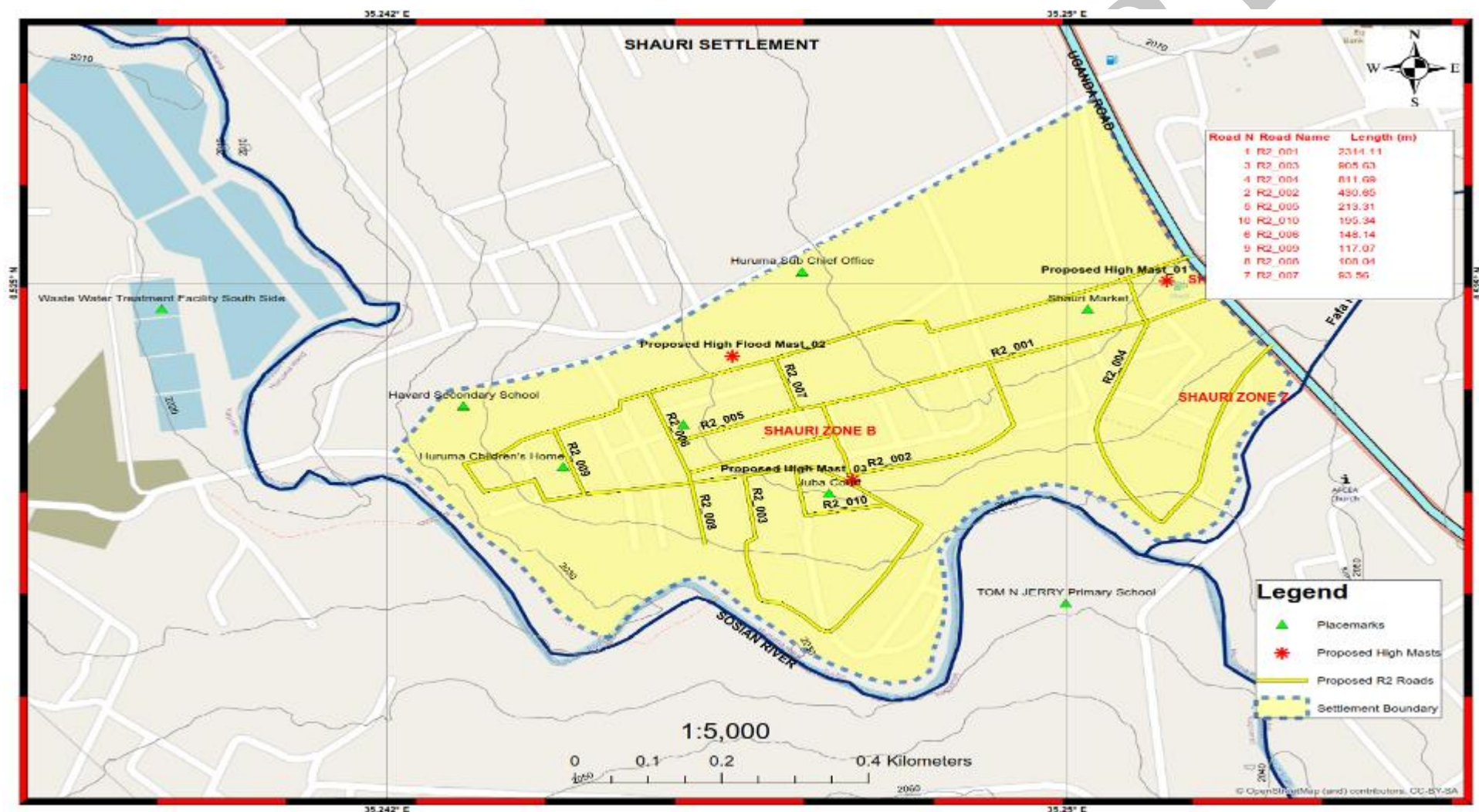


Figure E- 1: Layout of the Proposed Works

### 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), 2015 and subsequent regulations
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 then 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.



**Table E- 2: Schedule of Public Consultation**

Date	Settlement	Stakeholder Consulted	Meeting Attendance
30 <sup>th</sup> October 2023	Shauri Informal Settlement	Settlement Executive Committee members (SEC) for Shauri Informal Settlement, County Government Officials, Religious Leaders, E.I.A team, , Area chief and members of the community	Total 54 Male 38 Female 16

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

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

- **Project Cut -off Date** – the Public sensitization was carried out as per the Kenya Constitution and the World Bank Operation Policies. The cut-off date for collection of Bio data from the PAPs was adopted as 30<sup>th</sup> October 2023.
- **State of Infrastructure** – The residents emphasized poor state of Infrastructure in the settlements including Roads, Drainage, Solid Waste, Security, water and Sewerage. The further requested the roads to be designed to accommodate the rising population.
- **Labour issues:** Local unskilled and skilled labour should be sourced from the local communities as much as possible. The residence also requested women and youth to be consider during workforce allocation.
- **Vulnerable groups and PLWD:** Project affected Persons who within special group of the aged and Persons living with Disabilities shall be assisted through infrastructure upgrades to ensure the access the infrastructure as per the project design.
- **Water connection:** Residents requested for improved water supply and connection to the network that serves their respective areas, many complained of recurrent water rationing by Eldoret Water and Sanitation Company (ELDOWAS).
- **Wayleaves and working space;** Resident pointed out that they are willing to provide working space by removing structures along the road reserves and requested to be considered for some relocation allowances and ample time to remove the structures during the construction phase.
- **Health and Safety;** Issues of occupational health and safety during construction period were emphasized, the community confirmed that they have an active first aid and public health and sanitation group and requested for involvement in the project during construction.

*\*Details of stakeholder consultations are presented in Chapter 6 of this Report.*

## **E.5 Potential Project Impacts**

### **E.5.1 Positive Impacts during Construction Stage**

The Project is envisaged to have more positive impacts after completion of the civil works and commissioning. The main anticipated positive impact during construction phase is Creation of Employment and Business Opportunities for the local communities in the Project Areas.

### **E.5.2 Positive Impacts during Operation stage**

The Project will result to both direct and indirect benefits to the residents of Shauri informal Settlement in Eldoret Town Uasin Gishu County. These benefits are 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 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 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**

- (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, Social Hall, Public Park, 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.5.3 Negative Impacts and Mitigation Measures during Project Construction Period

The Project Construction Phase will involve the following activities: delivery of construction materials to Project site, manual excavation of trenches, temporary stockpiling of soils, sub-soils and rock along the trenches, importing material for bedding and filling (e.g. red soils, murrum, sand, cement, and concrete).

The activities discussed above have the potential of triggering negative environment and social impacts during Project Construction Phase. The impacts are presented in three categories of environment namely: Biophysical, Socio Economic and Occupational Health and Safety setting.

#### 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 settlements in Uasin Gishu has been stripped off to provide space for construction of structures.	<ul style="list-style-type: none"> <li>Roads and Drainage – minor impact</li> <li>Water and Sewerage – minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor will ensure proper demarcation of the Project area to be affected by the construction works.</li> <li>Strict control of construction vehicles to ensure that they operate only within the area to be disturbed by access routes and other works.</li> <li>Where the proposed Project route requires the removal of any vegetation, care will be taken to minimize the destruction to marshlands;</li> </ul>
Impacts on Soils		Mitigation Measures Summary
<b>Soil Erosion</b> Soil Erosion due to clearing	<ul style="list-style-type: none"> <li>Roads and Drainage – medium impact</li> </ul>	<ul style="list-style-type: none"> <li>The contractor to adhere to the proposed Soil conservation practices.</li> </ul>

Impacts on Vegetation Cover	Associated Project Works and Level of Impact	Mitigation Measures Summary
of vegetation cover and reduced soil productivity	<ul style="list-style-type: none"> <li>• Water and Sewerage _medium impact</li> <li>• Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>• Proper and compacted back filling of excavated areas</li> <li>• The contractor to stick to clear delineation of the construction to avoid vegetation loss.</li> <li>• Planting of vegetation cover within the Project site.</li> </ul>
<b>Soil Compaction</b> Soil compacting caused by construction equipment result in reduced water infiltration	<ul style="list-style-type: none"> <li>• Roads and Drainage - – medium impact</li> <li>• Water and Sewerage _medium impact</li> <li>• Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>• Split compacted area to reduce runoff &amp; re-vegetate where necessary.</li> <li>• Vehicles to be kept in designated access roads.</li> <li>• Minimize compaction during stockpiling by working the soil in dry state.</li> </ul>
<b>Soil Pollution</b> Soil contamination caused by oils and fuel leaks from construction equipment result in increase in soil acidity.	<ul style="list-style-type: none"> <li>• Roads and Drainage - – minor impact</li> <li>• Water and Sewerage _minor impact</li> <li>• Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>• Any polluted soil should be handled with care for proper disposal.</li> <li>• Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards.</li> <li>• Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills.</li> <li>• Excavation materials to be stockpiled at the demarcated location.</li> <li>• Rehabilitation of the site after construction.</li> </ul>
<b>Impacts on Water Quality within shallow wells in the settlements</b>		<b>Mitigation Measures</b>
Reduced water quality in shallow wells within the settlements.	<ul style="list-style-type: none"> <li>• Roads and Drainage - – minor impact</li> <li>• Water and Sewerage _minor impact</li> <li>• Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>• Checking on Equipment condition and Re-fuelling at safe locations,</li> <li>• Use of spill kits and applications of emergency spill procedures</li> <li>• Use of silt barriers and settling ponds on site</li> <li>• Storing of fuels, oils, and chemicals beneath impermeable away from surface drains</li> <li>• Deep soak pits for septic tanks with all water from ablution and toilets directed into the septic tank.</li> <li>• The machines to be properly serviced offsite and maintained to avoid spillage of effluents into the surface runoff channels.</li> </ul>
Wastewater Management on Site	<ul style="list-style-type: none"> <li>• Roads and Drainage - – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>• Grey water to be contained and properly channelled on site.</li> <li>• Onsite treatment of grey water by the facility</li> </ul>

Impacts on Vegetation Cover	Associated Project Works and Level of Impact	Mitigation Measures Summary
	<ul style="list-style-type: none"> <li>Water and Sewerage _minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>approved resident engineer and Environment Officer.</li> <li>Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies.</li> <li>Prompt action to be taken by the contractor in case of any pollution incident.</li> </ul>
Solid Wastes Management on Site	<ul style="list-style-type: none"> <li>Roads and Drainage - – minor impact</li> <li>Water and Sewerage _minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Maximum reuse of excavated material.</li> <li>Implementation of Soil erosion management in the spoil locations</li> <li>Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to appropriately.</li> <li>Contractor's Camps and Construction Sites to have designated waste collection points,</li> <li>Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management</li> </ul>

#### 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 **Table 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	<ul style="list-style-type: none"> <li>Roads and Drainage - – minor impact</li> <li>Water and Sewerage _minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Effective community engagement and strong grievance mechanisms on matters related to labour.</li> <li>Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx.</li> <li>Proper records of labour force on site while avoiding child and forced labour.</li> <li>Fair treatment, non-discrimination, and equal opportunity of workers.</li> <li>Comply to provisions of WIBA 2007</li> <li>Develop and implement a children Protection Strategy</li> </ul>
Human Rights and gender	<ul style="list-style-type: none"> <li>Roads and Drainage - – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender</li> </ul>

Impacts	Associated Project Works and Level of Impact	Proposed Mitigation Measures
inclusivity	<ul style="list-style-type: none"> <li>Water and Sewerage _minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>rule.</li> <li>Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights</li> </ul>
Increased Crime and Insecurity	<ul style="list-style-type: none"> <li>Roads and Drainage - – minor impact</li> <li>Water and Sewerage _minor impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.</li> <li>Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices</li> </ul>

### 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.	<ul style="list-style-type: none"> <li>Roads and Drainage - – medium impact</li> <li>Water and Sewerage _medium impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Contractor will comply with provisions of EMCA 2015 (Noise and Excessive Vibrations Regulations of 2009)</li> <li>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.</li> <li>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</li> </ul>
Air Pollution and Dust Generation.	<ul style="list-style-type: none"> <li>Roads and Drainage - – medium impact</li> <li>Water and Sewerage _medium impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>The contractor shall comply to the provisions of EMCA 2015 (Air Quality Regulations 2014)</li> <li>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.</li> <li>Water sprays shall be used on all earthwork's</li> </ul>

Impact	Associated Project Works and Level of Impact	Proposed Mitigation Measures
		areas within 200 metres of human settlement especially during the dry season.
Risk of Accidents at Work Sites	<ul style="list-style-type: none"> <li>Roads and Drainage - medium impact</li> <li>Water and Sewerage - medium impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the Supervising Engineer.</li> <li>Provide Personal Protective Equipment including gloves, gum boots, overalls and helmets to workers, use of PPE to be enforced by the Supervising Engineer.</li> <li>Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles</li> </ul>
Risk of Traffic Accidents at workstations within the settlements	<ul style="list-style-type: none"> <li>Roads and Drainage - medium impact</li> <li>Water and Sewerage - medium impact</li> <li>Flood light works – minor impact</li> </ul>	<ul style="list-style-type: none"> <li>Strict use of warning signage and tapes where the trenches are open and at other active construction sites.</li> <li>Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site.</li> <li>Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer</li> </ul>

#### E.5.4 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 – Ablution Block, Public Park, Market and vending platforms.

Tables E-6, E-7, E-8 and E-9 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
<b>Risk of encroachment on Sewerage pipelines and manholes</b>	<ul style="list-style-type: none"> <li>Mapping and installation of beacons to illustrate the width of the pipeline reserve.</li> <li>Regular patrol of the pipeline corridor for encroachment.</li> <li>Prosecution of encroachers as required by County by Laws on way leaves and road reserves maintenance.</li> </ul> <p>Conduct public sensitization programs on importance does not interfere with way leaves and public reserve land.</p>
<b>Health risks because of burst sewers</b>	<ul style="list-style-type: none"> <li>Ensure proper and periodic maintenance of sewer lines and treatment plant.</li> <li>Activate a community watch group for information sharing on the status of the sewer line.</li> <li>Regular check, repair, and maintenance of the sewer line</li> </ul>

	<ul style="list-style-type: none"> <li>• Awareness rising among community members not to dump solids in manholes.</li> <li>• Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris that may lead to sewer backups.</li> <li>• Development of an inventory of system components, with information including age, construction materials, and drainage areas served elevations.</li> <li>• 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.</li> </ul> <p>Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation</p>
<b>Environmental pollution due to sewage blockage</b>	<ul style="list-style-type: none"> <li>• Regular check, repair and maintenance of the sewer lines</li> <li>• Activate a community watch group for information sharing on the status of the sewer lines.</li> <li>• Awareness rising among community members not to dump solids in manholes.</li> <li>• Ensure embankments around the sewer ponds are properly done to prevent storm water mixing with the sewer</li> <li>• Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris that may lead to sewer backups</li> <li>• Develop an inventory of system components, with information including age, construction materials, and drainage areas served including elevations.</li> <li>• 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.</li> <li>• Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation.</li> </ul>

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

<b>Impact</b>	<b>Proposed mitigation measure</b>
Increased Accidents associated with motorcycles over speeding within the settlement due to good roads	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The County Government to enlighten motorist and cyclist on importance of obeying traffic rules especially in residential areas.</li> <li>• The County Government to enlighten residents and school children on the importance of adhering to provisions of road safety rules</li> <li>• Regular inspection and maintenances of the road by County Government of Nairobi to ensure the speed control parameters and signage are in good condition.</li> <li>• Regular crackdown, arrest and prosecution of motorists and cyclist who disobey road safety directions.</li> </ul>
Pollution from fossil fuels from vehicles	<ul style="list-style-type: none"> <li>• Encourage locals to use fuel efficient vehicles and other types such as those that run on electricity</li> <li>• Encourage people do drive less and learn to use public means of transport and bicycles</li> </ul>



Flooding due to poor drainage channels	<ul style="list-style-type: none"> <li>Maintenance of the drainage channels to ensure that there is no blockage of the channels</li> </ul>
Loss of business associated with poor road condition during operation phase	<ul style="list-style-type: none"> <li>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</li> </ul>

**Table E-8: Anticipated Impact and Mitigation measure on Floodlights**

Impact	Mitigation measure
Risk of electrocution	<ul style="list-style-type: none"> <li>Ensuring that all the wires are appropriately insulated and are safe from causing harm to humans</li> <li>Regular maintenance of the flood light to ensure all exposed electrical lines are repaired</li> </ul>
May cause eye problem when there is bad lighting	<ul style="list-style-type: none"> <li>Ensure that the lighting system is proper to avoid flipping that can result to eye problems for people</li> <li>Regular maintenance of the flood light to ensure efficiency</li> </ul>

## E.6 Environment and Social Assessment Finding

The Main Findings from the assessment described in the Report for proposed KISIP intervention in target Shauri informal Settlement in Uasin Gishu County are summarized below.

### 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. These spaces are provided for in the respective settlements' Physical Development Plans (PDPs) prepared for the settlements under KISIP component 2, that addresses settlement planning and land tenure. However, the ARAP report prepared for Shauri Informal Settlement detailed the below summarized to be impacts related to Project impacts to peoples assets and sources of livelihood

- ✓ 15 project Affected Persons. Affected by planning and survey in Shauri Informal Settlement. The number of affected structures, from re-planning is 15 where all are 36 partially affected.
  - ✓ The total budgetary requirements for implementation of the ARAP is provided as 561,545.00 (Five hundred and sixty-one thousand five hundred and forty-five shillings only).
- (iii) However, there are inevitable cases of encroachment on some sections of the way leave and road reserve in the settlements therefore OP 4.12 will be triggered. Cases of resettlement are limited to permanent structures which will be compensated as per the RAP Report for the Project.
- (iv) Provisional Budget of Kenya Shillings two hundred 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.

# MAIN REPORT

## CHAPTER 1: BACKGROUND INFORMATION

### 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 Eldoret town – Uasin Gishu 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 Développement (AFD). The target settlements in Uasin Gishu County are 8nr including Maili Nne, Segero, Shauri, KK, Kasarani, Mwanzo and Ngomongo are 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 report presents environmental and social impact assessment Comprehensive Project Report for proposed infrastructure investments in Sahuri Informal Settlement in Eldoret Town Uasin Gishu County.

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

**Table 1- 1: Components of KISIP Project**

#	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.

DISCLOSURE COPY

Source: Field Survey 2023



**Figure 1- 1: Shauri Informal Settlement Location Map**

DISCLOSURE COPY

## 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), 2015 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 Kipkaren 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 Kipkaren 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 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 Kipkaren 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 Kipkaren 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);
- 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:<sup>1</sup>

### Definition of Terms in the Table

<sup>1</sup>Environment and Social Impact Rating Developed by ESIA team for KISIP Projects in Nairobi and Uasin Gishu County July 2014

**Extent:** An area of influence covered by the impact. In this sense, if the action produces a much-localized effect within the space, it is considered that the impact is low (1). If, however, the effect does not support a precise location within the project environment, having a pervasive influence beyond the project footprint, the impact will be at location level (3) or could be County (5)

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

**Intensity:** refers to the degree of impact on the factor, in the specific area in which it operates, ranked from low (1) to high (5).

**Probability:** Refers to the likelihood of the impact occurring during the project implementation, this is also ranked as Probable (1) to highly probable

#### **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**

- (i) Environmental Management and Coordination Act (EMCA) 1999
- (ii) Project Appraisal Document PAD for KISIP 2011
- (iii) Environmental Management and Social Framework (EMSF) KISIP 2 - 2019
- (iv) Resettlement Policy Framework (RPF) KISIP 2 - 2019
- (v) 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 July 2017 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 assessment involved consultations with relevant stakeholders in Shauri informal settlements in Uasin Gishu County. 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 then 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 October 2023 attendance of the meetings was from diverse sectors of the society as summarized in **Table 1-1** below;

**Table 1- 3: Schedule of Public Consultation**

Date	Settlement	Stakeholder Consulted	Meeting Attendance
21 <sup>st</sup> October 2023	Shauri Informal Settlement	Settlement Executive Committee members (SEC) for Shauri Informal Settlement, County Government of Uasin Gishu Religious Leaders, E.I.A team, Area chief and members of the community	Total 54 Male 38 Female 16

*\*Details of stakeholder consultations are presented in Chapter 6 of this Report. Also, a detailed Community Meeting is annexed in the report.*

### 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

#### **1.5.6 Secondary Socio-Economic Data**

This information was largely drawn from the Kenya National Bureau of Statistic, Uasin Gishu 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.

