



**REPUBLIC OF KENYA**

Ministry of Lands, Public Works, Housing and Urban Development,

State Department for Housing and Urban Development.



**SECOND KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT (KISIP 2)**

**CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENTS; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6NO SETTLEMENTS). CONTRACT NO.: KE-MOTI-214831-CS-QCBS**



**Kilifi County Government**

**UPDATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT**

**SOBOCON ASSOCIATES LIMITED**

Consulting Engineers & Project Managers



Upper Hill Garden, Block A Suite A37, 3rd Ngong' Avenue

P.O Box 34558 – 00100 GPO Nairobi, Kenya

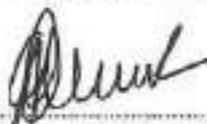
Tel: +254 (0) 20 2023231/+254 (0) 728 201246

E-mail: [info@sobocon.co.ke](mailto:info@sobocon.co.ke)

Website: [www.sobocon.co.ke](http://www.sobocon.co.ke)

**MARCH 2023**

**PROJECT SUMMARY SHEET**

Client:	Ministry of Lands, Public Works, Housing and Urban Development: State Department for Housing and Urban Development
Project Name:	Consultancy Services of Engineering Design Review, Repackaging of Detailed Engineering Designs, and Preparation of Procurement Documents; Upgrading of RAP and ESIA Reports and Supervision of the Proposed Infrastructure Improvement Works in selected Informal Settlement in the County of Kilifi (6 No. Settlements).
Report Title:	Updated Environmental and Social Impact Assessment Report for the proposed infrastructure improvement Works in selected Settlements in in the County of Kilifi – Kilifi and Malindi Towns (6 No. Settlements). Contract No.: KE-MOTI-214831-CS-QCBS
Version:	Updated Full ESIA Study report
Project Cost (Per BOQ)	KES 950,039,281.69
Reviewed and Updated Report and prepared by:	<p><b>Augustine K. Makau</b>                      Lead EIA/EA Expert, Reg. No. 0430                      Cell phone: 0717193863                      Email: <a href="mailto:amakau56@gmail.com">amakau56@gmail.com</a></p> <p>Signed:  Date: 28/6/2023</p>
Client:	<p>Ministry of Lands, Public Works, Housing and Urban Development: State Department for Housing and Urban Development:                      Kenya Informal Settlement Improvement Project                      KISIP2 National Coordinator</p> <p>Signed:  Date: 21/12/2023</p>

## TABLE OF CONTENTS

### LIST OF TABLES VI

### LIST OF FIGURES VII

### LIST OF ABBREVIATIONS AND ACRONYMS..... IX

### EXECUTIVE SUMMARY.....XII

#### *Grievance tiers*.....xvii

## I. INTRODUCTION ..... 1

### 1.1 Background Information ..... 1

### 1.2 Project Objectives..... 3

### 1.3 ESIA Update Objectives..... 3

### 1.4 Justification of the Project ..... 3

#### *1.4.1 Justification of ESIA reviews*..... 3

### 1.5 Scope and Methodology ..... 4

#### *1.5.1 Review the initial ESIA study Report*..... 4

#### *1.5.2 Desk review*..... 4

#### *1.5.3 Field reconnaissance*..... 5

#### *1.5.4 Legislative, policy and administrative framework*..... 5

#### *1.5.5 Delineation and description of the study area*..... 5

#### *1.5.6 Baseline environment*..... 5

#### *1.5.7 Bio- Physical Environment*..... 6

#### *1.5.8 Socio-economic and cultural environment*..... 7

#### *1.5.9 Stakeholder engagement*..... 7

#### *1.5.10 Categories of project stakeholders*..... 9

#### *1.5.11 Stakeholder engagement meetings*..... 9

#### *1.5.12 Public disclosure of ESIA, and Annual monitoring reports*..... 10

#### *1.5.14 Analysis of Project alternatives*..... 12

#### *1.5.15 Preparation of Environmental and Social Management Plan*..... 12

## 2 PROJECT DESCRIPTION .....XIV

### 2.1 General description of the project road.....xiv

### 2.2 Location of Project Area in Kilifi Town, Kilifi County.....xiv

### 2.3 Drainage Pattern of the Settlements .....xvii

### 2.4 Design standard and controls .....xix

#### *2.4.1 Design approach*.....xx

### 2.5 Design scope .....xx

### 2.6 Specific works distributed per settlement .....xx

#### *2.6.1 Lot 1 Scope of Work*.....xx

#### *2.6.2 Lot 2 Scope of Work*.....xxiv

#### *2.6.3 Lot 3 Scope of Work (Sanitation works for Muyeye)*.....xxvi

#### *2.6.4 Typical Cross Sections of the Proposed Roads*.....xxvii

2.6.5	<i>Typical Cross Sections of the Proposed Street Lights</i> .....	xxviii
2.6.6	<i>Overview of the Proposed Sanitation works for Muyeye Settlement</i> .....	xxix
2.6.7	<i>Temporary construction facilities</i> .....	xxx
<b>3</b>	<b>ANALYSIS OF PROJECT ALTERNATIVES</b> .....	<b>xxxii</b>
3.1	No project alternative .....	xxxii
3.2	Project alternative .....	xxxii
3.3	Feasibility of design alternative .....	xxxii
3.3.1	<i>Technology Analysis for Road Construction</i> .....	xxxii
3.3.2	<i>Technology Analysis for Storm water drainage Construction</i> .....	xxxiv
3.3.3	<i>Technology Analysis for Street Lights</i> .....	xxxv
i.	<i>Pour Flush Toilet/ Vault Latrines / WSTF prototype</i> .....	xxxv
3.3.5	<i>Technology Analysis for water supply</i> .....	xxxv
3.4	Project cost .....	xxxv
<b>4</b>	<b>LEGISLATIVE, POLICY AND ADMINISTRATIVE FRAMEWORK</b> .....	<b>xxxvii</b>
4.1	General Overview .....	xxxvii
4.2	Environmental and social management framework for KISIP 2 .....	xxxvii
4.3	World Bank OP 4.01: Environmental and assessment .....	xxxviii
4.4	Legislative Framework .....	xxxviii
4.4.1	<i>The constitution of Kenya</i> .....	xxxviii
4.4.2	<i>Environmental Management and Coordination Act, 1999 (Amendment 2015)</i> xxxix	
4.4.3	<i>Environmental (Impact Assessment and Audit) Regulations, 2003</i> .....	xxxix
4.4.4	<i>Environmental Management and Co-ordination (Waste Management) Regulations, 2006</i> .....	xl
4.4.5	<i>Environmental Management and Co-ordination (Water Quality) Regulations, 2006</i> .....	xlii
4.4.6	<i>Environmental Management and Co-Ordination (Noise and Excessive Vibration Pollution) Regulations, 2009</i> .....	xlii
4.4.7	<i>Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006</i> .....	xlvi
4.4.8	<i>Environmental Management and Coordination (Air Quality) Regulations, 2014 (Revised 2016)</i> .....	xlvi
4.4.9	<i>County Government Act, 2012</i> .....	xlviii
4.4.10	<i>The Kenya Roads Act, 2007 (Revised 2012)</i> .....	xlviii
4.4.11	<i>Climate Change Act, 2016</i> .....	xlx
4.4.12	<i>The Occupational Safety and Health Act, 2007</i> .....	xlx
4.4.13	<i>HIV AND AIDS Prevention and Control Act, 2006</i> .....	l
4.4.14	<i>The Traffic Act, Cap 403</i> .....	l
4.4.15	<i>The Employment Act, 2007</i> .....	li
4.4.16	<i>The Work Injury Benefits Act, 2007</i> .....	li
4.4.17	<i>Public Health Act Cap 232</i> .....	li
4.4.18	<i>Sexual Offences Act No. 3 of 2006</i> .....	lii

4.4.19	<i>Water act 2016 and the subsidiary Water Resources Regulations, 2021</i> .....	iii
4.4.20	<i>EMCA (Fossil Fuel Emission Control) Regulations, 2006</i> .....	iii
4.4.21	<i>Land Act (Amended) 2019;</i> .....	iii
4.4.22	<i>Physical and Land Use Planning (2019)</i> .....	iii
4.4.23	<i>National Construction Authority Act, 2011</i> .....	iii
4.4.24	<i>Sustainable Waste Management Act, 2022</i> .....	iv
4.4.25	<i>Children's Act No. 8 of 2002 revised in 2012</i> .....	iv
4.5	<b>National Policy Framework</b> .....	iv
4.5.1	<i>Vision 2030</i> .....	iv
4.5.2	<i>National Environment Policy 2014</i> .....	iv
4.5.3	<i>National Environment Action Plan, 2003 (Revised 2007)</i> .....	iv
4.5.4	<i>Integrated National Transport Policy,2009, Sessional Paper 2012</i> .....	iv
4.6	<b>International Guidance and Standards</b> .....	vi
4.7	<b>International Conventions</b> .....	biii
4.8	<b>Administrative Framework</b> .....	ixv
4.8.1	<i>National Environment Council</i> .....	ixv
4.8.2	<i>NEMA</i> .....	ixv
4.8.3	<i>The Standards and Enforcement Review Committee</i> .....	ixv
4.8.4	<i>The County Environment Committees</i> .....	ixv
4.8.5	<i>Environment and Land Court</i> .....	ixv
4.8.6	<i>National Environment Tribunal</i> .....	ixv
4.8.7	<i>The RE and County Government of Kilifi</i> .....	ixvi
4.8.8	<i>National Environmental Complaints Committee</i> .....	ixvi
4.8.9	<i>Directorate of Occupational Safety and Health Services</i> .....	ixvi
4.8.10	<i>County Government</i> .....	ixvi
5	<b>DESCRIPTION OF BIO - PHYSICAL PROJECT ENVIRONMENT</b> .....	LXVII
5.1	<b>Location of the Project</b> .....	ixvii
5.2	<b>Project area vegetation and physical features</b> .....	ixvii
5.3	<b>Physical Environment</b> .....	ixxiv
5.3.1	<i>Climate</i> .....	ixxiv
5.3.2	<i>Topography</i> .....	ixxv
5.3.3	<i>Hydrology</i> .....	ixxv
5.3.4	<i>Geology and Soils</i> .....	ixxvi
5.3.5	<i>Vegetation and Flora</i> .....	ixxvii
6	<b>DESCRIPTION OF THE SOCIO-ECONOMIC PROJECT ENVIRONMENT....</b>	LXXVIII
6.1	<b>Background</b> .....	ixxviii
6.2	<b>Kilifi County</b> .....	ixxviii
6.2.1	<i>Position and Size</i> .....	ixxviii
6.2.2	<i>Administrative Units</i> .....	ixxviii
6.2.3	<i>Age distribution</i> .....	ixxix
6.2.4	<i>Gender Distribution of the Respondents</i> .....	ixxix
6.2.5	<i>Educational Level</i> .....	ixxix
6.2.6	<i>Occupation/employment status</i> .....	ixxx

6.2.7	<i>Household Incomes and Expenditures</i> .....	lxxx
6.2.8	<i>Energy</i> .....	lxxxii
6.2.9	<i>Sanitation</i> .....	lxxxiii
6.2.10	<i>Water</i> .....	lxxxiii
6.2.11	<i>Housing Types and Ownership</i> .....	lxxxiii
6.2.12	<i>Morbidity</i> .....	lxxxiv
6.2.13	<i>HIV Awareness</i> .....	lxxxiv
6.2.14	<i>Gender Issues</i> .....	lxxxvi
6.2.15	<i>Vulnerable Groups</i> .....	lxxxviii
<b>7</b>	<b>STAKEHOLDER ENGAGEMENT</b> .....	<b>LXXXIX</b>
7.1	Schedule of Stakeholder Consultations and Meeting Points .....	lxxxix
7.2	Summary of Concerns raised by PAPs and Stakeholder during the various consultation meetings .....	xciii
7.3	Grievance redress mechanism .....	xcvii
7.4	Uptake of Sexual Exploitation Abuse and Harassment (SEAH) through GRM .....	xcviii
7.4.1	<i>Grievance tiers</i> .....	xcviii
7.5	World Bank GRM .....	C
<b>8</b>	<b>ASSESSMENT OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS</b> .....	<b>CI</b>
8.1	Positive Impacts .....	ci
8.2	Construction phase potential negative impacts .....	cii
8.2.1	<i>Soil Erosion</i> .....	cii
8.2.2	<i>Air pollution</i> .....	cii
8.2.3	<i>Noise and Excessive Vibration</i> .....	ciii
8.2.4	<i>Water pollution</i> .....	civ
8.2.5	<i>Waste Management</i> .....	civ
8.2.6	<i>Community safety and Security</i> .....	cv
8.2.7	<i>Occupational Safety and Health</i> .....	cv
8.2.8	<i>Construction material sourcing</i> .....	cvii
8.2.9	<i>Construction water sources</i> .....	cvii
8.2.10	<i>Public Health</i> .....	cviii
8.2.11	<i>Disruption of Public Utilities and services</i> .....	cix
8.2.12	<i>Labour conditions</i> .....	cix
8.2.13	<i>Resettlement concerns</i> .....	cix
8.3	Operation phase potential adverse impacts .....	cx
8.3.1	<i>Air pollution</i> .....	cx
8.3.2	<i>Community Safety and Security</i> .....	cx
8.3.3	<i>Soil Erosion</i> .....	cx
8.3.4	<i>Waste Management (solid waste)</i> .....	cx
8.4	Decommissioning phase .....	cx
8.4.1	<i>Camp Site and Asphalt Plant</i> .....	cxii
<b>9</b>	<b>ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN</b> .....	<b>119</b>
9.1	Introduction .....	119

9.2	Scope of the ESMP.....	119
9.3	Objectives of the ESMP.....	119
9.4	Responsibilities.....	120
9.5	Environmental & Social Management Plan.....	121
	9.5.1 Monitoring of ESMP.....	165
10	<b>CONCLUSION AND RECOMMENDATION.....</b>	<b>166</b>
10.1	Conclusion .....	166
10.2	Recommendation .....	166
	<b>REFERENCES</b>	<b>168</b>
	<b>ANNEXES</b>	<b>169</b>

DISCLOSURE COPY

## LIST OF TABLES

TABLE 1: PROPOSED WORKS IN SETTLEMENT OF KILIFI TOWN.....	2
TABLE 2: ORIGINAL PROPOSED WORKS IN SETTLEMENTS OF MALINDI TOWN.....	2
TABLE 3: STAKEHOLDER ANALYSIS AND INTERVIEWS.....	7
TABLE 4: COVERAGE PER SETTLEMENT AND THE POPULATION DENSITY.....	XVII
TABLE 5: WORKS PACKAGING.....	XX
TABLE 6: RECOMMENDED ROADS IN KALOLO INFORMAL SETTLEMENT.....	XXI
TABLE 7: RECOMMENDED ROADS IN KIBAONI SETTLEMENT.....	XXI
TABLE 8: RECOMMENDED ROADS IN BAYAMAGONZI INFORMAL SETTLEMENT.....	XXI
TABLE 9: RECOMMENDED ROADS IN MTAANI SETTLEMENT.....	XXII
TABLE 10: RECOMMENDED SCOPE FOR WATER SUPPLY IN KKB INFORMAL SETTLEMENT.....	XXII
TABLE 11: RECOMMENDED SCOPE OF STREET LIGHTING IN MTAANI SETTLEMENT.....	XXII
TABLE 12: RECOMMENDED SCOPE OF WORK FOR KISUMU NDOGO SETTLEMENT.....	XXIV
TABLE 13: RECOMMENDED SCOPE OF WORK FOR MUYEYE INFORMAL SETTLEMENT.....	XXV
TABLE 14: RECOMMENDED SCOPE OF STREET LIGHTING KISUMU NDOGO.....	XXVI
TABLE 15: THE SPECIFICATION FOR THE PROPOSED SANITATION FACILITY.....	XXXI
TABLE 16: SUMMARY PROJECT COST.....	XXXVI
TABLE 17: CLASSIFICATION OF WASTE BY TYPE.....	XLII
TABLE 18: WASTE DISPOSAL OPTIONS ACCORDING TO TYPE.....	XLII
TABLE 19: MAXIMUM PERMISSIBLE NOISE LEVELS FOR CONSTRUCTION SITES (MEASURED WITHIN THE FACILITY).....	XLIV
TABLE 20: NATIONAL NOISE GUIDELINES.....	XLV
TABLE 21: NOISE LEVELS FROM A FACTORY OR A WORKSHOP (CONTINUOUS OR INTERMITTENT NOISE).....	XLV
TABLE 22: MAXIMUM PERMISSIBLE NOISE LEVEL FOR IMPACT OR IMPULSIVE NOISE.....	XLV
TABLE 23: AMBIENT AIR QUALITY TOLERANCE LIMITS.....	XLVI
TABLE 24: NATIONAL AIR QUALITY STANDARDS FOR GENERAL POLLUTANTS.....	XLVIII
TABLE 25: STANDARDS FOR EFFLUENT DISCHARGE INTO THE ENVIRONMENT.....	LVII
TABLE 26: NOISE LEVEL GUIDELINES.....	LIX
TABLE 27: WHO AMBIENT AIR QUALITY GUIDELINES.....	LX
TABLE 28: AMBIENT AIR QUALITY TOLERANCE LIMITS.....	LX
TABLE 29: INTERNATIONAL CONVENTIONS.....	LXIII
TABLE 30: PHOTO PLATE: KKB INFORMAL SETTLEMENT IN KILIFI TOWN.....	LXXII
TABLE 31: PHOTOS OF MTAANI KISUMU NDOGO.....	LXXIII
TABLE 32: ENVIRONMENTAL SITUATION IN MUYEYE INFORMAL SETTLEMENT.....	LXXIV
TABLE 33: SAMPLING CRITERIA.....	LXXVIII
TABLE 34: ADMINISTRATIVE AND POLITICAL UNITS.....	LXXVIII
TABLE 35: PRIMARY STAKEHOLDER ENGAGEMENT MEETINGS.....	LXXXIX
TABLE 36: SECONDARY STAKEHOLDER ENGAGEMENT MEETINGS.....	LXXXIX
TABLE 37: PUBLIC CONSULTATION BARAZAS IN THE PROJECT AREA.....	XC
TABLE 38: MEETING POINTS FOR STAKEHOLDER ENGAGEMENT WITHIN THE SETTLEMENT.....	XC
TABLE 39: SUMMARY OF CONCERNS RAISED BY PAPS AND STAKEHOLDER DURING THE VARIOUS CONSULTATION MEETINGS.....	XCIII
TABLE 40: SUMMARY OF NEGATIVE IMPACTS.....	CXIII

TABLE 41: RANKING OF IMPACTS .....	CXVIII
TABLE 42: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN .....	123
TABLE 43: APPLICABLE LICENSES AND PERMITS .....	171
TABLE 44: ROAD SAFETY MANAGEMENT PLAN .....	178
TABLE 45: AIR QUALITY MANAGEMENT PLAN .....	185
TABLE 46: NOISE MANAGEMENT PLAN .....	189
TABLE 47: OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT PLAN (OHSMP) .....	196
TABLE 48: WATER MANAGEMENT PLAN .....	201
TABLE 49: COMMUNITY, HEALTH AND SECURITY PLAN .....	205
TABLE 50: LABOUR AND LOCAL LABOUR RECRUITMENT AND MANAGEMENT PLAN .....	215
TABLE 51: WASTE MANAGEMENT PLAN .....	224
TABLE 52: SPILL PREVENTION, CONTROL AND CONTAINMENT MANAGEMENT .....	229
TABLE 53: BLAST MANAGEMENT PLAN .....	231
TABLE 54: REHABILITATION AND SITE CLEAN-UP MANAGEMENT PLAN .....	237

### LIST OF FIGURES

FIGURE 1: MAP OF KILIFI COUNTY .....	XIV
FIGURE 2: MTAANI SETTLEMENT, SOURCE: GOOGLE EARTH, (3037'49.14''S, 39050'56.44''E) .....	XV
FIGURE 3: KISUMU NDOGO SETTLEMENT, SOURCE: GOOGLE EARTH, (3037'33.74''S, 39050'53.85''E) ...	XV
FIGURE 4: KIBAONI, KALOLO AND BAYAMAGONZI INFORMAL SETTLEMENTS (KKB); SOURCE: GOOGLE EARTH, ( KIBAONI 3037'19.30''S, 39051'04.04''E), ( KALOLO 3037'35.02''S, 39051'12.87''E), ( BAYAMAGONZI 3037'08.33''S, 39051'23.37''E) .....	XVI
FIGURE 5: MUYEYE INFORMAL SETTLEMENT, SOURCE: GOOGLE EARTH, (3014'03.14''S, 40006'51.14''E), XVI	
FIGURE 6: EXISTING DRAINAGE PATTERN FOR MTAANI-KISUMU NDOGO SETTLEMENT .....	XVII
FIGURE 7: EXISTING DRAINAGE PATTERN FOR KIBAONI, KISUMU NDOGO AND BAYAMAGONZI (KKB) SETTLEMENT .....	XVIII
FIGURE 8: EXISTING DRAINAGE PATTERN FOR MUYEYE SETTLEMENT .....	XVIII
FIGURE 9: PROPOSED ROADS AND STREET LIGHTING FOR MTAANI SETTLEMENT .....	XXIII
FIGURE 10: PROPOSED ROADS FOR KIBAONI, KALOLO AND BAYAMAGONZI SETTLEMENTS .....	XXIV
FIGURE 11: PROPOSED ROADS FOR MUYEYE SETTLEMENT .....	XXVI
FIGURE 12: PROPOSED ROADS AND STREET LIGHTS FOR KISUMU NDOGO SETTLEMENT .....	XXVII
FIGURE 13: TYPICAL CROSS SECTION FOR A 4M ROAD WIDTH .....	XXVII
FIGURE 14: TYPICAL CROSS SECTION FOR A 7M ROAD WIDTH .....	XXVIII
FIGURE 15: TYPICAL CROSS SECTION FOR A 9M ROAD WIDTH .....	XXVIII
FIGURE 16: TYPICAL CROSS SECTION FOR A 6M HIGH STREET LIGHT .....	XXIX
FIGURE 17: TYPICAL CROSS SECTION AND LAYOUT PLAN FOR MUYEYE SANITATION FACILITY .....	XXX
FIGURE 18: KILIFI COUNTY MAP, SOURCE: KNBS 2019 .....	LXVII
FIGURE 19: MTAANI INFORMAL SETTLEMENT, SOURCE GOOGLE EARTH .....	LXVIII
FIGURE 20: KISUMU NDOGO INFORMAL SETTLEMENT, SOURCE: GOOGLE EARTH .....	LXX
FIGURE 21: KIBAONI INFORMAL SETTLEMENT, SOURCE: GOOGLE EARTH .....	LXX
FIGURE 22: KALOLO INFORMAL SETTLEMENT, SOURCE: GOOGLE EARTH .....	LXXI
FIGURE 23: MUYEYE INFORMAL SETTLEMENT, SOURCE: GOOGLE EARTH .....	LXXII
FIGURE 24: MAP OF RAINFALL DISTRIBUTION .....	LXXV

FIGURE 25: ELEVATION OF THE PROJECT AREA .....	LXXV
FIGURE 26: HYDROLOGY MAP OF THE PROJECT AREA .....	LXXVI
FIGURE 27: GEOLOGY AND SOILS.....	LXXVI
FIGURE 28: VEGETATION MAP OF PROJECT AREA.....	LXXVII
FIGURE 29: GENDER DISTRIBUTION OF HOUSEHOLD HEADS.....	LXXIX
FIGURE 30: EDUCATION STATUS.....	LXXX
FIGURE 31: OCCUPATION .....	LXXX
FIGURE 32: HOUSEHOLD INCOMES .....	LXXXI
FIGURE 33: EXPENDITURE.....	LXXXI
FIGURE 34: ACCESS TO ELECTRICITY AND CONNECTIVITY.....	LXXXI
FIGURE 35: COOKING ENERGY.....	LXXXII
FIGURE 36: TOILET FACILITIES.....	LXXXII
FIGURE 37: ACCESS TO WATER .....	LXXXII
FIGURE 38: HOUSE OWNERSHIP .....	LXXXIII
FIGURE 39: ROOF TYPE.....	LXXXIII
FIGURE 40: WALL TYPE.....	LXXXIII
FIGURE 41: MORBIDITY.....	LXXXIII
FIGURE 42: TREATMENT OPTIONS.....	LXXXIV
FIGURE 43: KNOWLEDGE OF CAUSES OF HIV/AIDS .....	LXXXV
FIGURE 44: AWARENESS OF HIV/AIDS PREVENTION METHODS .....	LXXXV
FIGURE 45: PREVENTION METHODS.....	LXXXV
FIGURE 46: SOURCE OF HIV/AIDS INFORMATION.....	LXXXVI
FIGURE 47: LAND AND HOUSE OWNERSHIP.....	LXXXVII
FIGURE 48: INVOLVEMENT IN DECISION MAKING.....	LXXXVII
FIGURE 49: PRIMARY TASKS.....	LXXXVII
FIGURE 50: FINAL DECISION .....	LXXXVIII
FIGURE 51: VULNERABILITY .....	LXXXVIII
FIGURE 52: LOCATIONS FOR STAKEHOLDER MEETINGS FOR KALOLO, KIBAONI AND BAYAMAGONZI SETTLEMENTS .....	XC I
FIGURE 53: LOCATION FOR STAKEHOLDER MEETINGS FOR MTAANI AND KISUMU NDOGO SETTLEMENTS .....	XCII
FIGURE 54: LOCATION FOR STAKEHOLDER MEETINGS FOR MUYEYE SETTLEMENT.....	XCII
FIGURE 55: GRIEVANCE REDRESS FLOW CHART.....	XCIX

## LIST OF ABBREVIATIONS AND ACRONYMS

ACH:	Archaeological Cultural Heritage
ADR:	Alternative Dispute Resolution
AEZ:	Agro- Ecological Zones
AFD:	Agence Française de Développement
AIDS:	Acquired immunodeficiency syndrome
AoI:	Area of Influence
C-ESMP:	Construction Environment and Social Management Plan
CEAPs:	County Environmental Action Plans
CLOs:	Community Liaisons Officers
CoC:	Code of Conduct
CPCT:	County Project Coordination Team
CRICs:	County Resettlement Implementation Committee
CSO:	Civil Society Organization
DOSHS:	Directorate of Occupational Safety and Health Services
EA:	Environmental Auditing
EHSG:	Environment, Health and Safety Guidelines
EHS:	Environmental Health and Safety
EIA:	Environmental Impact Assessment
EMCA:	Environmental Management and Coordination Act
ESMP:	Environmental and Social Management Plan
ESIA:	Environmental and Social Impact Assessment
EPR:	Environment Project Report
E&S:	Environmental and Safety
ESMMP:	Environmental and Social Management and Monitoring Plan
ESMF:	Environment and Social Management Framework
ERPP:	Emergency and Response preparedness plan
GBV:	Gender Based Violence
GIIP:	Good International Industry Practice
GoK:	Government of Kenya
GRC:	Grievance Redress Committees
GRM:	Grievance Redress Management
HIV:	Human Immunodeficiency Virus
HRMP:	Human Resource Management Plan

IAPs:	Invasive Alien Plants
IDA:	International Development Association
IDs:	Identifications
IFC:	International Finance Corporation
IEC:	Information, Education and Communication
ILO:	International Labour Organization
IPE/GA	IPE Global Limited/ GA Consultants Limited
IPV:	Intimate Partner Violence
IPF:	Investment Project Financing
KISIP:	Kenya Informal Settlement Improvement Project
KIMAWASCO:	Kilifi Mariakani Water and Sewerage Company
KKB:	Kibaoni Kalolo Bayamagonzi
KPLC:	Kenya Power and Lighting Company
LCH:	Living Cultural Heritage
LVSr:	Low Volume Seal Roads
MAWASCO:	Malindi Water and Sanitation Company
M&E:	Monitoring and Evaluation
NCA:	National Construction Authority
NEMA:	National Environment Management Authority
NECC:	National Environmental Complaints Committee
NEAPs:	National Environmental Action Plans
NMIMTs:	Non – Motorized and Intermediate Means of Transport
NMT:	Non-Motorized Transport
NMK:	National Museums of Kenya
NPCT:	National Project Coordination Team
NRIC:	National Resettlement Implementation Committee
OHSMP:	Occupational Safety and Health Management Plan
OPO:	Operational Policy
OSH:	Occupational Safety and Health
OSHA:	Occupational Safety and Health Act
PAD:	Project Appraisal Document
PAPs:	Project Affected Persons
PCC:	Public Complaints Committee

PEA:	Project Executing Agency
PM:	Particulate Matter
PPE:	Personal Protective Equipment
PRE:	Project Related Activities
PSEA:	Prevention of Sexual Exploitation and Action
PVC:	Polyvinyl Chloride
PWMP:	Project Waste Management Plan
RAP:	Resettlement Action Plan
RE:	Resident Engineer
RoW:	Right of Way
RSMP:	Road Safety Management Plan
SALTD:	Sobocoon Associates Limited
SEA:	Sexual Exploitation and Abuse
SEAH:	Sexual Exploitation Abuse and Harassment
SEC:	Settlement Executive Committees
SER:	Supervision Environment Representative
SERC:	Standards and Enforcement Review Committee
SEP:	Stakeholder Engagement Plan
SGRC:	Settlement Grievance Redress Committee
SH:	Sexual Harassment
SMP:	Security Management Plan
STI:	Sexually Transmitted Infections
SWMP:	Solid Waste Management Plan
ToR:	Terms of Reference
TMP:	Traffic Management Plan
UNESCO:	United Nations Educational, Scientific and Cultural Organization
WBG:	World Bank Group
WHO:	World Health Organization
WRA:	Water Resources Authority

## EXECUTIVE SUMMARY

### Background information

The Government of Kenya with support from International Development Association (IDA) and Agence Française de Développement (AFD) has initiated the Second Kenya Informal Settlement Improvement Project (KISIP 2) whose objective is to improve access to basic services and tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya; based on plans developed in consultation with the community.