## CHAPTER 2: PROJECT DESCRIPTION

### 2.1 Project Context

This chapter presents Project Interventions in the target Informal Settlements of Uasin Gishu 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) Existing status of infrastructure within the target informal settlements observed during field visits.
- (ii) Projects prioritization during the focused Group Discussions (FGD) undertaken during community consultations.
- (iii) Prioritized interventions in the Conceptual Design Report (IPE/GA October 2023)

### 2.2 Existing Status of infrastructure in Shauri Informal Settlement

#### 2.2.1 Roads and Footpath

Based on the field survey within Shauri Informal Settlement the status of the road access was recorded as the main road used to access the settlement is tarmacked with clear road network but lack footpaths. The same cannot be said of the remaining settlements who interior access are narrow murram roads and with unclear networks. The roads are impassable during rainy season due to mud and overflow of small drains within the settlement.

**Table 2- 1: Status of Road and Foot Path in Shauri Informal Settlement**

Settlement	Access Road	Status of Access Road	Interior Settlement Roads	Characteristic of Road Network
Shauri	Off Uganda Road, Next to Raiply Timber Factory	Bitumen	Earthen	Unclear Network

#### 2.2.2 Drainage Infrastructures

Storm Water Drainage as observed in Shauri settlement was generally a haphazard network of open drains, characterized by overflow and in some cases. Existing status of drainage pattern is presented in **Table 2-2** below.

**Table 2- 2: Status of Road and Foot Path in Shauri Informal Settlements**

Settlement	Drainage Network	General Slope	Alternative Drainage
Shauri	Unclear network	Generally flat land with gentle slope.	None

### 2.2.3 Solid Wastes Management

The solid waste management as observed was characterized by dumping of waste along the roads. However, the settlement has started implementation collection of garbage waste through waste bins outside their residential houses. The **Table 2-3** below depicts a summary of the conditions of Solid Waste Management on the ground, within Mwanzo settlements:

**Table 2- 3: Solid Waste Management in Shauri Settlement**

Settlement	Designated Garbage Collection Points	Alternative Dumping Ground
Shauri	✓	None

### 2.2.4 Sewerage Infrastructure

Settlements within the town are not connected to functional sewer lines, as is seen in a large section of Uasin Gishu County in general. Locals have dug up septic tanks for household use outside these settlements. These are not however, frequently seen within the settlements. A few individuals have their own flush system toilets, which are connected to their own septic tanks. The A summary of these conditions is as **Table 2-4** below:

**Table 2- 4: Sewerage Infrastructure**

Settlement	Sewer Line Connection	Septic Tanks Available	Ablution Blocks Available	Pit Latrines Available	Additional Observations
Shauri	None	None	None	✓	Several households with flush system toilets

### 2.2.5 Water Supply

Shauri informal Settlement has access to county supplied water by ELDOWAS. However, it was observed within the settlement that the water is not sufficient neither is it access by all the households within the settlement. Water supply situation is indicated in **Table 2-5** below.

**Table 2- 5: Water Supply Situation**

Settlement	City County Supply	Access to City County Supply	Presence of Water Vendors	Illegal Connections
Shauri	✓	✓	✓	✓

DISCLOSURE COPY



## 2.2.7 Lighting and Electric Network

Majority of residents in the settlements have access to connections, through the main grid while, unfortunately, some households find the connection fees a hindrance to household connections. The settlement had dispersed supply of street lighting from the municipality however due to poor maintenance most were non-functional. The survey noted that they high voltage powerlines have passed through the settlement. Lighting and electricity Network is indicated in **Table 2-6**;

**Table 2- 6: Lighting and Electric Network**

Settlement	Kenya Power Connections	Street Lighting	Light Masts/Flood Lighting
Shauri	✓	Available but nonfunctional	Available but nonfunctional

## 2.3 Projects prioritization during the focused Group Discussions (FGD)

### 2.3.1 Shauri Informal Settlement:

**Table 2-7** below presents a summary of Project prioritization presented by Community following Community Consultation Forums.

**Table 2- 7: Shauri Informal Infrastructural Prioritization**

PRIORITY 1	PRIORITY 2	FGD Meetings
Roads and footpaths	Street Lighting/Flood masts	Roads
Sewerage	Solid Waste Management	Solid Waste Management
Solid Waste Management	Social Amenities	Flood masts/Street Lighting
Storm Water Drainages	Open Spaces	Storm Water Drainage
		Sewerage
		Water Supply
		Open Spaces

## 2.4 Prioritized interventions

Based upon the priorities defined previously by communities; our discussions with the County Government; our analysis of the existing situation; as well as interrelations between infrastructure components, we now propose in this chapter the direction to our design works as well as the key issues to be addressed during the next design phase.

The Conceptual Design for Shauri informal settlements shall focus on the following priorities:

- 1. Roads and drainage:** upgrade of the road network (main access roads and the interior network) in the target informal settlements to bitumen standards, and construction of

storm water drains. The Proposed Design to construct 8,001 m of road and 10,396m of foot paths and drainages.

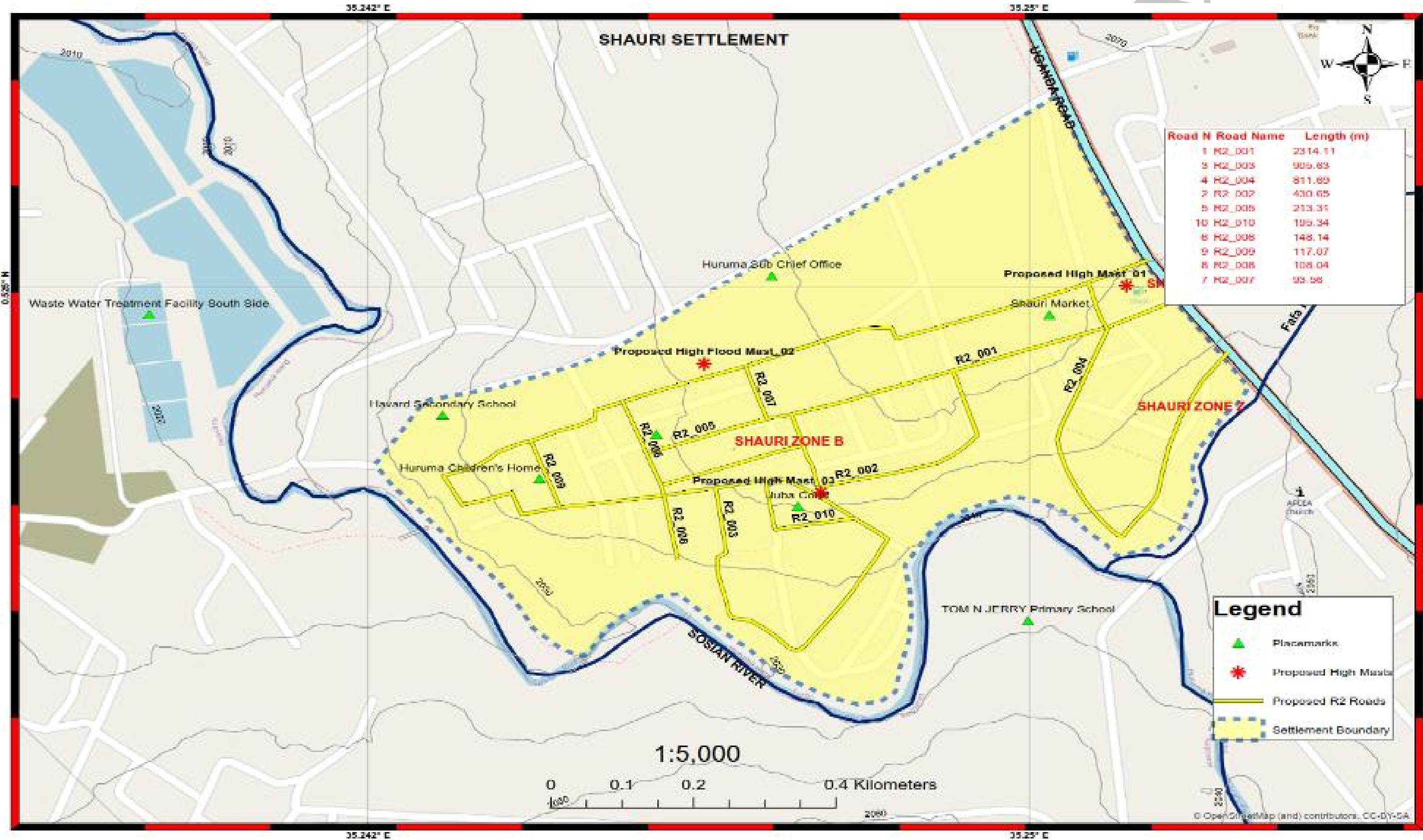
2. **Street lighting and Supply of Electrical Power:** Implementation of flood masts within the settlement. Adequate consideration shall be given to more sustainable measure of providing electricity within the household and cluster levels, including community charging points (refer to electrical works component) as well as implementation of renewable sources of electricity. The design of the project intends to construct 80 Nr. street this includes High mast flood lights and street lighting.
3. **Social Amenities** – this includes 200 Nr. port vending platforms, 1 No. 5 door toilet ablution block, public market, multipurpose social hall and a Public Park and landscaping along Fafa Roo river bank.

The Project scope for Shauri informal settlement as presented in the Project Design Report is summarized in **Table 2.8** below scope of Works and **Figure 2-1** on **Page 2-6** is the layout plans.

**Table 2- 8: Project Scope of Works for Shauri Informal Settlements**

PROPOSED	CODE ON MAP	DESCRIPTION	QTY
R1 Roads	R1 -001	6m carriage way, drainage and footpath on both side of the carriage way.	1051.64 m
	R1 002	6m carriage way, drainage and footpath on both side of the carriage way.	180.69 m
	R1 003	6m carriage way, drainage and footpath on both side of the carriage way.	716.69 m
	R1 004	6m carriage way, drainage and footpath on both side of the carriage way.	446.45 m
R2 Roads	R2 002	5.5m carriage way, drainage and footpath on one side of the carriage way.	139.38 m
	R2 003	5.5m carriage way, drainage and footpath on one side of the carriage way.	583.07 m
	R2 004	5.5m carriage way, drainage and footpath on one side of the carriage way.	602.06 m
	R2 005	5.5m carriage way, drainage and footpath on one side of the carriage way.	481.70 m
	R2 006	5.5m carriage way, drainage and footpath on one side of the carriage way.	232.43 m
	R2 007	5.5m carriage way, drainage and footpath on one side of the carriage way.	344.14 m
	R2 008	5.5m carriage way, drainage and footpath on one side of the carriage way.	138.76 m
	R2 009	5.5m carriage way, drainage and footpath on one side of the carriage way.	299.66 m
	R2 010	5.5m carriage way, drainage and footpath on one side of the carriage way.	357.56 m
	R2 011	5.5m carriage way, drainage and footpath on one side of the carriage way.	225.52 m
	R2 012	5.5m carriage way, drainage and footpath on one side of the carriage way.	514.31 m
	R2 013	5.5m carriage way, drainage and footpath on one side of the carriage way.	149.29 m

	R2 014	5.5m carriage way, drainage and footpath on one side of the carriage way.	140.98 m
	R2 015	5.5m carriage way, drainage and footpath on one side of the carriage way.	189.58 m
	R2 016	5.5m carriage way, drainage and footpath on one side of the carriage way.	232.87 m
	R2 017	5.5m carriage way, drainage and footpath on one side of the carriage way.	61.10 m
	R2 018	5.5m carriage way, drainage and footpath on one side of the carriage way.	99.35 m
	R2 019	5.5m carriage way, drainage and footpath on one side of the carriage way.	139.60 m
	R2 020	5.5m carriage way, drainage and footpath on one side of the carriage way.	198.92 m
	R2 021	5.5m carriage way, drainage and footpath on one side of the carriage way.	475.72 m
R3 Road (Footpath along Fafa Roo River Bank)	R3 001	4m footpath, drainage on one site of the road, street lighting	629.2 m
High mast flood light	30m high mast with an approximate coverage radius of 150 m		4 Nr
Street lighting along all the proposed R1Roads	8 m high poles, along the proposed roads, with 28 luminaires, 2 Control Pillars and 1870 m main cable		
Vending platforms	200 port vending platform with a total plinth coverage of 340 m <sup>2</sup>		
Ablution Block at Mwanzo Market	1 No. 5-door toilet ablution block		
Social hall	A multi-purpose social hall with a total plinth coverage of 1,000 m <sup>2</sup>		
Public Park	Landscaped green zone along Fafa Roo River bank, total area of 50,000 m <sup>2</sup>		
<b>Total Road</b>			<b>8,001 m</b>
<b>Total Footpath and Drainage Length</b>			<b>10,396 m</b>
<b>Total Street lighting</b>			<b>80 poles</b>



Source: Field Survey 2023

Figure 2- 1: Shauri Layout Plan

## 2.5 Design interventions to improve infrastructure resilience.

Table 2-9 below presents Design interventions to improve infrastructure resilience.

**Table 2- 9: 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; <ul style="list-style-type: none"> <li>➤ Planting of trees</li> <li>➤ Planting grass</li> <li>➤ Use of colored paving blocks interspersed with green grass at the joints, hence projecting a green view on birds eye.</li> </ul>

5.	Mitigation efforts towards Greenhouse gases emission by motor vehicles	UasinGishu County KISIP Team has promised to introduce sustainable practices in the transport and mobility for example, use of electric vehicles for inter commute and capacity building in climate proofing through continuous mainstream of the facility.
----	--	---

## 2.6 Construction Materials

### Locally available Construction Materials

The designs identified locally available materials sources and through laboratory testing, and categorised 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- 10: 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- 11: 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.

## Project Cost

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

**Table 2- 12:Project Cost**

Settlement	Roads, footpaths, drainage	security lighting	water and sanitation	social amenities	SUB-TOTAL 1	dayworks	bill 1	bill 28	CONTRACT 1 TOTALS
Shauri Site & Service	53,786,025.75	15,970,543.60	10,774,067.17	25,399,545.60	105,930,182.12	890,446.81	8,881,468.74	2,629,576.12	118,331,673.80

## 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.



- (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 Kipkaren. However, they are prone to vandalism in the project areas within Eldoret.

##### **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.

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.
- **Uses 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.

## 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 flood mast or using Aluminium materials. Also using Iron is an option. Aluminium was chosen 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:

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

**Table 3-1** below presents the scoring of priority interventions in the settlements.

**Table 3- 1: Scoring of Priority Interventions in the Settlements**

PRIORITY 1	PRIORITY 2	FGD Meetings
Roads and footpaths	Street Lighting/Flood masts	Roads
Sewerage	Solid Waste Management	Solid Waste Management

Solid Waste Management	Social Amenities	Flood masts/Street Lighting
Storm Water Drainages	Open Spaces	Storm Water Drainage
		Sewerage
		Water Supply
		Open Spaces

\*

### 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.
- (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.

## 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.
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

No	Policy	Applicability
		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 Resources and Benefit Sharing) Regulations,	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.

No	Policy	Applicability
	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 ELDOWAS. This implies that during implementation of Water and Sewerage Project adequate collaboration between KISP implementing unit and ELDOWAS will be required.
3	County Government Act No. 17 of 2012	The proposed Projects will be implemented within Uasin Gishu 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	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. KISP projects will be implemented with Part Development Plans (PDP) developed by the County Governments through the support of Component 2 of KISP 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 exceeds 250,000; and a town when it exceeds 10,000) and requires the city

No	Policy	Applicability
		and municipality to formulate County Integrated Development Plan (Article 36 of the Act). KISIP Projects are within Uasin Gishu 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 2015 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	MLPWH&UD	Ministry of Transport, Infrastructure, Housing and Urban Development MLPWH&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 Uasin Gishu	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	ELDOWAS	Eldoret Water and Sanitation Company (ELDOWAS) is the Water Service Providers (WSP) wholly owned by Uasin Gishu 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.



No	Policy	Applicability
6	KURA	Kenya Urban Roads Authority is a government parastatal under Ministry of Transport, Infrastructure, Housing and Urban Development MLPWH&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

## CHAPTER 5: BASELINE INFORMATION OF TARGET SETTLEMENTS

### 5.1 General Information

The Project target upgrading of infrastructure in Shauri informal settlement in Eldoret town, the target settlement is summarized in **Table 3-1** below;

**Table 5- 1: Target Settlements**

Location in Uasin Gishu County	Settlement
Eldoret Town	Shauri Informal Settlement

The identified Informal Settlement is located within Uasin Gishu County, the County is one of the eight counties in North Rift Region. The county lies between The County extends between longitudes 340 50' east and 350 37' east and latitudes 00 03' South and 00 55' North. Uasin Gishu County covers a total surface area of 3,345.2 km<sup>2</sup>. The County shares common borders with Trans Nzoia County to the North, Elgeyo Marakwet County to the East, Baringo County to the Southeast, Kericho County to the South, Nandi County to the Southwest and Kakamega County to the Northwest.

The county has seven sub counties namely, Soy, Turbo Moiben, Ainabkoi, Kapseret and Kesses. It has 17 57 locations, 105 sub-locations.

### 5.2 Physical Environment

#### 5.2.1 Climate

The County receives a high and reliable rainfall with an average annual rainfall ranging from 624.9 mm - 1560.4mm. This occurs between the months of March and September with distinct peak in May and August. The areas with relatively higher rainfall are found in Ainabkoi, Kapseret and Kesses whereas Turbo, Moiben and Soy receiver relatively lower amounts of rainfall. The dry spells start in November and end in February. The annual temperatures in the County range between 7°C and 29°C. The rainfall and temperatures in the county are conducive for both agriculture and farming.

#### 5.2.2 Topography

Uasin Gishu County divided into two topographical features: the upper highlands and lower highlands with Eldoret (2,085m) forming the boundary between the regions. The altitudes fall gently from 2,700 m above sea level at Timboroa in the East to about 1500m above sea level at Kipkaren. The topography is higher in the East and declines towards the western borders.

#### 5.2.3 Soils and Geology

The geology of Uasin Gishu is dominated by tertiary Volcanic rock. The soils represent a wide range of profile characteristics drainage condition have delivered an array of soils from high

to low agricultural potential. these are the red loam, red clay, brown loam, and brown clay soils. Differences in e.g. parent material, colour, porosity or age. Some of the characteristics and their distributions are:

- The red loam soils are found mainly in the northern parts of the county in Turbo, Moi's Bridge and lower Moiben.
- The red clay soils occur around soy, Upper Moiben and Nandi Borders.
- The brown clay soils occur in upper areas of Lesso.

#### **5.2.4 Hydrology**

The County is within the L. Victoria water catchment and is endowed by several rivers which include R. Moiben, R. Sergoit, R. Kipkaren, R. Chepkoilel and R. Sosiani which drain into L. Victoria. These rivers provide water for livestock, farming and domestic use.

### **5.3 Biological Environment**

#### **5.3.1 Vegetation and Flora**

The county can be divided into several Agro- Ecological Zones (AEZ), which define areas that have similar characteristics such as annual mean temperatures, vegetation and humidity. These include:

##### **(i) Grasslands and Savannah:**

The county's landscape is characterized by extensive grassland and savannah. These open grassy areas are a home to variety of grass species and provide important grazing for livestock.

##### **(ii) Riparian Vegetation**

Vegetation along rivers and streams in Uasin Gishu include various trees and shrubs adapted to wetland conditions. This riparian vegetation is crucial for maintaining water quality and preventing soil erosion.

##### **(iii) Acacia Woodlands**

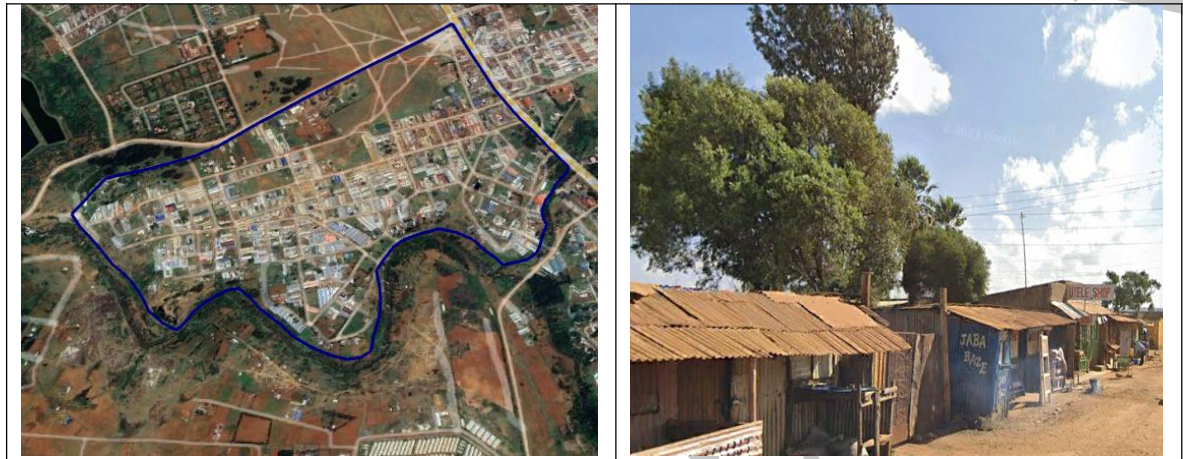
Acacia trees are common in the county contributing to the savannah landscape. The trees provide shade and serve as habitat for various wildlife species.

##### **(iv) Wetlands and Swamps**

Uasin Gishu County has wetlands areas that support unique flora and fauna. These wetlands are important for water filtration and are breeding grounds for some bird species.

## 5.4 Target Settlements Assessment

KISIP targets upgrading of infrastructure in Shauri informal settlement in Eldoret Town. Detailed assessment of the settlement is presented in sub chapters below is presents satellite map of Shauri Informal Settlement. The settlement is located on latitude 0°31' 30"N and Longitude 35° 14' 42"E in Eldoret along Eldoret-Kitale Road.



### 5.4.1 Shauri Informal Settlement in Eldoret Town

Shauri Informal settlement is located in Shauri village within Huruma Ward, Turbo Sub-County in Uasin Gishu County, the settlement is located approximately within Eldoret Municipality. The settlement is 6.1 km from Eldoret Town. The settlement can be accessed off Uganda Road, at the Junction next to Raiply Timber Factory. It has an approximate geographic span of 13.28 Ha and a population of 20,000 people (KISIP).

The approximate plot size per household is 50 by 100 ft of land allocated by Uasin Gishu County. Some of the residents of Shauri have land title deeds while others lack proper land ownership documents. The type of houses of houses constructed within the settlement are a mixture of permanent houses (with masonry walling) and semi-permanent houses (mud houses and mabati structures).

#### (i) Environment and Social Screening – Shauri Informal Settlement

The area is located within human settlement in Eldoret town with very limited vegetation cover due to the settlement being within the town center. The main economic activity within the settlement is commercial business.

The settlement has no elaborate drainage system therefore runoff water follows the natural drainage system and small drains that are clogged bringing issues of stagnation of waste waters. The wastewater is further deposited into River Sosian as surface run off. The settlement faces challenges of blockage due to anthropogenic activities which result into flooding of the settlement during rain seasons. Also, Solid waste management systems are not well developed



hence waste is often dumped by the roadsides. **Figure 3-1** below illustrated environmental situation in Shauri Informal Settlement in Eldoret Town.

**Figure 5- 1: Environmental Situation in Shauri Informal Settlement**



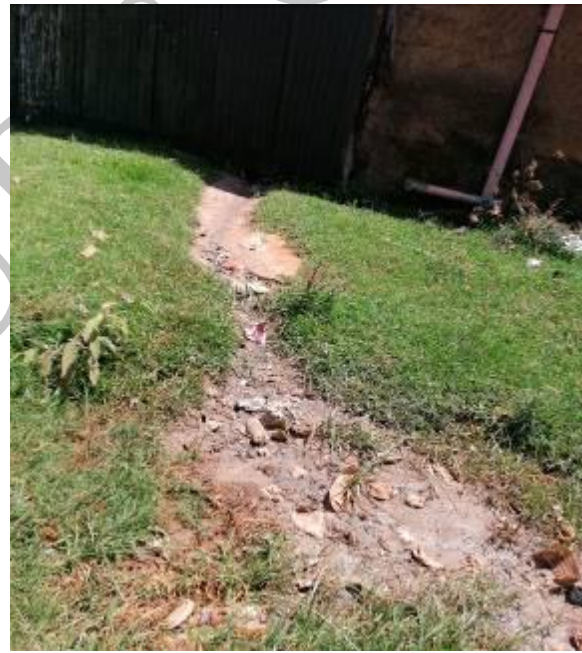
Solid waste collected outside residential houses



Solid Waste dumped along the road.



R. Sosian within the settlement



Status of sewer darins

#### **(ii) Existing Infrastructure in Shauri Informal Settlement in Eldoret town**

The common type of sewerage disposal infrastructure is use of pit latrine shared per homestead; this is because the area does not have a sewer system. Most structure within the settlement are made of quarry stones with cement wall, cement screed floor and galvanized corrugated iron sheet roof, a small number of houses are made of mud walls and iron sheet roofs. Electricity is readily available in the area and the high voltage power lines have passed through the settlement.

There is water connection to the area done by Eldoret Water and Sanitation Company (ELDOWAS) although the water is not sufficient for the residents within the settlement. The Kenya Pipeline Company (K.P.C) has passed within the settlement.

Majority of roads in the area are of marram standards and some are tarmac roads being maintained by the county government of Uasin Gishu. Some of the existing infrastructure as presented on **Figure 3-2** below.

**Figure 5- 2: Existing Infrastructure in Shauri Informal Settlement**



High Voltage power lines within the settlement



K.P.C Pipeline



Marker post illustrating water pipeline passing through the settlement



Access road to the settlement.

### **(iii) Commercial Facilities within Shauri Informal Settlement**

The area is served with various commercial facilities that offer source of employment to the residents and provision of services. Which include but not limited to Residential Houses, shops, salons, chemist.



**Figure 5- 3: Commercial Business in Shauri Informal Settlement**



Small business within the settlement

**(iv) Public and Social Amenities in Shauri Informal Settlement**

The area is served by a number of public and social facilities which include but not limited to churches, schools, roads as presented in **Photos 3-11** on **Page 3-6**.

**Figure 5- 4: Public Facilities in Shauri Informal Settlement**



Some churches within the settlement.

## 5.5 Climate Change Impacts in Informal Settlements

The National Climate Change Response Strategy (2010)<sup>2</sup> provides that that climate change is one of the greatest challenges facing humanity this century. In Kenya, this phenomenon is already unmistakable and intensifying at an alarming rate as is evident from countrywide temperature increases and rainfall irregularity and intensification

The strategy points out many ways to which climate change impact settlements directly or indirectly through extreme climate conditions such as high wind, heavy rainfall, heat and cold can result in a wide range of scenarios such as tropical storms, floods, landslides, droughts and sea-level rise. Climatic catastrophes displace populations and cause sudden deaths, which in turn can lead to conflicts and civil unrest.

Therefore in order to mitigate climate change impacts above, the strategy advocates implementation of climate change adaptation strategies among them; proper planning of urban settlements which takes into consideration the expected high growth rate of urban population due to climate-induced migration from rural areas to urban centres. This will require urban planners and real-estate industry players to accordingly implement proper and adequate housing structures, waste disposal as well as piped water infrastructure. This is the mandate resonates with KISIP development objective which is to improve access to basic services and land tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya.

As presented in the Climate Risk Profile Uasin Gishu County<sup>3</sup> prepared by Ministry of Agriculture, Livestock and Fisheries (MoALF) in 2018, the county has a relatively low vulnerability index (0.419) to climate change (GoK, 2013) yet it continues to suffer extreme weather events like drought and floods. Though climate models have shown that floods are likely to occur every three years. Recent news reports in the last three consecutive years (2013, 2014, 2015, and 2016) have shown devastating floods in different regions in the county. For instance, in 2013, floods killed eight people in Uasin Gishu<sup>2</sup>, in 2014, and destroyed property, roads and buildings including the Uasin Gishu District Hospital, and more than 30 families displaced in Kimumu estate in 2016. Table 2-9 of this report presents detailed measures of design provisions in an effort to achieve resilience to climate change

## 5.6 Socio Economic Profile

Residents of Shauri Settlement in Eldoret are either plot owners, structure owner or tenants. In figure 4.1 it is shown that tenants are 87%, structure owners are 8% and plot owners are 5%.

<sup>2</sup> National Climate Change Response Strategy, Government of Kenya. April 2010,

<sup>33</sup> Climate Risk Profile Uasin Gishu County 2018



### 5.6.1 Ownership/Tenancy

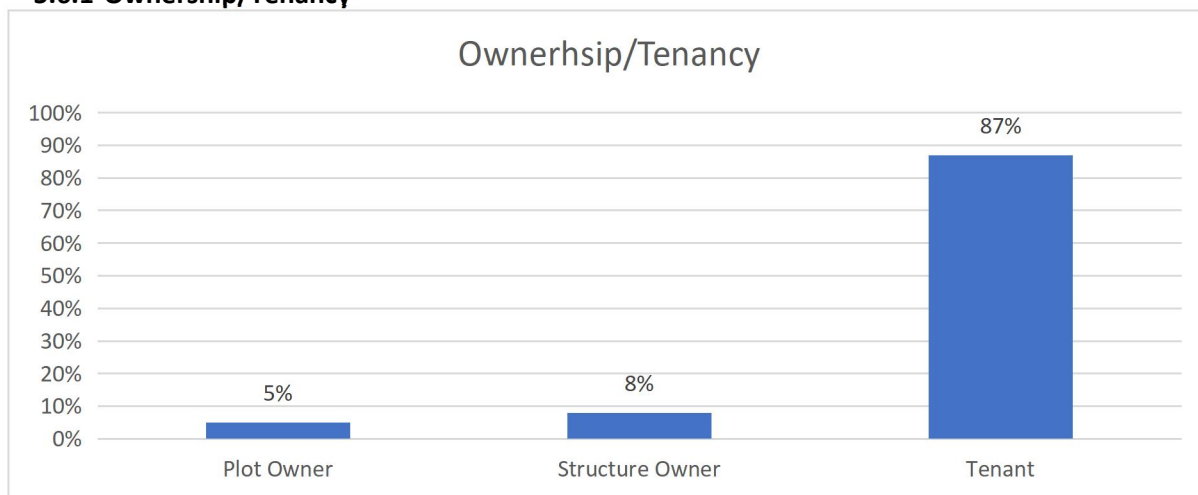


Figure 5- 5: Ownership/Tenancy

### 5.6.2 Accessibility

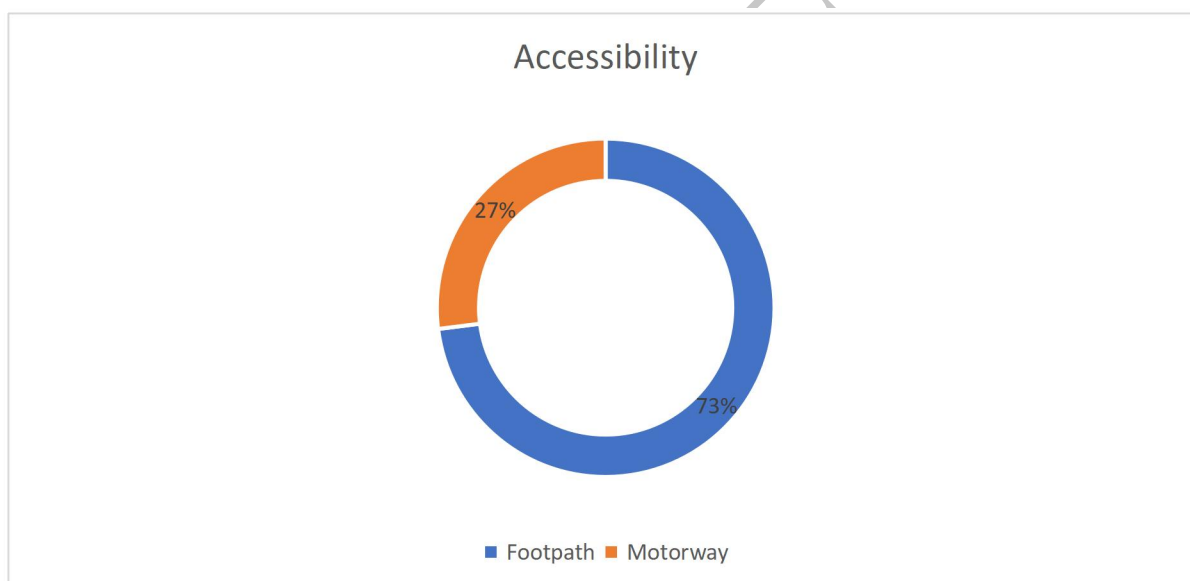


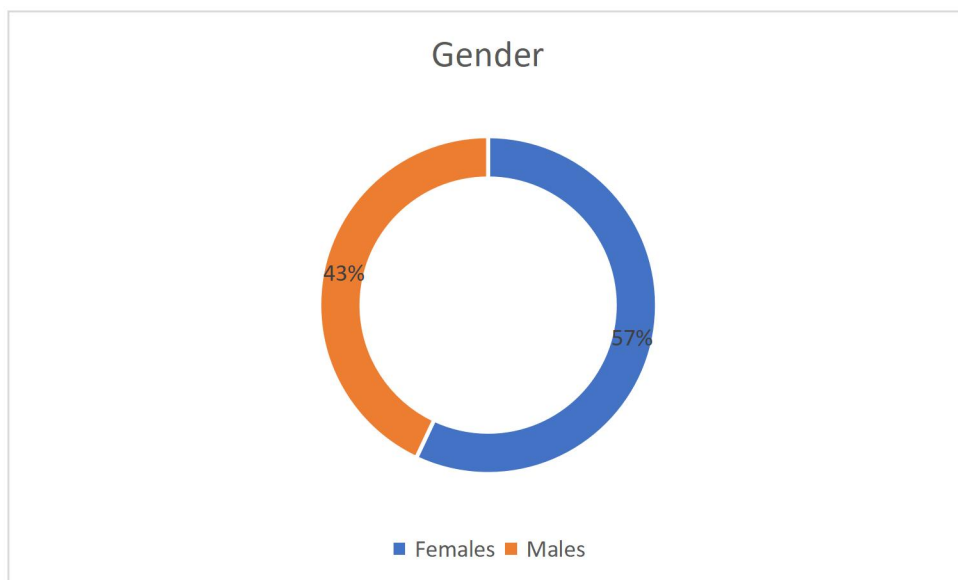
Figure 5- 6: Accessibility

There is no defined footpath as the motorable murram road widths is still where the pedestrians pass. According to the survey results, 73% of residents access their structures by walking in, and only 27% access via automobiles.

### 5.6.3 Demographic Profile of Households

#### (i) Age, Gender and Marital Status

The survey showed that the population of the settlement has significantly more females than males, as indicated in Table 5-2.



**Figure 5- 7:Gender**

The survey revealed that the gender distribution in the Shauri settlement has notably more females than males, with 57% of the population identified as female and 43% as male.

**Table 5- 2: Age and Marital Status**

Age	Married	Single	Total
15-19	0.0%	5.0%	5.0%
20-24	5.0%	5.0%	10.0%
25-29	5.0%	15.0%	20.0%
30-34	10.0%	5.0%	15.0%
35-39	15.0%	5.0%	20.0%
40-44	5.0%	0.0%	5.0%
45-49	10.0%	0.0%	10.0%
50-54	5.0%	0.0%	5.0%
55-59	5.0%	0.0%	5.0%
60+	5.0%	0.0%	5.0%
<b>Total</b>	<b>65.0%</b>	<b>35.0%</b>	<b>100.0%</b>

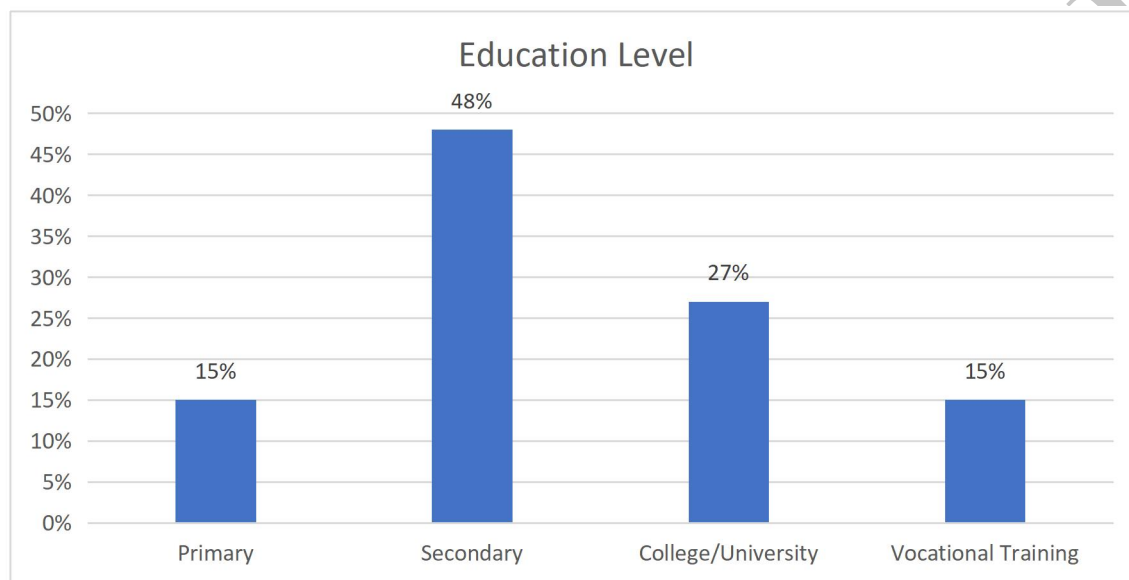
According to the findings of the survey, population of Shauri settlement is very youthful with youth aged 15-34, accounting for half or 50% of the residents. The middle age 35-55 accounts for 40% of the population while older persons beyond 55 years of age are 10%. This indicates the presence of a sizable young population within the settlement, highlighting the need to invest in youth-focused initiatives, such as education and skill-based small business empowerment, to tap into the potential of these individuals as future contributors to the community. In Shauri settlement, more than half of the residents 65% are married while 35 are singles all of which are Kenyan citizens.

**(ii) Disability or vulnerability**

Inclusivity is a crucial aspect of any study, ensuring that a diverse range of perspectives and experiences are considered. All the respondents and the results obtained do not have any form of disability or vulnerability.

#### 5.6.4 Education Levels

During the survey, the educational levels of Shauri residents were sought, and the results are presented in figure 5-8 below.