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

**KISIP 2 has the following four components:**

**Component 1: Integrated Settlement Upgrading.** This component supports settlement upgrading through two main interventions classified under two sub-components:

**Sub-component 1.1: Tenure regularization -** Coordinates regularization of tenure for people living on uncontested public lands whose process includes;

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

**Sub-component 1.2: Infrastructure Upgrading -** Coordinates infrastructure investment portfolio whose menu includes: roads, bicycle paths, pedestrian walkways, street and security lighting, vending platforms, solid waste collection and settlement sorting, storm water drainage, water and sanitation systems, public parks, and green spaces. It further includes investments related to prevention of crime and violence, including but not limited to community centers.

**Component 2: Socioeconomic Inclusion Planning.** This component supports community development plans to enhance social and economic inclusion, identifies beneficiaries who fit the eligibility criteria of government programs but are excluded and connects them appropriately, supports participatory crime and violence mapping, monitors the employment of local labour, carries out community capacity building and awareness raising for various project interventions including community-based solid waste management.

**Component 3: Institutional Capacity Development for Slum Upgrading.** This component supports institutional and policy development at national and county levels; develops a capacity building plan for national and county levels to implement the Strategy and to develop understanding of slum upgrading processes; also supports technical assistance, training, workshops and learning events, experience sharing and peer-learning activities with other counties, and other capacity building activities.

**Component 4: Program Management and Coordination.** This component supports activities of the National Project Coordination Team (NPCT) and the County Project Coordination Team (CPCT) related to national and county-level project management and coordination, including planning, surveying, engineering, fiduciary (financial management and procurement), safeguards compliance and monitoring, monitoring and evaluation (M&E), communication and community development.

This assignment falls under sub-component 1.2 where Kilifi County having achieved the set principles of selection is among those considered for support under the project. The infrastructure to be covered in the selected informal settlements in the County includes but not limited to the following:

- i. Roads and footpaths
- ii. Street and security lightning
- iii. Storm water drainage infrastructure
- iv. Solid waste management and collection
- v. Water supply and sanitation infrastructure

#### Description of the project Road

The proposed infrastructure improvement works as per the original designs are as shown in Tables E01 below.

Table E01: Proposed Works in Settlements of Kilifi Town

Settlement	Scope of works
<b>Kibaoni, Kalolo and Baya Magonzi Settlements</b>	
Roads/Footpaths:	R1 - Construction of 7,996 m of roads with 9 to 12m reserve width R2 - Construction of 7,092 m of Internal Settlement roads with 6 m reserve width
Drainage System:	D1 - Construction of 15,088 m of Drainage Network
Water Supply:	WN- Provision of 2736 m of Water Supply Reticulation Network
<b>Mtaani and Kisumu Ndogo Settlements</b>	
Roads/Footpaths:	R1 - Construction of 1637 m of roads with 9 to 12 m reserve width
Drainage System:	D1 - Construction of 1637 m of Drainage Network
Sanitation:	S1 - Construction of 2 Septic Tank, Ablution Blocks
Public Lighting:	L - Provision of 86 No. Street Lights

#### Malindi Town

The proposed infrastructure improvement works as per the original designs are as shown in Tables E02 below.

**Table E02: Proposed Works in Settlements of Malindi Town**

Settlement	Scope of works
<b>Muyeye Settlement</b>	
Roads/Footpaths:	R1- Construction of 2667 m Access Roads with 9 to 12m reserve width R2 - Construction of 847 m of Internal Settlement roads with 6 m reserve width R4 – Construction of 1037 m of Internal Settlement Footpaths
Drainage System:	D1 - Construction of 1037 m of Drainage Network
Sanitation:	S1 - Construction of 4 No. Septic Tanks, Ablution Blocks

**Project Objectives**

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

**Objectives of the Environmental and Social Impact Assessment (ESIA)**

An initial ESIA study was undertaken in September 2017 during preliminary design and a license was issued in 2019. The current assignment is a review of the original ESIA, for verification and update of the environment and social status along the corridors and confirm sustainability during implementation.

The objective of the review and update of the study report are to :

- i. Communicate the results of the ESIA process and consider alternatives.
- ii. Ensure impacts are identified during ESIA process
- iii. Present mitigation and enhanced measures to be implemented by the contractor.
- iv. Provide record of comments from stakeholders during ESIA disclosure measures
- v. Facilitate an informed decision-making process by the relevant authority.
- vi. To describe the existing biophysical and socio – economic environment of the project
- vii. To provide an analysis of project alternatives
- viii. To review the legislative, policy and administrative framework of the project and document a structured gap analysis to facilitate compliance to the World Bank Operational Policies.
- ix. To update the Environmental and Social Management Plan of the project to enable compliance with international standards including providing guidance for preparation of management plans
- x. To develop an environmental and social monitoring plan that is compliant with international standards and clearly outlines the parameters to be monitored, key performance indicators and frequency of monitoring.

## Justification of the project

The roads infrastructure in the five settlements in Kilifi and one settlement in Malindi towns are dilapidated and are in poor states making movement of people and goods very difficult and especially during the rainy seasons. The roads are muddy and the surface runoffs normally results to floods in most areas within the settlements. There are no drainages along the existing roads. The sanitation facilities are missing in most of the settlements. The street lighting is non-existent along some roads within the settlement and the darkness during nights poses security threat. This project aims to provide solution to the infrastructural challenges in the settlements.

## Justification of ESIA review:

The initial project ESIA was undertaken and a NEMA license processed. A long time has elapsed which warrants an update of the description of the baseline conditions of the project area which could have been significantly altered within the last 6 years. Additionally, it is important to align the ESIA to the operational procedures OP.4.01 of the world Bank, the financiers of the project. Updating the baseline conditions and description will affect the magnitude of the impacts anticipated during project implementation. Additional management plans in the ESMP will also be required to align the ESIA to international standards and thus requirement to update the ESMP. The review is also necessary for:

- i. Re-scoping of project activities
- ii. Reflecting changes in institutional, policy and legal arrangements.
- iii. Reflecting changes in socio-economic condition.

## Scope and Methodology

The Project will apply a complete set of environmental and social safeguards to protect against adverse impacts on the bio-physical and social environments. All of the activities under the KISIP 2 and in particular the construction and operational requirements for infrastructure works will be implemented in compliance with the Good International Industry Practice (GIIP) of environmental and social safeguards, as well as Kenya's environmental and social laws and regulations, licenses and permits. The approach to this assessment exercise was structured such as to cover the requirements of the national legislative framework and the World Bank Operational Policy (OP 4.01). It involved largely an understanding of the project background, the project designs, the implementation plan, the associated facilities. Environmental and social baseline information was obtained through physical investigation of the site and the surrounding areas, desktop studies, public consultations with local communities residing in the project areas, survey, photography, and discussions with key informants within the project area. The following tasks were performed during the ESIA update process:

- i. Review of the initial ESIA study report
- ii. Desk review
- iii. Field reconnaissance
- iv. Review of applicable Policy, legal and Regulatory framework
- v. Delineation and description of the study area
- vi. Baseline environment
- vii. Stakeholder Engagements
- viii. Assessment of environmental and social impacts and mitigation measures
- ix. Analysis of project alternative
- x. Feasibility of design alternatives

- xi. Review and updating Environmental and Social Management Plans (ESMPs)

### Review the initial ESIA study Report

The Consultant reviewed the ESIA report prepared in 2017 to establish if there are any existing gaps in the report. One of the key gaps which was identified from the review is lack of clear social management plans which have now been included in this updated ESIA report.

### Desk review

The following documents were reviewed;

- i. Project Design Report (IPE/GA August 2018) and SALTD Engineering design review 2023
- ii. Project Draft Socio Economic Survey Report (IPE/GA August 2017)
- iii. Project Draft Community Consultation Report (IPE/GA August 2017)
- iv. International conventions
- v. Road Design Manual Part I- Geometric Design of Rural Roads- Ministry of Public Works - January 1979.
- vi. Road Design Manual Part III- Materials and Pavement Design for New Roads – Ministry of Public Works – August 1987. 2nd Draft Design Manual for Roads and Bridges, Part I (a).
- vii. Geometric Design 2009.
- viii. Lighting Manuals; EN 13201 series.
- ix. Practise manual for Water Supply and Irrigation in Kenya, 2005.
- x. Practice manual for Sanitation in Kenya. (Draft form).
- xi. Project Appraisal Document (PAD) for KISIP 2011

### Field reconnaissance

The Consultant team conducted the field reconnaissance with a view to acquaint themselves with the study area and appreciate the prevailing conditions. This entailed a brief visit to all the settlements in Kilifi and Malindi where the project is being implemented and holding preliminary consultations with the stakeholders and relevant organisations. The reconnaissance provided a vital input in the project planning. In addition to meeting with the Client, the field reconnaissance also entailed holding introductory discussions with the local stakeholders within the project area.

### Review of applicable Policy, legal and Regulatory framework

The objective of the review of the policy, legal and regulatory framework is to ensure that the development is sustainable and does not compromise the future generations by destruction of the natural resources. It also ensures that the relevant authorities are consulted to ensure provision of information to ensure that the project development runs smoothly. The relevant Acts reviewed include Environmental Management and Coordination Act (EMCA, 1999) and the respective regulations, The Kenya Roads Act, 2007 (Revised 2012); Climate Change Act, 2016; The Occupational Safety and Health Act, 2007; HIV AND AIDS Prevention and Control Act, 2006; The Traffic Act, Cap 403; The Physical Planning and Land Use Planning Act No. 13 of 2019; The Employment Act, 2007; The Work Injury Benefits Act, 2007; Public Health Act Cap 232; Use of Poisonous Substances Act, Cap 247 (Revised 2012); Sexual Offences Act No. 3 of 2006; Children's Act No. 8 of 2002, Public Roads and roads of Access Act, CAP 399, 2010.

Policies relevant to the project were also reviewed. They include Kenya Vision 2030; National Environment Policy 2014; National Environment Action Plan, 2003 (Revised 2007); Integrated National Transport Policy, 2009, Sessional Paper 2012 and the World Bank OP 4.01 Environmental assessment.

The institutional framework review included the following institutions; National Environment Council; National Environment Management Authority; The Standards and Enforcement Review Committee; The County Environment Committees; Environment and Land Court; National Environment Tribunal; Kenya Roads Board; National Environmental Complaints Committee; Directorate of Occupational Safety and Health Services and County Government.

### **Delineation and description of the study area**

This section contains a concise description of the proposed project and its activities including its geographical, ecological and general layout maps at appropriate scale as necessary. Information on size, capacity, catchment details, hydrology and geology are also provided. The activities to be undertaken in and around the proposed project site including input materials, final products, by-products and waste generation where applicable are also highlighted. The project traverses five informal settlements within Kilifi town and one informal settlement within Malindi town. Kilifi and Malindi towns are situated along the coast lines of the Indian ocean.

### **Baseline environment**

The Consultant carried out a survey to collect, collate and present information on the baseline characteristics of the existing environment within and around the proposed project sites. The Consultant established the baseline status of the project site for the following elements.

- Physical environment;
- Biological environment (flora and fauna)
- Socio-economic and cultural environment

### **Field survey techniques**

The field survey adopted various techniques of baseline data collection on the existing environmental conditions, namely:

- i. Field observations and recordings including photography within the settlements.
- ii. Use of checklists for determining potential environmental impacts of the project.
- iii. Discussions with key informants along the road and its vicinity.

Activities implemented during field investigations involved;

- i. Site visits to the Project Area and the neighboring areas within the zone of influence of the project to collect primary baseline environmental and socio-economic data.
- ii. Photographing the significant aspects to aid in describing baseline environmental and social conditions of the Project area and its influence zone.
- iii. Acquisition of relevant documents from the authority such as County government departments, Roads parastatals, among others which were within the Project influence zone.
- iv. Public consultation in form of onsite key informant interviews with various departments within the county government, questionnaires distributed randomly to the residents within the various areas; ad hoc interviews with interested persons; and public consultation meetings in form of meetings with the public.

- v. Identification of sensitive receptors including health facilities, educational facilities, religious facilities, educational institutions among others near the project site.

The main purpose of the field investigation was to verify information and data collected during the desktop study and collection of any new information that may assist in the assessment of impacts and design mitigation measures as well as undertake stakeholder consultations with the communities within the Area of Influence (AoI).

### Checklists

Checklists are study instruments that aid in assessing possible environmental impacts during both construction and operational phases of a project. In this study, checklists were utilized to:

- i. Facilitate identification of potential environmental impacts
- ii. Provide a means of comparing the predicted environmental impacts
- iii. Indicate the magnitude of both positive and negative environmental impacts
- iv. Indicate possible adverse environmental impacts that are potentially significant but about which sufficient information can be obtained to make a reliable prediction
- v. Indicate negative potential environmental impacts in the project area, which merit mitigation measures and monitoring during project implementation

### Physical environment

Studies of the biophysical environment provide a profile of the study area, with special emphasis on:

- i. Relief
- ii. Soils
- iii. Climate
- iv. Drainage patterns
- v. Ecological resources
- vi. Biodiversity

Malindi lies on the Indian Ocean and is known for its beautiful white sand beaches, coral reefs, and warm climate. The Malindi Marine National Park and Reserve, located just offshore, is a popular destination for diving and snorkeling.

### Biological environment (flora and fauna)

The county can be divided into five Agro- Ecological Zones (AEZ), which define areas that have similar characteristics such as annual mean temperatures, vegetation and humidity. These include: Coconut-Cassava Zone, Cashew nut - Cassava Zone, Livestock-Millet Zone, Lowland Ranching and Coconut Cashew Nut-Cassava Zone. The drainage pattern for the county is formed by a permanent river (Sabaki) and seasonal rivers, which drain into Indian Ocean through the various creeks along the coastline.

### Socio-economic and cultural environment

The Consultant conducted a socio-economic survey. In every settlement area, the Consultant recruited enumerators and gave them a one (1) day training to carry out the census survey. The desired minimum qualification will be a B (plain) in the Kenya Certificate of Secondary Education (K.C.S.E.) or its equivalent depending on their availability. The data collection was done using a structured household and institutional questionnaire, photo shooting, maps and through observation.

A socio-economic survey was carried out to collect quantitative and qualitative socio-economic data from the households including household demographics, education and skills, livelihoods, health and nutrition, basic services and community facilities. The data forms the basis of a better understanding of the structure and make-up of the households, their livelihoods practices adopted to secure household food needs and income. The socio-economic survey was conducted using a sample size of 40 Households randomly selected from the six settlements. There was only one respondent per affected household.

The majority of the respondents (44%) were aged 65 years and above. This is because most of the respondents were household heads. The majority (57%) of the household heads were males. Nuclear family is the most preferred family type by most of the respondents interviewed within the project area. The changing cultural and social norms and the high cost of living are driving most people to coalesce around nuclear family setup. Majority of the respondents have attained middle level and secondary education. However, there are a few illiterate respondents who may require assistance during the implementation of the road project. Majority of the PAPs are self-employed and involved in small trades in the make –shift structures which shall be affected by the proposed various roads within the project. Majority (17) of the respondents earn a monthly income of KES. 20,000 from the businesses they operate.

Much of the income is spent on food and education respectively. Majority (52%) of the respondents use gas for cooking in their households. Almost all (30) of the respondents have access to toilet facilities. Most of the respondents (88%) have access to tapped water for drinking. The water is either connected to the households by the County water company KIMAWASCO. Majority (74%) of the respondents own their houses. In the settlements the main materials used for roofing are corrugated iron sheets. The Land tenure in the settlement is freehold while the land parcel affected by the project is public land owned by the County government of Kilifi. Women in the settlements are faced with a number of challenges including inadequate access to credit, lack of technical skills, multiplicity of roles for women and inadequate access to education and training. Majority (28) respondents said that household chores is predominantly performed by women. An equal number (18) respondents said that women own land and houses within the settlements. The majority of respondents also said that women are involved in decisions concerning household matters but were also quick to point out that final decision is made by men and this was confirmed by 74% of the respondents.

#### **Stakeholder engagement**

The stakeholder consultations were conducted between 18<sup>th</sup> January and 20<sup>th</sup> February, 2023. The consultations with the community members were conducted in public barazas while consultation with other key stakeholders were conducted in their offices through Key Informant Interviews. The goal of stakeholder consultations was to provide a forum for information sharing and opinion gathering regarding the proposed Project and current priorities without changing the scope of previous designs. Public meetings were used to consult with stakeholders. Additional stakeholder consultation was conducted in 2017 when the original ESIA was prepared. The attendance registers are provided in annex 3.

**Summary of issues raised by Stakeholder during the various consultation meetings.**

No.	Questions	Answers
<b>Bayamagonzi</b>		
1	Will there be streetlights on the roads being done as per their proposals during the social economic meeting?	The consultant Geomastro is to submit a report to the national KISIP team which will forward to their consultant so as to know if their option is viable. But the concerns have been noted.
2	Will the other village members participate in the opinion process when works commence?	The village members will be called and informed on the scope of the project according to the designated budget.
3	What is the project time frame?	The project time frame was explained as follows as at January 2023 3months design review 3months tendering Works may begin in August this 2023. They were assured this is a time-based project it will be implemented as planned.
<b>Kalolo</b>		
1	Why is prioritization being done on the proposed infrastructure improvement works?	Prioritization is being done because the available budget cannot cater for all the proposed development works.
	How much has been allocated for Kalolo?	KISIP national team determines the allocation of the budget, budgets will be availed after tendering.
2	Where will the project savings go to?	The Resident Engineer will write to the county about the savings, the county will then notify the community to give proposals on their new desires, if they are feasible the county will then instruct the resident engineer to ensure the new proposals are done. All the money allocated to Kalolo settlement will fully be used to develop the area. It won't be spilled over to a different region.
3	Will the local youth be employed during the project implementation?	The contractor will be unveiled to the people before commencement of works and the youth have been assured of employment especially the unskilled labor. (Employment will depend on the availability of the human resource in the area)
4	Are the local residents allowed to take up positions of sub-contractors	Tender advertisements will be public, in case one meets the qualifications he / she can apply for the contract.
5	When will the construction work commence?	Tentatively August this 2023.
6	Which Road class is being constructed in the area?	The type of the road class depends on the function and the road serves.
7	Urged for total cooperation among the inhabitants	This will be ensured through continuous engagement with the locals
8	If possible KISIP funds should do the major access roads and leave the minor roads within the area for county government.	The priority has been agreed upon

9	Security should be a priority during construction.	Security shall be enhanced
<b>Kibaoni</b>		
1	The roads on the map, that were picked recently by Geomastro are not in the map?	This was a map from the 2018 proposals. The recent selection was done during socio-economic survey with Geomastro. The consultant Geomastro is to submit a report to the national KISIP team which will forward to their consultant so as to know if their option is viable. But the concerns have been noted.
2	What of the street lights and where will the pipe water pass? As a concern because recently a pipe was done in the middle of the road reserve which will mean destruction of waterline during construction	The consultant will involve other county and national government agencies to ensure proper distribution of services and to avoid duplication of works. On issue of water line laid on the road has been noted and further discussions will be held with Kilifi and Malindi Water and Sanitation Companies
3	A survey for water has been done without community participation and thus to be looked into for the said line.	The Consultant will consult Kilifi and Malindi Water and Sanitation Companies
4	What is the timeframe and what happens to the remaining budget allocated?	The project time frame was explained as follows as at January 2023 3months design review 3months tendering Works may begin in August this 23. They were assured this is a time-based project it will be implemented as planned. The remaining budget the community shall be called for a meeting with the consultants and agree on what project to undertake then a letter is done to KISIP for approval of the project.
5	The contractor to prioritize allocation of jobs to the youth in the settlement	Youths will be given priority on the available jobs based on the skills set
<b>Kisumu Ndogo</b>		
1	Will the streetlights be placed on all roads in the settlement or be placed on the proposed roads during KISIP 1?	Infrastructure improvement works depend entirely on the budget allocation. Energy department in the county plus KISIP will harmonize their developments plans in the area to avoid any duplication.
2	Will the Project Affected Persons on road reserves be facilitated?	The County government of Kilifi will provide compensation for PAPs to relocate their structures
3	Upon harmonization of the projects with all entities, will the entity that started a project finish to the end or not?	There is no need to worry all the projects will be done to completion unless the consultants face any disruption from the community.
4	Will the project employ the local youth?	Employment depends on the availability of the human resource. Yes, they will be employed if they are available with the relevant skills and manpower required

5	What are the plans with the savings?	In case of any savings, it will be channeled to other development plans in the area.
<b>Mtiani</b>		
1	Who will repair the nonfunctional streetlights in the area?	The County Governor is aware of the issue and has promised to send a team to work on the repairs.
2	Is the bill of quantities ready?	Tender documents to be availed after the design review process has been completed.
3	Will all the proposed developments be done by KISIP?	KISIP will do their part in the infrastructure improvements works within the allocated budget and at least compare their plans with other government bodies in order to avoid duplication.
4	Will the local youth be employed during the project implementation?	The contractor will be availed to the people before commencement of works and the youth have been assured of employment especially the unskilled labor.
5	In case of any savings in the project can it be used to rehabilitate the existing roads even though they were not part of the proposed infrastructure?	The Resident Engineer will write to the county about the savings, the county will then notify the community to give proposals on their new desires, if they are feasible the county will then instruct the resident engineer to ensure the new proposals are done.
5	Will the new roads have signage?	The signage will be implemented.
<b>Muyeye</b>		
1	In case the money gets depleted will some projects be left out?	Yes, the projects will be done according to budget allocated but the county will take over in such cases to ensure completion of projects.
2	Can KISIP aid in acquiring of titles in an existing block titled land?	KISIP deals with public land and not private land thus it cannot.
3	It was reported that most of the beneficiaries have not collected their title deeds.	KISIP county coordinator in liaison with the ward administrator and Assistant Chief will arrange on how to bring the documents closer to the people to collect them instead of heading to the registry in Kilifi
4	Need for Cooperation with the Consultant	The ward administrator urged the residents to cooperate with the consultant so as to ensure smooth running of the project

#### Assessment of environmental and social impacts and mitigation measures

The objective of the assessment was to identify and describe all potential impacts that may be brought about by the proposed project. The Consultant identified, analysed and described all potential impacts that may be brought about by the proposed project. Such as the impacts of the proposed project on the baseline environmental and socio-economic conditions or impacts of the surrounding environment on the externalities.

The ESIA update study covered all the relevant environmental issues that have impact due to the proposed project including the following:

**1. Air**

- Impact on air quality due to construction
- Changes in microclimate
- Impact on ambient noise level especially during construction period.

**2. Water**

- Impact due to change in hydrological cycle
- Impact on water quality (surface/ground)
- Impact on ground water levels and recharge potential
- Impact on drainage system and existing water bodies in the project area

**3. Land**

- Impact on land use/land cover and change in designated land-use in the subproject area.

**4. Biological Environment**

- Terrestrial environment
- Impact on sensitive ecosystems.
- Impact on biota and biodiversity loss.
- Impact on habitat loss
- Impact due to habitat change

**5. Aquatic environment**

- Impact on sensitive ecosystems, including downstream and upstream impacts

**6. Socio-economic Environment**

- Impact on public health
- Impact on sensitive locations.
- Impact on change in occupational pattern
- Impact on human settlement

**7. Geological and Other Aspects**

- Geology, physiography and topography of the area
- Any climate change factors of the subproject area

All the impacts identified have been categorised into reversible and irreversible impacts, positive or negative, short term, medium- and long-term impacts as well as what phase of the project the impacts will occur including planning, construction, operation and decommissioning phase.

The Consultant identified and recommended pragmatic mitigation measures where the environmental impacts of the proposed subproject have been shown to be adverse. The Consultant has also analysed the cost effectiveness of such mitigation measures against viable alternatives and in the event that such suitable mitigation measures are not identified, this has clearly been explained.

The Consultant has relied on World Bank Operation Policy, NEMA regulations, OSHA among others to provide feasible mitigation measures for the negative impacts identified.

The assessment of impacts was, therefore, carried out in the following sequence:

- i. Qualitative and quantitative assessment of the current state of the environment in the project area;
- ii. Identification, prediction, and evaluation of positive and negative environmental impacts.

- iii. The impacts anticipated by implementation of the project were predicted and simultaneously characterized as positive or negative, reversible/irreversible, localized or dispersed, temporary/permanent. A Leopold matrix was used to determine the magnitude of the impacts by assigning quantitative values to the anticipated impacts. The impacts were then grouped into low medium and high impacts;
- iv. Identification of mitigation measures for adverse environmental impacts. Avoidance was adopted as the first line of mitigation and where avoidance was not feasible, mitigation measures were proposed and where residual impacts were determined, measures for compensation were proposed.

The above process was augmented by:

- i. Review of previous reports, published and unpublished works on the environment of the study area;
- ii. Field investigations
- iii. Collation of baseline data on the environmental conditions of the project area.
- iv. Finally, formulation of an environmental management and monitoring plan based on proposals for preventive, compensatory and mitigative measures during project implementation and during the lifespan of the road was done.

#### **Potential Positive Impacts**

Several benefits are envisaged to accrue from the slum infrastructure upgrading project. The most important being spurring socio – economic development and reduction of poverty within the region. The project will also enhance the economy of the settlement areas in general through increased flow of goods and services. Ultimately such gains would contribute to poverty alleviation which is a cornerstone of vision 2030. Other benefits include improvement of access to social transport facilities with significant gains on road safety, improved drainage and employment creation among others.