**Figure 5- 8: Educational Levels**

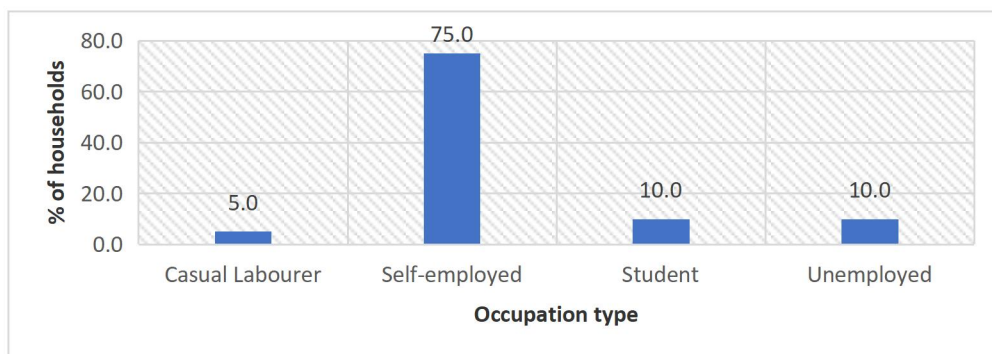
In Shauri settlement, the educational landscape indicates a strong presence of secondary education level of 45%, followed by 27% being graduates of college or university, 15% having vocational training and another 15% with primary education.

#### 5.6.5 Economic Profile of Households

The economic profile of households is important as it provides insights into the distribution of wealth, influences access to essential services, and helps identify vulnerable groups, guiding targeted interventions for sustainable community development and improved well-being. This was established in Shauri settlement survey and results are given below

##### (i) Employment

Level of education was plotted against household members within the settlement and the result is posted in figure 5-9.



**Figure 5- 9: Level of Education and Occupation**

Examining the occupational distribution in Shauri settlement reveals a diverse workforce. The majority, constituting 75%, are self-employed, highlighting a significant entrepreneurial spirit within the community. This could indicate a thriving informal economy or a culture of self-reliance. Casual laborers make up a smaller portion, at 5%, suggesting a limited presence of this employment category. Additionally, 10% of respondents identify as students, reflecting a commitment to education, and another 10% report being unemployed.

(ii) **Income Levels**

Shauri residents were asked to state their monthly income and the results is shown in figure 5-10.



**Figure 5- 10:Monthly Income**

The income distribution in Shauri settlement reveals that a significant majority, 56%, falls within the Kshs: 0-5,000 monthly income range, indicating a predominantly lower-income community. A smaller percentage, 38%, earns Kshs: 5,001-10,000 monthly, while another 6% reports an income exceeding Kshs: 10,000.

(iii) **Expenditure on Food and Clothing**

Shauri residents were also asked to state how much they spent on both food and clothing; they all indicated the results posted in figure 4.8.



Figure 4.8: Expenditure on Food and Clothing

The data on average monthly expenditure on food in Shauri settlement indicates that the majority of 67% spend Kshs: 0-5,000. 21% spend Kshs: 5,001-10,000 and a paltry 3% spend over Kshs: 10,000 on food. On the other hand, the clothing expenditure distribution is more varied, with 81% spending Kshs: 0-5,000 and 19% spending Kshs: 5,001-10,000.

#### 5.6.6 Structures/Unit Details

##### (i) 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 5-11.

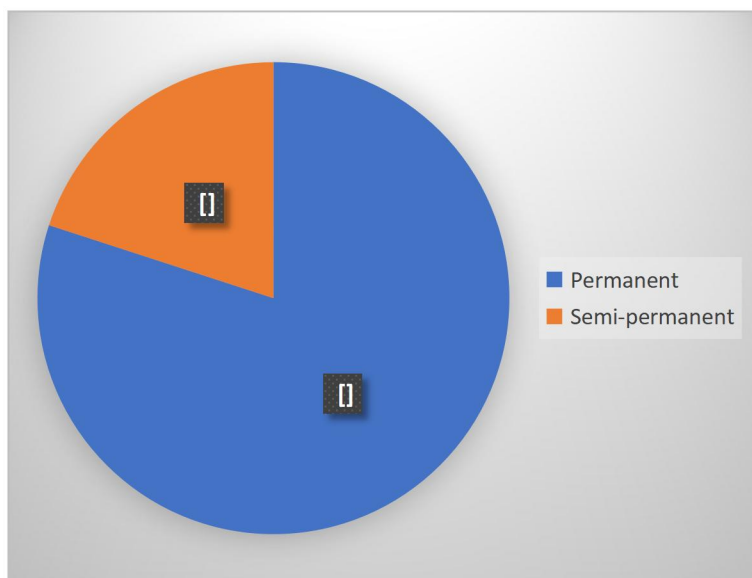


Figure 5- 11: Household Size

Majority of the households that is 35% have four inhabitants, 25% have two occupants that could just be couples and yet another 25% have five members. The remaining 15% have three inhabitants suggesting a diverse range of family structures within the community.

##### (ii) Nature of Structure, Its wall, Floor and Roof

During the survey, residents were asked what type of structure they occupied, and the results are indicated in Figure 5-12.



**Figure 5- 12:Nature of Structures**

In Shauri settlement, the type of structures indicates a prevalence of permanent dwellings, with 80% of respondents reporting such housing. This suggests a significant level of stability and potentially better living conditions within the community. The remaining 20% reside in semi-permanent structures, reflecting a diverse range of housing situations. Understanding the distribution of housing types can have implications for infrastructure development, urban planning, and community resilience.

Residents were then asked to describe structures in terms of materials used to make walls, floors, and roofs, with the results posted in Table 4.3.

**Table 5- 3: Materials**

Part of the Structure	Material	Structures
Wall	Iron Sheets	5%
	Stones	95%
Floor	Cement	85%
	Tiles	15%
Roof	Iron sheets	100%

The analysis of building materials in Shauri settlement reveals a predominant use of stones for walls, accounting for 95% of structures. In terms of flooring, the majority, 85%, have cement floors, indicating a focus on stability and longevity. The use of tiles in 15% of structures reflects a degree of variation in flooring preferences. Additionally, all structures feature iron sheets as roofing, emphasizing a consistent choice for weather-resistant and durable roofing materials.

### 5.6.7 Water Sanitation and Hygiene

#### (i) 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. Residents of Shauri settlement solely depend on piped water connected to the structure. In terms of quality of water, 100% said it is fresh. The residents were then asked on what they spend monthly, on the tapped water and the results are posted in Figure 5-13.

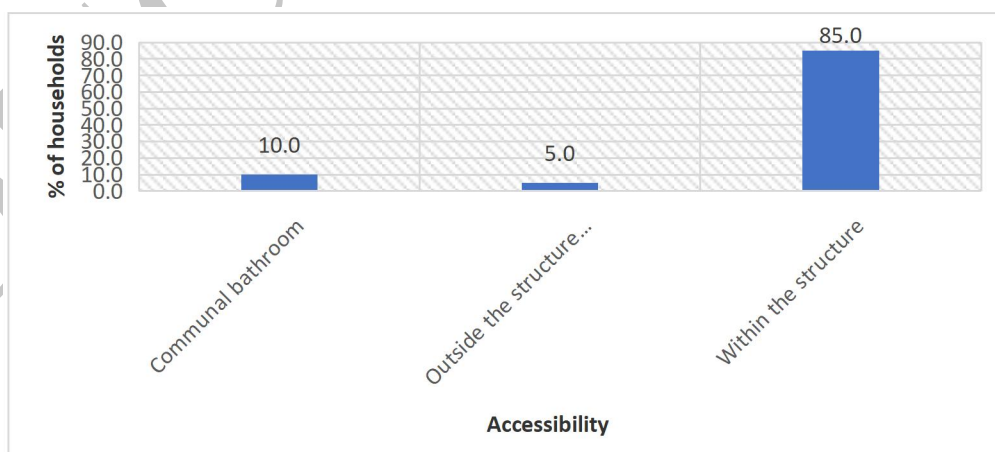


**Figure 5- 13:Monthly Cost of Piped Water**

The data on the cost of tapped water per month in Shauri settlement reveals a varied distribution. A significant portion, 45%, reports a cost of 100, while another 45% incurs a monthly expense of 200. A smaller percentage, 5%, indicates a cost of 1000, and the same percentage reports a higher expense of 2500.

#### 5.6.8 Bathroom Access and Cost

Residents were then asked if they have access to bathroom facilities and they all responded affirmatively yes. It is indicative that the all of residents have access to bathrooms. On where the facilities are located, residents' and answers posted in figure 4.12 below.

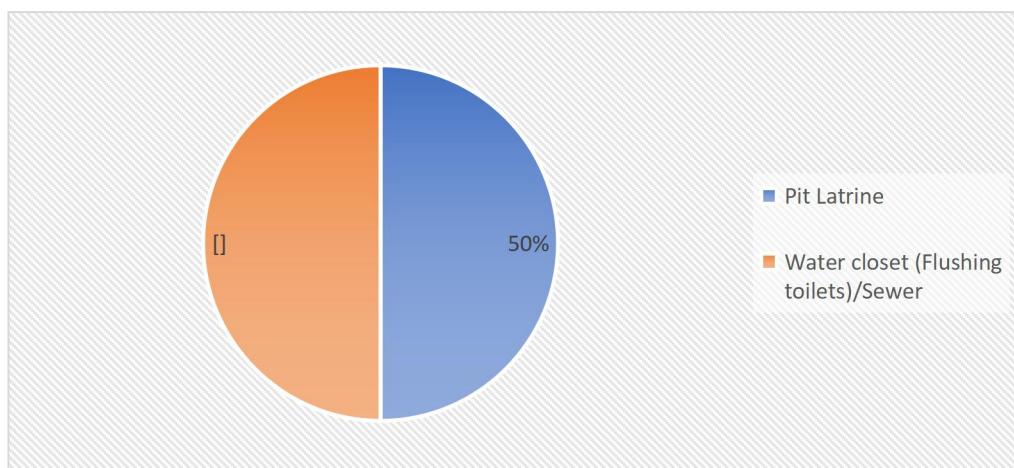


**Figure 5- 14:Bathrooms Location**



The nature of bathroom access in Shauri settlement reflects a predominant trend, with 85% of respondents reporting that the bathroom is located within their structure. This suggests a level of convenience and privacy for the majority of residents. However, 10% indicate access to a communal bathroom, while 5% mention an outside structure accessible only to residents.

#### 5.6.9 Access to Toilet Facilities



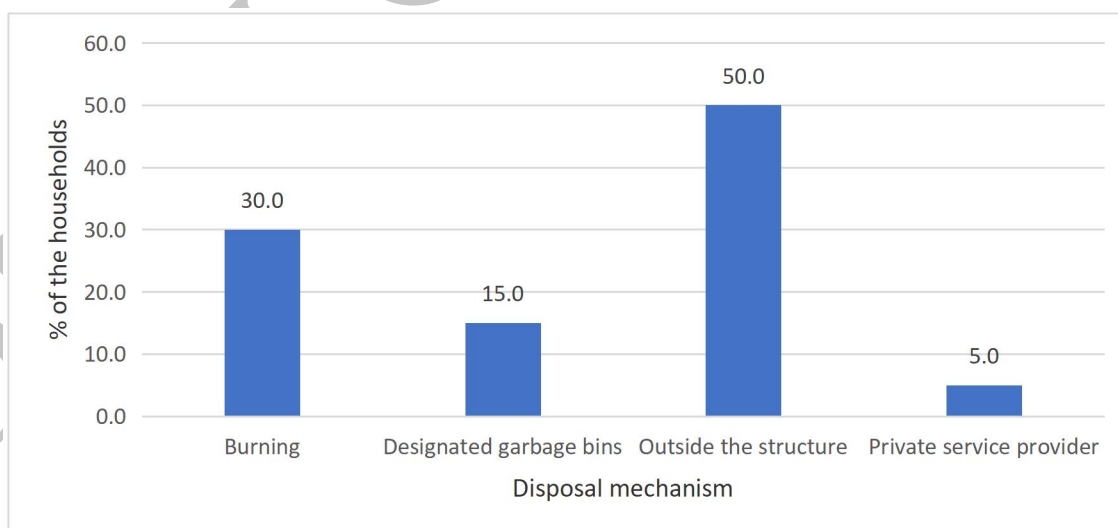
**Figure 5- 15:Toilet Facilities**

The survey on toilet facilities in Shauri settlement reveals a balanced distribution, with 50% of respondents having access to pit latrines and the other 50% using water closet (flushing toilets) or sewer systems.

#### 5.6.10 Services

##### (i) Solid Waste

Residents were asked how they dispose of solid waste and gave the responses posted in Figure 5-16.

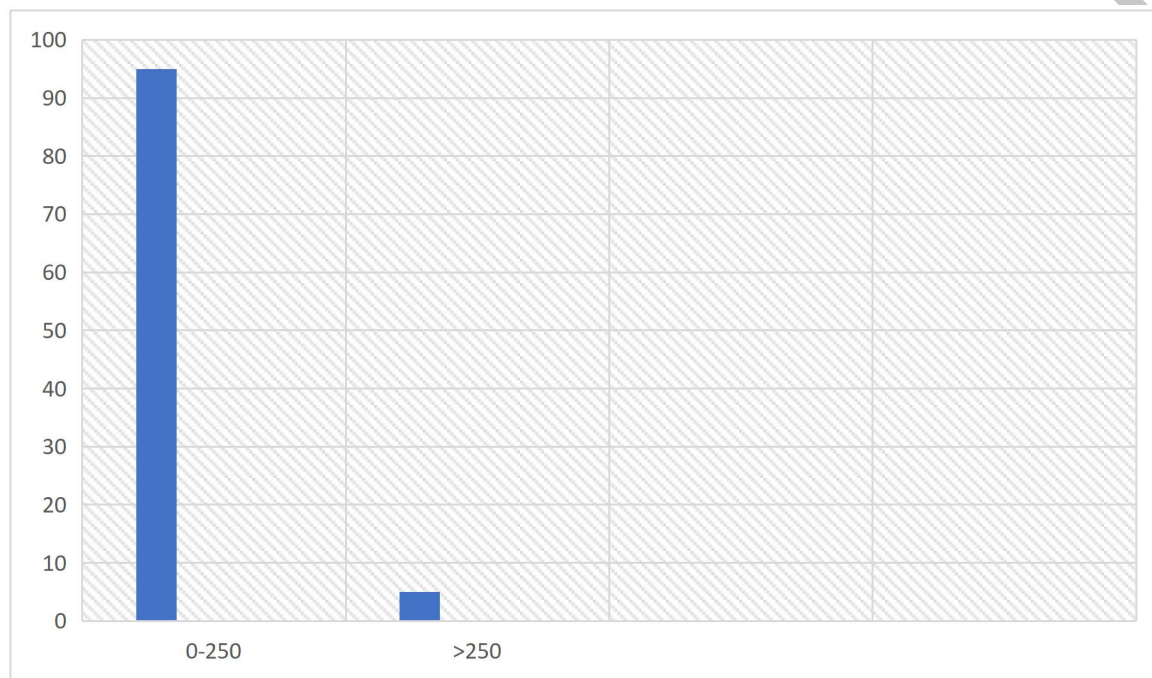


**Figure 5- 16:Garbage Disposal**



From figure 5-16, it is shown that solid waste disposal practices in Shauri settlement are diverse. The majority, comprising 50%, dispose of their solid waste outside the structure, indicating a common practice of open disposal. Burning is the second most common method, with 30% of respondents adopting this approach. Designated garbage bins are used by 15% of residents, suggesting a level of organization in waste management. A smaller percentage, 5%, opts for private service providers, indicating a more formalized waste disposal method. Solid waste dumped is only organic waste.

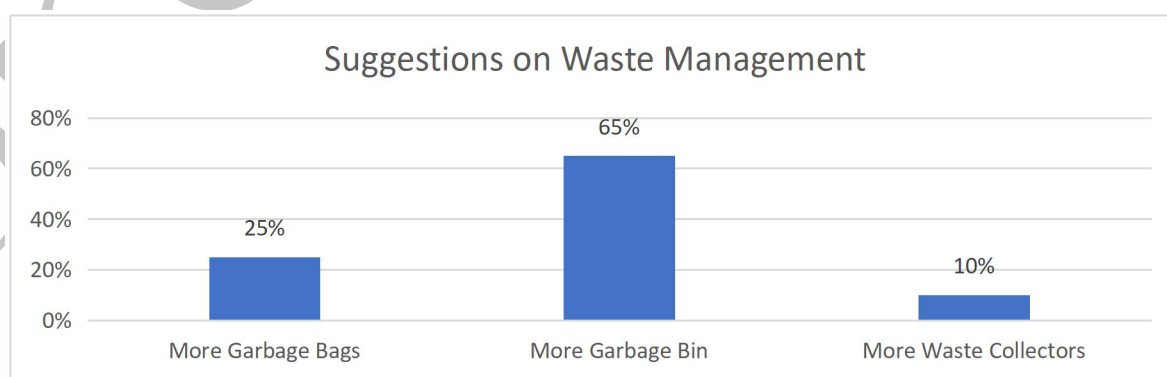
Before disposal, garbage is stored within the household and there is no reusing garbage. The residents were then asked how much they would be willing to pay if provided with solid waste management services, residents' responses were as given in figure 4.15.



**Figure 5- 17:Amount Residents willing to pay for Waste Management Services**

In Shauri settlement, a notable 95% of respondents express a willingness to pay Kshs: 250 for waste management services. Meanwhile, 5% are willing to pay more than Kshs: 250 for waste management services.

Residents were asked how they would like solid waste management to be improved their suggestions as posted in Figure 5-18.



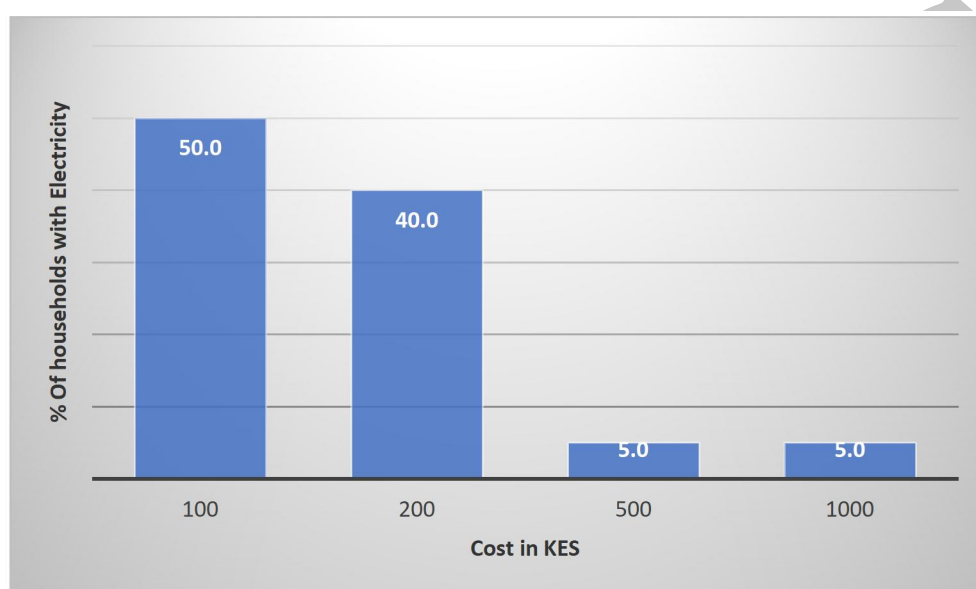
**Figure 5- 18:Suggestions on Waste Management Service**

For effective waste management in Shauri settlement, residents have provided valuable suggestions. A quarter of respondents, representing 25%, emphasize the need for more garbage bags, indicating a desire for increased convenience in waste disposal. The majority, comprising 65%, advocates for more garbage bins, suggesting a community-wide call for improved infrastructure to facilitate proper waste disposal. Additionally, 10% of residents express a need for more garbage collectors, highlighting the importance of efficient and regular waste collection services.

### 5.6.11 Energy

#### (i) Lighting Energy

In Shauri settlement, the main source of energy for lighting is electricity, as reported by all respondents, representing 100% of the community. When asked what they spend monthly on electricity, the responses were varied as follows:

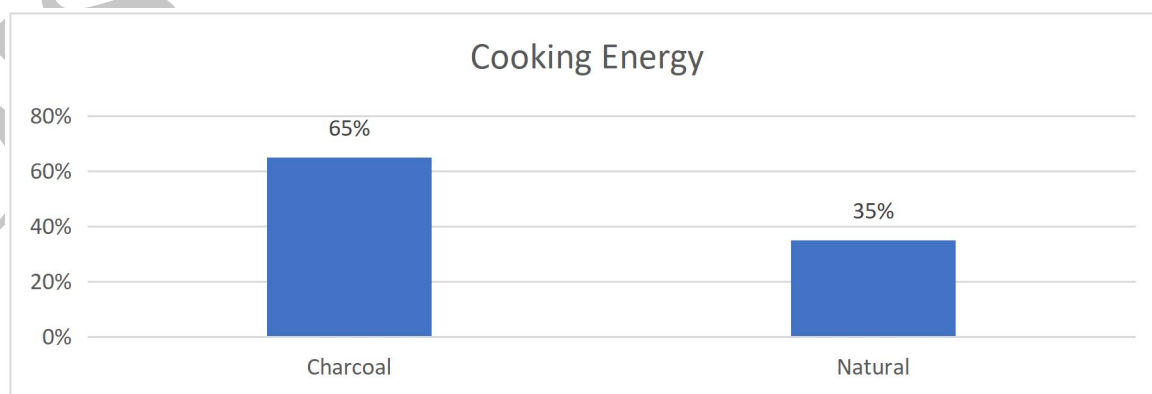


**Figure 5- 19:Monthly Cost of Electricity**

Half of the respondents, 50%, report a monthly cost of 100, while 40% indicate a slightly higher expense of 200. A smaller percentage, 5%, reports costs of 500 and another 5% reports costs of 1000.

#### (i) Cooking Energy

Residents were asked to state the main source of cooking energy and gave responses in Figure5-20.

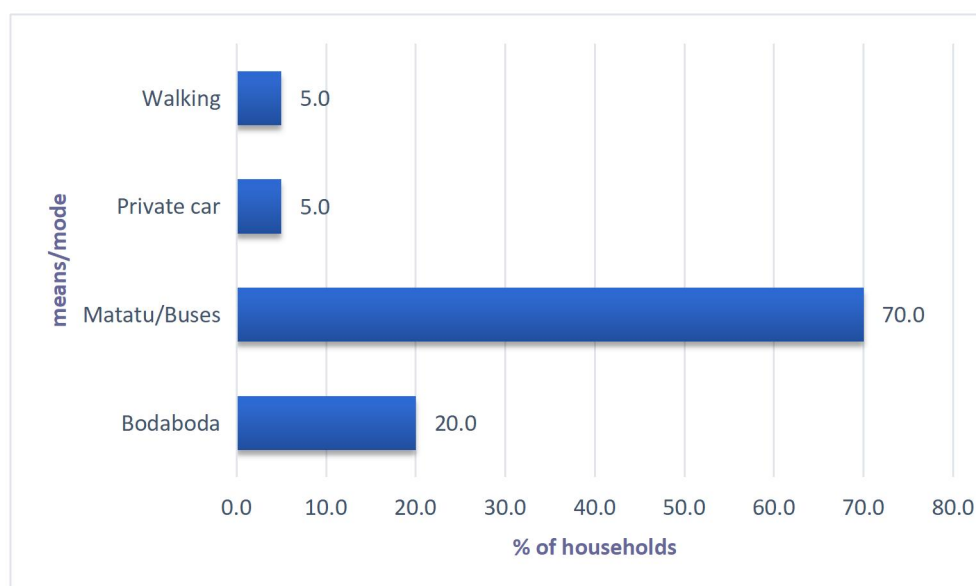


**Figure 5- 20:Cooking Energy**

A majority of respondents, constituting 65%, use charcoal, indicating a prevalent reliance on traditional and potentially more accessible cooking fuel. The remaining 35% utilize natural gas, reflecting a smaller but significant proportion of households opting for a cleaner and potentially more efficient energy source for cooking.

#### 5.6.12 Transport

On transportation, Shauri residents were asked the most common mode used, and responses are posted in Figure 5-21 below.

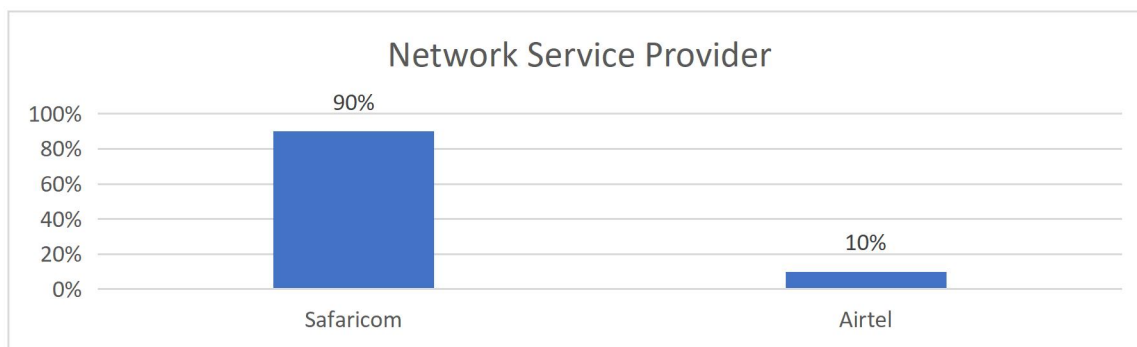


**Figure 5- 21:Transport Services**

From figure 4.19, a fifth of respondents, representing 20%, utilize Bodabodas, indicating a reliance on motorcycle taxis for transportation needs. The majority, comprising 70%, opt for matatus or buses, suggesting a prevalent use of public transportation within the community. A smaller percentage, 5%, use private cars, while another 5% prefer walking, indicating a mix of motorized and non-motorized modes of transport. Understanding the preferred means of transport is crucial for urban planning, infrastructure development, and addressing the mobility needs of the residents in Shauri settlement.

#### 5.6.13 Mode of Communication

Shauri residents primarily use mobile phones for communication, according to 100% of survey respondents. When asked for the preferred network provider, their response was given in Figure 4.20

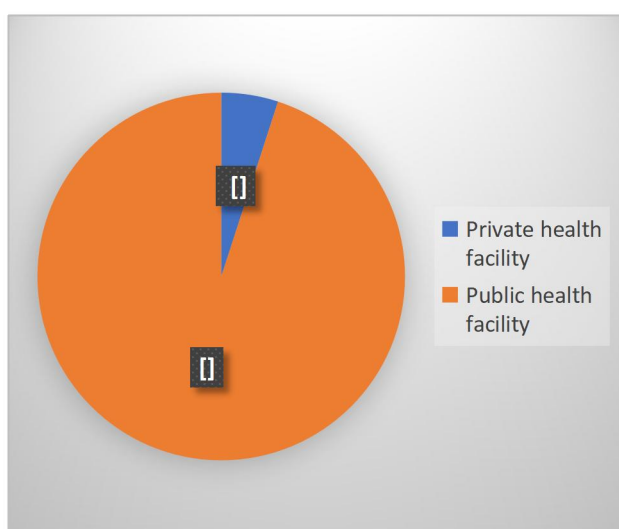


**Figure 5- 22:Network Service Providers**

According 90% Shauri residents use Safaricom and 10% prefer Airtel as service providers.

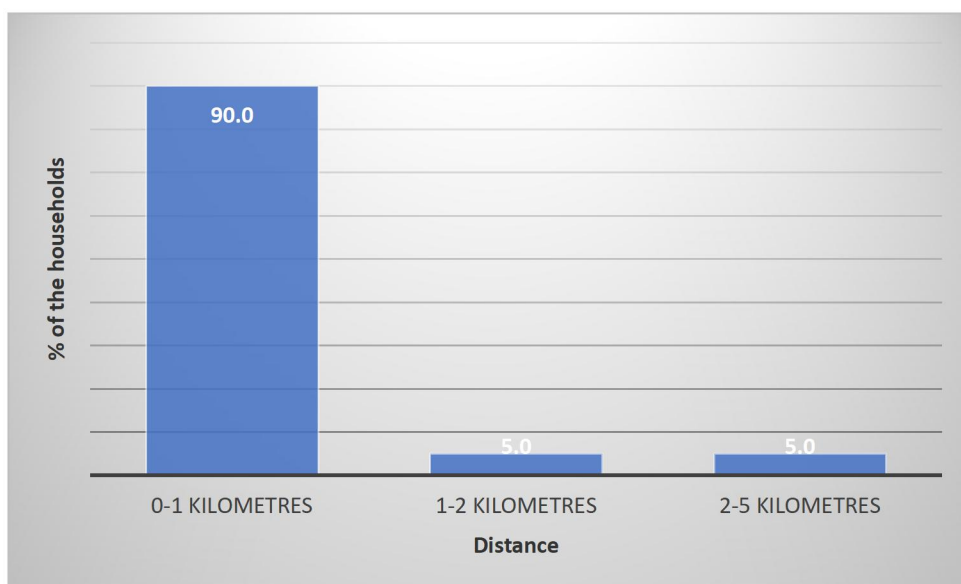
#### 5.6.14 Health

The respondents overall receive medical treatment from health facilities as indicated in figure 5-23



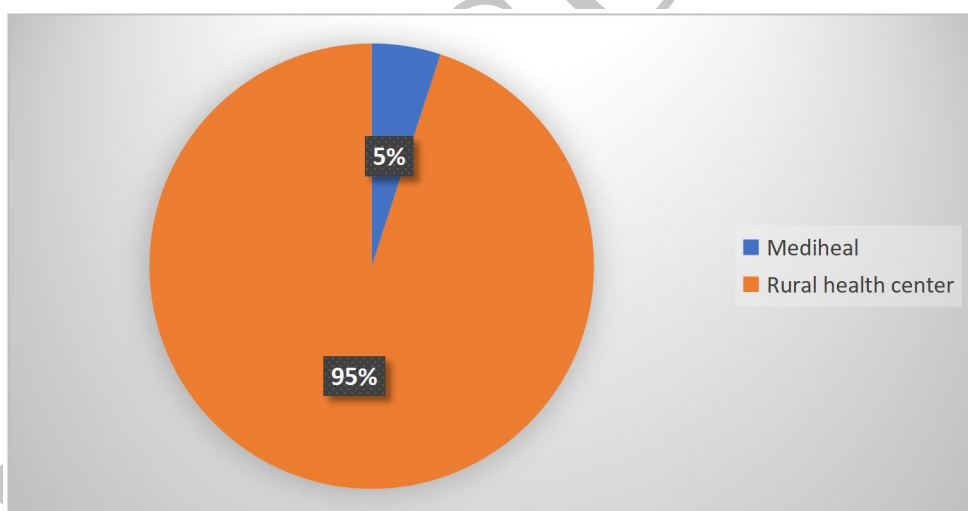
**Figure 5- 23:Health Facilities**

In Shauri settlement, the main source of medical treatment is predominantly public health facilities, with 95% of respondents relying on these services. A smaller percentage, 5%, opts for private health facilities. This distribution suggests a significant reliance on public healthcare infrastructure, indicating potential considerations for healthcare accessibility, affordability, and the role of government or community-supported health services in meeting the medical needs of residents in Shauri settlement. Residents were then required to state the nearest health facilities and responses indicated as figure 5-24.



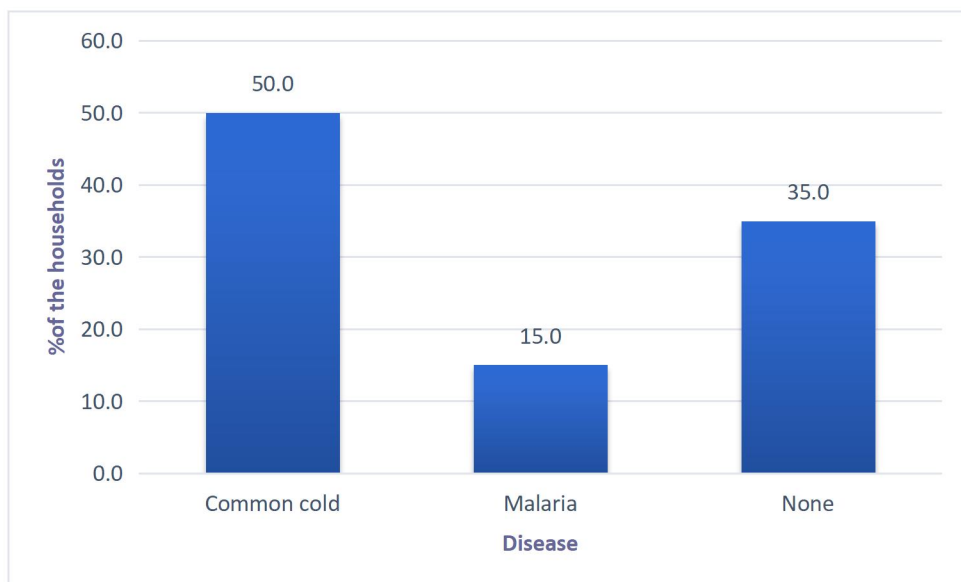
**Figure 5- 24:nearest Health Facility**

The proximity of health facilities to residences in Shauri settlement is relatively convenient for the majority of respondents. A significant 90% report that the nearest health facility is within 0-1 kilometres from their residence. Another 5% indicate a distance of 1-2 kilometres, while the remaining 5% report that the nearest health facility is situated 2-5 kilometres away. This distribution suggests that a large proportion of the community has relatively easy access to healthcare services, contributing to the potential effectiveness of healthcare interventions and timely medical assistance in Shauri settlement. The residents were required to name the nearest health facilities and their responses in figure 4.23.



**Figure 5- 25:Health Facilities**

The name of the health facilities in Shauri settlement, as reported by respondents, primarily consists of Rural Health Center, with 95% of residents indicating this as their nearest public health facility. A smaller percentage, 5%, mentions Mediheal. Finally, residents were to name prevalent diseases in the period of 4 previous months which were stated as indicated in figure 5-25.



**Figure 5- 26:Prevalent Diseases**

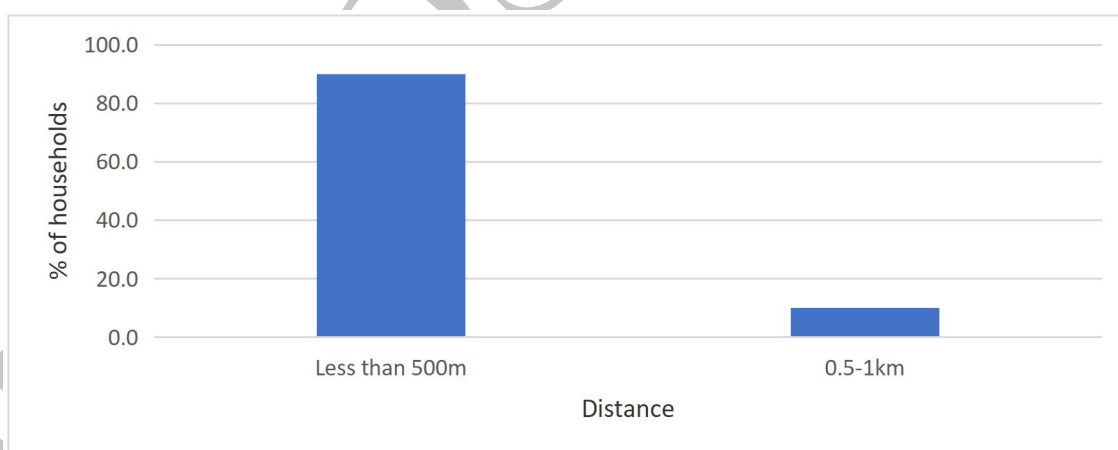
From figure 5-26 It is evident that in the past four months, common cold is the most prevalent health issue among residents in Shauri settlement, with 50% of respondents having experienced it. Malaria is reported by 15% of respondents, indicating a significant but lower incidence. On the positive side, 35% of residents report not having suffered from any diseases during this period.

#### **5.6.15 Education**

Educational services were investigated in from ECDE to tertiary institutions.

##### **(i) ECDE**

Residents were asked to state the distance of the nearest ECDE Centre and results posted in figure 5-27.

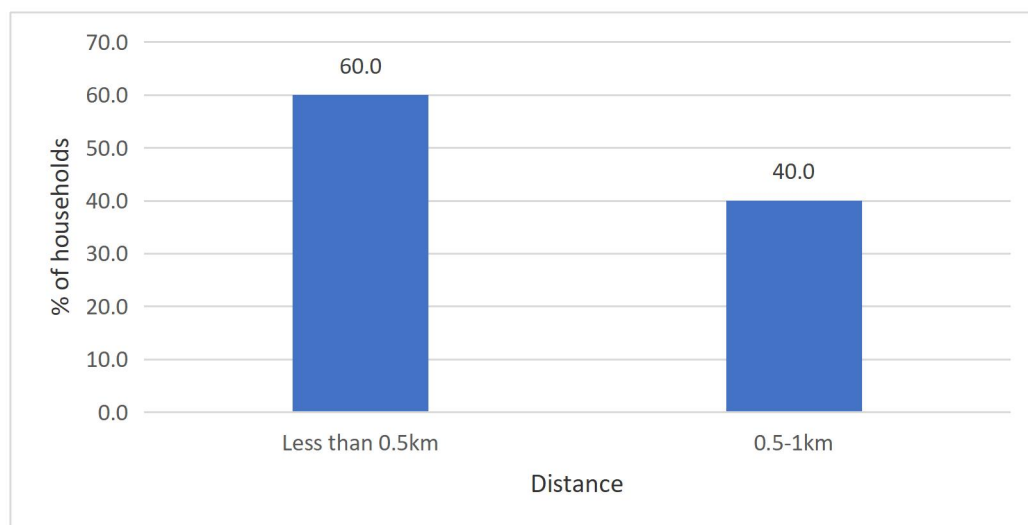


**Figure 5- 27:ECDE Centres**

The data on the distance to Early Childhood Development Education (ECDE) facilities in Shauri settlement indicates that the majority, 90%, have an ECDE within a distance of less than 500 meters from their residence. Another 10% report a distance ranging from 0.5 to 1 kilometre. This distribution suggests that the community has relatively easy access to ECDE services, which is crucial for early childhood education participation and can have positive implications for child development and education outcomes in Shauri settlement. All Shauri residents have the access to Shauri ECD with 100% response from the 200 respondents.

## (ii) Primary Schools

Residents were asked to state the distance of the nearest primary schools and results posted in figure 4.27

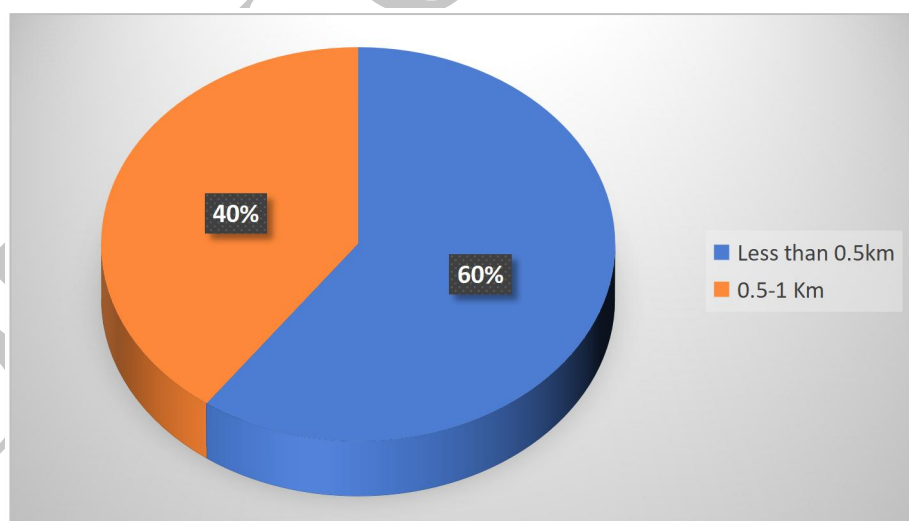


**Figure 5- 28: Primary Schools**

In Shauri settlement, 60% of the residents surveyed reported that the nearest primary school is less than 0.5km away, while 40% reported that it is between 0.5-1km away. Children who live far away from school may face challenges in attending regularly, which can affect their academic performance and future opportunities. Just like the access to ECD, Shauri residents agreed uniformly in 100% that Kandie Primary was the primary school to all of them.