##### **i. Benefits of investments in urban roads.**

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

##### **ii. Benefits of drainage systems.**

Benefits include (a) reduced number of days of work lost due to flooding; (b) reduced property damage (buildings, roads, furniture, appliances, household goods); (c) increased property values; (d) reduced loss of income from businesses whose hours are curtailed and access reduced.

##### **iii. Benefits of investments in street lighting.**

Benefits of street lighting include (a) increased perception of safety, (b) reduced accidents, and (c) and increased ability to do business after dark. People interviewed for the beneficiary analysis of KISTIP I noted that they felt a greater sense of security at night and were now walking along streets with lights, rather than taking motorized transport to their destinations. Some participants pointed out that accidents between vehicles and between vehicles and pedestrians had declined.

### Potential Negative Impacts

The potential negative impacts during construction are generally short-term, temporary and reversible impacts which can be reduced or eliminated by mitigation. Many of the impacts will only occur at active construction sites and therefore move with the works such that many locations will only be impacted for a couple of days rather than the duration of the project.

### Construction Impacts

The potential negative and significant environmental and social impacts are confined to the construction period and in mainly during the excavation of the trenches and foundation laying for the vast majority of locations which will however not last longer than 30-50 days.

Direct minor, localized short-term adverse impacts such as noise, dust, public safety, traffic disruption, interruption of utilities, disposal of waste, occupational health and safety, and social impacts will be mitigated and generally eliminated due to the short term and localized nature of the impact. This will be achieved by strict observance of Kenya's environmental and social laws and regulations and World Bank environmental and social safeguards policies.

### Summary of negatives impacts

**Archaeology and cultural resources:** No listed sites are affected; chance finds will be notified to National Museums of Kenya (NMK) whose decision will ensure no residual impact.

**Aquatic ecology:** There is slight potential for impacts of the project on surface water bodies and aquatic resources. There are surface water bodies near the project area of influence.

**Terrestrial ecology:** Potential impacts are insignificant and further mitigated by procedures set out in the Environmental and Social Management Plan (ESMP) regarding restoration of vegetation on completion of construction. There are no unique terrestrial flora and fauna on the project site. Project area is mostly urban with little or no terrestrial ecology of sensitivity of significance.

**Water resources:** Potential impacts are minor and mitigated to zero by control of works contractors' methods of working and use of water. There are no water resources (Surface) on the project site likely to be affected by the project.

**Hydrological regime and flooding:** Potential minor impact from the works affecting roadside drainage, works contractors are required to maintain drainage at all times and restore to its original condition or better upon completion of works at each location.

**Water pollution (surface and groundwater):** Potential impact from accidental spillage, concreting operations, worker sanitation is insignificant. There are no water resources (surface) at the project site likely to be affected by the project.

**Erosion and sediment:** Potential impact from erosion of bare ground is minimal and localized and to be mitigated by procedures set out in the ESMP that forms part of this report.

**Air quality:** Potential impact from dust and exhaust emissions is minor due to the use of hand-held equipment, and in-frequent use of generators (standby) and mitigated by requirement that works

contractors comply with National Environment Management Authority (NEMA) requirements for air quality. Most of the construction will be via manual labor using hand held equipment hence impact significance is low.

**Noise and vibration:** Potential localized impact from noise of construction work and machinery where works are carried out is minor due to the use of hand-held equipment. Impacts mitigated by contractual requirement for works contractors to observe compliance with Kenya's standards for noise limits as well as Environment, Health and Safety Guidelines (EHS) for World Bank Group. Most of the construction will be via manual labor using hand held equipment hence impact significance is low.

**Waste and hazardous waste:** Potential impacts from indiscriminate and uncontrolled disposal. Contract provides for control and approval of disposal of inert waste. Additional provisions are included for hazardous waste, and small random quantities of highly hazardous material which may need to be disposed.

**Traffic control:** There will be significant impact because works will be carried out within residential area. However, a Traffic Management Plan focused on minimizing traffic disruption and ensuring public and worker safety will be prepared.

**Public safety:** Significant potential impact of accidents arising from active construction sites and activities within the community. Mitigation will be provided by high standard and enforced Health and Safety Plans from the works contractors to ensure public safety including procedures to followed should accidents still occur. Overall residual risks and impacts are minor.

**Dust:** Potential significant impacts from dust where construction operations are undertaken. Mitigation includes dust suppression requirement under works contracts, watering fill, covering material, etc. such that residual impact is minor.

***Spread of communicable diseases and HIV/AIDS infection:***

There is potential impact from spread of communicable diseases and HIV/AIDS, particularly from workers coming into the communities, which will be mitigated by measures including sensitization programmes for works contractor employees, Resident Engineer (RE) employees and the communities.

**Occupational health and safety risks:** Construction staff and project workers will be exposed to safety hazards arising from construction activities as well as risks to Sexual Harassment (SH) between workers. Provisions of training and awareness creation on SH will be integrated in employee's Code of Conduct (CoC). All project workers will be required to sign CoCs and undergo regular training on SH.

**Sexual exploitation and abuse of community members by project workers:** This is a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against Sexual Exploitation and Abuse (SEA) in the Project. An SEA Action Plan will be developed in line with guidance from the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).

**Gender-based violence at the community level:** This impact refers to gender-based violence at the community level that women and girls may experience as a result of Project implementation. This includes, for example, an increase in Intimate Partner Violence (IPV) when compensation schemes that share funds equally among husband and wife at the household level do not provide adequate sensitization and safety measures to reduce potential for increased tensions due to females receiving funds. This also refers to other Gender Based Violence (GBV)-related risks incurred as a result of project implementation that do not adequately consult women and adolescent girls in the community about safety and security issues related to the delivery of water and sanitation services.

**Violation of children rights by contractor and labour force on site:** Child labour is prohibited. There is a risk of sexual exploitation of children, especially young girls. The contractor should ensure the Code of Conduct addresses child protection and child rights; that all staff of the project must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behavior.

**Labour Influx:** The project does not expect to have in-migration of workers from different areas since the works are mainly manual and require unskilled/semi-skilled labour. However, a Labour Recruitment and Influx Management Plan will be developed to manage associated impacts, including SH, SEA and GBV at the community level linked to labour influx.

**Water and sanitation:** Potential impact from works contractor sanitation facilities causing pollution, mitigation under the contract will require proper sanitation facilities for workers which eliminates the impact.

#### **Operational Impacts**

However, there will be impacts during the operation phase (minimal) and they will be direct and minor, localized short-term adverse impacts such as blocked drains, noise, dust, public safety, traffic disruption, interruption of utilities, disposal of waste, occupational health and safety among others associated with repairs and maintenance operations and will be mitigated and generally eliminated due to the short term and localized nature of the impact. These will be experienced mainly during the maintenance and repair of the infrastructure.

A summary of the impacts for the construction and operation phase is provided in table E03 below. From the analysis of the impacts at various stages of the project, there is not impact at the pre-construction stage except the psychological impact of the community anxiously waiting for commencement of the construction works.

**Table E03 Summary of Negative Impacts**

<b>Construction phase</b>		<b>Potential Impact</b>	<b>Impact Type and Rating</b>	<b>Extent</b>	<b>Duration</b>
<b>Air pollution</b>		Emissions from construction vehicles and equipment.	Direct, Minor	Local	Temporary
<b>Noise pollution</b>		Noise pollution from vehicles and construction equipment may cause nuisances to neighbouring communities.	Direct, Minor	Local	Temporary
<b>Water pollution</b>		Water pollution may result from: i) accidental spillage of fuels, lubricants and other chemicals. ii) siltation of water courses from runoff laden with sediment and dust. iii) high suspended solids from soil eroded from trenches (sediment runoff)	Direct, Minor	Local	Temporary
<b>Soil erosion and contamination</b>		Site clearance of vegetation and excavation works using equipment may induce/accelerate soil erosion and siltation of water courses. Contamination may occur as a result of accidental or structural spillage of fuels, lubricant chemicals, sanitary wastewater, etc., as well as, from leakage from inadequately protected solid waste storage facilities and sites. Soil may lose its fertility because of removal of topsoil. However, the project sites are in non-agricultural areas (peri-urban) hence soil erosion and implication on agriculture is minor.	Direct, Minor	Local	Temporary
<b>Solid waste generation</b>		Vegetation and soil from excavation, construction waste material and packaging material may produce moderate quantities of waste.	Direct, Minor	Local	Temporary
<b>Impacts on flora and fauna</b>		Removal of vegetation may lead to potential habitat loss of its associated fauna.	Direct, Minor	Local	Temporary

Public health problems	Pools of stagnant water may be a source of water borne diseases especially if the trenches are left open (not back filled) over a long period of time	Direct, Minor	Local	Temporary
Public Safety	Safety problems at the construction sites may arise from excavations, transportation and movement of equipment. Manually executed works expected to dominate the foundation will take a longer construction time leading to prolonged safety risks such as falling into trenches.	Direct, Minor	Local	Temporary
Visual amenities	Laying of foundations and pipelines may have a negative impact on aesthetics of the surroundings such as the soils from the trenches that will be dumped in the trenches	Direct, Minor	Local	Temporary
Disturbance and interruption of commercial and social activities	Improper laying of pipelines may cause traffic disruptions and congestion, resulting in temporary disturbance and interruption of commercial and social activities. It may also cause damage to infrastructure (roads, utility lines) and disruption of public services.	Direct, Minor	Local	Temporary
Socioeconomic disruption	Trenches for the foundations and pipelines may be dug in front of shops, displacing kiosks along road reserves and other properties which will affect their livelihood and incomes. Furthermore, influx of people in the area may cause alteration of culture and introduce behavioural changes.	Direct, Minor	Local	Temporary
Occupational health and safety	Workers may be exposed to occupational health and safety hazards from project activities such as: accidents in excavations during trenching; working with equipment; working under noisy conditions; working in confined spaces; lifting of objects; storage, handling and use of dangerous substances and wastes.	Direct, Minor	Local	Temporary

				Workers may also be potentially exposed to HIV and other sexually transmitted diseases.			
Gender Based Violence on community			Direct, Minor	This also refers to other GBV-related risks incurred as a result of project implementation that do not adequately consult women and adolescent girls in the community about safety and security issues related to the delivery of water and sanitation services.	Local		Temporary
Labour Influx			Direct, Minor	The Project is expected to stimulate minimal in-migration.	Local		Temporary
Violence against Children			Direct, Minor	This includes using children for profit, labour, sexual gratification, or some other personal or financial advantage. This also includes other activities such as using computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography.	Local		Temporary
Sexual Exploitation and Abuse on community members			Direct, Minor	This impact refers to sexual exploitation and abuse committed by Project staff against communities, and represents a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.	Local		Temporary
Spread of communicable diseases and HIV/AIDS infections			Direct, Minor	In migration of people from different regions may lead to behavioural influences which may increase the spread of diseases such as Human Immuno-Deficiency Virus (HIV), Acquired Immune Deficiency Syndrome (AIDS) and other Sexually Transmitted Infections (STIs).	Local		Temporary
<b>Operation Phase</b>							
Water pollution			Direct, Minor	Water pollution may result from spillage of fuel and lubricants during maintenance; waste disposal along damaged lines may also cause pollution.	Local		Temporary
Noise pollution			Direct, Minor	Noise generated from vehicles used during maintenance or from generators in case they are used to pump the water can be a nuisance to sensitive receptors.	Local		Temporary

Air pollution	Direct, Minor	Local	Temporary
<p>This could be in form of emissions from maintenance vehicles</p> <p>Solid wastes may be produced by maintenance works,</p>	Direct, Minor	Local	Temporary
<p>Soil erosion and contamination</p> <p>Inspection and maintenance works for the estate may require clearance of sites of vegetation, as well as the execution of excavation works, possibly using equipment. This may induce or accelerate erosion.</p>	Direct, Minor	Local	Temporary
<p>Impacts on flora and fauna</p> <p>Inspection and maintenance works may require the removal of the natural vegetation, leading to potential habitat loss of its associated fauna.</p>	Direct, Minor	Local	Temporary
<p>Nuisances and public health risks as a result of operational failures of the water network</p> <p>Accidental ruptures and structural degradation of pipelines and other utilities that may accrue from ageing and poor maintenance, accompanied by low pressure in the pipes may allow the intrusion of potentially polluted groundwater into the drinking water distribution system.</p> <p>Ruptured pipes may also cause flooding and if the water stagnates, this may pose a risk of water-borne diseases.</p>	Direct, Minor	Local	Long term
<p>Occupational health and safety</p> <p>Occupational health and safety problems may arise during maintenance of the Settlement.</p> <p>These may include: lifting of heavy and sharp objects and transportation of materials for maintenance, storage as well as handling and use of dangerous substances.</p>	Direct, Minor	Local	Temporary
<p>Local incapacity/ Inexperience to manage the facilities</p> <p>This will lead to poor operation and maintenance as well as deterioration of infrastructure as well as accidents due to lack of enough technical knowledge in safety requirements for equipment/machinery operation.</p> <p>Inadequate monitoring of environmental impacts of project activities.</p>	Direct, Minor	Wide	Long term
<p>Disturbance and interruption of commercial and</p> <p>Interference with commercial and social activities will be very low.</p>	Direct, Minor	Limited	Temporary

<p>social activities Disturbance and interruption of commercial and social activities</p>	<p>Maintenance activities for utilities network may cause traffic disruptions and congestion, resulting in disturbance and interruption of commercial and social activities. Other infrastructure e.g., roads, sewer lines, drains may also be disrupted.</p>	<p>Direct, Minor</p>	<p>Limited</p>	<p>Temporary</p>
---	---	----------------------	----------------	------------------

**Impacts Ranking**  
**Table E04 Ranking of Impacts**

Impact Ranking	Element	Impacts
HIGH	Soil Resources	<ul style="list-style-type: none"> <li>Loss of topsoil hence alterations of soil profile at borrow pits</li> <li>Land clearance leading to exposure to erosion agents</li> </ul>
	Resettlement	<ul style="list-style-type: none"> <li>Family disruptions and relocation of business premises</li> </ul>
MEDIUM	Water resources	<ul style="list-style-type: none"> <li>Increased surface runoff and resulting soil erosion from channelled water</li> <li>Contamination of downstream surface water</li> <li>Water abstraction for construction</li> </ul>
	Air pollution	<ul style="list-style-type: none"> <li>Increased CO2 emission from use of fossil fuel</li> <li>Dust and/or smoke generation during works</li> </ul>
	Social disturbance	<ul style="list-style-type: none"> <li>Impacts on commercial activities at local centres and pedestrian movements</li> <li>Temporary disruptions to accesses and possible traffic congestion within centres</li> </ul>
	Waste management	<ul style="list-style-type: none"> <li>Reduction in aesthetics</li> <li>Potential for contamination</li> </ul>
	Noise and excessive vibration above ambient	<ul style="list-style-type: none"> <li>Use of plant and equipment, construction traffic, blasting at quarries and long term vehicular noise</li> </ul>

## Analysis of Project Alternatives

The objective was to identify and describe all potential alternatives to the project.

The Consultant has identified all alternatives that were considered during the feasibility and design phases of the project including the “no action” alternative and weigh all the alternatives based on the environmental and social impacts and give a recommendation.

### *i. No project alternative*

This alternative maintains the status quo. It is the most environmentally friendly alternative. However, it also means that all the socio-economic benefits that are envisioned to accrue from implementation of the project shall be foregone. The most important one being improving the living standards of the inhabitants of the six settlements in Kilifi County. The benefits of this alternative is that the bio – physical condition of the project area will remain intact and any of the negative impacts anticipated from the development would not occur.

### *ii. Project alternative*

This alternative maintains that roads are proposed for improvement based on their need and socio-economic importance. Several factors were considered during road prioritization. These includes but not limited to; level of road encroachment and the number of project affected persons, available budget for compensation, road loop system for complete linkage and drainage pattern of the proposed roads. This alternative will have impacts which the main concern of this report.

## Feasibility of design alternative

Various technologies have been analyzed for each of the project components (roads & drainage, water, sanitation and street lights) and selection done based on best cost, durability, sensitivity to environment and priorities of the settlement community.

## Environmental and Social Management Plan

Based on environmental impact assessment, mitigation / enhancement measures have been specified in the form of Environmental and Social Management Plan (ESMP). Where resettlement is unavoidable, necessary, appropriate reference to the project a Resettlement Action Plan have been provided. Based on the outcomes of adverse impacts and their significance, the Consultant has prepared an Environmental and Social Management Plan comprising of a programme of assessing the impacts during implementation, operation and post operation phase including decommissioning. This consist of specific description and technical details of monitoring measures including staffing requirements and costs. The plan also includes measures to prevent health hazards and to ensure safety in the working environment for the employees and the communities adjacent to the project site and project affected people in the form of an Occupational Health and Safety Plan (OHSP).

The components of the ESMP inter-alia deal with the following as may be relevant to the project area:

- Environmental and social safeguards (management) during construction activities.
- Recommendation for timing, location, methods, costs and responsibilities concerning the monitoring programmes shall be given.
- Post construction environmental and social monitoring plan (with indicators).
- Assessment and recommendation concerning compliance monitoring of the socio-economic impact related to the concerns raised by the local residents in the area surrounding the proposed subproject site.

Such an Environmental and Social Management Plan (ESMP) will take the form of a table as outlined below: -

The ESIA includes an ESMP which details the mitigation measures, environmental monitoring activities, institutional responsibilities, and environmental management capacity building. The relevant ESMP provisions are included in bid and contract documents. During construction, the Resident Engineer (RE) will closely monitor the works contractors' environmental performance and overall ESMP implementation. A summary of the ESMP measures are provided in table E05 below.

DISCLOSURE COPY

Table E05. Environmental and Social Management Plan

Phase/ Impact Type	Potential Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Monitoring Institution	Budget
<b>Construction Phase</b>						
Air pollution	Emissions from vehicles and construction equipment.	<ul style="list-style-type: none"> <li>Maintain vehicle and equipment according to manufactures' specifications.</li> <li>Use standard fuel and lubricants.</li> <li>Sprinkle water to work areas to reduce and prevent dust during dry weather periods.</li> </ul>	<ul style="list-style-type: none"> <li>Record of repairs</li> <li>Fuels and lubricants conforming to specifications</li> <li>Record of water sprinkling</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	900,000
Noise pollution	Intermittent noise from vehicles and equipment to sensitive receptors	<ul style="list-style-type: none"> <li>Minimize noise according to NEMA, Kenya standards and World Bank guidelines.</li> <li>Control noise and vibration on site.</li> <li>Install adequate noise prevention devices, e.g. mufflers on noise generating sources.</li> </ul>	<ul style="list-style-type: none"> <li>Noise making machines/equipment fitted with mufflers</li> <li>Record of noise measurements</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	850,000
Water pollution	Water pollution from waste, dredging activities, accidental spillage of fuel, lubricants, sediment run-off	<ul style="list-style-type: none"> <li>Contain solid wastes so that no solid waste, fuels or oils should be discharged into surface water bodies.</li> <li>Hold and store sanitary and cleaning wastes in appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring reports on status of waste management</li> <li>Designated sanitary containers</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	1,550,000

Soil erosion and contamination		<ul style="list-style-type: none"> <li>containers to be disposed of at approved sites.</li> <li>Carry out work under mild weather (not strong rains or winds).</li> <li>Contaminated soil should be isolated and treated/disposed of in a way that will depend on the contaminant type.</li> </ul>	<ul style="list-style-type: none"> <li>-Stockpiles of topsoil</li> <li>-Written down soil protection measures and record of implementation</li> <li>-Results of chemical analysis of treated soils</li> </ul>	Contractor	Supervising Engineer	1,350,000
Solid waste generation	Cleared vegetation may compromise aesthetic value of the sites;	<ul style="list-style-type: none"> <li>The Contractor should prepare a Solid Waste Management Plan, as described in this report.</li> </ul>	<ul style="list-style-type: none"> <li>-Written down Solid Waste Management Plan (SWMP) and Implementation schedule</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	850,000
Impacts on flora and fauna	Plants and associated fauna may be affected	<ul style="list-style-type: none"> <li>The contractor should maintain records of types, quantities, origin, (temporary) storage, transport and elimination/reuse of solid waste</li> </ul>	<ul style="list-style-type: none"> <li>-Records of types of wastes generated, transport and delivery to gazetted sites</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	750,000
Public Safety	Excavations, and transportation of equipment, site workers	<ul style="list-style-type: none"> <li>Zone out working areas to reduce ecological destruction.</li> <li>Ensure that work sites (especially excavation works), have proper protection with clear marking of safety borders</li> </ul>	<ul style="list-style-type: none"> <li>-Zoned out areas</li> <li>-Demarkated work sites and signals</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	925,000



Public health problems	<p>and debris and movement of heavy equipment may pose a safety risk to the general public</p> <p>Pools of stagnant water may form in pits, holes and excavated ditches which can create suitable habitats for insect disease vectors such as mosquitoes.</p> <p>People may fall in ditches and be injured</p>	<p>and signals and fence off all dangerous areas</p> <ul style="list-style-type: none"> <li>Inform communities about the construction programme in advance</li> <li>Fill up all depressions to avoid pools of stagnant water that may form in pits, holes and excavated ditches which can create suitable habitats for insect disease vectors such as mosquitoes which cause malaria.</li> </ul>	<ul style="list-style-type: none"> <li>-Written communication to neighbouring communities</li> <li>-Receipts from radio stations for announcement</li> </ul> <p>-All excavated potential depressions re-instated, filled and re-vegetated.</p>	Contractor	NEMA, KISIP and Supervising Engineer	1,350,000
Spread of communicable diseases and HIV/AIDS infection	<p>Spread of communicable diseases and HIV/AIDS infection</p>	<ul style="list-style-type: none"> <li>Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training, awareness campaigns, multimedia and workshops or during community barazas.</li> </ul>	<ul style="list-style-type: none"> <li>Interview staff and community members</li> <li>Training attendance lists</li> <li>Number of Trainings Held</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	1,250,000



Occupational health and safety	Exposure of workers to occupational health and safety hazards and substances and wastes.	<ul style="list-style-type: none"> <li>Ensure that work sites (especially excavation works), especially in the night have proper protection with clear marking of safety borders and signals and fence off all dangerous areas</li> </ul>	-Written down Health and Safety Management Plan (HSMP) including the suggested mitigation measures with a HSMP Committee to oversee its implementation	Contractor	NEMA, KISIP and Supervising Engineer	1,800,000
Gender-based violence at the community level	Gender-based violence at the community level	The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, Discrete GBV reporting pathway	<ul style="list-style-type: none"> <li>Interview staff and community members</li> <li>Liaise with other stakeholders</li> <li>Risk Assessment</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	650,000
Violation of children rights by contractor and labour force on site	Violation of children rights by contractor and labour force on site	<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> </ul>	<ul style="list-style-type: none"> <li>Review of records</li> <li>Interviews with staff and local communities</li> <li>Records of employees including identity cards</li> <li>Number of cases reported involving abuse of children</li> </ul>	Contractor	NEMA, KISIP and Supervising Engineer	500,000

Labour Influx	Labour Influx	<ul style="list-style-type: none"> <li>The contractor will prepare the Labour Influx Management Plan as well as the Labour and Recruitment Plan</li> <li>Institution of a "code of conduct for workers". This code of conduct will be signed and followed by all workers involved in the project.</li> </ul>		Contractor	KISIP and Supervising Engineer	416,000
Gender empowerment	Gender empowerment	<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 2013 Gender Rule.</li> </ul>		Contractor	KISIP and Supervising Engineer	555,000
Increased vehicular traffic	Increase in the likelihood of accidents within and around the vicinity of works area.	<ul style="list-style-type: none"> <li>Inform local communities about the construction programme in advance.</li> <li>In case access roads have to be closed, inform local communities and road users in advance.</li> </ul>	Written communication to neighbouring communities -Receipts from radio stations for announcements	Contractor	NEMA, KISIP and Supervising Engineer	625,000
Visual amenities	Construction sites, if not well managed, have impacts on aesthetics of the surroundings	<ul style="list-style-type: none"> <li>Do not pile excavated soil to form high stockpiles for long duration</li> </ul>	Cleared and restored site	Contractor	NEMA, KISIP and Supervising Engineer	395,000

Disturbance and interruption of commercial and social activities	Interference with commercial and social activities	Inform local communities about the construction programme in advance.	-Communication to neighbouring communities - Presence of access roads	Contractor	NEMA, KISIP and Supervising Engineer	350,000
Disruption of social order	Influx of people in the area may affect the local economy, cause alteration of culture and introduce behavioural changes	<ul style="list-style-type: none"> <li>Sensitize all workers to ensure awareness of and sensitivity to the local cultures, traditions and lifestyles.</li> </ul>	Record of sensitization sessions	Contractor	NEMA, KISIP and Supervising Engineer	350,000
<b>Operation and Maintenance Phase</b>						
Air pollution	Emissions from generators	Same as in construction phase	Logs of maintenance schedules	KISIP	NEMA	250,000
Noise pollution	Intermittent noise from generators	Same as in construction phase,	Logs of maintenance schedules	KISIP	NEMA	250,000
Solid waste generation	Little amounts of wastes generated during maintenance	Same as in construction phase,	SWMP in place and implemented, neat premises	KISIP	NEMA	150,000
Impacts on flora and fauna	Little or no impact of flora and fauna.	Same as in construction phase		KISIP	NEMA	150,000

Occupational health and safety	Exposure of workers to occupational health and safety hazards during repair and maintenance	Same as in construction phase	Availability of protective wear, e.g., masks, helmets etc.  Use clean water containers for collecting water and home use	KISIP	NEMA	100,000

DISCLOSURE COPY

### **Construction Environment and Social Management Plan (C-ESMP)**

Construction Environment and Social Management Plan (C-ESMP) is an upgraded ESMP illustrating realities of the project works to be prepared by the Contractor. The Contractor is expected to finalize the Work Plan and upon approval, list the works items and for each item present practical actions that will be undertaken to realize achievement of the ESMP. The actions on works items should address environmental and social aspects associated with the works and in line with guidelines from the ESMP. Based on these ESMP outline, the Contractor will be instructed to develop a Construction Environment and Social Management Plan (C-ESMP) for each component of the project and submit these plans to the KISIP Supervision team/project manager.

### **ESMP Implementation**

For an effective integration of environmental and social safeguards into the project implementation, the Contractor will need to adopt this ESMP and prepare a comprehensive Construction Environment and Social Management Plan (C-ESMP) that will provide the key reference point for compliance. The environmental supervision will also adopt the C-ESMP.

### **Institutional arrangement for ESMP implementation**

#### **KISIP Project Management Unit**

The project implementation arrangements have been established under KISIP2. The core functions of the Team will be to coordinate and facilitate fiduciary oversight environmental and social safeguards supervision among others.

#### **Project Supervision Engineer**

The Project Supervision Engineer with a qualified Environmentalist and Social Expert will be charged with the responsibilities of supervision, review of site reports, preparation of monthly progress reports, prepare and issue appropriate instructions to the Contractor and monitor ESMP implementation. To achieve this, the Consultant team will comprise the following professional key staff cadres;

- a) Resident Engineer (1No.)
- b) Administrator (1No.)
- c) Environmental, Social, Health and Safety Specialist (2 No.)

#### **Contractor**

The Contractor will ensure that the established safeguards are integrated and implemented throughout the project works as per the C-ESMP. The Contractor will internalize the ESMP/C-ESMP, prepare monthly progress reports and implement instructions issued by the Supervision Consultant. The Contractor will also undertake ESIA Studies for sites outside the project zone and seek appropriate NEMA Licenses. The Contractor, therefore, will engage qualified Environmentalist and Social Experts on full time basis to interpret the C-ESMP and advice on the implementation of the same, as well to the Counterpart Personnel for the Supervision Expert. The contractor will also recruit Community Liaison Officers (3No.) to assist with monitoring social risk at community level including SEA and GBV. The full Contractor's Team will comprise of the key staff cadres as specified in the Bidding Document.