## (iii) Secondary Schools

Residents were asked to state the distance of the nearest secondary schools and results posted in figure 5-29.



**Figure 5- 29:Secondary Schools**

In Shauri settlement, 60% of the residents surveyed reported that the nearest secondary school is less than 0.5km away, while 40% reported that it is between 0.5-1km away. All the 200 respondents agree that Kandie Secondary was the closest secondary school to their settlements.

#### (iv) Tertiary Institutions

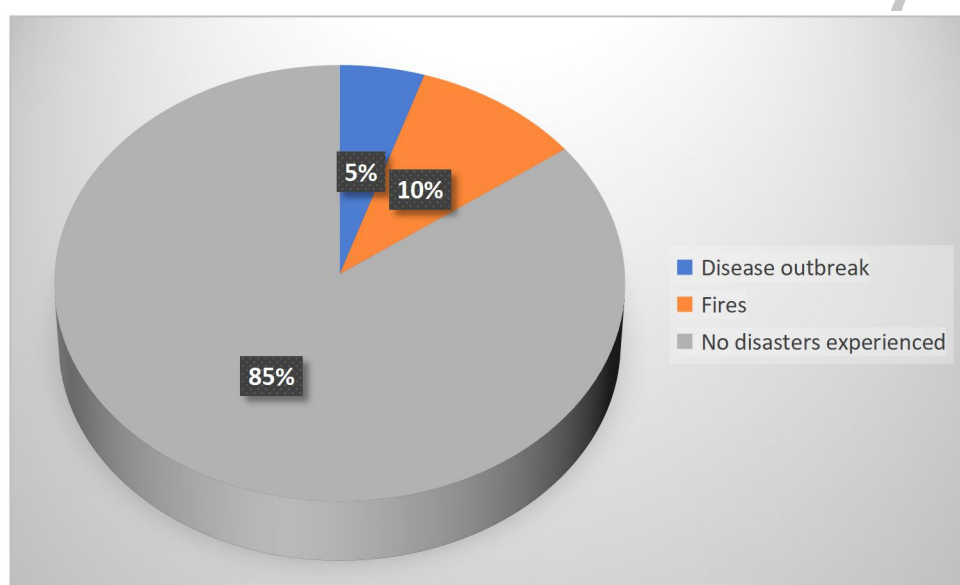
Residents were asked to state the distance of the nearest tertiary institution and all of them stated that all tertiary institutions were located outside the settlement.

#### 5.6.16 Community Facilities

In Shauri settlement social hall accounts for 5% and other community facility account for 95%.

#### 5.6.17 Disasters Experienced in the Settlement

Residents were requested to name three most recent disasters which are posted in figure 5-30.



**Figure 5- 30:Disaster occurrence**

Residents were requested to name three most recent disasters of which their response was as expressed in the figure 4.30 with majority (85%) experiencing none. 5% had experienced Disease outbreak and 10% stating fire outbreak.

#### 5.6.18 Priority Sectors

The priority matrix in table 5-4 below shows the sectors that require immediate attention in Shauri settlement.

**Table 5- 4: 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 widths. Earth roads flood during rainy seasons and emit dust during dry seasons.	Very urgent
	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

#### 5.6.19 Synthesis of Emerging Issues: Opportunities and Constraints

Table 5- 5: Opportunities and Constraints

OPPORTUNITIES	CONSTRAINTS
The settlement has vast fertile lands for agribusiness	No agro-processing industries and affordable farm inputs
Adequate roadway leave size for upgrading	Irregular road sizes of minor access ways
Availability of labour	Need more adequate employment opportunities.

## CHAPTER 6: PUBLIC AND STAKEHOLDER CONSULTATIONS

### 6.1 Legal and Policy Provisions for Stakeholder Consultations

#### 6.1.1 EMCA 1999 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

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

The assessment involved consultations with relevant stakeholders' Shauri informal settlement in Eldoret town. 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 then 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 6-1** below

**Table 6- 1: Schedule of Public Consultation**

Date	Settlement	Stakeholder Consulted	Meeting Attendance
30th October 2023	Shauri Informal Settlement	Settlement Executive Committee members (SEC) for Shauri Informal Settlement, County Government Officials, Religious Leaders, E.I.A team, Area chief and members of the community	Total 54 Male 38 Female 16

Detailed Review of Issues discussed during public Participation forums is presented in **Table 6-2** below.

**Table 6- 2: Detailed Issues Discussed during Public Consultations**

NO	ISSUE	RESPONSE
1	Residents sort clarification of organization of the meeting	The team informed residents that it would get better and better and this was not the only sensitization meeting. More meetings were set to take place.
2	Wayleave encroachment	It was notes that many landlords and tenant had encroached into the wayleave. It was agreed a meeting to be held separately with all the affected persons.
3	Division of Settlement into clusters to ensure effective relay of information	The organizing secretary informed the resident that the division of settlement into clusters would be put into consideration and WhatsApp groups formed for ease in relaying information.

NO	ISSUE	RESPONSE
4	the resident sort clarification of the brief project scope in terms of total kilometers of roads within the settlement	It was clarified that the roads were still under design and changes will be made thus a project team had no definite distance. A draft map of the design was availed during the meeting.
5	The residents requested for more meetings.	The residents were informed that this was an introductory meeting and more sensitization meetings will be organized to ensure there views are incorporated.

## 6.3 Inclusion of Outcomes of Stakeholder Engagement in the Design of the Project

### 6.3.1 Employment Opportunities for the Public

The Stakeholder Engagement identified the need to provide employment opportunities to the local community members during project implementation period as the main concern from the community.

The project will provide employment opportunities for the estimated number of people in the fields of Casual Labourers, Skilled Staff, Plant Operators / Drivers, Managerial Staff, approximately 50 or more job opportunities will be created. The opportunities will be shared equally throughout the Project Areas and as provide by Gender Policy 2011 discussed in chapter 5.

## 6.4 Public Disclosure of ESIA, and Annual Monitoring Reports

This ESIA provides for the below listed provisions with regards to public disclosure

- (i) In accordance with EMCA 2015 and World Bank OP 4.01, the Project Proponent in this case MoLIH&UD will ensure that the Results of Public Consultations including ESIA area disclosed on Judiciary website.
- (ii) The Reports will also be made available at Chiefs' Offices in the affected Settlements in Eldoret towns for ease of access by the project interested parties at location level and Project site office,
- (iii) The Reports and information will also be disclosed at the ESIA Stage by NEMA and during the sector ail ESIA review by NEMA.

At completion of the Project civil works EIA/EA Audit Regulations of 2003 requires the project proponent to undertake a closeout audit after completion of the project and also undertake and initial Environment Audit (EA) immediately after commissioning of the project in the 1st year, these audits are essential in determining the performance of the project in addressing issues related to environment and social safeguards, gaps identified are corrected through implementation of recommendation of the Environment and Social Audit Action Plan (ESAAP).

## 6.5 Construction, Operation and Decommissioning Phase Consultations

Stakeholder groups that may be affected by and/or interested in the implementation of the Project, as well as proposed communication methods and media for each group, have been identified and are presented in **Table 6-3** on **Page 6-4**.

**Table 6-3: Stakeholder Consultations during Project Construction and Operation Phase**

Stakeholder/s	Type of communication	Responsibility	Timing
<b>External Stakeholders</b>			
Local administration representatives Chiefs and Ward Representatives	Public meetings and monthly project progress updates	Contractor / MoLPWH&UD	Throughout project implementation phase
Interested NGOs and other civil societies	Local media (newspapers) ESIA, published on MoLPWH&UD website.	Contractor / MoLPWH&UD	Throughout the implementation of the Project
Relevant National Government and County Government Authorities for example: KeNHA& KURA	Official correspondence and meetings, progress reports Permitting procedures	Contractor / MoLPWH&UD	During project design, construction and implementation
Kenya National Museums due to chance find clause of OP 4.11 on physical cultural resources	Official correspondence and meetings Permitting procedures	Contractor / MoLPWH&UD	During project Construction phase
<b>Internal Stakeholders</b>			
Employees (Contractor,)	Notice boards, email, Grievance Redress Mechanism, meetings	Contractor	Throughout project implementation phase
Casual workers and temporary staff	Notice boards, email, Grievance Redress Mechanism,	Contractor	Throughout project implementation phase

## 6.6 Community Relations in Construction Phase

This section set outs the proposed objectives, mechanisms, and responsibilities for liaison with Project beneficiaries during the construction phase. It identifies the approach to, and frequency of, consultation with Project beneficiaries.

The primary responsibility for liaison will be borne by the contractor who will develop own plan and more detailed proposals for community liaison. This will build on the approach outlined in this section. All potential contractors will be required to draw up this plan as part of the tender process.

The objectives of the Community Relations Programme will be to:

- (i) Provide residents with regular information on the progress of work.
- (ii) Inform the project/contractor of any community related issues that may impact

construction.

- (iii) Monitor implementation of mitigation measures and the impact of construction via direct monitoring and feedback from Project area.
- (iv) Identify any significant new issues that may arise during the construction period; and
- (v) Manage any complaints against the project/contractors and local residents (i.e., provide a grievance mechanism).

#### **6.6.1 Construction Contractor's Role in Community Liaison**

The Contractor will be required to adhere to the requirements of the Environmental and Social Management and Monitoring Plan (ESMMP) that sets out how the contractor will meet and monitor the mitigation measures recommended by the Plan.

The role and responsibilities of the Contractors Community liaison include:

- (i) Provide primary interface between project and affected or interested persons;
- (ii) Coordinate and implement required pre-construction activities, namely;
- (iii) Produce management plans for community relations, construction camps and transport train staff with community relations responsibilities; and
- (iv) implement induction training workshops for all construction staff;
- (v) Assist in local recruitment process; and
- (vi) Ensure on-going communication with project and affected or interested persons

#### **6.6.2 Community Relations in Operational Phase**

The objective of the Community Relations Programme in this Phase will be to:

- (i) maintain constructive relationships between local residents to assist in the operation of the facilities;
- (ii) maintain awareness of safety issues among local residents in the project areas;
- (iii) ensure compliance with land use constraints among landowners in the project areas;

#### **6.6.3 Decommissioning**

In the event of decommissioning of the Project, liaison will continue to take place between MoLPWH&UD with Project Affected or Interested Persons prior to de-commissioning. This role will complement work carried out by the proponent and social investment team to reduce the negative impact of the project decommissioning.

### **6.7 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-ordinating 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.

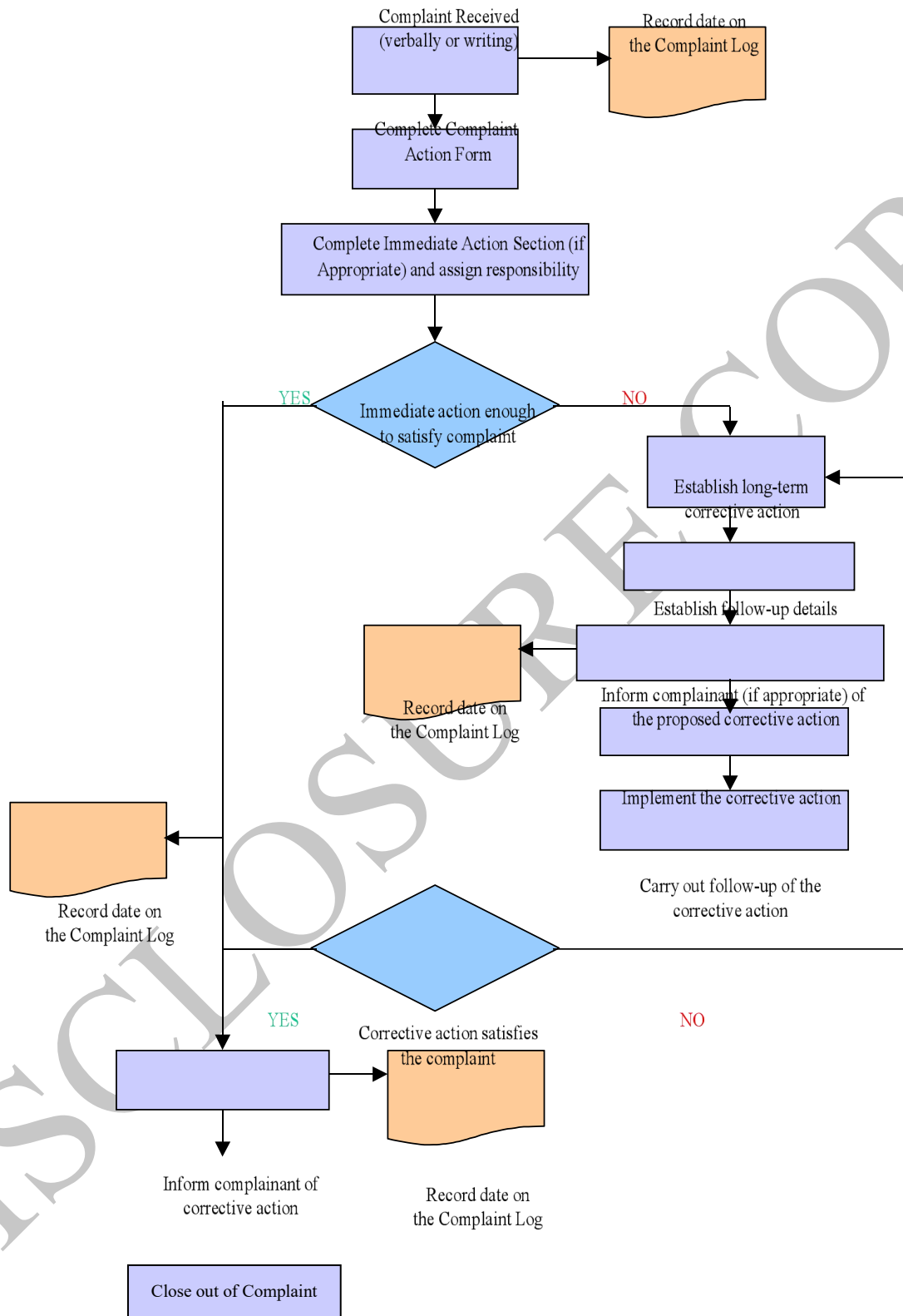
#### **(iv) Responding to a Complaint**

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**

The CLO through the contractor will be responsible for providing MoLIH&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.

**Figure 6- 1: Grievance Resolution Flow Chart**





## **CHAPTER 7: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES**

### **7.1 Anticipated Project Positive Impacts**

The Project will result in both direct and indirect benefits to the residents of Eldoret town target Informal settlements 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**

- (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, Social Hall, Public Park, Ablution Block)

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

## 7.2 Risks on Biophysical Environment during construction

The preliminary ESIA identified that the project will have less adverse risks to bio physical environment. The Projects will involve improvement of access roads, drainage, Water Supply, Sewerage, installation of security lighting system and construction of social amenities in the informal settlements.

These activities will not be out of character with the existing environment baseline situation identified in the informal settlements. Biophysical attributes discussed under this sub chapter will include;

- (i) Impacts on Biodiversity
- (ii) Impacts on Water Resources
- (iii) Impacts on Soil Resources

Tables 7-5 to 7-8 below similar negative impacts that are applicable to all the project activities including road and drainage, Water and Sewerage and Flood lights. The assessment under section 7.9 presents specific project Impacts per each category of project activities during operation.

### 7.2.1 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 the River Fafa Roo. Therefore, the assessment also identified that less significance impacts are anticipated on Water resource as discussed in **Table 7-3**.

**Table 7- 2: 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	<ul style="list-style-type: none"> <li>• Reduced availability of safe domestic water, water wastage, infiltration, and evaporation</li> <li>• pollution of existing water resources including aquifers by construction effluents</li> <li>• Increase water borne related illness due to consumption of unsafe water</li> </ul>		
Reversibility of impact	Yes		
Mitigation	As summarized in table 7-7 below		
Affected	Aquatic and terrestrial ecosystems		

stakeholders /areas		
Magnitude	<i>Extent</i>	Site – 2
	<b>Intensity</b>	Medium-3
	<b>Duration</b>	Medium term-3
	<b>Probability</b>	Likely – 3
Significance	<b>Weighting</b>	(Extent+ Intensity +Duration + Probability)x WF(2+3+3+3) x1=11 (Low)
		Low

## 7.2.2 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 7-4** below.

**Table 7- 3: 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.		<b>Mitigation Efficiency</b>	<b>High</b>
Nature of impact	<ul style="list-style-type: none"> <li>• Destruction of Soil Structure due to blasting or rock breaking leading to reduced soil aeration</li> <li>• Movement of plant and equipment could result to soil compacting which inhibits soil aeration leading to death of soil microorganisms.</li> <li>• Soil contamination caused by oils and fuel leaks from construction equipment's leading to Oil Acidity increase.</li> <li>• Soil Erosion due to clearing of vegetation cover and trenching activities which results to death of soil microorganism and reduced soil productivity</li> </ul>			
Reversibility of impact	Yes			
Mitigation	As discussed in table 7-7 below			
Affected stakeholders /areas	Terrestrial ecosystems			
Magnitude	<i>Extent</i>	Site – 2		
	<b>Intensity</b>	Medium-3		
	<b>Duration</b>	Medium term 3		
	<b>Probability</b>	Likely – 3		
Significance	<b>Weighting</b>	(Extent+ Intensity +Duration + Probability) x WF(2+3+3+3) x1=11 (Low)		Low

## 7.2.3 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 7-5 below.

**Table 7- 4: Mitigation of Biophysical Environment Impacts**

Impacts	Proposed Mitigation Measures
Destruction of Vegetation in the Project Areas	<ul style="list-style-type: none"> <li>• 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</li> <li>• Reinstatement of the project sites to their original state to be carried out once construction works are completed to allow growth of vegetation.</li> <li>• Replant eco friendly grass and trees along the projects after completion of the civil works.</li> </ul>
Contamination of Surface Water Sources by Effluents from Construction Plant and Equipment	<ul style="list-style-type: none"> <li>• Ensure Construction Equipment is well maintained and serviced according to manufacturers' specifications to prevent oil leaks.</li> <li>• Cleaning / repair of Construction Plant and Equipment to be carried out at designated yards</li> <li>• Contractor to have designated storage areas for oils, fuels etc. that is protected from rain water and away from nearby surface water courses</li> </ul>
Soil Erosion resulting to loss of top soil	<ul style="list-style-type: none"> <li>• The risk of Soil Erosion will be lowered through provision of soil Erosion prevention structures i.e. gabions in areas susceptible to Soil Erosion</li> </ul>
Solid Wastes Generation from Construction Activities	<ul style="list-style-type: none"> <li>• 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 Uasin Gishu County Government</li> <li>• Contractor's Camps and Construction Sites to have designated waste collection points,</li> <li>• Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management</li> </ul>

### 7.3 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

#### 7.3.1 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 EMCA 2015 Noise and Excessive Vibration 2009 as well as World Bank EHS Guidelines.

Table 7-6 presents Environment, Health and Safety Impact Identification and Ranking assessment while table 7-7 presents a summary of mitigation of potential EHS risks.

### 7.3.2 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 2015 (Air Quality Regulations 2014) as well as World Bank EHS Guidelines.

Table 7-6 presents Environment, Health and Safety Impact Identification and Ranking assessment while table 7-7 presents a summary of mitigation of potential EHS risks.

### 7.3.3 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 7-6 presents Environment, Health and Safety Impact Identification and Ranking assessment while table 7-7 presents a summary of mitigation of potential EHS risks.