#### **National Environment Management Authority**

The National Environment Management Authority (NEMA) is responsible for ensuring environmental compliance in the country and has an office in Kilifi County with staffing who will further ensure that the ESMP is implemented as part of their mandate, functions and responsibilities.

NEMA will undertake surveillance on the project implementation and review compliance performance based on the supervision monitoring reports.

### **Grievance Redress**

Grievance redress is a critical component of effective ESMP implementation. The purpose of Grievance Redress Management (GRM) is to provide a forum to the internal and external stakeholders to voice their concerns, queries and issues with the project. Such a mechanism would provide the stakeholders with one project personnel or one channel through which their queries will be channeled and will ensure timely responses to each query. This will allow for trust to be built amongst the stakeholders and prevent the culmination of small issues into major community unrest.

The GRM will be accessible and understandable for all stakeholders in the project and for the entire project life. The GRM will be communicated to all relevant stakeholders and will also be applicable for any contractor that will occupy and/or use land during the construction and operations phase.

There will be a separate mechanism within the GRM that will be aimed at ensuring safety and confidentiality while receiving complaints related to SEA and to GBV at the community level through a focal point system as well as anonymous complaints mechanism managed by the KISIP. RPF recommends a four-tier grievance mechanism- at the community, County, national and resolution through courts of law. It is desirable to resolve all the grievances at the community level to the greatest extent possible. To achieve the community or settlement level grievance mechanism must be credible and generally acceptable. The grievance redress mechanisms will aim to solve disputes at the earliest possible time in the interest of all parties concerned.

Grievance procedures may be invoked at any time, depending on the complaint. No person or community from whom land or other productive assets are to be taken will be required to surrender those assets until any complaints he/she has about the method or value of the assets or proposed measures are satisfactorily resolved.

### **Grievance tiers**

The project has four grievance tiers as shown below

#### **a. Tier 1: Settlement Grievance Redress Committee (SGRC)**

The first level in addressing grievances will be at the settlement. The settlement will form a Settlement Grievance Redress Committee comprising of two members from SEC, and three other respected community members who are not PAPs. The committee should be elected by the community in a transparent manner and after sensitization by KISIP PCT.

#### **b. Tier 2: County Resettlement Implementation Committee (CRICs)**

The second level of grievance mechanism will involve the County Resettlement Implementation Committee (CRICs). The CRICs will consider grievance reports forwarded to it from the community grievance committee and make a determination. The CRIC will comprise of the County Coordinator, Environment Officer, Social/Community Officer, Component Heads for Infrastructure, and Land tenure, Assistant Deputy County Commissioners, and Ward Administrator.

#### **c. Tier 3: National Resettlement Implementation Committee (NRIC)**

The third level of grievance mechanism will involve the NPCT, (NRIC) which will comprise of the National Project Coordinator, Heads of Components, Environment and Social Safeguard heads, and a designated Grievance Redress Officer who will be the Secretary. It will handle grievances referred to it by the CGRCs and monitor the performance of the whole GRM for the project.

#### d. Tier 4: Court of Law/ Alternative Dispute Resolution (ADR).

If complainants are not satisfied by the decisions of the grievance's committees, they can seek redress from a court of law or resort to Alternative Dispute Resolution (ADR).

#### Project cost

The project cost includes construction cost, social and environmental cost for contingencies on construction cost and 3% for engineering design and supervision cost. The abstract of cost estimates is given below:

#### Summary Project Cost

County Government of Kilifi		
County Department of Housing and Urban Development		
Kenya Informal Settlement Improvement Project, Phase 2		
Proposed Construction of Roads for Kilifi County Settlement		
Kibaoni, Kalolo, Bayamagonzi, Mtaani, Muyeye and Kisumu Ndogo Settlements		
Summary of the Bills of Quantities		
Bill No.	Item Description	Amount (KES)
1	Lot-1	539,552,594.52
2	Lot-2	356,486,687.16
3	Lot - 3	54,000,000
	<b>Totals</b>	<b>950,039,281.69</b>

#### Conclusion and Recommendation

The findings of the ESIA indicate that the project will have general positive implications on the socio-economic environment. However moderate to low impacts are anticipated on the biophysical environment. The most important socio-economic impacts are increased social and economic gains, employment creation, flood control and improved living environment. Negative impacts include air pollution, Noise and excessive vibrations to the sensitive receptors; social disturbances from temporary disruptions during construction, soil erosion and possible contamination of water resources due to uncontrolled discharges; strain on water supply.

The most important potential social impacts relate to displacement of informal business owners with structures on the road reserve and the attendant compensation issues, temporary disruption of public utilities and services along the road corridor during construction e.g. public water sources, water pipelines, power lines, telephone lines and drainage systems; disruption to accesses to residential areas and commercial; disruption and inconveniences to transit goods and people occasioned by traffic congestion or use of diversions. Others are labour issues; public safety and communicable diseases. All these social impacts can be effectively avoided or mitigated effectively through social tools that have been developed for the project including GRM, SEP and proactive planning including prompt compensation of the PAPs.

Most of the environmental and social management measures proposed are generally straight forward and clearly outlined. Most of the measures relate directly to sound operating practices both during the construction phase and subsequently over the operational life of the road project. The management plans have been developed to guide implementation of sound environmental and social practices to maximize the benefits of the project with minimal or no residual impacts on the project environment. A monitoring plan has also been provided in the ESMP to enable assessment of the project environmental and social performance of the project. Therefore, if the project is implemented with due regard to the proposed mitigation measures it is anticipated that the project will have minimal residual negative impacts on both the socioeconomic and biophysical project environment.

The estimated cost to implement the mitigation measures outlined in the ESMMP is estimate at **KES 17Million**. Cost of resettlement action plan is estimate at **KES 8Million** and the report is provided as a separate in the scope of the consultancy.

### Recommendation

The following are the consultant's recommendations

- The contractor to be guided by the ESMP, develop specific ESMPs for each component to be reviewed and approved by the project engineers before implementation.
- Develop a robust labour management plan- with clear code of ethics for employment guided by employment act.
- Develop robust waste management plan- that aligns sustainable waste ACT, 2022 and the county legislation.
- A comprehensive GR procedure to be developed by the contractor for review and approval by Engineer.
- Permits and licenses /approvals be acquired and availed for inspection.
- Before start of project, entry (Kick off) meetings be held in each settlement.
- Contractor to develop a local recruitment plan.
- Contractor to have a local community liaison officer
- Keep GRC and SEC motivated to deliver the mandate- have some allowance (meals during meetings)

## 1. INTRODUCTION

### 1.1 Background Information

The Government of Kenya with support from International Development Association (IDA) and Agence Française de Développement (AFD) has initiated the Second Kenya Informal Settlement Improvement Project (KISIP 2) whose objective is to improve access to basic services and tenure security of residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya; based on plans developed in consultation with the community.

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

**KISIP 2 has the following four components:**

**Component 1: Integrated Settlement Upgrading.** This component supports settlement upgrading through two main interventions classified under two sub-components:

**Sub-component 1.1: Tenure regularization -** Coordinates regularization of tenure for people living on uncontested public lands whose process includes;

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

**Sub-component 1.2: Infrastructure Upgrading -** Coordinates infrastructure investment portfolio whose menu includes: roads, bicycle paths, pedestrian walkways, street and security lighting, vending platforms, solid waste collection and settlement sorting, storm water drainage, water and sanitation systems, public parks, and green spaces. It further includes investments related to prevention of crime and violence, including but not limited to community centers.

**Component 2: Socioeconomic Inclusion Planning.** This component supports community development plans to enhance social and economic inclusion, identifies beneficiaries who fit the eligibility criteria of government programs but are excluded and connects them appropriately, supports participatory crime and violence mapping, monitors the employment of local labour, carries out community capacity building and awareness raising for various project interventions including community-based solid waste management.

**Component 3: Institutional Capacity Development for Slum Upgrading.** This component supports institutional and policy development at national and county levels; develops a capacity building plan for national and county levels to implement the Strategy and to develop understanding of slum upgrading processes; also supports technical assistance, training, workshops and learning events, experience sharing and peer-learning activities with other counties, and other capacity building activities.

**Component 4: Program Management and Coordination.** This component supports activities of the NPCT and the CPCT related to national and county-level project management and coordination, including planning, surveying, engineering, fiduciary (financial management and procurement), safeguards compliance and monitoring, Monitoring and Evaluation (M&E), communication and community development.

This assignment falls under sub-component 1.2 where Kilifi County having achieved the set principles of selection is among those considered for support under the project. The infrastructure to be covered in the selected Informal settlements in the County includes but not limited to the following:

- i. Roads and footpaths
- ii. Street and security lightning
- iii. Storm water drainage infrastructure
- iv. Solid waste management and collection (under the project ESMMP)
- v. Water supply and sanitation infrastructure

#### Description of the project Road

The proposed infrastructure improvement works as per the original designs are as shown in Tables 1 below.

**Table 1: Proposed Works in Settlement of Kilifi Town**

Settlement	Scope of works
<b>Kibaoni, Kalolo and Baya Magonzi Settlements</b>	
Roads/Footpaths:	R1 - Construction of 7,996 m of roads with 9 to 12m reserve width R2 - Construction of 7,092 m of Internal Settlement roads with 6 m reserve width
Drainage System:	D1 - Construction of 15,088 m of Drainage Network
Water Supply:	WN- Provision of 2736 m of Water Supply Reticulation Network
<b>Mtiani and Kisumu Ndogo Settlements</b>	
Roads/Footpaths:	R1 - Construction of 1637 m of roads with 9 to 12 m reserve width
Drainage System:	D1 - Construction of 1637 m of Drainage Network
Sanitation:	S1 - Construction of 2 Septic Tank, Ablution Blocks
Public Lighting:	L - Provision of 86 No. Street Lights

#### Malindi Town

The proposed infrastructure improvement works as per the original designs are as shown in Tables 2 below.

**Table 2: Proposed Works in Settlements of Malindi Town**

Settlement	Scope of works
<b>Muyeye Settlement</b>	
Roads/Footpaths:	R1 - Construction of 2667 m Access Roads with 9 to 12m reserve width R2 - Construction of 847 m of Internal Settlement roads with 6 m reserve width R4 - Construction of 1037 m of Internal Settlement Footpaths
Drainage System:	D1 - Construction of 1037 m of Drainage Network

Sanitation:	S1 - Construction of 4 No. Septic Tanks, Ablution Blocks
-------------	--

## 1.2 Project Objectives

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

## 1.3 ESIA Update Objectives

An initial ESIA study was undertaken in September 2017 during preliminary design and a license was issued in 2019. The current assignment is a review of the original ESIA, for verification and update of the environment and social status along the corridors and confirm sustainability during implementation. The objective of the review and update of the study report are to:

- i. Communicate the results of the ESIA process and consider alternatives.
- ii. Ensure impacts are identified during ESIA process
- iii. Present mitigation and enhanced measures to be implemented by the contractor.
- iv. Provide record of comments from stakeholders during ESIA disclosure measures
- v. Facilitate an informed decision-making process by the relevant authority.
- vi. To describe the existing biophysical and socio – economic environment of the project
- vii. To provide an analysis of project alternatives
- viii. To review the legislative, policy and administrative framework of the project and document a structured gap analysis to facilitate compliance to the World Bank Operational Policies.
- ix. To update the Environmental and Social Management Plan of the project to enable compliance with international standards including providing guidance for preparation of management plans
- x. To develop an environmental and social monitoring plan that is compliant with international standards and clearly outlines the parameters to be monitored, key performance indicators and frequency of monitoring.

## 1.4 Justification of the Project

The roads infrastructure in the five settlements in Kilifi and one settlement in Malindi towns are dilapidated and are in poor states making movement of people and goods very difficult and especially during the rainy seasons. The roads are muddy and the surface runoffs normally results to floods in most areas within the settlements. There are no drainages along the existing roads. The sanitation facilities are missing in most of the settlements. The street lighting is non-existent along some roads within the settlement and the darkness during nights poses security threat. This project aims to provide solution to the infrastructural challenges in the settlements.

### 1.4.1 Justification of ESIA reviews

The initial project ESIA was undertaken and a NEMA license processed. A long time has elapsed which warrants an update of the description of the baseline conditions of the project area which could have been significantly altered within the last 6 years. Additionally, it is important to align the ESIA to the operational procedures OP.4.01 of the world Bank, the financiers of the project. Updating the baseline conditions and description will affect the magnitude of the impacts anticipated

during project implementation. Additional management plans in the ESMP will also be required to align the ESIA to international standards and thus requirement to update the ESMP. The review is also necessary for:

- i. Re-scoping of project activities
- ii. Reflecting changes in institutional, policy and legal arrangements.
- iii. Reflecting changes in socio-economic condition.

### 1.5 Scope and Methodology

The Project will apply a complete set of environmental and social safeguards to protect against adverse impacts on the bio-physical and social environments. All of the activities under the KISIP 2 and in particular the construction and operational requirements for infrastructure works will be implemented in compliance with the Good International Industry Practice (GIIP) of environmental and social safeguards, as well as Kenya's environmental and social laws and regulations, licenses and permits. The approach to this assessment exercise was structured such as to cover the requirements of the national legislative framework and the World Bank Operational Policy (OP 4.01). It involved largely an understanding of the project background, the project designs, the implementation plan, the associated facilities. Environmental and social baseline information was obtained through physical investigation of the site and the surrounding areas, desktop studies, public consultations with local communities residing in the project areas, survey, photography, and discussions with key informants within the project area. The following tasks were performed during the ESIA update process:

- i. Review of the initial ESIA study report
- ii. Desk review
- iii. Field reconnaissance
- iv. Review of applicable Policy, legal and Regulatory framework
- v. Delineation and description of the study area
- vi. Baseline environment
- vii. Stakeholder Engagements
- viii. Assessment of environmental and social impacts and mitigation measures
- ix. Analysis of project alternative
- x. Feasibility of design alternatives
- xi. Review and updating Environmental and Social Management Plans (ESMPs)

#### 1.5.1 Review the initial ESIA study Report

The Consultant reviewed the ESIA report prepared in 2017 to establish if there are any existing gaps in the report. One of the key gaps which was identified from the review is lack of clear social management plans which have now been included in this updated ESIA report.

#### 1.5.2 Desk review

The following documents were reviewed;

- i. Project Design Report (IPE/GA August 2018) and SALTD Engineering design review 2023
- ii. Project Draft Socio Economic Survey Report (IPE/GA August 2017)
- iii. Project Draft Community Consultation Report (IPE/GA August 2017)
- iv. International conventions

- v. Road Design Manual Part I- Geometric Design of Rural Roads- Ministry of Public Works - January 1979.
- vi. Road Design Manual Part III- Materials and Pavement Design for New Roads – Ministry of Public Works – August 1987. 2nd Draft Design Manual for Roads and Bridges, Part 1 (a),
- vii. Geometric Design 2009.
- viii. Lighting Manuals; EN 13201 series.
- ix. Practise manual for Water Supply and Irrigation in Kenya, 2005.
- x. Practice manual for Sanitation in Kenya, (Draft form).
- xi. Project Appraisal Document (PAD) for KISIP 2011

### 1.5.3 Field reconnaissance

The Consultant team conducted the field reconnaissance with a view to acquaint themselves with the study area and appreciate the prevailing conditions. This entailed a brief visit to all the settlements in Kilifi and Malindi where the project is being implemented and holding preliminary consultations with the stakeholders and relevant organisations. The reconnaissance provided a vital input in the project planning. In addition to meeting with the Client, the field reconnaissance also entailed holding introductory discussions with the local stakeholders within the project area.

### 1.5.4 Legislative, policy and administrative framework

The comprehensive list of legislative, policy and administrative framework is provided in chapter three.

### 1.5.5 Delineation and description of the study area

The Consultant provided a description of the proposed project and its activities including its geographical, ecological and general layout maps at appropriate scale as necessary. Information on size, capacity, catchment details, hydrology and geology are also provided. The activities to be undertaken in and around the proposed project site including input materials, final products, by-products and waste generation where applicable are also highlighted.

### 1.5.6 Baseline environment

The Consultant carried out a survey to collect, collate and present information on the baseline characteristics of the existing environment within and around the proposed project sites. The Consultant established the baseline status of the project site for the following elements.

- Physical environment;
- Biological environment (flora and fauna)
- Socio-economic and cultural environment

### Field survey techniques

The field survey adopted various techniques of baseline data collection on the existing environmental conditions, namely:

- i. Field observations and recordings including photography within the settlements.
- ii. Use of checklists for determining potential environmental impacts of the project.
- iii. Discussions with key informants along the road and its vicinity.

Activities implemented during field investigations involved;

- i. Site visits to the Project Area and the neighboring areas within the zone of influence of the project to collect primary baseline environmental and socio-economic data.
- ii. Photographing the significant aspects to aid in describing baseline environmental and social conditions of the Project area and its influence zone.
- iii. Acquisition of relevant documents from the authority such as County government departments, Roads parastatals, among others which were within the Project influence zone.
- iv. Public consultation in form of onsite key informant interviews with various departments within the county government, questionnaires distributed randomly to the residents within the various areas; ad hoc interviews with interested persons; and public consultation meetings in form of meetings with the public.
- v. Identification of sensitive receptors including health facilities, educational facilities, religious facilities, educational institutions among others near the project site.

The main purpose of the field investigation was to verify information and data collected during the desktop study and collection of any new information that may assist in the assessment of impacts and design mitigation measures as well as undertake stakeholder consultations with the communities within the Area of Influence (AoI).

#### Checklists

Checklists are study instruments that aid in assessing possible environmental impacts during both construction and operational phases of a project. In this study, checklists were utilized to:

- i. Facilitate identification of potential environmental impacts
- ii. Provide a means of comparing the predicted environmental impacts
- iii. Indicate the magnitude of both positive and negative environmental impacts
- iv. Indicate possible adverse environmental impacts that are potentially significant but about which sufficient information can be obtained to make a reliable prediction
- v. Indicate negative potential environmental impacts in the project area, which merit mitigation measures and monitoring during project implementation

#### 1.5.7 Bio-Physical Environment

Studies of the biophysical environment provide a profile of the study area. The initial field study was conducted in July 2017. The additional field study to update the ESIA report was conducted in January, 2023. The data was collected through transect walk through the project area and collecting samples from different points for detailed investigations. Data was collected on the following physical and environmental features.

- i) Relief
- ii) Soils
- iii) Climate
- iv) Drainage patterns
- v) Ecological resources
- vi) Biodiversity

### 1.5.8 Socio-economic and cultural environment

The Consultant conducted a socio-economic survey. In every settlement area, the Consultant recruited enumerators and gave them a one (1) day training to carry out the census survey. The desired minimum qualification will be a B (plain) in the Kenya Certificate of Secondary Education (K.C.S.E.) or its equivalent depending on their availability. The data collection was done using a structured household and institutional questionnaire, photo shooting, maps and through observation.

A socio-economic survey was carried out to collect quantitative and qualitative socio-economic data from the households including household demographics, education and skills, livelihoods, health and nutrition, basic services and community facilities. The data forms the basis of a better understanding of the structure and make-up of the households, their livelihoods practices adopted to secure household food needs and income. The socio-economic survey was conducted using a sample size of 40 Households randomly selected from the six settlements. There was only one respondent per affected household.

### 1.5.9 Stakeholder engagement

The assessment involved consultations with relevant stakeholders in target settlements within Kilifi 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 which included one on one engagement. The issues were then analyzed and presented to design team for finalization of project designs and planning on how best to implement the project. This team included the affected community members and the beneficiaries in general, the elders, the officials from the lands and the social sector county offices and the local administration represented by the ward administrator and the member of county assembly. The main meetings were held within the month of July, and follow up meetings in January and February 2023, attendance of the meetings was from diverse sectors of the society.

The stakeholder analysis was conducted to identify the relevant stakeholders for the project as shown in the table below. Table 3: Stakeholder Analysis and Interviews

**Table 3: Stakeholder Analysis and Interviews**

Stakeholder Groups	Key Stakeholders	Level of Interest	Level of Influence	Level of consultation engagement (High, Medium or Low)	tools/fora	Dates
National government agencies (Lead agencies mandated to review and advise on the project's development)	Ministry of roads, transport infrastructure	High	High	High	Key informant interview	Thur 19-Jan-2023
	National Environment Management Authority (NEMA)	High	High	High	Key informant interview	Thur 19-Jan-2023
	KURA	Medium	Medium	Medium	Key informant interview	Wed 18-Jan-2023

Stakeholder Groups	Key Stakeholders	Level of Interest	Level of Influence	Level of engagement (High, Medium or Low)	Level of consultation tools/fora	Dates
	KP&LCo	High	High	High	Key informant interview	Wed 18-Jan-2023
	Ministry of Interior and coordination of national government functions	High	High	High	Key informant interview	Thur 19-Jan-2023
	Social, Gender, and Youth Development	Medium	Medium	Medium	Key informant interview	Wed 18-Jan-2023
<b>County Government of Kilifi</b>	Governors, MCAs	High	High	High	Key informant interview	Thur 19-Jan-2023
<b>Members of the National assembly from the two counties</b>	CEC roads Environment, agriculture and lands					
<b>Project Affected Communities</b>	Project affected persons/ Encroachers	High	Low (need to be empowered)	High	Public barazas, Survey tools	Thur 19-Jan-2023
	Vulnerable groups Women, elderly, youths, illiterate, persons with disabilities, sick	High	Low (Need to be empowered)	High	Public barazas, Survey tools	Wed 18-Jan-2023
	Businesses, utilities and	High	High	High	Public barazas, Survey tools	Thur 19-Jan-2023

Stakeholder Groups	Key Stakeholders	Level of Interest	Level of Influence	Level of engagement (High, Medium or Low)	Level of consultation tools/fora	Dates
	other infrastructure Owners Affected businesses Bodabuda groups with Shades on road reserve					
<b>Civil Society Organizations</b>	NGOs and local associations	Medium	Medium	Medium	Focus group discussions	Fri 20-Jan-2023
<b>Press and media</b>	Local and national press and media	Low	Low	Low	Key informant interview	Wed 18-Jan-2023
<b>Religious Community</b>	Churches, Mosques etc.	High	High	High	Key informant interview	Thur 19-Jan-2023

#### 1.5.10 Categories of project stakeholders

For the purposes of this assignment, the

- i. **Project-Affected Parties:** individuals, households, businesses, and institutions affected or likely to be affected by the project.
- ii. **Other Interested Parties or stakeholders:** individuals/groups/entities that may not be direct beneficiaries but who consider or perceive their interests in the project and the process of its implementation in some way (government entities, media, civil society); and
- iii. **Vulnerable individuals and households:** persons who may be disproportionately impacted or further disadvantaged by the project (s) as compared with any other groups due to their vulnerable status, and that may require special engagement efforts to ensure their equal representation in the consultation and decision-making process associated with the project, and they equally take advantage of the project's benefits and opportunities.

#### 1.5.11 Stakeholder engagement meetings

The participants were mobilized through the local administration including the chiefs and assistant chiefs. The Settlement Executive Committees (SEC) and Grievance Redress Committees (GRC) were supported the mobilization. Both men and women attended the meetings. vulnerable/disadvantaged groups were facilitated to access meeting venues. The meetings were conducted in Kiswahili.

### 1.5.12 Public disclosure of ESIA, and Annual monitoring reports

The final ESIA shall be disclosed at the KISIP website and World bank info website, Kilifi County website, [www.kilifi.go.ke](http://www.kilifi.go.ke). Hard copies shall be available at the local project office. Annual monitoring reports shall be shared with the Consultant team and the County Government of Kilifi.

The Environmental Impact Assessment and Audit Regulations 2003 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:

- i. 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;
- ii. Publishing a notice on the proposed project for two successive weeks in a newspaper that has a nation-wide circulation;
- iii. 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.
- iv. 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
- v. 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.

### 1.5.13 Assessment of environmental and social impacts and mitigation measures

The objective of the assessment was to identify and describe all potential impacts that may be brought about by the proposed project. The Consultant identified, analysed and described all potential impacts that may be brought about by the proposed project. Such as the impacts of the proposed project on the baseline environmental and socio-economic conditions or impacts of the surrounding environment on the externalities.

The ESIA update study covered all the relevant environmental issues that have impact due to the proposed project including the following:

1. Air
  - Impact on air quality due to construction
  - Changes in microclimate
  - Impact on ambient noise level especially during construction period.
2. Water
  - Impact due to change in hydrological cycle
  - Impact on water quality (surface/ground)
  - Impact on ground water levels and recharge potential
  - Impact on drainage system and existing water bodies in the project area

### 3. Land

- Impact on land use/land cover and change in designated land-use in the subproject area.

### 4. Biological Environment

- Terrestrial environment
- Impact on sensitive ecosystems.
- Impact on biota and biodiversity loss.
- Impact on habitat loss
- Impact due to habitat change

### 5. Aquatic environment

- Impact on sensitive ecosystems, including downstream and upstream impacts

### 6. Socio-economic Environment

- Impact on public health
- Impact on sensitive locations.
- Impact on change in occupational pattern
- Impact on human settlement

### 7. Geological and Other Aspects

- Geology, physiography and topography of the area
- Any climate change factors of the subproject area

All the impacts identified have been categorised into reversible and irreversible impacts, positive or negative, short term, medium- and long-term impacts as well as what phase of the project the impacts will occur including planning, construction, operation and decommissioning phase.

The Consultant identified and recommended pragmatic mitigation measures where the environmental impacts of the proposed subproject have been shown to be adverse. The Consultant has also analysed the cost effectiveness of such mitigation measures against viable alternatives and in the event that such suitable mitigation measures are not identified, this has clearly been explained.

The Consultant has relied on World Bank Operation Policy, NEMA regulations, OSHA among others to provide feasible mitigation measures for the negative impacts identified.

The assessment of impacts was, therefore, carried out in the following sequence:

- i. Qualitative and quantitative assessment of the current state of the environment in the project area;
- ii. Identification, prediction, and evaluation of positive and negative environmental impacts.
- iii. The impacts anticipated by implementation of the project were predicted and simultaneously characterized as positive or negative, reversible/irreversible, localized or dispersed, temporary/permanent. A Leopold matrix was used to determine the magnitude of the impacts by assigning quantitative values to the anticipated impacts. The impacts were then grouped into low medium and high impacts;
- iv. Identification of mitigation measures for adverse environmental impacts. Avoidance was adopted as the first line of mitigation and where avoidance was not feasible, mitigation measures were proposed and where residual impacts were determined, measures for compensation were proposed.

The above process was augmented by:

- i. Review of previous reports, published and unpublished works on the environment of the study area;
- ii. Field investigations
- iii. Collation of baseline data on the environmental conditions of the project area.
- iv. Finally, formulation of an environmental management and monitoring plan based on proposals for preventive, compensatory and mitigative measures during project implementation and during the lifespan of the road was done.

#### 1.5.14 Analysis of Project alternatives

The objective was to identify and describe all potential alternatives to the project. The Consultant has identified all alternatives that were considered during the feasibility and design phases of the project including the “no action” alternative and weigh all the alternatives based on the environmental and social impacts and give a recommendation.

##### *i. No project alternative*

This alternative maintains the status quo. It is the most environmentally friendly alternative. However, it also means that all the socio-economic benefits that are envisioned to accrue from implementation of the project shall be foregone. The most important one being improving the living standards of the inhabitants of the six settlements in Kilifi County. The benefits of this alternative is that the bio – physical condition of the project area will remain intact and any of the negative impacts anticipated from the development would not occur.

##### *ii. Project alternative*

This alternative maintains that roads are proposed for improvement based on their need and socio-economic importance. Several factors were considered during road prioritization. These includes but not limited to; level of road encroachment and the number of project affected persons, available budget for compensation, road loop system for complete linkage and drainage pattern of the proposed roads. This alternative will have impacts which the main concern of this report.