**Table 7- 5: 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	<ul style="list-style-type: none"> <li>- Open trenches within the settlement which pose health hazards to workers and community.</li> <li>- Failure to use required correct signage and safety marshal on site</li> <li>- Un-serviced plant and equipment which emit hydrocarbons through equipment exhaust system.</li> <li>- Poor workmanship &amp; failure to use water sprays during dry season could also result to air pollution.</li> <li>- Failure to observe safe work environment requirements like use of PPEs, Warning Taps, site labelling.</li> <li>- Hearing impairment and respiratory related illness</li> <li>- Can cause death or permanent disability of victims</li> </ul>			
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 +		Medium

		Probability)x WF(2+5+4+4) x4=60 (Medium to High)	to high
--	--	--	---------

### 7.3.4 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 7-7 below.

**Table 7- 6: Mitigation Measure to Workers, Community Health and Safety Risks**

Impact	Proposed Mitigation Measures
Noise and Excessive Vibrations.	<ul style="list-style-type: none"> <li>Contractor will comply with provisions of EMCA 2015 (Noise and Excessive Vibrations Regulations of 2009)</li> <li>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</li> <li>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</li> </ul>
Air Pollution and Dust Generation.	<ul style="list-style-type: none"> <li>The contractor will comply to the provisions of EMCA 2015 (Air Quality Regulations 2014)</li> <li>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</li> <li>Water sprays shall be used on all earthworks areas within 200 metres of human settlement especially during the dry season.</li> </ul>
Risk of Accidents at Work Sites	<ul style="list-style-type: none"> <li>Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the Supervising Engineer.</li> <li>Provide Personal Protective Equipment including gloves, gum boots, overalls and helmets to workers. Use of PPE to be enforced by the Supervising Engineer.</li> <li>Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles</li> </ul>
Risk of Traffic Accidents along the Pipeline Route	<ul style="list-style-type: none"> <li>Strict use of warning signage and tapes where the trenches are open and at other active construction sites</li> <li>Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site</li> <li>Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer</li> </ul>

### 7.4 Traffic Management Plan

On average, each year, about 7 workers die as a result of accidents involving vehicles or mobile plant on construction sites. A further 93 are seriously injured<sup>4</sup>. OSHA 2007 provides for site traffic organization so that vehicles and pedestrians using site routes can move around safely. The routes need to be suitable for the persons or vehicles using them, in suitable positions and sufficient in number and size.

The term 'vehicles' includes: cars, vans, lorries, low-loaders and mobile plant such as excavators, lift trucks and site dumpers etc. Construction site vehicle incidents can and

<sup>4</sup><http://www.hse.gov.uk/construction/safetytopics/vehicletrafficmanagement.htm>

should be prevented by the effective management of transport operations throughout the construction process.

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) Turning of Vehicles
- (v) Visibility
- (vi) Signs and Instructions.

Table 7-8 below provides details on how traffic will be managed on site under the above discussed principles

**Table 7- 7: Traffic Management Plan**

TRAFFIC MANAGEMENT PLAN	
<b>Keeping Pedestrians and Vehicles Apart on Site</b>	
-	<b>Entrances and exits-</b> provide separate entry and exit gateways for pedestrians and vehicles;
-	<b>Walkways-</b> provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
-	<b>Crossings-</b> where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
-	<b>Visibility-</b> make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
-	<b>Obstructions-</b> do not block walkways so that pedestrians have to step onto the vehicle route; and
-	<b>Barriers-</b> think about installing a barrier between the roadway and walkway
<b>Minimizing vehicles movement</b>	
-	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.
<b>People on Site</b>	
-	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: <ul style="list-style-type: none"> <li>- checks when recruiting drivers/operators or hiring contractors;</li> <li>- training drivers and operators;</li> <li>- managing the activities of visiting drivers</li> </ul>
-	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
<b>Turning of Vehicles</b>	
The need for vehicles to reverse will be avoided where possible as reversing is a major cause of fatal accidents. <ul style="list-style-type: none"> <li>- One-way systems will be adopted by the contractor as this can reduce the risk, especially in storage areas.</li> </ul>	

- A turning circle could be installed so that vehicles can turn without reversing
<b>Visibility</b>
If vehicles reverse in areas where pedestrians cannot be excluded the risk is elevated and visibility becomes a vital consideration. This ESIA provides for: <ul style="list-style-type: none"> <li>- <b>Aids for drivers-</b> mirrors, CCTV cameras or reversing alarms that can help drivers can see movement all round the vehicle;</li> <li>- <b>Signallers-</b> who can be appointed to control manoeuvres and who are trained in the task;</li> <li>- <b>Lighting-</b> so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after sunset or in bad weather;</li> <li>- <b>Clothing-</b> pedestrians on site should wear high-visibility clothing.</li> </ul>
<b>Signs and Instructions</b>
<ul style="list-style-type: none"> <li>- 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</li> <li>- Provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit</li> </ul>

## 7.5 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

### 7.5.1 Loss of Temporal Assets and Disruption of Sources of Livelihood

This impact is likely to be triggered during Project construction phase, this assessment identified that proposed road reserves, water and sewerage wayleaves in the informal settlement are encroached by either extension of residential and or business structures.

These structures will be demolished to provide required space for implementation of the Project as illustrated in sample photos below. This implies that OP 4.12 will be triggered by the Project and therefore a detailed RAP will be prepared.



**Figure 7- 1: Sample Encroachment**



*Encroachment of chamber and structure on the High Voltage Power line Wayleave .*

However, the ARAP report prepared for Shauri Informal Settlements detailed the below summarized to be impacts related to Project impacts to peoples assets and sources of livelihood

- ✓ 15 project Affected Persons. Affected by planning and survey in Shauri Informal Settlement. The number of affected structures, from re-planning is 15 where all are 36 partially affected.
- ✓ The total budgetary requirements for implementation of the ARAP is provided as 561,545.00 (Five hundred and sixty-one thousand five hundred and forty five shillings only).

### **7.5.2 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.

Table 4-9 provides Social Impact Identification and ranking while table 4-10 presents possible mitigation measures of the identified social risks

### **7.5.3 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 indentified social risks

#### **7.5.4 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

Table 7-10 provides Social Impact Identification and ranking that includes Human rights and gender inclusivity management while table 7-11 presents possible mitigation measures of the identified social risks.

#### **7.6 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;

### 7.6.1 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 7-9 below provide Social Impact Identification and ranking that includes HIV/AIDS management while table 7-10 presents possible mitigation measures of the identified social risks

**Table 7- 8: Impacts on Social Setting**

Impact Sources	Project Impacts to peoples 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 Measures	As detailed in table 7-11 below			
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

### 7.6.2 Social Risks Mitigation Measures

The Environment and Social Screening report proposes the below listed mitigation measures to identified Social risks as summarized in Table 7-10 below.

**Table 7- 9: Mitigation of Social Impacts**

Impacts	Proposed Mitigation Measures
Loss of Temporal Assets and Sources of Livelihood	<ul style="list-style-type: none"> <li>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.</li> </ul>
Disruption of Public Utilities	<ul style="list-style-type: none"> <li>Contractor to carry out piloting to locate services such as pipes and cables along the Pipeline Route before commencing excavation works.</li> <li>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.</li> <li>Length of excavation to be restricted to sections that can be reinstated within the shortest period possible to minimize time of disruption of services</li> </ul>
Increased Transmission of HIV/AIDS	<ul style="list-style-type: none"> <li>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</li> <li>Access to Contractor's Workforce Camps by outsiders to be controlled</li> <li>Contractor to provide standard quality condoms to personnel on site</li> </ul>
Labour Influx and sexual offences	<ul style="list-style-type: none"> <li>Effective community engagement and strong grievance mechanisms on matters related to labour.</li> <li>Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx</li> <li>Proper records of labour force on site while avoiding child and forced labour</li> <li>Fair treatment, non-discrimination, and equal opportunity of workers.</li> <li>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</li> <li>Develop and implement a children Protection Strategy</li> </ul>
Human Rights and gender inclusivity	<ul style="list-style-type: none"> <li>Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule.</li> <li>Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights</li> </ul>
Increased Crime and Insecurity	<ul style="list-style-type: none"> <li>Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.</li> <li>Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices</li> </ul>

## 7.7 Specific Project Risks during Operation

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

**Table 7- 10: Anticipated risk and Mitigation measures for Flood mast and streetlights**

impact	Mitigation measure
Risk of electrocution	<ul style="list-style-type: none"> <li>Ensuring that all the wires are appropriately insulated and are safe from causing harm to humans</li> <li>Creation of awareness to the locals to avoid getting into contact with dangerous electrical current</li> </ul>
May cause eye problem when	<ul style="list-style-type: none"> <li>Ensure that the lighting system is proper to avoid flipping that can result to eye problems for people</li> </ul>

there is bad lighting	
-----------------------	--

DISCLOSURE COPY

## 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.

### 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 programmes
- ✓ 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 Uasin Gishu 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.

**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
<b>Seeking approvals from NEMA for ESIA, approval of campsite by Directorate of Occupational Health and Safety (DOSHS)</b>	Delay in implementation of the Project due to objections and stop orders	Low	<ul style="list-style-type: none"> <li>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;</li> <li>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</li> </ul>	All the Project components  <u>Responsibility</u> MoTIH & UD & Contractor	<ul style="list-style-type: none"> <li>Number of approvals / permits issued</li> </ul>	~KShs.20,000
<b>construction campsites</b>	Environmental degradation risks	Medium	<ul style="list-style-type: none"> <li>Isolate through fencing the camp sites from access by the public for their safety</li> <li>Preferably to be located on land already cleared land wherever possible</li> <li>The Contractor's Camp layout shall take into account availability of access for deliveries and services and any future works</li> </ul>	Campsites  <u>Responsibility</u> Contractor(s)	<ul style="list-style-type: none"> <li>Number of public outcry due to accidents</li> </ul>	~KShs. 30,000
<b>Access to campsites and construction sites</b>	Environmental degradation risks	Medium	<ul style="list-style-type: none"> <li>Utilize to the extent possible the existing public roads to avoid social and economic disruption</li> <li>Ensure road safety measures for the construction vehicles to the extent possible by observing all traffic regulations</li> </ul>	Access Roads  <u>Responsibility</u> Contractor(s)	<ul style="list-style-type: none"> <li>Cases of private land required</li> <li>Accidents occurrence incidences</li> </ul>	No direct cost associated
<b>Environmental and Social Training and Awareness</b>	Risks of Environmental and Social degradation risks and occupational health and safety related accidents	Medium	<ul style="list-style-type: none"> <li>The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP</li> <li>The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming</li> <li>An initial environmental awareness training session shall be held prior to any work</li> </ul>	All Workers  <u>Responsibility</u> Contractor(s)	<ul style="list-style-type: none"> <li>Number of Trainings Held</li> <li>Availability of Training reports</li> <li>Attendance list of participants during the trainings sessions</li> </ul>	KShs. 20,000



Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			commencing on site, with the target audience being all project			
<b>HIV/AIDS awareness and prevention campaign</b>	Risks of Increased HIV and Aids transmission in the area	Medium	<ul style="list-style-type: none"> <li>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;</li> <li>The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material (T-shirts and caps), availability of condoms (free), and theatre groups</li> </ul>	All Workers  <u>Responsibility</u> Contractor(s)	<ul style="list-style-type: none"> <li>Number of Trainings Held</li> <li>Availability of Training reports</li> <li>Attendance list of participants during the training sessions</li> </ul>	KShs. 25,000
<b>Local Labour / Employment</b>	Delay in Project implementation due to opposition from aggrieved community members	Medium	<ul style="list-style-type: none"> <li>Wherever possible, the Contractor shall use local labour, and women must be encouraged to be involved in construction work</li> <li>The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule</li> <li>Prioritize hire of locals for all unskilled labour.</li> <li>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.</li> <li>Adhere to labour laws, and labour management practices (timely remuneration, equitable compensation for both genders for equal work etc.)</li> <li>Create awareness to workers and the community on worker and project grievance</li> </ul>	All the Project Lots  <u>Responsibility</u> Contractor	<ul style="list-style-type: none"> <li>Number of workforce employed from the local community</li> <li>Number of female employed</li> </ul>	No direct costs associated

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			redress mechanisms.			
Setting out and clearance of project routes and site	Delay in project implementation due to opposition from PAPs	High	<ul style="list-style-type: none"> <li>Implementation of Resettlement Action Plan (RAP) recommendations before commencement of civil works</li> <li>In the event that the contractor requires additional land, the contractor will apply the provisions of the RAP.</li> <li>if the respective land setting is not reflected in the RAP, to comply with WB OP 4.12; prior to the acquisition of any additional land, the contractor shall submit the respective plan for compensation and this plan has to be approved by the relevant authorities as well as by the PEA.</li> </ul>	<p>All the settlements</p> <p><u>Responsibility</u> MoLIH&amp;UD– Implement RAP Contractor – extra compensation on site</p>	<ul style="list-style-type: none"> <li>Numbers of satisfied PAPs</li> <li>Extend of route opened to the contractor</li> </ul>	refer to RAP report
<b>Earth moving and excavations (Vegetation clearance, channeling and site preparations)</b>	Vegetation Cover destruction	Low to medium	<ul style="list-style-type: none"> <li>Construction activities will be limited to Project sites / routes which already exist therefore limited destruction to vegetation cover,</li> <li>Compensatory planting of trees i.e. plant at least twice the number of trees</li> </ul>	<p>All work areas</p> <p><u>Responsibility</u> Contractor(s)</p>	<ul style="list-style-type: none"> <li>Soil erosion extend and intensity on site</li> </ul>	No direct cost
	Impacts on Water Resources - water pollution	Low to medium	<ul style="list-style-type: none"> <li>No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) to adjacent storm water shall be permitted;</li> <li>Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site where applicable</li> <li>The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to storm water channels</li> </ul>	<p>All work areas</p> <p><u>Responsibility</u> Contractor(s)</p>	<ul style="list-style-type: none"> <li>Water quality flowing through storm</li> </ul>	No direct cost
	Siltation and Sedimentation Control	low	<ul style="list-style-type: none"> <li>Any work along storm water channels will be isolated to prevent silt propagating downstream;</li> </ul>	civil works areas	<ul style="list-style-type: none"> <li>Silt load in storm water channels</li> </ul>	No direct cost

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			<ul style="list-style-type: none"> <li>Debris and other material will be prevented from entering Storm water channels ; contamination by other pollutants);</li> <li>Sand/silt traps should be used so as to prevent silt and any other sediments from getting into storm water channels</li> <li>Site compounds and stockpiles will be located away from shallow wells and storm water channels</li> </ul>	<u>Responsibility Contractor(s)</u>		
	Soil Erosion Impacts	low	<ul style="list-style-type: none"> <li>Earthworks should be controlled so that land that is not required for the Project works is not disturbed;</li> <li>Wherever possible, earthworks should be carried out during the dry season to prevent soil from being washed away by the rain.</li> <li>Excavated materials and excess earth should be kept at appropriate sites approved by the Supervising Engineer.</li> <li>The contractor should adhere to specified cut and fill gradients and planting embankments with shrubs and grass to reduce erosion</li> </ul>	civil works areas  <u>Responsibility Contractor(s)</u>	<ul style="list-style-type: none"> <li>Extend of soil erosion on site</li> </ul>	No direct cost
<b>Site Activities</b>	Risk of Accidents at Work Sites	High	<ul style="list-style-type: none"> <li>Contractor to provide a Healthy and Safety Plan (HSP) prior to the commencement of works to be approved by the Supervising Engineer.</li> <li>Provide Personal Protective Equipment (PPE) including gloves, gum boots, overalls and helmets to workers. Use of PPE to be enforced by the Supervising Engineer.</li> <li>Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles</li> <li>Strict use of warning signage and tapes where the trenches are open and at other active construction sites</li> </ul>	civil works areas <u>Responsibility Contractor(s)</u> Supervision	<ul style="list-style-type: none"> <li>Number of fatalities and accidents recorded in the incidence book</li> </ul>	KShs.30,000

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			<ul style="list-style-type: none"> <li>Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site</li> </ul>			
	Solid Wastes impacts	High	<ul style="list-style-type: none"> <li>The contractor shall develop a comprehensive Waste Management Plan (WMP) prior to commencement of works</li> <li>Properly labelled and strategically placed waste disposal containers shall be provided at all places of work</li> <li>Litter bins should have secured lids to prevent animals and birds from scavenging</li> <li>All personnel shall be instructed to dispose of all waste in a proper manner</li> <li>Recycling of construction material shall be practiced where feasible e.g. containers and cartons</li> <li>Earth spoils shall be disposed of in pre identified sites</li> </ul>	civil works areas <u>Responsibility</u> Contractor(s) Supervision	<ul style="list-style-type: none"> <li>Quantity of solid Wastes Generated and appropriately disposed</li> </ul>	KShs.25,000
	Liquid Wastes Impacts	High	<ul style="list-style-type: none"> <li>Water containing pollutants such as concrete or chemicals should be directed to a conservancy tank for removal from the site where applicable</li> <li>Potential pollutants of any kind and form shall be kept, stored and used in such a manner that any escape can be contained</li> <li>In case of any form of pollution the contractor should notify the Resident Engineer (RE)</li> <li>Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas including groundwater are not polluted</li> <li>No grey water runoff or uncontrolled discharges from the site or working areas to any adjacent Storm water channels .</li> </ul>	civil works areas <u>Responsibility</u> Contractor(s) Supervision	<ul style="list-style-type: none"> <li>Quantity of liquid Wastes Generated and appropriately disposed</li> </ul>	KShs.25,000
	Sanitation issues	High	<ul style="list-style-type: none"> <li>The Contractor shall -laws relating to public</li> </ul>	All work areas	Incidence of reported	No direct cost

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
	<b>resulting from both solid and liquid wastes on site</b>  Risks associated with water born diseases exposed to community and workforce		health and sanitation <ul style="list-style-type: none"> <li>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</li> <li>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</li> </ul>	<u>Responsibility Contractor(s) Supervision</u>	cases of water related diseases among the workforce and neighbor community	associated
	Fuels, Oils and other hydro-carbons	High	<ul style="list-style-type: none"> <li>The contractor shall ensure that the machines and equipment are in good condition when on site.</li> <li>Ensure proper handling of lubricants, fuels and solvents while maintaining the plant and equipment.</li> <li>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.</li> </ul>	civil works areas  <u>Responsibility Contractor(s) Supervision</u>	<ul style="list-style-type: none"> <li>Quantity of waste fuels and oils appropriately disposed</li> </ul>	KShs.25,000
	<b>Storage of fuel oils, lubricants, chemicals and flammable materials</b> Hazards of fire outbreak, oil and chemical spills.	High	<ul style="list-style-type: none"> <li>Follow specifications of the Occupational Health and Safety Act 2007, EMCA 2015 and others in the development and operation of stores.</li> </ul>	All work areas  <u>Responsibility Contractor(s) Supervision</u>	Incidence of reported cases of fuel leaks and fire incidences	No direct cost associated
	<b>Noise and Vibration control from plant and equipment</b> Risk to health and	High	<ul style="list-style-type: none"> <li>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</li> <li>hospitals and other noise sensitive areas shall be</li> </ul>	civil works areas and access roads  <u>Responsibility</u>	Reported complaints from neighbor community and institutions	No direct cost associated

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
	safety of community and workers		<p>notified by the Contractor at least 5 days before construction is due to commence in their vicinity</p> <ul style="list-style-type: none"> <li>Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE</li> <li>The Contractor must adhere to Noise Prevention and Control Rules of April 2005</li> </ul>	Contractor(s) Supervision engineer		
	<b>Air Quality Control</b> Air pollution causing respiratory disorders to human	High	<ul style="list-style-type: none"> <li>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</li> <li>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</li> <li>The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds</li> <li>Vehicles delivering soil materials shall be covered to reduce spills and windblown dust</li> <li>Water sprays shall be used on all earthworks areas within 200metres of human settlement.</li> </ul>	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)
<b>Traffic management on site</b>	Risks of Accidents, Injuries or death of workers or community member	high	<ul style="list-style-type: none"> <li>Strict use of warning signage and tapes where the trenches are open and active sites</li> <li>Employ and train road safety Marshalls who will be responsible for management of traffic on site</li> <li>Contractor to provide a traffic management plan during construction to be approved by the resident engineer</li> </ul>	.civil works areas and access roads  <u>Responsibility</u> Contractor(s) Supervision engineer	Accidents occurrence incidences	No direct cost
<b>Materials sourcing, from</b>	Environmental and Safety risks	Medium to High	<ul style="list-style-type: none"> <li>Ensure that appropriate authorization to use the proposed borrows pits and quarries has been obtained before commencing ,</li> </ul>	Burrow Pits and Quarry Site	<ul style="list-style-type: none"> <li>Environmental Status of reinstated</li> </ul>	Cost to be identified once the