#### **Feasibility of design alternative**

Various technologies have been analyzed for each of the project components (roads & drainage, water, sanitation and street lights) and selection done based on best cost, durability, sensitivity to environment and priorities of the settlement community.

#### 1.5.15 Preparation of Environmental and Social Management Plan

Based on environmental impact assessment, mitigation / enhancement measures have been specified in the form of Environmental and Social Management Plan (ESMP). Where resettlement is unavoidable, necessary, appropriate reference to the project a Resettlement Action Plan have been provided. Based on the outcomes of adverse impacts and their significance, the Consultant has prepared an Environmental and Social Management Plan comprising of a programme of assessing the impacts during implementation, operation and post operation phase including decommissioning. This consist of specific description and technical details of monitoring measures including staffing requirements and costs. The plan also includes measures to prevent health hazards and to ensure safety in the working environment for the employees and the communities adjacent to the project site and project affected people in the form of an Occupational Health and Safety Plan (OHSP).

The components of the ESMP inter-alia deal with the following as may be relevant to the project area:

- i. Environmental and social safeguards (management) during construction activities.
- ii. Recommendation for timing, location, methods, costs and responsibilities concerning the monitoring programmes shall be given.
- iii. Post construction environmental and social monitoring plan (with indicators).
- iv. Assessment and recommendation concerning compliance monitoring of the socio-economic impact related to the concerns raised by the local residents in the area surrounding the proposed subproject site.

Such an Environmental and Social Management Plan (ESMP) will take the form of a table as outlined below: -

## 2 PROJECT DESCRIPTION

### 2.1 General description of the project road

The project is implemented in five settlements in Kilifi and one settlement in Malindi. Kilifi County covers an area of 12,245.90 Km<sup>2</sup> and is located in the coastal region of Kenya. It borders Kilifi County to the south west, Taita Taveta County to the west, Tana River County to the North, Mombasa County to the South and Indian Ocean to the East. Its geographical coordinates are 3° 38' 0" South, 39° 51' 0" East. It has a population of 1,453,787 as per the 2019 national population census. The map of Kilifi County is provided in figure 1 below.

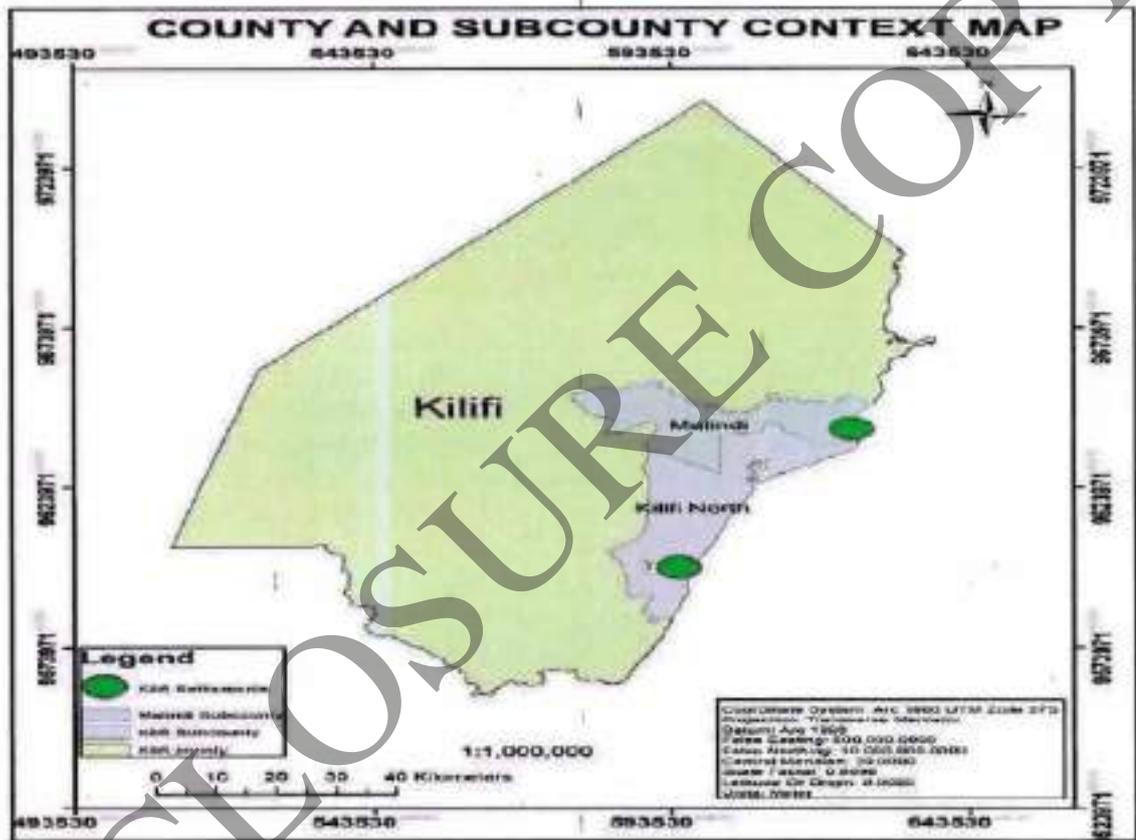


Figure 1: Map of Kilifi County

### 2.2 Location of Project Area in Kilifi Town, Kilifi County

The projects are located in Mtaani, Kisumu Ndogo, Kibaoni, Kalolo and Baya Magonzi settlements as shown in the figures below



Figure 2: Mtaani Settlement; Source: Google Earth, (3037'49.14''S, 39050'56.44''E)

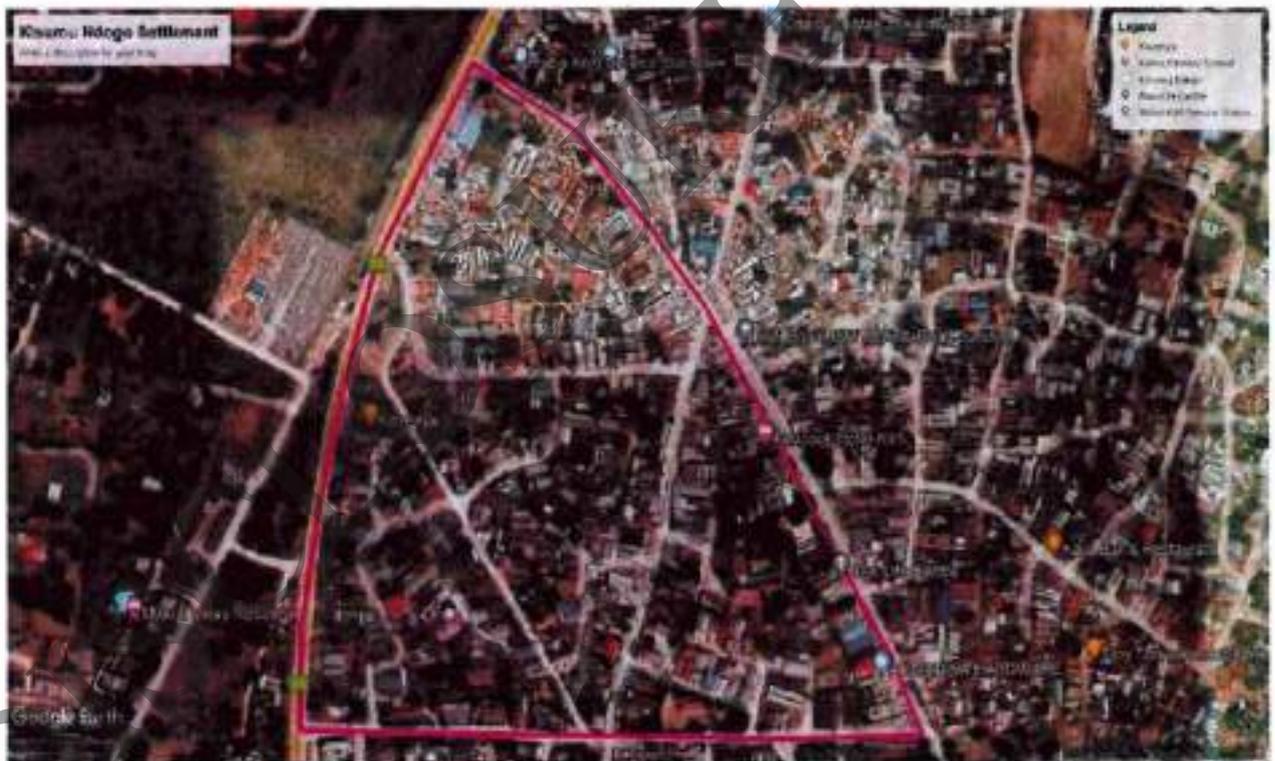


Figure 3: Kisumu Ndogo Settlement; Source: Google Earth, (3037'33.74''S , 39050'53.85''E)



**Figure 4: Kibaoni, Kalolo and Bayamagonzi Informal Settlements (KKB); Source: Google Earth, ( Kibaoni 3037'19.30''S , 39051'04.04''E), ( Kalolo 3037'35.02''S , 39051'12.87''E), ( Bayamagonzi 3037'08.33''S , 39051'23.37''E**



**Figure 5: Muyeye Informal Settlement; Source: Google Earth, (3014'03.14''S , 40006'51.14''E),**

The project area coverage per settlement and the population density is provided below

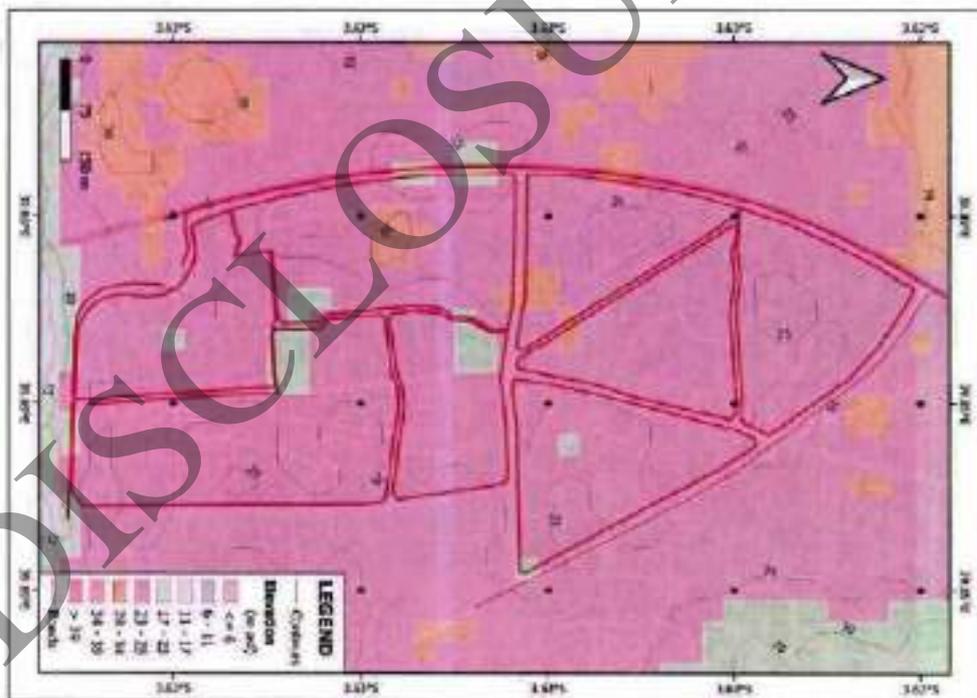
**Table 4: Coverage per settlement and the population density**

Settlement	Area, KM <sup>2</sup>	Population Density, Pop / KM <sup>2</sup>	Population Growth Rate, %
Kibaoni	0.29	5816	4.2
Kalolo	0.40	4485	
Bayamagonzi	0.29	7975	
Mtaani	0.34	4297	
Kisumu Ndogo	0.24	5617	
Muyeye	0.23	1178	

**2.3 Drainage Pattern of the Settlements**

The drainage pattern of the settlement is a very important determinant of the design of the storm water drainage network. The settlements are characterized by pockets of low points where inundation is witnessed during wet season. Vertical drains have been proposed as a measure to dissipate the surface runoff collected at these locations and this will act a recharge of the groundwater in the area.

The figures below highlight the drainage pattern of each of the settlements.



**Figure 6: Existing drainage pattern for Mtaani-Kisumu Ndogo settlement**

From figure 6, it is clear that the settlement has about 5 low points that experience frequent floods during wet season.



The drainage pattern for Muyeye settlement slopes towards North-East of the settlement. This has defined the design of the drainage system for the settlement in relation to the existing road network.

#### 2.4 Design standard and controls

Varies national and international design standards and controls have been adopted in the design of the infrastructure components. Design parameters and procedures were followed and references made on the following manuals / standards:

- i. Road Design Manual Part I- Geometric Design of Rural Roads- Ministry of Public Works - January 1979.
- ii. Road Design Manual Part III- Materials and Pavement Design for New Roads – Ministry of Public Works – August 1987. 2nd Draft Design Manual for Roads and Bridges, Part I (a), Geometric Design 2009.
- iii. Manual for Standard Details of Drainage and Civil works – Ministry of Works - June 1976.
- iv. Road Design Guidelines for Urban roads, 2nd Draft (2001)
- v. 2nd Draft Design Manual for Roads and Bridges, Part I (a), Geometric Design 2009.
- vi. Manual for Traffic Signs in Kenya-Part II-: Informatory, Warning and Regulatory Signs- Ministry of Works, Roads Department, Kenya (1975).
- vii. Overseas Road Note 40-A Guide to Axle Load Surveys and Traffic counts for Determining Traffic Loading on Pavements, Transport and Road Research laboratory, United Kingdom (2004).
- viii. Overseas Road Note 6-A Guide to Geometric Design, Transport and Road Research laboratory, United Kingdom (1988, Reprinted 1998).
- ix. Road Design Guidelines for Urban Roads (2nd Draft) - Ministry of Local Government, Kenya Urban Transport Infrastructure Project (2001).
- x. Practice Manual for Water Supply Services in Kenya, Published in October 2005 (MoWI, 2005)
- xi. Practice manual for Sanitation in Kenya, (Draft form).

Geometric design of the roads and drainages in the settlements were based on the following design parameters:

- i. Design Speed of 50 kmph (in exceptional cases less than 50 kmph and up-to 20 kmph)
- ii. Camber (c/w) cross fall of 2.5%
- iii. Maximum Super-elevation of 4.0%
- iv. Minimum Radius of Horizontal and vertical curves
- v. Desirable length of spiral curves
- vi. Longitudinal gradients
- vii. Design vehicle for turning radius at the intersections
- viii. Minimum stopping site distances
- ix. Topography
- x. Coordination between vertical and horizontal curves.
- xi. Traffic calming devices within the streets such as rubble strips and bumps
- xii. Road signages and markings.

### 2.4.1 Design approach

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

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

### 2.5 Design scope

Although the identified roads qualify for improvement to bitumen standard, the available budget cannot accommodate all the roads. Based on the available budget, the roads were selected based on the reprioritized list and a line was drawn as dictated by the budget. In addition, effort was employed to ensure that the proposed roads form a complete loop for ease of access and provision of alternative route system for the community. The scope for the water supply component and street & security lighting was based on underserved areas in terms of water supply and adequate lighting during the night. The design of the infrastructure was undertaken guided by the relevant Kenya Manuals for Roads and Drainage, Water Supply and Sanitation and Street and Security Lighting. As guided by the client and the Bank, the scope of work proposed for construction was packaged in Lots, 1 and 2 as shown in table 5 below.

**Table 5: Works Packaging**

Lots	Works Component	Settlement
Lot 1	Construction of Roads/Footpaths & Drainage Systems, Water Supply and Street Lighting works	<ul style="list-style-type: none"> <li>• Mtaani,</li> <li>• Kalolo,</li> <li>• Kibaoni</li> <li>• Baya Magonzi</li> </ul>
Lot 2	<ul style="list-style-type: none"> <li>-Construction of Roads/Footpaths &amp; Drainage Systems and Street Lighting works</li> <li>-Proposed Sanitation Works</li> </ul>	<ul style="list-style-type: none"> <li>• Muyeye (Malindi town)</li> <li>• Kisumu Ndogo (Kilifi town)</li> <li>• Sanitation works for Muyeye settlement</li> </ul>

### 2.6 Specific works distributed per settlement

Section 2.5.1 and 2.5.2 presented the scope of work recommended for construction for each settlement.

#### 2.6.1 Lot 1 Scope of Work

Tables 6 to 11 presents the scope of work recommended for construction under Lot 1 of the proposed contract.

**Table 6: Recommended Roads in Kalolo Informal Settlement**

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Msenangu Butchery Junction -Water Sports Ground	R1-005	KA-R2001	525	1.
Kibaoni Primary Junction - Kaya Tarmac Road at Kilifi Primary Junction	R1-009-1	KA-R2002	199	2.
Kaya Tarmac Road (At the Mosque) - Ministry of Youth Grounds	R1-009-2	KA-R3001	251	3.
Junction at Prison Road (Bordering Water Sports Ground) –Mtondia Health Center-Connect with Road from Msenangu.	R1-010-1	KA-R2003	368	4.
<b>Total</b>			<b>1,343</b>	

**Table 7: Recommended Roads in Kibaoni Settlement**

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Kibaoni Primary - Border of Kalolo Settlement	R1-006	KI-R2001	452	1.
Peacock to Kibaoni Stage (Malindi Road Junction)	R1-001	KI-R2002	366	2.
Charo Wa Mae Junction – Emirates Barber Shop (KIR2-02 Junction)	R1-002	KI-R2003	86	3.
<b>Total</b>			<b>904</b>	

**Table 8: Recommended Roads in Bayamgonzi Informal Settlement**

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Mephi Hospital –Kilifi Day Star Secondary School- Mulika Mwizi	R1-014	BA-R2001	624	1.
Mulika Mwizi - Cushem Church	R1-015	BA-R2002	428	2.
Junction At Prison Tarmac Road-Junction At Swahili Sandals Workshop	R1-017-1(0-180)	BA-R2003	180	3.
Junction At Swahili Sandals Workshop-Siku Njema Cereal Shop-Junction at Mwangaza Hotel-Junction at Mama Sandras Tailors	R2-018	BA-R2004	238	4.
Good News M7 Road	R1-021(100-525)	BA-R2005	400	5.
<b>Total</b>			<b>1,870</b>	

**Table 9: Recommended Roads in Mtaani Settlement**

Road Name	Existing Name	Adopted numbering	Length (M)	Priority/Ranking
Samaki Poa - Diamond Restaurant	R1-003	MT-R2001	432	1.
Naivas -Junction Behind The Alliance Towers.	R1-004	MT-R3001	207	2.
Junction Behind Alliance Towers - Entrance Opposite The Bus Park.	R1-005	MT-R2003	267	3.
<b>Total</b>			<b>906</b>	

**Table 10: Recommended Scope for Water Supply in KKB Informal Settlement**

Item No.	Description of activity	Length (Km)
1	Kalolo Primary Distribution Mains, Line 01: CH 0+00 to CH1+050	1.050
2	Kibaoni Primary Distribution Mains, Line 01: CH1+050 to CH 1+450	0.4km
3	Bayamagonzi Primary Distribution Mains, Line 02: CH 0+00 to CH0+860	0.86km
4	Bayamagonzi Primary Distribution Mains, Line 03: CH 0+00 to CH0+560	0.56km
5	1,500nr New Consumer Connections including Tertiary Mains (DN50, DN40 and DN32 total =1,500m) and Service Lines (22,500m of DN15 and DN25 Average = 15metres per Connection)	27km

**Table 11: Recommended Scope of Street lighting in Mtaani Settlement**

Item	Description
1.0	Solar street lighting installation for Mtaani (nr.39)

The layouts of the proposed infrastructure are presented in the figures below.

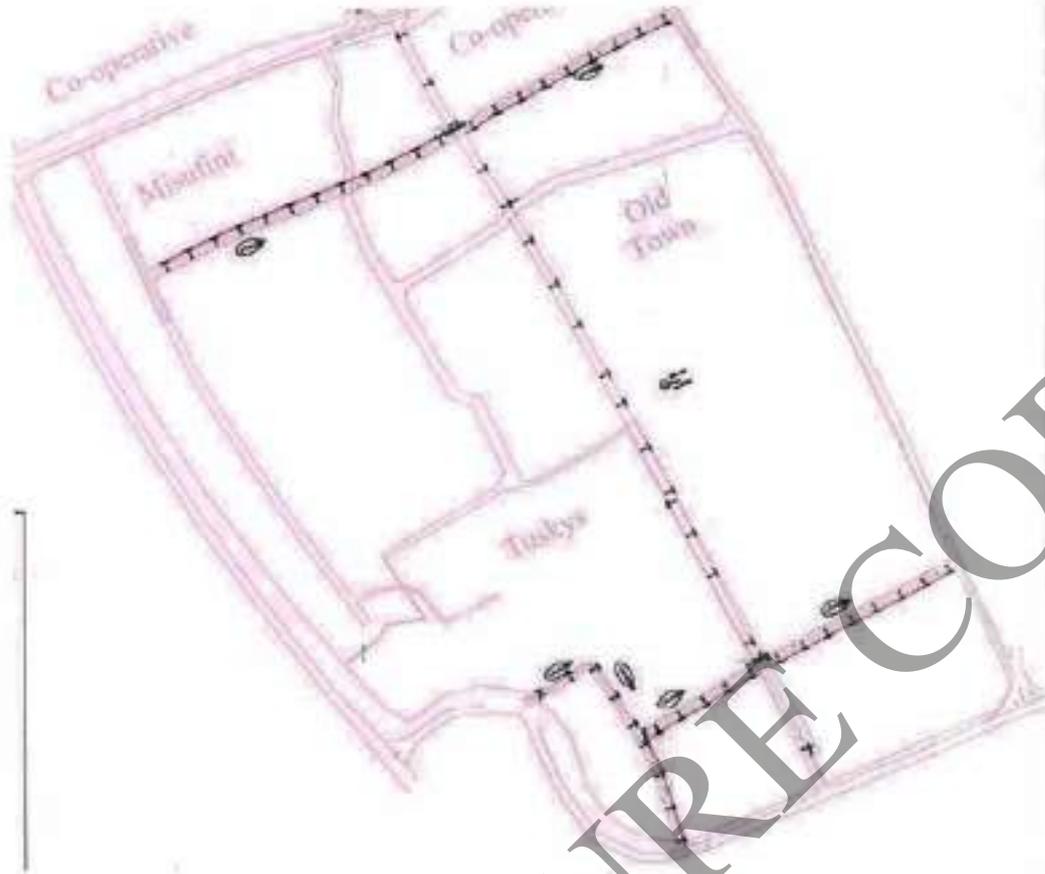


Figure 9: Proposed roads and street lighting for Miaani Settlement

DISCLOSURE COPY

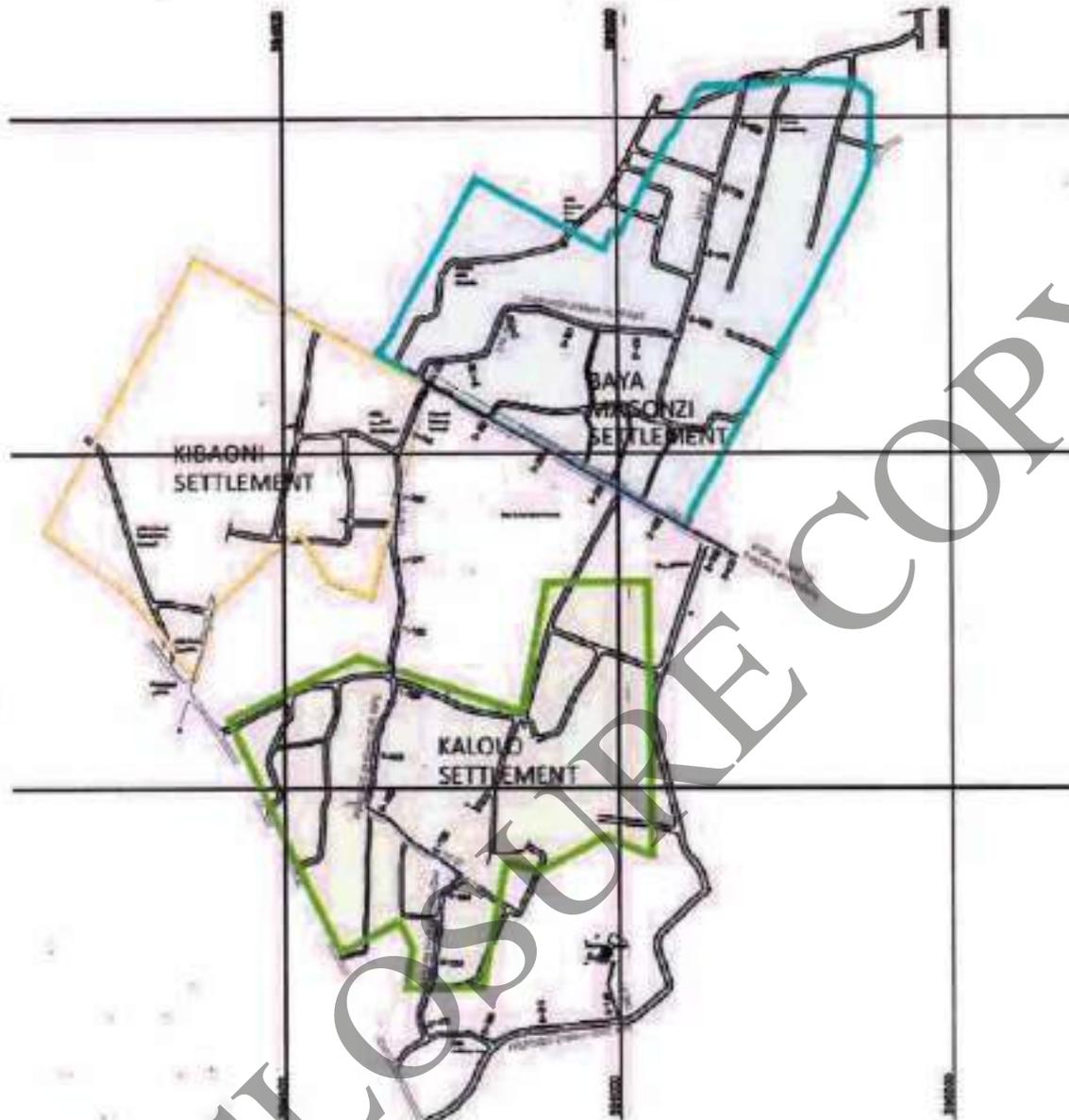


Figure 10: Proposed roads for Kibaoni, Kalolo and Bayamagonzi Settlements

2.6.2 Lot 2 Scope of Work

Tables 13 to 15 presents the scope of work recommended for construction under Lot 2 of the proposed contract.

Table 12: Recommended Scope of work for Kisumu Ndogo Settlement

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Cross Junction at Kilifi Primary (Road Close To The Garbage Disposal) - Kavenya.	R1-001	KN-R2001	453	1.
Kavenya – Kag T-Oloo Medical Centre	R1-002	KN-R2002	350	2.

<b>Total</b>	<b>803</b>
--------------	------------

**Table 13: Recommended Scope of Work for Muyeye Informal Settlement**

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Junction at The Tarmac (Muyeye Filling Station)- To Junction at The Mosque Area Next to The Primary School Fence.	R1-005	MU-R3001	182	1.
Entrance At the Huge Mwembe, Runs Along The Settlement Boundary - The Boundary Of Settlement With Phase 2	R2-003	MU-R4001	512	2.
Junction At Jonam Shop – Junction At (Jackys Grocery-Muyeye Filling Station Road)	R2-004	MU-R3002	74	3.
Junction At Garissa Shop Metro – Blessed Café- Boundary Of The Settlement	R1-006	MU-R2001	400	4.
Junction At Road from Garissa Shop Metro - Maggie Saloon- Jackyz Grocery – Boundary of The Settlement	R4-003	MU-R2002	179	5.
Junction At Upper Boundary of The Settlement – Fish Shop – Junction at Tarmac Road.	R1-002	MU-R3003	246	6.
Road At the Upper Boundary of The Settlement.	R1-001	MU-R2003	491	7.
Junction At Tarmac (Hafswa Mimi Grocer and Butchery) - Close of The Clinic Area- Dead End	R1-004-1	MU-R4002	137	8.
Masjid Taqwa-Dead End	R1-004-2	MU-R4003	104	9.
Junction At Tarmac Road (Flavours)-Malindi Handicraft Cooperative Society- Kwa Chief- Junction at Masjidu Al-Miftahul - Kheyr Mosque	R1-007	MU-R1001	872	10.
Junction At Mleka Enterprises Hardware – Junction at Tarmac (Man Mah Bar)	R4-004	MU-R4004	178	11.
Sayuni Pentecostal Church - Boarder of Settlement Around Little Angels.	R4-005	MU-R4005	145	12.
Junction at Little Angels-Junction at Masjidu Al-Miftahul -Kheyr Mosque, Road Behind Mzee Monyo Family.	R4-006	MU-R4006	231	13.
Junction At Road from Brixton Estates Limited-Dead End	R2-001-1	MU-R4007	118	14.
Junction At Road from Brixton Estates Limited-Dead End	R2-001-2	MU-R4008	109	15.
Junction At Clinic- Dead End.	R4-002	MU-R4009	53	16.
Junction At Mama Sayyid Apartment – Junction at Tarmac Road	R4-001	MU-R4010	210	17.
Junction At (Upper Boundary-Fish Shop Road)-Dead End	R2-002	MU-R4011	67	18.

Road Description	Existing Numbering	Adopted Numbering	Length (M)	Priority/Ranking
Junction At Tarmac- Municipal Health Center- Casuarina- Brixton Estates Limited	RI-003	MU-R2004	283	19.
<b>Total</b>			<b>4,591</b>	

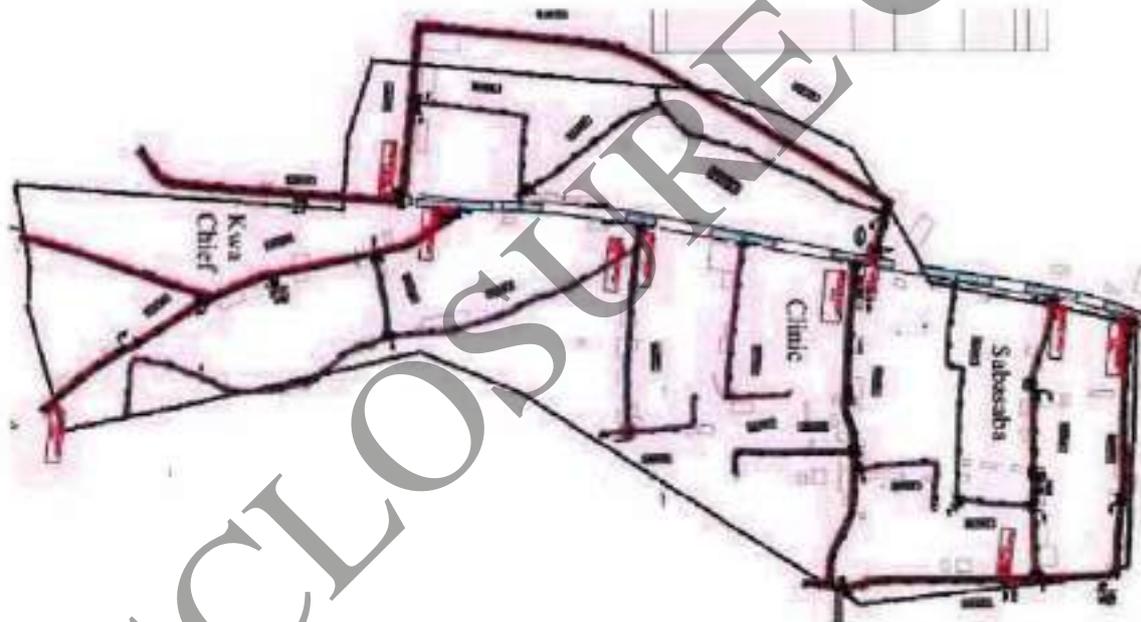
**Table 14: Recommended Scope of Street lighting Kisumu Ndogo**

Item	Description
1.0	Solar street lighting installation for Kisumu Ndogo (Nr29)

**2.6.3 Lot 3 Scope of Work (Sanitation works for Muyeye)**

Construction of onsite sanitation system in Muyeye settlement, proposed 200 toilets and associated facilities. The activities will include excavation, substructure, superstructure, water connection and electricity connection. The sanitation facilities will be constructed in the selected households spread in the entire settlement and that it is demand driven.

The layouts of the proposed works under Lot 2 packaging are highlighted in the figures below.



**Figure 11: Proposed roads for Muyeye Settlement**

The sanitation component is spread across the settlement and planned to cover 200 households.

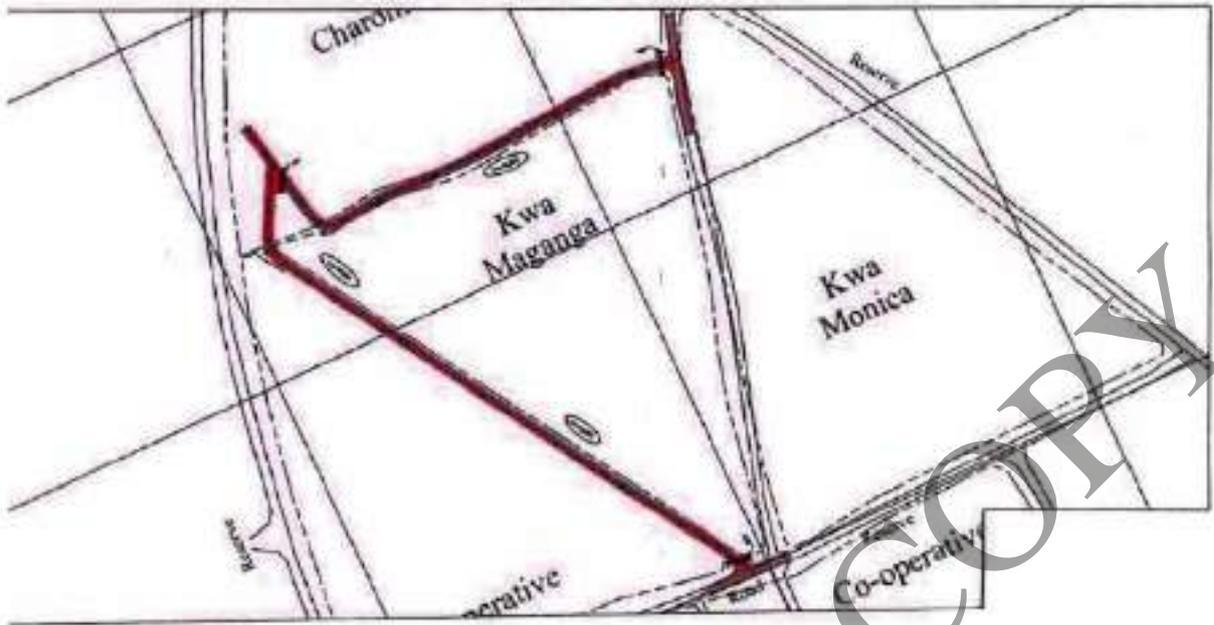


Figure 12: Proposed roads and street lights for Kisumu Ndogo Settlement

**2.6.4 Typical Cross Sections of the Proposed Roads**

The major cross-section elements include the roadway, bus-bays / bus-stops, curbs, greening space, street lighting, Non-Motorized Transport (NMT) facilities (sidewalks and cycle lanes), drainage facilities, cut/embankment slopes, and space for utility services, depending on available right-of-way.

The following typical street cross sections options were evaluated based on available right-of-way and associated compensation costs.

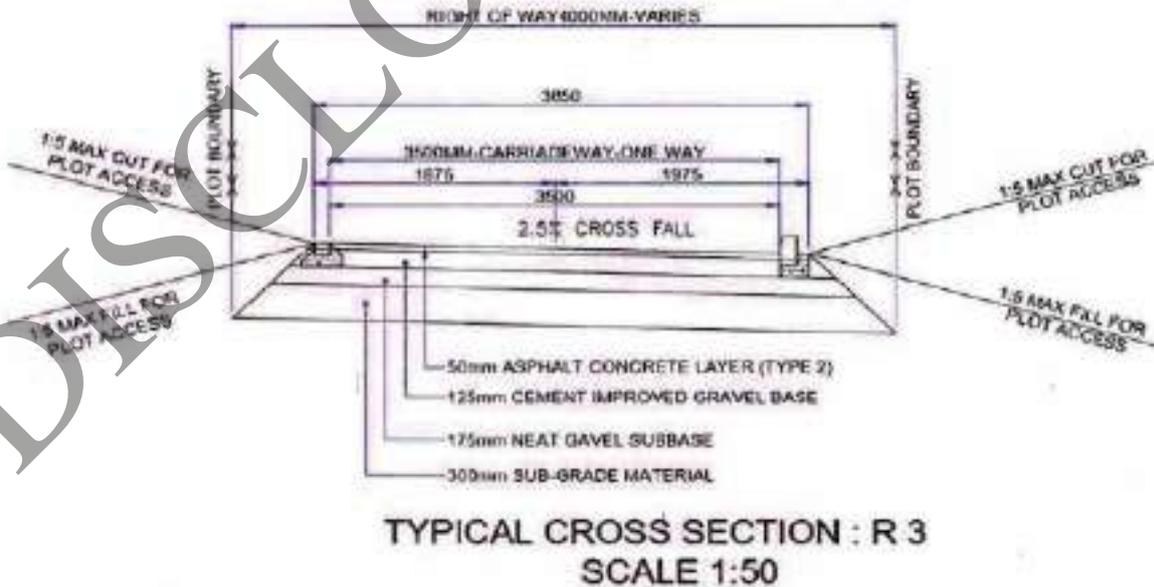


Figure 13: Typical Cross section for a 4m road width

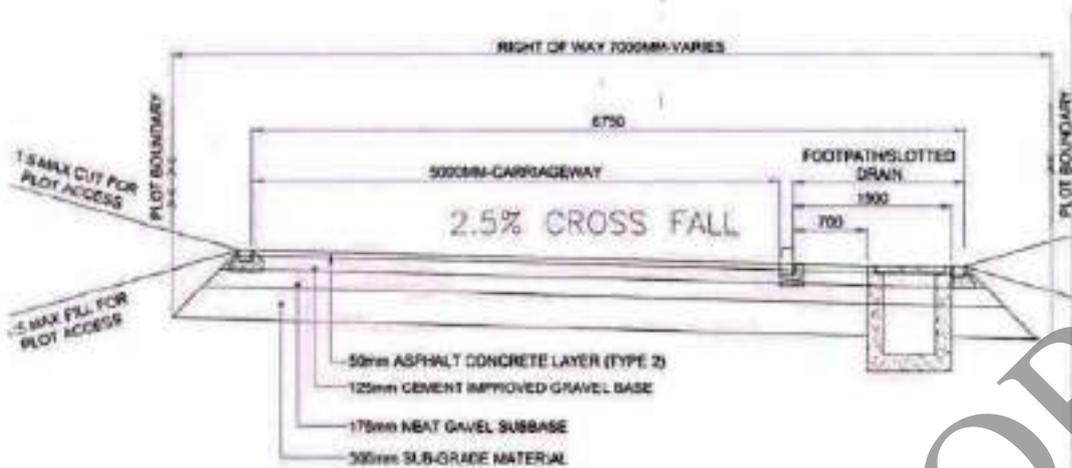


Figure 14: Typical Cross section for a 7m road width

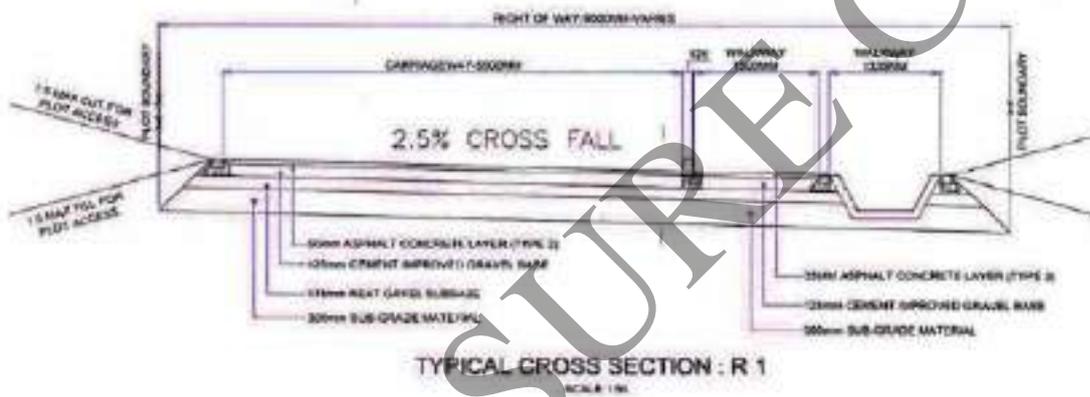
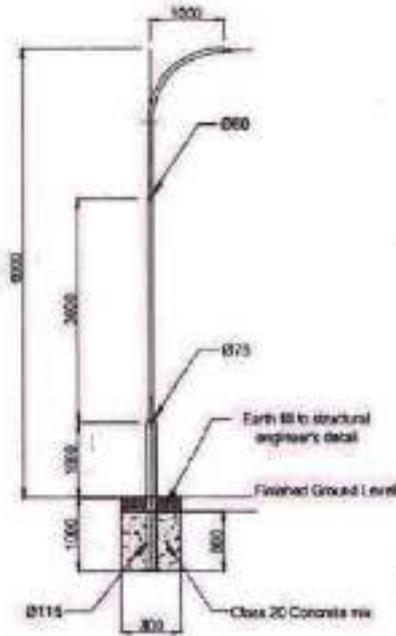


Figure 15: Typical Cross section for a 9m road width

### 2.6.5 Typical Cross Sections of the Proposed Street Lights

The proposed street lights are hybrid system combining solar energy and the national grid. The figure below gives the typical section of the proposed street lights under Lot 2 package of the works.



**6m high Single-Arm Lighting Pole with 1m bracket, 0-deg tilt angle**

*Figure 16: Typical Cross section for a 6m high street light*

### 2.6.6 Overview of the Proposed Sanitation works for Muyeye Settlement

#### Existing status of toilets in Muyeye

The existing sanitation facilities in Muyeye are in form of pit latrines and are inadequately constructed, lacking essential components such as doors, suitable wall materials, and hand wash facilities. Instead, gunny bags and polythene papers are used for doors and walls. The photo below captions of existing sanitation structures are provided below.



**Photo plate 2-1: Inadequately constructed pit latrines**



Photo plate 2-2: Toilet with door lacking

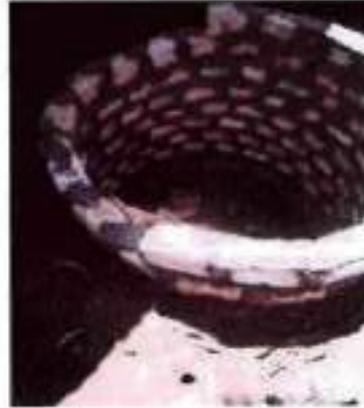


Photo plate 2-3: A pit already dug awaiting project implementation

**Proposed works and specifications**

The improved on-site facility will have a flush system, a conservation tank, a handwashing facility, wooden doors, a squatting facility, and roofed iron sheets. The walls will be made of concrete. The proposed improved sanitation facility is shown in in the figure below.

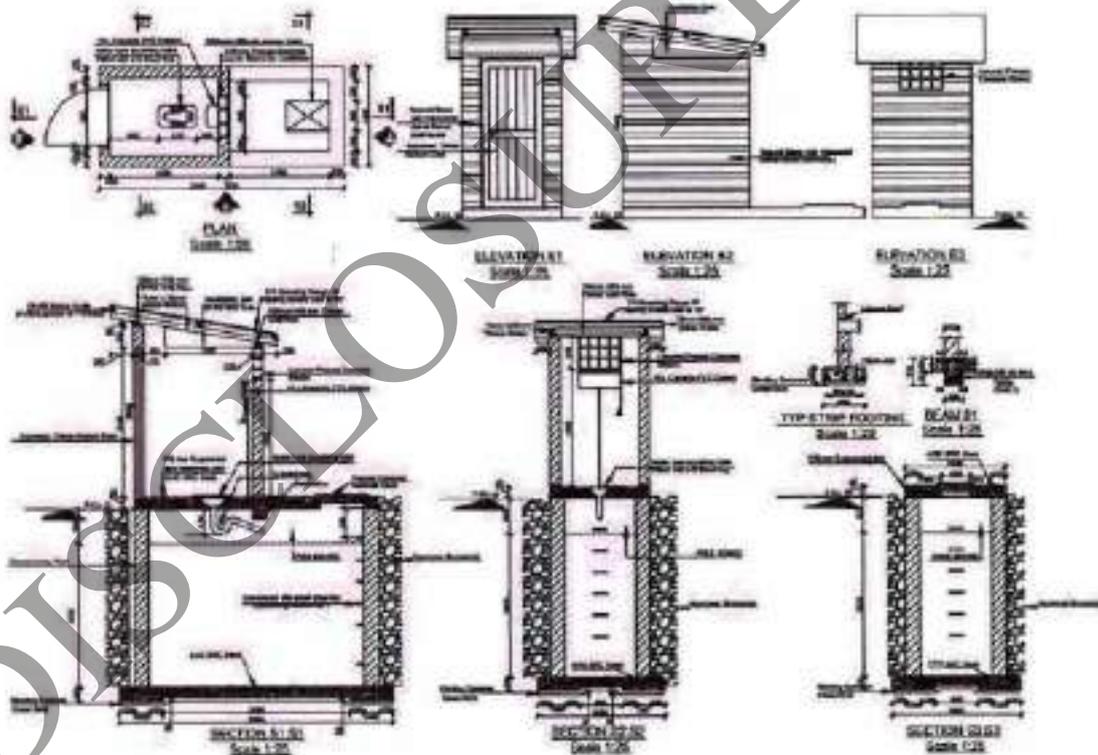


Figure 17: Typical Cross section and layout plan for Muyeye sanitation facility

The specification for the proposed sanitation facility is summarized in the table below.

**Table 15: The specification for the proposed sanitation facility**

Element	Specification
Conservation Tank	The conservation tank measures 8.4 cm <sup>3</sup> and will be done with concrete and reinforced with rocks to avoid seepage into groundwater. The proponent will be exhausting the containment after every 2-3 years.
Hand wash facility	The component will have a minimum of 100 litres capacity PVC storage tanks with a stand. The tap should be heavy-duty.
Squatting Facility	The toilet will have an Asian squatting component fitted with a U-bend strap.
Flush System	The current design incorporates a flush system with a 10-litre PVC cistern. The design needs serious consideration due to frequent water shortages in the settlement.
Lighting System	The toilet will be powered by electricity supplied by Kenya Power and Lighting Company (KPLC).

#### 2.6.7 Temporary construction facilities

Temporary construction facilities refer to facilities that shall be required by the contractor to undertake the road construction works. These include borrow pits, quarries, and campsite. The following temporary construction facilities were identified.

- i. Material sites
- ii. Hardstone Sources.

### 3 ANALYSIS OF PROJECT ALTERNATIVES

The objective was to identify and describe all potential alternatives to the project. The Consultant has identified all alternatives that were considered during the feasibility and design phases of the project including the “no action” alternative and weighed all the alternatives based on the environmental and social impacts and given a recommendation.

#### 3.1 No project alternative

This alternative maintains the status quo. It is the most environmentally friendly alternative. However, it also means that all the socio-economic benefits that are envisioned to accrue from implementation of the project shall be foregone. The most important one being improving the living standards of the inhabitants of the six settlements in Kilifi County. The benefits of this alternative is that the bio – physical condition of the project area will remain intact and any of the negative impacts anticipated from the development would not occur.

#### 3.2 Project alternative

This alternative maintains that roads are proposed for improvement based on their need and socio-economic importance. Several factors were considered during projects identification. These includes but not limited to; level of road encroachment and the number of project affected persons, available budget for compensation, road loop system for complete linkage and drainage pattern of the proposed roads. This alternative also considered the importance of street lights, provision of clean water and construction of sanitation facilities.

#### 3.3 Feasibility of design alternative

Various technologies have been analyzed for each of the project components (roads & drainage, water, sanitation and street lights) and selection done based on best cost, durability, sensitivity to environment and priorities of the settlement community.

##### 3.3.1 Technology Analysis for Road Construction

Road construction methods differ based on the nature of the road and the type of alignment soils. The structure of the existing roads that require improvement in the settlement range from gravel to earth and the desire of the implementing agency is to have the roads improved to better motorable standard.

##### i. Concrete roads /Asphalt Road/ water-bound macadam roads

- a) Concrete roads, which are built using a mixture of Portland cement and asphalt, are common in urban areas and steep slopes of main highways. They are designed to support heavy traffic and can last for decades. Concrete road construction method is faster and that it is quite expensive. However, it requires a very good and experience contractor due to its strength and surface finishing requirements. Besides, concrete roads are rigid and do not bend to support heavy loads – which makes them less durable.
- b) A water-bound macadam road is made of aggregates bound with water and filler material laid on a compacted base course. Water aids compaction, and as it evaporates, the stones interlock to form a solid surface. Water-bound macadam roads are considered high quality

due to the well graded and compacted material. This method of road construction produces a roadway that is strong enough to support heavy vehicles. It is also cheaper compared to bituminous road construction technique. However, the its road surface is rigid and experiences a number of safety issues during operation and also takes time to complete given road compared to asphalt concrete.

- c) Asphalt road is made of asphalt – a mixture of fine aggregate particles and bitumen (a sticky dark viscous liquid obtained through unfinished distillation of crude petroleum. Asphalt road construction methods are very popular due to asphalt roadway's flexibility and the ability to acquire the shape of the load above it. This helps it to support heavy vehicles.
- d) Conventional road building methods often focus on developing high-speed roadways, which necessitates horizontal and vertical realignment of the road surface, resulting in significant expenses. This carries all types of loads available to use the road. Periodic maintenance is planned after a period of about 15 years.
- e) Low Volume Seal Roads (LVSR) technology, employs bitumen-based seals to inexpensively pave roads with low vehicular traffic volumes the technology can only be utilized for routes with extremely low traffic volumes. Seals erode significantly quicker at greater traffic levels, needing shorter periodic re-sealing (every 3-5 years) depending on traffic loads, which can be costly for impoverished economies.
- f) Probase Technology uses a Probase TX-85 Soil Stabilizer & Hardener and SH-85 Soil Hardener & Application of the Road Sealing by PB-65 Road Sealant. It strengthens the soil and harden to meet at the minimum of 80% CBR. With the sealant of stone chippings, it provides water proofing on the roads. The technology is environmentally friendly and that the products does not harm to the existing environment. It increases the lifespan of the road up-to-15 years. With the main features to provide Dust-Free & Mud-Free Environment, it reduces the water absorption into the soil. This technology is not suitable for Kilifi and Malindi due the sand nature of the alignment soils. Sandy soils have low plasticity which does not favor this technology.

### Selected technology

From the analysis of the road construction technologies, concrete construction and probase did not fit the bill for Kilifi County and were dropped. Further analysis of macadam and asphalt was advanced and a summary of the analysis is presented below.

- a. **Residential Driveways:** For residential driveways, asphalt is the preferred choice due to its smooth surface and durability. Macadam, on the other hand, is more suitable for rural driveways where the surface is not expected to be as smooth.
- b. **Highways and Roads:** For highways and roads, asphalt is the preferred choice due to its durability and ability to withstand heavy traffic. Macadam is not recommended for highways and roads due to its rough surface and low durability.

Environmental concerns were analysed for the of use asphalt and macadam. For example, in areas with sensitive ecosystems, permeable pavement may be used to allow rainwater to filter through the

surface and replenish groundwater supplies. In areas with high levels of air pollution, asphalt with lower emissions may be required to reduce the impact on the environment. Since this is an urban area with high levels of air pollution, asphalt construction is the best option.

Asphalt road construction was then picked due to its suitability for urban roads and additional analysis done for the conventional method or the low volume sealed roads. As per the analysis given under asphalt construction, conventional method was adopted due to the high number of traffic expected to use the roads once completed.

### 3.3.2 Technology Analysis for Storm water drainage Construction

Storm water drainage system consists of collection & conveyance structures and the receiving bodies. The collection consists of the household roofs, access roads to households and localized catchments. Conveyance system consists of closed and open drains and the receiving bodies are vertical drains and the ocean.

#### i. Closed/open/vertical drains

- a) Closed drains were proposed in areas where non-motorized traffic is considered and where there was enough road reserve space to accommodate all the services and less risk to the residents.
- b) Open drains were proposed in low lying areas of the settlement where there is no natural outfall to the sea.
- c) Vertical drains were proposed which acts as a recharge facility of the groundwater.

### 3.3.3 Technology Analysis for Street Lights

#### i. Solar powered High Mast / Grid powered High mast/ Hybrid solar and grid powered

- a) the All-in-One Solar Street light can be easily maintained during its lifetime. It also allows for an easy and hassle-free installation which can only last for a few minutes per unit.
- b) *No Trenching and Earthworks Needed:* Thus, you can potentially save a lot of time and money.
- c) *Zero Energy Costs with High Lighting Efficiency:* Solar Street light LED lamp can provide up to 200 lumen/watt lighting efficiency saving almost 80% of energy as compared with traditional street lights (via power – grid) And since solar street lights are also off-grid, it leads to zero cost for operation and electricity bills are eliminated.
- d) *Economical Construction with Maximized Protection from Theft and Vandalism:* An All-in-one solar street light incorporates a GPS (Global Positioning System) inside of the integrated solar street lights. With this system, we can see the location of the lamp at any time, to track theft and This solution works well for highways or somewhere no people around.
- e) *Renewable energy:* Unlike coal and oil, and even Grid power from fuel powered electricity generator (which have finite supplies that need to be mined, solar energy is renewable.

*Long Life Span:* The integrated solar street light has a long-life span of 10 years. It uses the world's first lithium battery management and control technology. Compared with some ordinary battery products that need to be replaced in two years, the future after-sales service and component replacement costs for integrated solar street lights can be greatly reduced

Hybrid system was adopted for the street light in Kisumu Ndogo and Mtaani to take advantage of the solar energy in the project area. During wet seasons of the year, the national grid will be the alternate source of energy for the proposed lighting system.

### 3.3.4 Technological analysis for sanitation blocks

- i. Pour Flush Toilet/ Vault Latrines / WSTF prototype
  - a) Pour Flush toilets implemented by the World Bank in Zambia. Experience from Zambia indicates that pour flush toilets filled up quickly and, in some areas, were not authorized by the Public Health Department due to their risk of groundwater pollution (if filters malfunctioned). The filters also occupied a large part of the substructure leaving only a 3m<sup>3</sup> volume for containment
  - b) Vault Latrines implemented by the World Bank in Zambia. Option 2 has a raised platform better suited for flood-prone areas. Muyeye is not flood-prone.
  - c) WSTF prototype implemented by Malindi Water and Sanitation Company (MAWASCO) in Malindi in 2016 and currently being implemented in Kisumu Ndogo Low Income Area.