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
burrow pits and quarries delivery and storage	associated with burrowing and opening up of new quarry sites		<ul style="list-style-type: none"> <li>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.</li> <li>Carry out inspection of each of the site's soil stability before excavation;</li> <li>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;</li> <li>The Contractor shall give a 14 day notice to nearby communities of his intention to begin excavation in the borrow pits or quarries;</li> </ul>	Responsibility Contractor(s) Supervision	<ul style="list-style-type: none"> <li>burrow pits</li> <li>Complains from the community on burrow pits and material transportation</li> </ul>	burrow areas are determined
	Labour Influx to Project settlements	Medium to High	<ul style="list-style-type: none"> <li>The contractor awarded the Project will develop a labour Management Plan (LMP) in consultation with local leaders.</li> <li>The contractor will ensure effective community engagement and strong grievance mechanisms on matters related to labour</li> <li>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.</li> <li>The contractor will ensure proper records of labour force on site while avoiding child and forced labour</li> <li>The contractor will ensure comply to provisions of Work Place Injuries and Benefits Act (WIBA) 2007</li> </ul>	Project Corridor  Responsibility Contractor(s) Supervision	<ul style="list-style-type: none"> <li>Number of grievances recorded by disgruntled works force and community</li> </ul>	No direct cost
	Gender Inclusivity in Project activities	Low	<ul style="list-style-type: none"> <li>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.</li> </ul>	Project Corridor	<ul style="list-style-type: none"> <li>women and Men employed by the Project</li> </ul>	No direct cost

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			<ul style="list-style-type: none"> <li>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</li> <li>Protecting Human Risk areas Associated with, Disadvantaged Groups, Interfering with Participation Rights and interfering with Labour Rights</li> </ul>	Responsibility Contractor(s) Supervision		
	Children abuse impacts	High	<ul style="list-style-type: none"> <li>The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project.</li> <li>All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour</li> <li>Children under the age of 18years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014</li> </ul>	Project Corridor  Responsibility Contractor(s) Supervision	<ul style="list-style-type: none"> <li>Number of cases reported involving abuse of children</li> <li>Develop a child protection Code of Conduct.</li> <li>Number of staff who have signed the code of conduct.</li> <li>Number of refresher trainings on child protection code.</li> </ul>	No direct cost
	Ineffective Grievance Management	Medium to high	<ul style="list-style-type: none"> <li>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms.</li> <li>Implement a worker's grievances mechanism.</li> <li>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</li> </ul>	Project Corridor  Responsibility Contractor(s) Supervision	<ul style="list-style-type: none"> <li>Local grievance Committees</li> <li>Number of cases received and logged</li> <li>Number of GRC meetings conducted</li> <li>Number and type</li> </ul>	



Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
			<ul style="list-style-type: none"> <li>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</li> <li>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</li> <li>Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</li> </ul>		<ul style="list-style-type: none"> <li>of facilitation done by SEC/GRC</li> <li>Number of grievances timely resolved</li> <li>Number of Grievances escalated to national court and WB Redress services</li> </ul>	
	Gender-Based Violence Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium to high	<ul style="list-style-type: none"> <li>Develop and implement a plan to manage the risk of SEA/SH.</li> <li>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</li> <li>Ensure the GRM is SEA/SH-responsive.</li> <li>Ensure all those with physical presence on site sign and understand the Code of Conduct.</li> <li>Put in place measures for monitoring GBV/sexual harassment.</li> </ul>	<p>Project Corridor</p> <p>Responsibility Contractor(s) Supervision</p>	<ul style="list-style-type: none"> <li>Number of Inductions sessions on SEA/SH and signed code of conduct</li> <li>Number of SEA and SH cases reported and resolved.</li> <li>Number of community sensitization sessions on SEA and SH</li> <li>Number of continuous training and awareness done through tool boxes talks</li> <li>Number of IEC material done to</li> </ul>	No direct anticipated

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
					create awareness <ul style="list-style-type: none"> <li>Number of stakeholder engagements conducted.</li> <li>Establishment of a grievance response GRM.</li> </ul>	
	Child Exploitation and Abuse		<ul style="list-style-type: none"> <li></li> </ul>		<ul style="list-style-type: none"> <li></li> </ul>	
	Increase of communicable diseases including HIV and Aids	High	<ul style="list-style-type: none"> <li>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.</li> <li>This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor's Staff</li> <li>Access to Contractor's Workforce Camps by outsiders to be controlled</li> <li>Contractor to provide standard quality condoms to personnel on site</li> </ul>	All Workers  <u>Responsibility</u> Contractor(s)	<ul style="list-style-type: none"> <li>Number of Trainings Held</li> <li>Availability of Training reports</li> <li>Attendance list of participants during the training sessions</li> </ul>	Budgeted above in row(5) on page 8.5
<b>Contractor de-mobilization and site reinstatement</b>	Associated risks of environmental degradation	Medium	<ul style="list-style-type: none"> <li>The site is to be cleared of all construction materials, including litter prior to hand over</li> <li>Fences, barriers and demarcations associated with the construction phase must be removed from the site</li> <li>Fences, barriers and demarcations associated with the construction phase must be removed from the site</li> <li>Rehabilitation Activities of Environmental Cases identified must continue throughout the defect liability period</li> </ul>	All work areas  <u>Responsibility</u> Contractor(s) Supervision	Closeout audit report findings	No direct anticipated

Activity	Associated Impacts	Impact Levels	Management Actions	Target Areas& Responsibilities	Monitoring Indicator	Budget
Total Estimated Cost for ESMMP					EMP	Khs 200,000.00

**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	<ul style="list-style-type: none"> <li>Develop a capacity building plan or program for road maintenance team who are mandated to operate and maintain the road</li> <li>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</li> </ul>	Uasin Gishu 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	<ul style="list-style-type: none"> <li>Develop a capacity building plan or program for flood lights maintenance team who are mandated to operate and maintain the flood lights</li> <li>Regular maintenance of the flood lights by County Government, this should be through regular replacement of bulbs</li> </ul>	Uasin Gishu 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	<ul style="list-style-type: none"> <li>Develop a capacity building plan or program on road safety campaign that targets road users.</li> <li>The County Government to enlighten motorist and cyclist on importance of obeying traffic rules especially in residential areas.</li> <li>The County Government to enlighten residents and school children on the importance of adhering to provisions of road safety rules</li> <li>Regular inspection and maintenances of the road by County Government of Uasin Gishu to ensure the speed control parameters and signage are in good condition.</li> <li>Regular crackdown, arrest and prosecution of motorists and cyclist who disobey road safety directions.</li> </ul>	Uasin Gishu County Government	To be established at operation phase and included in the operation of the Projects

**Sewer lines**

No.	Issue	Action required	Responsibility	Monitoring Indicator	Provisional Budget
1	Risk of encroachment and construction of structures sewer lines	<ul style="list-style-type: none"> <li>Mapping and installation of beacons to which illustrate the width of the water and sewerage pipeline reserve</li> <li>Regular inspection of the pipeline corridor for encroachment.</li> <li>Prosecution of encroachers as required by Kilifii City County By laws on way leaves and road reserves maintenance.</li> <li>Conduct public sensitization programs on importance not interfering with way leaves and public reserve land</li> </ul>	ELDOWAS	Number of encroachment cases reported	To be established at operation phase and included in the operation of the projects
2	Risk of water pipeline bursts leading water wastages (Non-Revenue Water percentages increase)	<ul style="list-style-type: none"> <li>Regular check, repair and maintenance of the pipeline</li> <li>Activate a community watch group for information sharing on the status of the pipeline</li> </ul>	ELDOWAS	Number of reported cases water bursts	To be established at operation phase and included in the operation of the projects
3	Risk of illegal connection to the water and sewer line pipeline	<ul style="list-style-type: none"> <li>This is common in the informal settlements where residents illegally tap water pipelines in order to get free services.</li> <li>This will require constant inspection by KIMAWSCO &amp; ELDOWAS officials and installation of leak and burst detectors at designated areas along the pipeline.</li> <li>Conduct public sensitization programs on importance not interfering with the water and sewer pipeline and the need to seek official water connection from ELDOWAS</li> </ul>	ELDOWAS	Number of illegal connection cases reported	To be established at operation phase and included in the operation of the projects
4	Health Risks from Burst / Blocked Sewers	<ul style="list-style-type: none"> <li>Regular inspections, repair and maintenance of the sewer lines to be carried out by KIMAWSCO &amp; ELDOWAS</li> <li>Residents to be encouraged by KIMAWSCO &amp; ELDOWAS to form Community Watch Groups for information sharing and reporting on the status of the sewer lines</li> <li>KIMAWSCO &amp; ELDOWAS to undertake awareness campaigns to educate community members not to dump solids in manholes.</li> </ul>	ELDOWAS	Number of sewer blockages and overflows reported	To be established at operation phase and included in the operation of the projects

No.	Issue	Action required	Responsibility	Monitoring Indicator	Provisional Budget
		<ul style="list-style-type: none"> <li>CWSB and KIMAWSCO &amp; ELDOWAS to develop an inventory of system components, with information including age, construction materials, and drainage areas served for ease of identification and maintenance of the sewers.</li> </ul>			
5	Land and Soil Contamination by Raw Sewage	<ul style="list-style-type: none"> <li>The ELDOWAS to carry out regular patrols and attend to burst pipes promptly</li> <li>ELDOWAS to encourage land owners along sewer lines to maintain vegetated belts along the pipeline to control any overflows flows and trap soil. They will also be encouraged to take responsibilities at the lowest levels in regard to protecting the sewer line e.g. by promptly reporting to ELDOWAS in case of bursts / blockages;</li> </ul>	ELDOWAS	Cases of land and soil contamination reported	To be established at operation phase and included in the operation of the projects

### 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
<b>Step 1</b>	<b>Initiation</b>  Development of an Objective Worksheet and checklist incorporating references, legal, stakeholder engagement and policies  Undertake decommissioning audit	<b>Proponent</b>
<b>Step 2</b>	<b>Prepare Road Map for Decommissioning Design</b>  Conduct design review to validate elements of the design and ensure design features are incorporated in the decommissioning design. Public consultations	<b>Proponent</b>
<b>Step 3</b>	<b>Prepare and Award Contract</b>  Prepare a contract that incorporates validated project information and award to a contractor as per the Procurement rules.	<b>Proponent</b>
<b>Step 4</b>	<b>Execute Decommission Works</b>  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.	<b>Contractor</b>
<b>Step 5</b>	<b>Non-Conformance, Corrective/Preventive Action</b>  Determine root cause Propose corrective measures Propose future preventive measures	<b>Proponent</b>

## CHAPTER 9: CONCLUSION

### 9.1 Conclusion

Key findings of the Environment and Social Impact assessment of the proposed KISIP investments in Shauri Informal in Eldoret Town 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.
- (iii) The Project will not lead to displacement of people as the roads are designed to follow the designated road reserves on the physical development plans (PDPs). However, there are encroachments on the road reserves mostly of temporal structures for informal traders. A RAP has been prepared to mitigate against this to ensure that their livelihoods are not negatively impacted upon.

However, the ARAP report prepared for Shauri Informal Settlement detailed the below summarized to be impacts related to Project impacts to peoples assets and sources of livelihood

- ✓ 15 project Affected Persons. Affected by planning and survey in Shauri Informal Settlement. The number of affected structures, from re-planning is 15 where all are 36 partially affected.
- ✓ The total budgetary requirements for implementation of the ARAP is provided as 561,545.00 (Five hundred and sixty-one thousand five hundred and forty-five shillings only).
- (iv) 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.
- (v) The RAP will be fully implemented before the commencement of the Project civil works
- (vi) Provisional Budget of Kenya Shilling two hundred thousand should be included in the bidding documents for implementation of mitigation measures of potential negative impacts.



## **ANNEXES**

### **ANNEX 1    ENVIRONMENT AND SOCIAL SCREENING MATRIX**

**Annex 1: Environment and Social Screening Matrix**

Criteria	Yes/No	Comments	Other GoK/ WB Policies applicable	Recommended scale of Environmental Assessment
<b>Part A: Triggers to EMCA</b>				
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
<b>Part B: Details of Site location</b>				
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

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 identified	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 identified on site	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.4) below
<b>Part C: Analysis of likely physical Impacts</b>				
<b>(i) Scope of proposed activities</b>				
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
<b>(ii) Water Resource Impacts</b>				
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

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
<b>(iii) Ecosystem Impacts</b>				
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
<b>(iv) Drainage Impacts</b>				
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

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
<b>Socio-economic impacts</b>				
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

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 as discussed in sub chapter 4.5 below	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	Applicable as discussed in chapter (4)	As discussed in sub chapter (7.5) below

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

## **ANNEX 2 PUBLIC PARTICIPATION MINUTES AND LIST OF PARTICIPANTS**



**MINUTES OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND  
RESETTLEMENT ACTION PLAN (RAP) PAPS SENSITIZATION MEETING FOR SHAURI  
SETTLEMENT IN ELDORET, ON OCTOBER 21<sup>ST</sup>, 2023, FROM 10.00 AM AT SHAURI MARKET**

**Attendance:**

*(Attendance list attached)*

**Agenda**

1. INTRODUCTION AND OPENING REMARKS
2. ESIA and RAP
3. PLENARY
4. CLOSING REMARKS

MINUTES NO.	DISCUSSIONS	ACTORS
Min. 01/21/10/2023	<p><b>INTRODUCTION AND OPENING REMARKS</b></p> <p>The Vice Chair for SEC welcomed all those in attendance and then invited pastor Ndegwa to say a word of prayer.</p> <p>She then asked the committee members to introduce themselves to the people and state their roles. The SEC secretary thanked all those who had taken their time to attend the meeting and urged them to embrace the project.</p> <p>The Vice chair then welcomed the environmental and social safeguards team to introduce themselves as well and lead the agenda.</p>	All
Min. 02/21/10/2023	<p><b>ESIA and RAP</b></p> <p>The consultant's representative begun by telling the people more about KISIP, the county coordination team and the various places within Uasin Gishu and Nandi County where the project would be carried out. He added that the KISIP component dealing with infrastructure improvements would really benefit the people through better roads, drainage and improved sanitation among others.</p> <p>He informed those in attendance that public participation is a requirement by the Kenyan Constitution and World Bank Operation Policies, so in doing so the meeting would be good for them.</p> <p>He also added that the essence of ESIA was to collect information about the state of their living conditions, if there would be any environmental and social challenges during the actual project operation and works. The exercise would generate a NEMA license for the works that would be done.</p> <p>The environmental and social safeguards expert explained to those in attendance that the role of the</p>	Safeguards Expert

MINUTES NO.	DISCUSSIONS	ACTORS								
	<p>RAP was to document all those Project Affected Persons (PAPs) whose assets would be affected by the infrastructure upgrading. Information to be collected from the PAPs include</p> <ul style="list-style-type: none"><li>• Bio-data</li><li>• Vulnerability Status</li><li>• Nature of affected asset</li><li>• Cut-off date</li></ul> <p><b>Cut-off Date</b></p> <p>The community members were informed that the <b>cutoff date for the settlement will be adopted as 21<sup>st</sup> October 2023</b> to be date of start of census of PAPs whose assets will be affected.</p> <p><b>Vulnerable PAPs</b></p> <p>The community were informed that In addition to infrastructure upgrading vulnerable persons affected by the project shall be assisted in their efforts to improve their livelihoods and standards of living or restore them to pre-project levels through one or a combination of; i) reconstruction and replacement of affected assets (fences, trees and structures), and; ii) offered post-impact support for a transition period based on a reasonable estimate of time required to restore their livelihoods and standards of living. During enumeration such PAPs will be enumerated and singled out in the asset register and additional support provided to them.</p>									
Min. 03/21/10/2023	<table><tr><th colspan="2">PLENARY</th></tr><tr><th>Questions/Concerns</th><th>Response</th></tr><tr><td><i>Pst. Jackson asked if those with structures extended into the roads would be given time to remove.</i></td><td>They were advised that the time would be given by the team on the ground.</td></tr><tr><td><i>Mama Joshua raised an issue as a small scale trader with a kibanda in the settlement, as asked where they would be</i></td><td>She was told that in the palm there was provision for the construction of a market. All those with temporary business sheds</td></tr></table>	PLENARY		Questions/Concerns	Response	<i>Pst. Jackson asked if those with structures extended into the roads would be given time to remove.</i>	They were advised that the time would be given by the team on the ground.	<i>Mama Joshua raised an issue as a small scale trader with a kibanda in the settlement, as asked where they would be</i>	She was told that in the palm there was provision for the construction of a market. All those with temporary business sheds	All
PLENARY										
Questions/Concerns	Response									
<i>Pst. Jackson asked if those with structures extended into the roads would be given time to remove.</i>	They were advised that the time would be given by the team on the ground.									
<i>Mama Joshua raised an issue as a small scale trader with a kibanda in the settlement, as asked where they would be</i>	She was told that in the palm there was provision for the construction of a market. All those with temporary business sheds									

MINUTES NO.	DISCUSSIONS		ACTORS
	<p><i>taken if removed from where they are..?</i></p> <p><i>Nduta had a concern about the kind of street lights that were proposed as existing ones are mostly stolen or vandalized.</i></p> <p><i>Silvia asked the criteria that would be used to give youths and women jobs.</i></p> <p><i>Caleb Ngaira requested if the drainage within the settlement would be redesigned to accommodate the increase in population</i></p>	<p>would be considered.</p> <p>The consultant's representative told her that high mast lights (mulika mwizi) had been proposed, this would be hard to steal.</p> <p>She was advised that there would be no specific criteria used, the unskilled labor would be sourced in the settlement but skilled labor in most cases would come from the contractor's camp.</p> <p>He was told that all the new roads would have new and redesigned drainage systems.</p>	
Min. 04/21/10/2023	<p><b>CLOSING REMARKS</b></p> <p>Mr. Oبرا, the consultant's representative urged those affected by the project to cooperate with the consultants so as to achieve the greater objective of tenure regularization.</p> <p>The vice chair of SEC urged the people to keep on coming to the meetings so as to hear what the consultant's team had in store for them.</p>		All

There being no other business, the meeting was adjourned at 11.00 am.



**MINUTES CONFIRMED BY:**

**Community/SEC Representative**

Name... DAVID ODHIAMBO ..... Signature... [Signature] ..... Date... 28/10/2023 .....

**Consultant's Representative**

Name... collins Juma ..... Signature... [Signature] ..... Date... 28/10/23 .....

**Plate 1: the Environmentalist addressing Residents**



*Source: GA Consultants LTD, 2023*

**Plate 2: The SEC secretary addressing residents.**



*Source: GA Consultants LTD, 2023*

## **ANNEX 3 CHANCE FIND PROCEDURES**

DISCLOSURE COPY

## 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](mailto:publicrelations@museums.or.ke)

Director General:-

Email: [dg@museums.or.ke](mailto: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 Uasin Gishu County Government will be contacted immediately for appropriate reburial.

## **ANNEX 4 LEAD EXPERT 2023 LICENSE**



FORM 7



(r.15(2))

**NATIONAL ENVIRONMENT MANAGEMENT  
AUTHORITY(NEMA)  
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT  
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING  
LICENSE**

License No : NEMA/EIA/ERPL/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