MAWASCO chose the WSTF prototype for the sanitation blocks since the water table in Malindi is high, necessitating a lined pit. They also have experience in its implementation and maintenance. The design has been modified so that the superstructure is atop the substructure with an emptying chamber to save space.

### 3.3.5 Technology Analysis for water supply

The water supply system was proposed for the underserved areas and consists secondary and tertiary lines. Due to the saline environment along the coast and the design heights, HDPE and PPR pipes were adopted for use.

## 3.4 Project cost

The project cost includes construction cost, social and environmental cost for contingencies on construction cost and 3% for engineering design and supervision cost. The abstract of cost estimates is given below:

**Table 16: Summary Project Cost**

<b>County Government of Kilifi</b>		
<b>County Department of Housing and Urban Development</b>		
<b>Kenya Informal Settlement Improvement Project, Phase 2</b>		
<b>Proposed Construction of Roads for Kilifi County Settlement</b>		
<b>Kibaoni, Kalolo, Bayamagonzi, Mtaani, Muyeye and Kisumu Ndogo Settlements</b>		
<b>Summary of the Bills of Quantities</b>		
<b>Bill No.</b>	<b>Item Description</b>	<b>Amount (KES)</b>
1	Lot-1	539,552,594.52
2	Lot-2	356,486,687.16
3	Lot - 3	54,000,000
	<b>Totals</b>	<b>950,039,281.69</b>

## 4 LEGISLATIVE, POLICY AND ADMINISTRATIVE FRAMEWORK

### 4.1 General Overview

The Environmental and Social Impact Assessment is guided by an existing legislative, policy and administrative framework which provides guidance on the process. According to the EMCA, the law which guides environmental management in Kenya it is mandatory that projects of such magnitude must undergo and ESIA prior to implementation. Further there are legislative provisions that have been considered relevant due to the prevailing biophysical and socioeconomic conditions in the project area. The subsequent sections provide a review of the relevant provisions. The following provisions were reviewed:

- i. Constitution of Kenya 2010
- ii. Environmental Management and Coordination Act (EMCA) 2015
- iii. The Environmental (Impact Assessment and Audit) Regulations, 2003
- iv. Environmental Management and Coordination (Water Quality) Regulations, 2006
- v. Waste Management Regulations, 2006
- vi. Noise and Excessive Vibration Pollution (Control) Regulations, 2009
- vii. Noise and Excessive Vibration Pollution (Control) Regulations, 2009
- viii. The Environmental Management and Coordination (Air Quality Regulations 2014)
- ix. Land Act 2012
- x. Occupational Safety and Health Act 2007
- xi. Water Act 2016
- xii. County Government Act No. 17 of 2012
- xiii. The Public Health Act (Cap.242)
- xiv. Employment Act (Cap. 226)
- xv. Children's Act 2022
- xvi. World Bank OP (4.01)
- xvii. Environment and Social Management Framework (ESMF) for KISIP.

### 4.2 Environmental and social management framework for KISIP 2

#### Objectives

The key objective of the Environment and Social Management Framework (ESMF) for KISIP is to provide a framework for systematic and effective identification and management of environmental and social issues for KISIP II. The specific objectives include to:

- i. Identify various environmental and social issues and impacts relating to KISIP's mandate and enhance positive and sustainable environmental and social outcomes associated with Project implementation;
- ii. Establish a mechanism to determine and assess potential environmental and social impacts of proposed KISIP works/ activities and set out mitigation, monitoring and institutional measures to be taken during implementation and operations of the sub-projects, in order to eliminate their adverse environmental and social impacts, offset them, or reduce them to acceptable levels;
- iii. Support the integration of environmental and social aspects associated with the numerous subprojects into the decision-making process;
- iv. Establish clear directives and methodologies for the environmental and social screening of project activities that will be supported by KISIP;

- v. Develop Environment and Social Management Plans (ESMPs) and guidelines to address impacts for the proposed infrastructure investments within the resettled communities;
- vi. Ensure compliance with applicable Government of Kenya (GoK) laws, regulations, and policies along with the safeguard policies of the World Bank;
- vii. Define appropriate institutional arrangements for the implementation and monitoring of ESMF.

#### 4.3 World Bank OP 4.01: Environmental and assessment

This OP sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing (IPF), in order to achieve environmental and social outcomes consistent with the OP. An ESIA was done for the Kilifi and Malindi settlement infrastructure improvement project. However, there was need to update the ESIA and focus the study to a smaller geographical area and to update changes that may have occurred in the intervening period.

#### 4.4 Legislative Framework

##### 4.4.1 The constitution of Kenya

The constitution of Kenya is the most supreme legal document of the country. It provides legal guidance on all the fundamental aspects of the nation. The preamble to the Constitution states that 'the people of Kenya are respectful of the environment, which is Kenya's heritage, and are determined to sustain it for the benefit of future generations'. Several provisions of the Constitution reflect this elevation of broad environmental principles. Article 10 entrenches the principle of sustainability as one of the national values and principles of governance, while Article 42 guarantees the right to a clean and healthy environment, including the right to have the environment protected for the benefit of present and future generations.

##### *Relevance to the project*

Chapter five of the new constitution covers "Land and Environment" and includes articles 69 and 70. The Chapter seeks to eliminate processes & activities likely to endanger the environment. Article 69 states that 1) The State shall:

- i. Ensure sustainable exploitation, utilization, management, and conservation of the environmental and natural resources, and ensure the equitable sharing of the accruing benefits
- ii. Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya
- iii. Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities
- iv. Encourage public participation in the management, protection, and conservation of the environment; e) protect genetic resources and biological diversity
- v. Establish systems of environmental impact assessment, environmental audit, and monitoring of the environment
- vi. Eliminate processes and activities that are likely to endanger the environment; and
- vii. Utilize the environment and natural resources for the benefit of the people of Kenya.

#### 4.4.2 Environmental Management and Coordination Act, 1999 (Amendment 2015)

The Government enacted the Environmental Management and Coordination Act (EMCA) in 1999 to provide a legal and institutional framework for environmental management in the country. The Act was amended in 2015 to align to the New Constitution (2010). Thereafter, it was amended in 2019 to update the Second Schedule list of projects that require EIA study.

The following are key elements of the EMCA law:

- i. It stipulates at the outset that "Every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment" and that anyone has the right to take a person breaching this law to court
- ii. It defines illegal activities within several areas, including waste management and pollution and degradation of rivers, lakes, wetlands, coastal zones, agricultural areas, forests and biodiversity; and,
- iii. It sets down the principles for Environmental Impact Assessment (EIA), and for the development of 5-year National Environmental Action Plans (NEAPs) and County Environmental Action Plans (CEAPs), to be developed at the National and County levels, respectively.

#### *Relevance to the project*

Section 58 of the Act directs that any project of the nature specified under the Second Schedule of the Act should be subjected to an EIA study and a report of the same submitted to NEMA, for the purpose of processing an EIA license. The 2019 Amendment of the Act (Legal Notice No.31) provides an updated list of projects that require EIA, and assigns projects to three categories, depending on the seriousness of their likely effects, namely: low risk, medium risk, and high-risk projects.

#### 4.4.3 Environmental (Impact Assessment and Audit) Regulations, 2003

These regulations are made under section 147 of the EMCA, 1999 (Amendment 2019), and provide the general guidelines for undertaking EIA, Environmental Auditing (EA) and monitoring in Kenya. Regulation 3 provides that the EIA/EA Regulations should apply to all policies, plans, programmes, projects and activities specified in Part IV, Part V and the Second Schedule of the EMCA, 1999 (Amendment 2019).

Regulation 4(1) states that no proponent should implement a project that is likely to have a negative environmental impact; or for which an EIA is required under the Act or these Regulations, unless an EIA has been concluded and approved in accordance with these Regulations.

Regulations 11 and 12 provide that EIA should be conducted in accordance with Terms of Reference (ToR) developed during the scoping exercise by the proponent and approved by NEMA. The assessment should be conducted in accordance with the general EIA guidelines and sector EIA guidelines set out in the Third Schedule to these Regulations. Sector EIA guidelines should be developed by the lead agency in consultation with the Authority (NEMA).

According to Regulation 17 (1), the proponent shall in consultation with the Authority, seek the views of persons who may be affected by the project. In seeking the views of the public, after the approval of the project report by the Authority, Regulation 17(2) direct the proponent to:

Publicize the project and its anticipated effects and benefits by:

- i. Posting posters in strategic public places in the vicinity of the site of the project informing the affected parties and communities of the project
- ii. Publishing a notice on the project for two successive weeks in a newspaper that has a nationwide circulation; and
- iii. 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
- iv. Hold at least 3 public meetings with the affected parties and communities, to explain the project and its effects, and to receive their oral or written comments
- v. 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
- vi. Ensure, in consultation with the Authority, that a suitably qualified 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

### *Relevance to the project*

The proponent has prepared this ESIA report in compliance with the stipulations of EMCA, 1999 (amendment 2015)

#### **4.4.4 Environmental Management and Co-ordination (Waste Management). Regulations, 2006**

These Regulations guides on the appropriate waste handling procedures and practices. It is anticipated that, the project will generate a large quantity of solid waste during construction, and these will need to be managed through reduction, reuse, and recycling or appropriate disposal. It is therefore anticipated that, the amount of materials to be discarded as waste during the project implementation will be minimum.

As regards waste reduction, it is recommended that the proponent put in place measures to ensure that construction materials requirements are carefully budgeted for to ensure that the amount of construction materials left on site after construction is kept minimal. It is further recommended that the proponent considers the use of recycled or refurbished construction materials including those excavated from the existing roads. Purchasing and using once used or recovered construction materials will lead to financial savings and reduction of the amount of construction debris disposed of as waste.

In addition to the above-mentioned recommendations and in order to comply with the requirements of these regulations; the proponent should undertake the following:

- i. NOT allow disposal of any wastes on the highway, street, road, recreational area and public places;
- ii. Encourage segregation of wastes and grouping them according to their similarity, for example plastics, toxics, organics, etc;
- iii. Ensure all wastes are deposited in designated dumping sites are approved by the local authority;
- iv. Ensure all waste handlers engaged by the proponent are licensed by NEMA and possess all relevant waste handling equipment and documentations, such as waste transport license,

tracking documents, license to operate a waste yard, insurance cover, and vehicle inspection documents, amongst others;

- v. Implement cleaner production principles of waste management namely reduce, reuse and recycle;
- vi. Label all hazardous wastes as specified in Section 24 (1-3) of the regulation.

The fourth schedule lists wastes considered as hazardous and these include solvents, emulsifiers/emulsion, waste oil/water and hydrocarbon/water mixtures. As regards, road projects involve use of inputs which are likely to generate the fore-mentioned wastes and thus, these will need to be handled as required of by the regulations.

### ***Relevance to the project***

#### **Products, by – Products and Waste**

The construction of the project will generate inert, non-hazardous and hazardous waste over the period of construction. Operation of the roads will result in relatively small volumes of routine waste generation for the life of the Project. Maintenance and repair activities conducted during the operational lifetime of the project may generate limited volume of waste.

#### **Project Waste Management Strategy**

Prior to the commencement of the construction program, the contractor(s) will prepare a Project Waste Management Plan (PWMP). The PWMP will: -

- i. Propose a minimization, collection, storage, treatment, re-use and disposal route for each waste stream
- ii. Identify potential third-party re-users
- iii. Propose Incinerator types if required
- iv. Propose location of waste storage and duties of site personnel regarding waste management
- v. Identify and describe possible locations of disposal sites or long-term storage sites.
- vi. State the methods for properly managing (i.e., training, storing, containerizing, labelling, transporting, disposing) wastes.
- vii. Describe the transition of control from the contractors to the County Government of Kilifi, including arrangements for wastes associated with commissioning.

#### **Project Waste Management Principles**

##### **Standards**

The waste management standards to be used for the construction, operation and decommissioning of the roads should be based on the legal notice 121: Waste Management Regulations 2006. If these regulations do not cover certain aspects of the project, then the Contractor and county government of Kilifi shall comply with international regulations on environmentally sound management of waste.

##### **Duty of Care**

The principles of 'duty of care' (i.e., the responsibility of a generator or owner of waste to ensure that it is handled, transported and disposed of in an appropriate manner) for waste and waste ownership by the waste generator will be adopted by the project throughout the construction,

commissioning and operation of the project. During construction and commissioning, the contractor will be responsible for duty of care whereas during operations, the Contractor will be the duty holder.

### Waste Inventories and Classification

Waste inventories will be created to quantify and characterize waste streams at each stage of the project. Separate inventories will be developed for construction wastes and for commissioning / operational wastes.

**Table 17: Classification of Waste by Type**

No.	Waste Type	Waste Standard & Description
1.	Inert	Waste as defined by EMCA Act - Waste Management Regulations.
2.	Hazardous Waste	Waste classified as hazardous according to EMCA Act - Waste Management Regulations
3.	Non-hazardous Waste	Waste that is neither inert, nor hazardous nor wastewater. It includes 'municipal waste' as defined EMCA Act - Waste Management Regulations
4.	Wastewater	Fresh water that is contaminated as a result of project activity.

Further subdivisions of these classifications may be developed and adopted on the basis of the treatment requirements (e.g. incineration) and ultimate disposal point (e.g., reuse, recycling and landfill) for each individual waste material.

The principal waste disposal options for each waste stream will be as indicated in table below: -

**Table 18: Waste Disposal Options According to Type**

No.	Waste Stream	Principal Disposal Option
1.	Inert Waste	Transfer to a third party for recycling or reuse Processed and used for construction and reinstatement purposes Disposal to a recognized disposal site.
2.	Non-Hazardous Waste	Transfer to a third party for recycling or reuse. A special case of this is to spread it on land for agricultural purposes. Disposal to a recognized disposal site.
3.	Hazardous Waste	Transfer to a third party for re-use Disposal as prescribed in the EMCA Waste Management Regulations of 2006.

The volumes of waste requiring ultimate disposal will be minimized both through the control of waste generation and through incineration. Inert and non-hazardous wastes that cannot be reused or recycled may be incinerated in an incinerator designed and operated in general accordance with Kenya's regulations on Municipal Incinerators.

### Hierarchy of Waste Management Practices

Each waste stream will be managed according to the following hierarchy of techniques, in which the technique chosen should be the first in the hierarchy that is safe and practicable: -

- i. Eliminate or minimize the waste stream by choice of procedure or technology
- ii. Re-use as a material
- iii. Re-use as a fuel
- iv. Process and re-use as a material
- v. Process and re-use as a fuel

- vi. Incinerator or re-use or landfill the ash.
- vii. Designated disposal site (Landfill)
- viii. Landscape- Landfill with appropriate vegetation planted
- ix. Discharge to a receiving water course (applicable only to wastewater)

#### **Transfer of Waste to Third Parties**

It is expected that there will be a variety of potential third parties that may receive wastes generated during the roads construction. These third parties will include commercial waste disposal contractors and entities (corporate or individual) that have the capacity to reuse or recycle individual waste materials.

In general, transfer to third parties for ultimate disposal will only be permitted if the part of their operation that is used for the project waste is licensed. However, items such as timber wastes and other re-useable project wastes may be disposed to local population on the basis of case-by-case review by the contractor.

#### **4.4.5 Environmental Management and Co-ordination (Water Quality) Regulations, 2006**

The Regulations provide for proper management of water for domestic, industrial, recreational and irrigation purposes. It further enumerates the guidelines for prevention of pollution of the water sources. Section 4(2), 6 and Section 24 of the regulation prohibits pollution of water bodies and requires that all substances discharged into the water bodies should meet the standards set under the Third schedule of the regulation. Further, the proponent will be required to observe the requirements of these Regulations that prohibit anyone from undertaking development within a minimum of 6m from the highest ever recorded flood level.

#### ***Relevance to the project***

The proponent will therefore be guided by the provisions of the regulation especially during construction to prevent pollution of the water sources within the project area.

#### **4.4.6 Environmental Management and Co-Ordination (Noise and Excessive Vibration Pollution) Regulations, 2009**

These Regulations provide guidelines for acceptable levels of noise and vibration for different environments during the construction and operation phase. Section 5 of the regulation warns on operating beyond the permissible noise levels while Section 6 gives guidelines on the control measures for managing excessive noises. In this context, the project team should observe the noise regimes for the different zones especially so for working in areas termed as silent zones which include institutions, and worship places, amongst others. These areas are permitted exposure to Sound Level Limits of not exceeding 40 dB (A) during the day and 35 dB (A) at night.

The Second Schedule of the Regulations provides for the maximum permissible level of noise at construction sites.

## Relevance to the project

**Table 19: Maximum Permissible Noise Levels for Construction Sites (measured within the facility)**

Facility		Maximum Noise Level Permitted (Leq) in dB(A)	
		Day 6.01 am - 6.00 pm (Leq 14h)	Night 6.01 pm - 6.00 am (Leq 14h)
1	Health Facilities, educational facilities, homes for the disabled etc.	60	35
2	Residential	60	35
3	Areas other than those listed in (1) and (2)	75	65

The Contractor will undertake the necessary engineering and administrative control measures to ensure noise and vibration levels due to construction of the road to ensure the levels are within the limits specified under the Regulations.

**Source: NEMA**

**Leq: equivalent continuous sound level**

The regulation states that a day starts from 6.01 a.m. to 6.00 p.m., while night starts from 6.01 p.m. – 6.00 a.m. Construction sites near the silent zones are allowed maximum noise level of 60 dB (A) during the day, whilst night levels are maintained at 35 dB (A). The time frame for construction sites is adjusted and the day is considered to start at 6.01 a.m. and ends at 6.00 p.m while night duration starts from 6.01 p.m. and ends at 6.00 a.m.

Part III of the regulation gives guidelines on noise and vibration management from different sources. Sections 11, 12 and 13 of the stated part give guidelines on noise and vibration management from machines, motor vehicles and night - time construction respectively. Section 15 requires owners of activities likely to generate excessive noise to conduct an ESIA.

It is anticipated that the project will generate excessive noise and/or vibration from excavation, drilling, blasting and demolition of structures which have encroached into the road reserves. The prescribed time limits must therefore be observed.

### National Noise Emission Guidelines

In undertaking the construction activities described above, the Contractor will comply with the following national regulatory air quality standards and WBG noise level guidelines, whichever is stringent. Regular monitoring to determine compliance will be done by the Supervision Consultant and corrective/ mitigation measures applied where necessary.

**Table 20: National Noise Guidelines**

Zone	Maximum Noise level limits dB (A)		Time Frame
	Day	Night	
Places of worship	30	25	Day time: 6.01a.m – 8.00p.m  Night time: 8.01p.m – 6.00p.m
Residential:			
1. Indoors	35	25	
2. Outdoors	40	25	
Mixed Residential (inclusive of Entertainment and commercial places)	55	45	
Commercial	70	70	
Silent arena	30	25	

Source-NEMA

**Table 21: Noise levels from a factory or a workshop (Continuous or Intermittent Noise)**

dB(A)	Daily	Weekly
85	8 hours	40 hours
88	4 hours	20 hours
91	2 hours	10 hours
94	1 minute	5 hours
97	30 minutes	2.5 hours
100	15 minutes	1.25 hours
103	7.5	37.5 minutes
106	3.75	18.75 minutes
109	1.875 minutes	9.375 minutes

Source-NEMA

N/B: Noise levels should not exceed a level of

- i. Factory/Workshops 85 dB (A)
- ii. Offices 50 dB (A)
- iii. Factory/Workshop Compound 75 dB (A)

**Table 22: Maximum Permissible Noise level for Impact or Impulsive Noise**

Sound Level dB(A) Max	Permitted impulses per day
140	100
130	1,000
120	10,000

## Source-NEMA

### 4.4.7 Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006

The Regulations requires proponents to conduct ESIA if their activities may have adverse impacts on ecosystems or lead to unsustainable use of natural resources or/and lead to introduction of exotic species. The regulation aims at increasing the coverage of protected areas and establishing new special status sites by providing guidelines for protecting endangered species. Section 5 of the regulation provides guidelines on Conservation of threatened species and Part III of the regulation guides on the access to genetic materials.

The Section states that, the Authority shall, in consultation with the relevant lead agencies, impose bans, restrictions or similar measures on the access and use of any threatened species in order to ensure its regeneration and maximum sustainable yield.

#### *Relevance to the project*

It is recommended that landscaping programmes should involve use of certified plant species to prevent them from affecting the project area negatively in terms of invading wetlands, vegetation and even farmlands.

### 4.4.8 Environmental Management and Coordination (Air Quality) Regulations, 2014 (Revised 2016)

These Regulations provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. The regulations provide for the establishment of emission standards for various sources such as mobile sources (e.g., motor vehicles) and stationary sources (e.g., industries) and establish the procedures for the issuance of emissions licenses, measurement of emissions, inspection and monitoring programs, and reporting requirements.

#### *Relevance to the project*

The project will apply the following guidelines:

#### National Air Quality Emission Standards

In undertaking the construction activities described above, the Contractor will comply with the following national regulatory air quality standards and World Bank Group/ World Health Organization (WBG/WHO) Air Emission and Ambient Air Quality guidelines, whichever is stringent. Regular monitoring to determine compliance will be done by the Supervision Consultant and corrective/ mitigation measures applied where necessary.

**Table 23: Ambient Air Quality Tolerance Limits**

Pollutant		Time Weighted Average			
			Industrial Area	Residential, Rural & Other Area	Controlled Areas
Sulphur oxides (SOX);	Annual Average		80 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
	24 hours		125 ug/m <sup>3</sup>	80 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>

Pollutant	Time Weighted Average			
		Industrial Area	Residential, Rural & Other Area	Controlled Areas
	Annual Average		0.019 ppm/50ug/m <sup>3</sup>	
	Month Average			
	24 Hours		0.048ppm /125ug/m <sup>3</sup>	
	Instant Peak		500 ug/m <sup>3</sup>	
	Instant Peak (10 min)		0.191 ppm	
Oxides of Nitrogen (NOX);	Annual Average	80 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
	24 hours	150 ug/m <sup>3</sup>	80 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>
	Annual Average		0.2 ppm	
	Month Average		0.3 ppm	
	24 Hours		0.4 ppm	
	One Hour		0.8 ppm	
Nitrogen Dioxide	Instant Peak		1.4 ppm	
	Annual Average	150 ug/m <sup>3</sup>	0.05 ppm	
	Month Average		0.08 ppm	
	24 Hours	100 ug/m <sup>3</sup>	0.1 ppm	
	One Hour		0.2 ppm	
Suspended Particulate Matter	Instant Peak		0.5 ppm	
	Annual Average	360 ug/m <sup>3</sup>	140 ug/m <sup>3</sup>	70 ug/m <sup>3</sup>
	24 hours	500 ug/m <sup>3</sup>	200 ug/m <sup>3</sup>	100 ug/m <sup>3</sup>
	Annual Average		100 ug/m <sup>3</sup>	
	24 hours		180 ug/m <sup>3</sup>	
Respirable Particulate Matter (<10µm) (RPM)	Annual Average	70 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>
	24 hours	150 ug/Nm <sup>3</sup>	100 ug/Nm <sup>3</sup>	75 ug/Nm <sup>3</sup>
PM2.5	Annual Average	35 ug/m <sup>3</sup>		
	24 hours	75 ug/m <sup>3</sup>		
Lead (Pb)	Annual Average	1.0 ug/Nm <sup>3</sup>	0.75 ug/Nm <sup>3</sup>	0.50 ug/m <sup>3</sup>
	24 hours	1.5 ug/m <sup>3</sup>	1.00 ug/m <sup>3</sup>	0.75 ug/m <sup>3</sup>
	Month Average		2.5	
Carbon monoxide (CO)	8 hours	5.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup>	1.0 mg/m <sup>3</sup>
	1 hour	10.0 mg/m <sup>3</sup>	4.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup>
Carbon dioxide (CO <sub>2</sub> )				
Hydrogen sulphide	24 hours	150ug/m <sup>3</sup>		
	instant Peak	700ppb		
Total VOC	24 hours	600 ug/m <sup>3</sup>		
Ozone	1-Hour	200 ug/m <sup>3</sup>	0.12 ppm	
	8 hour (instant Peak)	120 ug/m <sup>3</sup>	1.25 ppm	

Source-NEMA

**Table 24: National Air Quality Standards for General Pollutants**

Pollutant	Time Weighted Average	Property Boundary
Particulate matter (PM)	Annual Average	50 ug/m <sup>3</sup>
	24 hours	70 ug/m <sup>3</sup>
Oxides of Nitrogen (NOX);	Annual Average	80 ug/m <sup>3</sup>
	24 hours	150 ug/m <sup>3</sup>
Sulphur oxides (SOX);	Annual Average	50 ug/m <sup>3</sup>
	24 hours	125 ug/m <sup>3</sup>
Hydrogen Sulphide	24 hours	50 ug/m <sup>3</sup>
Lead (Pb)	Annual/24 hours	0.5 – 2.0ug/m <sup>3</sup>
Ammonia	24 hours	100 ug/m <sup>3</sup>

Source-NEMA

**4.4.9 County Government Act, 2012**

The County Government Act, 2012 repealed the Local Government Act.

The Act provides for the role of the County government in planning in urban areas or cities. Under section (37) of the Act, a county executive committee shall:

- i. Monitor the process of planning, formulation and adoption of the integrated development plan by a city or municipality within the county;
- ii. Assist a city or municipality with the planning, formulation, adoption and review of its integrated development plan;
- iii. Facilitate the coordination and alignment of integrated development plans of different cities or municipalities within the county and with the plans, strategies and programmes of national and county governments; and
- iv. Take appropriate steps to resolve any disputes or differences in connection with the planning, formulation, adoption or review of an integrated development plan.

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

**Relevance to the project**

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

**4.4.10 The Kenya Roads Act, 2007 (Revised 2012)**

An Act of Parliament that provides for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority and the Kenya Rural Roads Authority with clear and separated mandates. Part II of the Act establishes the various Roads Authorities in Kenya and outlines their functions.

Section 8 and 9 of the Act provides for the dedication, conservation or alignment of public travel lines including construction of access roads adjacent to lands from the nearest part of a public road. Section 10 and 11 allows for notices to be served on the adjacent land owners seeking permission to

construct the respective roads. Already public meetings were held during public consultations and notifications to this effect issued.

Section 23 of the Act outlines procedures for acquisition of land for the purpose of the Authority's development while Section 24 (1) allows any authorized employee of an Authority to enter upon any land and survey such land or any portion thereof for the purposes of the Authority's development activities. Section 24 (2) provides that where any damage to land is caused by reason of the exercise of the powers conferred by this section, the owner or occupier of the land shall be entitled to compensation therefore in accordance with this Act.

Section 49 gives provision for the responsible authority to give written permission to erect, construct, lay, make structural alteration or additions to a structure on the surface of a road or road reserve or land in a building restriction area. It also gives the authority permission to give or refuse to give such permissions.

Section 49(6) states that "a person who contravenes any of the provisions of subsection (1) commits an offence and is liable on conviction to a term of imprisonment not exceeding one year or to a fine not exceeding one hundred thousand shillings, or to both."

#### ***Relevance to the project***

By undertaking this project, County Government of Kilifi will liaise with Kenya Urban Roads Authority (KURA) in the process which has the mandate and duties to construct, upgrade, rehabilitate and maintain roads under its control while observing all the requisite environmental standards and legislation.

#### **4.4.11 Climate Change Act, 2016**

The objective of the Climate Change Act 2016 is to provide a regulatory framework for an enhanced response to climate change, and to provide mechanisms and measures to improve resilience to climate change and promote low carbon development. The Climate Change Act adopts a mainstreaming approach, provides a legal basis for climate change activities through the National Climate Change Action Plan, and establishes the National Climate Change Council and the Climate Fund.

#### ***Relevance to the project***

The County government of Kilifi shall make reference to the provisions of the Act to mainstream climate change adaptation measures into the project.

#### **4.4.12 The Occupational Safety and Health Act, 2007**

This Act applies to all workplaces and their associated workers, whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and non-workers. It was signed into law in October 2007 to repeal and replace the Factories and Other Places of Work Act Cap 514. It came into force on December 20, 2007.

The Act makes provision for safety and health of workers in all workplaces in Kenya. All rules made under the previous Act remain in force under the new Act. The Act requires developers to notify the Director of Occupational Health and Safety of their intended development before commencement. The act also sets minimum standards that are to be maintained in such workplaces to safeguard health, safety and welfare of workers. These are all aimed at elimination of hazards from workplaces.

The act further requires all workplaces to display the abstract of the act for all workers to read and remind themselves on how to protect themselves from hazards.

The Act also makes it mandatory for occupiers or employers to provide personal protective equipment and all practicable means to prevent injury to health of workers who are exposed to any potentially harmful substances or conditions. Section 9(1) demands that every occupier shall establish a safety and health committee at the workplace in accordance with regulations prescribed by the Minister, if there are twenty or more persons employed at the workplace.

The Act further requires all workplaces to have stocked first aid boxes under the charge of trained first aid attendants. The Factories (Building Operations and Works of Engineering Construction) Rules of 1984 are more specific on standards and requirements for the construction works. The said Act requires that before any premises are occupied or used a certificate of registration should be obtained from the chief inspector. The occupier must keep a general register with provision for health, safety and welfare of workers on site. For safety, fencing of the premises and dangerous areas must be done. There should be provision for clean and sanitary working conditions.

Moreover, there must be also provision of portable drinking water. The act requires the Contractor to keep a general register at the workplace to record accidents or occupational diseases. Despite being repealed, the regulations under the Factories and Other Places of Work Act (Cap 514) are still operational under the Occupational Safety and Health Act, 2007 and shall apply, where appropriate. The regulations relevant to the project shall also be enforced fully.

#### *Relevance to the project*

It is recommended that all Sections of the Act are observed especially provision of protective clothing, fire safety, clean water, use of explosives, and insurance cover for staff so as to protect all involved from work related injuries or other health hazards.

#### **4.4.13 HIV AND AIDS Prevention and Control Act, 2006**

This Act prohibits various forms of sexual violence offences committed against men and women. These include sexual assault, indecent acts, sexual harassment, child pornography, and child prostitution, exploitation of prostitution and deliberate transmission of HIV and AIDS among others. It provides that, no person shall be denied access to employment for which he is qualified; transferred, denied promotion or have his employment terminated, on the ground of his HIV status. Section 3 of The Act highlights that the purpose of the legislation including public awareness and rights to people living with HIV/AIDS. Public awareness shall be achieved through education, public campaigns even at workplaces.

#### *Relevance to the project*

The Contractor shall comply with the law by putting in place regular HIV and AIDS sensitization program at the workplace. No person should be discriminated against in matters employment due to his HIV status.

#### **4.4.14 The Traffic Act, Cap 403**

The Traffic Act consolidates the law relating to traffic on all public roads. The Act prohibits encroachment on and damage to roads including land reserved for roads. Any vegetation grown to protect the road edges should not cause problems during maintenance. The Act also spells out conditions for use of roads by motorists, among others.

### ***Relevance to the project***

County government of Kilifi shall maintain the road reserve and continually monitor encroachment along the corridor especially during the operational phase of the project.

#### **4.4.15 The Employment Act, 2007**

An Act of Parliament to repeal the Employment Act, declare and define the fundamental rights of employees, to provide basic conditions of employment of employees, to regulate employment of children, and to provide for matters connected with the foregoing.

### ***Relevance to the project***

County government of Kilifi to ensure that appointed contractor(s) comply with the Act.

#### **4.4.16 The Work Injury Benefits Act, 2007**

This is an Act of Parliament that provides for compensation payment to employees for work related injuries and diseases contracted in the course of employment and for connected purposes. The Act includes the provision of compulsory insurance for employees. The Act also defines an employee as any worker on contract of service with an employer.

### ***Relevance to the project***

It is recommended that all workers contracted during the project implementation phase obtain the required insurance covers so that they can be compensated in case of injuries at work.

#### **4.4.17 Public Health Act Cap 232**

Part IX Section 115 of the Act states that no person or institution shall cause nuisance or conditions liable to be injurious or dangerous to human health. Any noxious matter or wastewater flowing or discharged into a watercourse is deemed as a nuisance. Section 116 requires local Authorities to take all lawful necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or conditions liable to cause injuries or just are dangerous to human health.

Such nuisance or conditions are defined under section 118 as waste pipes, sewers, drainers or refuse pits in such state, situated, or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. Any noxious matter or wastewater flowing or discharged from any premises into the public street or into the gutter or side channel or watercourse, irrigation channel, or bed not approved for discharge is also deemed as nuisance. Other nuisances are accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbor rats or other vermin.

Part XII Section 136 states that all collections of water, sewage, rubbish, refuse and other substance which permit or facilitate the breeding or multiplication of pests shall be deemed a nuisance. The Act addresses matters of sanitation, hygiene and general environmental health and safety which is directly related to road project and associated activities.

Part XII Section 136 is complemented by the Malaria Prevention Act (Cap246) which provides measures to curb the breeding of mosquitoes at development sites. Measures proposed in the Act to control the breeding of the vector include maintenance of free drainage channels, removal of stagnant water from any land to prevent larvae breeding, removal of wastes and broken bottles, amongst others.

#### ***Relevance to the project***

The act requires that measures be taken to safeguard the health of the workers and the public at large during project implementation and after commissioning. The Contractor will be advised to ensure that all borrow pits are rehabilitated and the drainage system is constructed to the required standards and maintained throughout the project phases to avoid ponding that can be breeding grounds for disease vectors.

#### **4.4.18 Sexual Offences Act No. 3 of 2006**

This is an Act of Parliament that provides for sexual offences, their definition, prevention and the protection of all persons from harm from unlawful sexual acts, and for connected purposes. The Act on Section 23 states that on any one in a position of authority or holding a public office who persistently makes any sexual advances or requests which are unwelcome, is guilty of the offence of sexual harassment and shall be liable to imprisonment for a term of not less than three years or to a fine of not less than one hundred thousand shillings or both.

#### ***Relevance to the project***

This Act gives the public and project employees the right to report any indecent behavior to a court of law and protects children and young girls from defilement and other adult persons from all forms of harassment and discrimination. The Act prohibits a wide range of sexual offences including rape of all kinds, indecent acts, incest, pornography, child trafficking, etc.

To comply, the contractor will be advised on the requirements of the Act, not to discriminate on the basis sex during hiring of workers, on sexual harassment, and awareness creation among the workers.

#### **4.4.19 Water act 2016 and the subsidiary Water Resources Regulations, 2021**

These Regulations implement provisions of the Water Act, no. 43 of 2016. They shall apply to the regulation, management, use and development of all water resources, perennial or seasonal and including water resources of the territorial sea. The issues covered by these Regulations include: prescription of water use activities; issue of approvals, permits and authorizations for water use and waterworks; guidelines on surface water, including declaration of a watercourse, wetlands, land reclamation, water use for irrigation and Works Associated for protection and control of fish; groundwater development, including borehole and issue of specific permits and authorizations; water quality monitoring and liquid waste disposal, including control of water pollution, water quality monitoring; inspection and controls concerning waterworks; water use charges, including penalties for misuse or for over-abstraction; roles and powers of water resource users associations and basin water resources committees; identification of protected and designated groundwater conservation areas; composition of reserve; categories of water sector professionals and contractors and issue of related permits and licenses.

#### ***Relevance to the project***

The Contractor is expected to obtain water permits for any abstraction or drilling of boreholes during construction. The contractor shall also ensure that the construction activities does not compromise water quality in the project area by avoiding disposing of waste materials in water bodies including control of water pollution.

#### **4.4.20 EMCA (Fossil Fuel Emission Control) Regulations, 2006**

These Regulations set out emission standards for internal combustion engines, provide for the licensing of persons who treat fuel and for the appointment of environmental inspectors for purposes of emission inspection and authorizes the National Environment Management Authority to enter

into partnerships for purposes of emission inspection. The Authority shall administer a system of emission inspection of mobile and stationary internal combustion engines in Kenya. An environmental inspector shall have the powers as defined by sections 117 and 118 of the Environmental Management and Co-ordination Act. Fuel shall be treated with fuel catalyst by persons licensed to do so by the Authority.

***Relevance to the project.***

The contractor shall ensure that all mechanical equipment that uses fuel comply with the set standards on emissions.

**4.4.21 Land Act (Amended) 2019;**

Provides for the assessment of land value index in respect of compulsory acquisition of land; and for connected purposes.

***Relevance to the project.***

The project will be constructed on public land owned by the County Government of Kilifi. No private land is affected by the project.

**4.4.22 Physical and Land Use Planning (2019).**

This Law provides for the principles, procedures and standards for the preparation and implementation of physical and land use development plans at the national, county, urban, rural and cities level; and the administration and management of physical and land use planning in Kenya, amongst other things. The Law mandates that any person engaged in the physical and land use shall foster principles for the overall public good, for instance the physical planning and use shall promote the sustainable use of land and that this shall integrate economic, social and environmental needs of present and future generations. The Law establishes the National Physical and Land Use Planning Consultative Forum to perform the following functions: to provide a forum for consultation on the national physical and land use development plan; promote effective co-ordination and integration of physical and land use development planning and sector planning; advise on the mobilization of adequate resources for the preparation and implementation of physical and land use development plans and strategies; and consider national security and advise on strategic physical and land use development projects of national, inter-county, county, or transnational importance. In the same vein, the Law establishes a County Physical and Land Use Planning Consultative Forum in each county. The Law further provides that a county government may preserve a heritage site by serving the owner or occupier of such building which in the opinion of the county government is of special architectural value or historic interest, an order prohibiting the demolition, alteration or extension of such building. The Law also establishes the office of the Director General of Physical and Land Use Planning and the National Physical and Land Use Planning Liaison Committee. The Committee shall advise the Cabinet Secretary on broad physical and land use planning policies, strategies and standards; and hear and determine appeals such as appeals against decisions from the National Planning Authority.

***Relevance to the project.***

The infrastructures; including roads, street lights, water pipes and sanitation blocks have been designed based on the physical plan provided by the County Government of Kilifi.

**4.4.23 National Construction Authority Act, 2011.**

The National Construction Authority Act, 2011 establishes the National Construction Authority (NCA) with the mandate to oversee the Construction Industry and coordinate its development. In addition, NCA is also charged with the responsibility of stimulating and streamlining the development of the construction industry through capacity building, registration of contractors, and regulation of their conduct and quality assurance for improved performance of the construction industry.

***Relevance to the project.***

Only the contractors registered by the NCA shall be eligible for contract award in this project. They must have the requisite qualifications and capacity to undertake such levels of works as prescribed in the project bid documents.

**4.4.24 Sustainable Waste Management Act, 2022.**

The Act provides for new governance framework in waste management with establishment of Waste Management Council, expanded role of County Governments and Extended Producer Responsibility Schemes. In addition, the Act prescribes the need to establish new infrastructure for waste management such as segregation at source, proper transportation, material recovery facilities, closure of dumpsites, sanitary landfills, and national waste information system.

***Relevance to the project***

The project ESMP and C-ESMP contains provisions on the management of all the wastes generated by the contractor during construction of the project. The ESMP also provide site restoration procedures

**4.4.25 Children's Act No. 8 of 2002 revised in 2012**

The Children's Act of Kenya is the basic instrument in the laws of Kenya that spells out the rights of the children while taking care of their safety, protection and development. Sections 10, 13, 15 and 16 of the Act make provisions for Protection from child labour and armed conflict, Protection from abuse, Protection from sexual exploitation and Protection from drugs. Section 20 of the Act provide for penalties for contravention of the requirements of the Act and Section 22 provide for enforcement of the rights of the children.

***Relevance to the project***

The project will attract influx of labour from different parts of the county and country at large. The project workers will live within and interact with the community where children live, thus workers are likely to engage sexual and/or drugs exploitation of the children within the project area. It is likely the project management knowingly or unknowingly engage in child labour which is against the provisions of the Act. The contractor will develop and implement tools to scrutinize and prevent engagement of children in the project. The contractor will sensitize community to report cases of children abuse or exploitation by the project workers.

**4.5 National Policy Framework**

**4.5.1 Vision 2030**

Vision 2030 was launched in 2008 as Kenya's development blueprint covering the period 2008–2030. It was aimed at making Kenya a newly industrializing 'middle income country providing high-quality life for all its citizens by the year 2030'. Under the Social Pillar of Vision 2030, it is explicitly stated that Kenya's journey towards widespread prosperity involves the building of a just and cohesive society that enjoys equitable social development in a clean and secure environment.

Vision 2030 is a Kenyan Government's developmental policy which reflects the commitment by the Kenyan government to achieve low-carbon and climate-resilient development. Vision 2030 was launched in 2008 as Kenya's development blueprint covering the period 2008–2030. It was aimed at making Kenya a newly industrializing middle income country providing high-quality life for all its citizens by the year 2030.

Under the Social Pillar of Vision 2030, it is explicitly stated that Kenya's journey towards widespread prosperity involves the building of a just and cohesive society that enjoys equitable social development in a clean and secure environment. The vision of a clean and sustainable environment by 2030 is to be attained with improved pollution and waste management, improved capacity to adapt to global climate change and the harmonization of environmental laws for better environmental governance and planning

#### 4.5.2 National Environment Policy 2014

The policy provides a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources, which in turn strengthens the legal and institutional framework for effective coordination and management of the environment and natural resources. The guidelines in the policy are aimed at achieving socio-economic wellbeing and survival of citizens and humans through proactive measures in protection of the environment.

The salient features of the policy include:

- i. Under paragraph 3.2(n) one of the principles to be applied in implementing the policy is that communities should be involved in decision-making and empowerment in implementation of decisions flowing out of the policy.
- ii. The policy takes cognizance of high population growth (which leads to higher human activity), shrinking productive land and technological changes as some of the factors that dictate a change in strategy and planning to safeguard the environment.

#### 4.5.3 National Environment Action Plan, 2003 (Revised 2007)

National Environmental Action Plan was a deliberate policy effort to integrate environmental concerns into the country's development initiatives/plans. The policy provides a series of measures to address climate change including sustainable land management incorporation into national planning, policy and legal frameworks. It also seeks to increase the country's forest cover and adopt economic incentives for the management of forest products and community participation in conservation strategy.

#### 4.5.4 Integrated National Transport Policy, 2009, Sessional Paper 2012

This policy aims to enable the transport sector to effectively play its role in economic development and sustainable growth. It identifies the challenges inhibiting the transport sector from performing its role in national, regional and international economies and also aims to develop an efficient, cost effective, safe, secure and integrated transport system that links the policy with other sectoral policies, in order to achieve national and international development objectives in a socially, economically and environmentally sustainable manner.

Section 73 on strategic objectives of non-motorized and intermediate means of transport states that the government should incorporate Non – Motorized and Intermediate Means of Transport (NMIMTs) in the national transport policy as part of the government's strategy for wealth creation and poverty reduction. Further, NMIMTs are expected to complement and enhance the impact of

motorized and other modes of transport thus developing an integrated and seamless transport network at various levels of affordability.

#### 4.6 International Guidance and Standards

These are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS (Environmental and Social) Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are used in addition to the local guidelines in order to provide mitigation measures for the various environmental and social impacts that will be identified in this report. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.

The general hierarchy for controlling the risks and hazards is outlined as follows:

- i. Identifying EHS project hazards and associated risks as early as possible in the facility development or project cycle, including the incorporation of EHS considerations into the site selection process, product design process, engineering planning process for capital requests, engineering work orders, facility modification authorizations, or layout and process change plans.
- ii. Involving EHS professionals, who have the experience, competence, and training necessary to assess and manage EHS impacts and risks and carry out specialized environmental management functions including the preparation of project or activity-specific plans and procedures that incorporate the technical recommendations presented in this document that are relevant to the project.
- iii. Understanding the likelihood and magnitude of EHS risks, based on:
  - The nature of the project activities, such as whether the project will generate significant quantities of emissions or effluents, or involve hazardous materials or processes;
  - The potential consequences to workers, communities, or the environment if hazards are not adequately managed, which may depend on the proximity of project activities to people or to the environmental resources on which they depend.
- iv. Prioritizing risk management strategies with the objective of achieving an overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and / or significant impacts.
- v. Favoring strategies that eliminate the cause of the hazard at its source, for example, by selecting less hazardous materials or processes that avoid the need for EHS controls.
- vi. When impact avoidance is not feasible, incorporating engineering and management controls to reduce or minimize the possibility and magnitude of undesired consequences, for example, with the application of pollution controls to reduce the levels of emitted contaminants to workers or environments.

- vii. Preparing workers and nearby communities to respond to accidents, including providing technical and financial resources to control such events effectively and safely, and restoring workplace and community environments to a safe and healthy condition.
- viii. Improving EHS performance through a combination of ongoing monitoring of facility performance and effective accountability
- ix. Therefore, the measures identified to control the risks identified within the guidelines shall be adopted as Good International Industry Practices (GIIP) and implemented alongside the environmental mitigation measures proposed within the ESIA and ESMP.

The main EHS guidelines that will be used alongside local policies include:

- i. EHS Guidelines: Wastewater and Ambient Water Quality;
- ii. EHS Guideline: Air Emissions and Ambient Air Quality;
- iii. EHS Guideline: Occupational Health and Safety
- iv. EHS Guideline: Noise
- v. EHS Guidelines for Water and Sanitation
- vi. World Bank Guidance notes on Gender Based Violence and Sexual Exploitation and Abuse

#### Environmental Guidelines

These guidelines will govern the Contractor's activities during the construction of the settlements infrastructure and the construction works impacts on the physical environment. The guidelines include:

**Wastewater and Ambient Water Quality** – These guidelines will be key particularly in the Resident Engineers Office and the impacts of wastewater generation and treatment before release into the environment, in order to prevent pollution of the surrounding physical environment. The guidelines call for monitoring of wastewater from the site through testing and inspections for which the Contractor will have to establish a plan for management and monitoring.

**Table 25: Standards for Effluent Discharge into the Environment**

Parameter	Max Allowable (Limits)
1,1,1-trichloroethane (mg/l)	3
1,1,2-trichloroethane (mg/l)	0.06
1,1-dichloroethylene	0.2
1,2-dichloroethane	0.04
1,3-dichloropropene (mg/l)	0.02
Alkyl Mercury compounds	Nd
Ammonia, ammonium compounds, NO <sub>3</sub> compounds and NO <sub>2</sub> compounds (Sum total of ammonia-N times 4 plus nitrate-N and Nitrite-N) (mg/l)	100
Arsenic (mg/l)	0.02
Arsenic and its compounds (mg/l)	0.1
Benzene (mg/l)	0.1
Biochemical Oxygen Demand (BOD 5days at 20 oC) (mg/l)	30
Boron (mg/l)	1.0
Boron and its compounds – non-marine (mg/l)	10
Boron and its compounds –marine (mg/l)	30

Cadmium (mg/l)	0.01
Cadmium and its compounds (mg/l)	0.1
Carbon tetrachloride	0.02
Chemical Oxygen Demand (COD (mg/l)	50
Chromium VI (mg/l)	0.05
Chloride (mg/l)	250
Chlorine free residue	0.10
Chromium total	2
cis -1,2- dichloro ethylene	0.4
Copper (mg/l)	1.0
Dichloromethane (mg/l)	0.2
Dissolved iron (mg/l)	10
Dissolved Manganese(mg/l)	10
E. coli (Counts / 100 ml)	Nil
Fluoride (mg/l)	1.5
Fluoride and its compounds (marine and non-marine) (mg/l)	8
Lead (mg/l)	0.01
Lead and its compounds (mg/l)	0.1
n-Hexane extracts (animal and vegetable fats) (mg/l)	30
n-Hexane extracts (mineral oil) (mg/l)	5
Oil and grease	Nil
Organo-Phosphorus compounds (parathion,methyl parathion,methyl demeton and Ethyl parantropheryl phenylphosphorothioate, EPN only) (mg/l)	1.0
Polychlorinated biphenyls, PCBs (mg/l)	0.003
pH (Hydrogen ion activity—marine)	5.0-9.0
pH (Hydrogen ion activity—non-marine)	6.5-8.5
Phenols (mg/l)	0.001
Selenium (mg/l)	0.01
Selenium and its compounds (mg/l)	0.1
Hexavalent Chromium VI compounds (mg/l)	0.5
Sulphate (mg/l)	0.1
Simazine (mg/l)	0.03
Total Suspended Solids, (mg/l)	30
Tetrachloroethylene (mg/l)	0.1
Thiobencarb (mg/l)	0.1
Temperature (in degrees celcius) based on ambient temperature	± 3
Thiram (mg/l)	0.06
Total coliforms (counts /100 ml)	30
Total Cyanogen (mg/l)	Nd
Total Nickel (mg/l)	0.3
Total Dissolved solids (mg/l)	1200
Colour in Hazen Units (H.U)	15
Detergents (mg/l)	Nil
Total mercury (mg/l)	0.005
Trichloroethylene (mg/l)	0.3
Zinc (mg/l)	0.5

Whole effluent toxicity	
Total Phosphorus (mg/l)	2 Guideline value
Total Nitrogen	2 Guideline value

**Hazardous Materials Management** - These guidelines will mainly govern the handling and disposal of hazardous materials.

**Waste Management** – All construction works are expected to produce one or more forms of waste. Construction wastes and domestic wastes are expected from the Contractor’s site as well as the camp. The Contractor will have to prepare a waste management plan using these guidelines that conform to the local legal framework provided in this chapter.

**Noise** – Use of several equipment and plant is bound to generate some level of noise, which are bound to have a negative impact on the surrounding environment and in particular sensitive receptors. These impacts will be short-lived during the construction and operation phase of the project, and if minimal mechanization is employed the impacts can be reduced further. The guidelines also provide the maximum noise levels which the Contractor should strive to adhere to. The guidelines also call for baseline and annual monitoring of noise generation within the Contractor’s site to establish compliance to the guidelines and local regulation.

**Table 26: Noise Level Guidelines**

Noise Level Guidelines		
	One Hour LAeq (dBA)	
Receptor	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Source: International Finance Corporation (IFC)/WBG

**Air Emissions and Ambient Air Quality** – which provide the air quality standards, limits and monitoring requirements for construction works. The guidelines incorporate WHO air quality guidelines on the major air pollutants expected from the Contractor’s machinery and equipment. Baseline and annual air quality measurements should be taken to establish the impacts of exhaust from the Contractor’s works. Use of several equipment and plant is bound to generate some level of air emissions, which are bound to have a negative impact on the surrounding environment and in particular sensitive receptors. These impacts will be short-lived during the construction and operation phase of the project, and if minimal mechanization is employed the impacts can be reduced further. The guidelines also provide the air emission levels which the Contractor should strive to adhere to.

**Table 27: WHO Ambient Air Quality Guidelines**

WHO Ambient Air Quality Guidelines 7,8		
	Averaging Period	Guideline value in mg/m <sup>3</sup>
Sulfur dioxide (SO <sub>2</sub> )	24-hour	125 (Interim target-1) 50 (Interim target-2) 20 (guideline)
	10 minutes	500 (guideline)
Nitrogen dioxide (NO <sub>2</sub> )	1-year	40 (guideline)
	1-hour	200 (guideline)
Particulate Matter PM <sub>10</sub>	1-year	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline)
	24-hour	150 (Interim target-1) 100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particulate Matter PM <sub>2.5</sub>	1-year	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline)
	24-hour	75 (Interim target-1) 50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

Source: IFC/WBG

**Table 28: Ambient Air Quality Tolerance Limits**

Pollutant	Time Weighted Average	Tolerance Limits		
		Industrial Area	Residential, Rural & Other Area	Controlled Areas
Sulphur oxides (SO <sub>x</sub> );	Annual Average	80 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
	24 hours	125 ug/m <sup>3</sup>	80 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>
	Annual Average		0.019 ppm/50ug/m <sup>3</sup>	
	Month Average			
	24 Hours		0.048ppm /125ug/m <sup>3</sup>	
	Instant Peak		500 ug/m <sup>3</sup>	
	Instant Peak (10 min)		0.191 ppm	
Oxides of Nitrogen (NO <sub>x</sub> );	Annual Average	80 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
	24 hours	150 ug/m <sup>3</sup>	80 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>
	Annual Average		0.2 ppm	

Pollutant	Time Weighted Average			
		Industrial Area	Residential, Rural & Other Area	Controlled Areas
	Month Average		0.3 ppm	
	24 Hours		0.4 ppm	
	One Hour		0.8 ppm	
	Instant Peak		1.4 ppm	
Nitrogen Dioxide	Annual Average	150 ug/m <sup>3</sup>	0.05 ppm	
	Month Average		0.08 ppm	
	24 Hours	100 ug/m <sup>3</sup>	0.1 ppm	
	One Hour		0.2 ppm	
	Instant Peak		0.5 ppm	
Suspended Particulate Matter	Annual Average	360 ug/m <sup>3</sup>	140 ug/m <sup>3</sup>	70 ug/m <sup>3</sup>
	24 hours	500 ug/m <sup>3</sup>	200 ug/m <sup>3</sup>	100 ug/m <sup>3</sup>
	Annual Average		100 ug/m <sup>3</sup>	
	24 hours		180 ug/m <sup>3</sup>	
Respirable Particulate Matter (<10µm) (RPM)	Annual Average	70 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>
	24 hours	150 ug/Nm <sup>3</sup>	100 ug/Nm <sup>3</sup>	75 ug/Nm <sup>3</sup>
PM2.5	Annual Average	35 ug/m <sup>3</sup>		
	24 hours	75 ug/m <sup>3</sup>		
Lead (Pb)	Annual Average	1.0 ug/Nm <sup>3</sup>	0.75 ug/Nm <sup>3</sup>	0.50 ug/m <sup>3</sup>
	24 hours	1.5 ug/m <sup>3</sup>	1.00 ug/m <sup>3</sup>	0.75 ug/m <sup>3</sup>
	Month Average		2.5	
Carbon monoxide (CO)/ carbon dioxide (CO <sub>2</sub> )	8 hours	5.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup>	1.0 mg/m <sup>3</sup>
	1 hour	10.0 mg/m <sup>3</sup>	4.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup>
Hydrogen sulphide	24 hours	150ug/m <sup>3</sup>		
	instant Peak	700ppb		
Total VOC	24 hours	600 ug/m <sup>3</sup>		
Ozone	1-Hour	200 ug/m <sup>3</sup>	0.12 ppm	
	8-hour (instant Peak)	120 ug/m <sup>3</sup>	1.25 ppm	

Source: JEC/WBG

#### Occupational Health and Safety Guidelines

These guidelines are geared towards ensuring the safety of the staff on site and within the Contractor's camp. The guidelines with regards to occupational health and safety include:

**General Facility Design and Operation** – These guidelines will guide the Contractor's workspace. Being that the project area is in the Coast region of the Country, characterized by high temperatures the Contractor will have to provide suitable potable water supply for the staff, a clean eating area, suitable lavatories and showers, fire precaution measures (extinguishers and safety drills) and first aid services.

**Communication and Training** – This will provide for communication and training of staff and visitors to the site, to govern behavior within the site. This is necessary to ensure safety while

operating within the site. The Contractor will need to employ a health and safety officer fulltime on site who will be in charge of ensuring safety and communication of safety within the site.

**Physical Hazards** – These guidelines will govern the exposure of the staff to physical dangers including deep trenches, noise, dust, welding, manual handling, work environment temperatures. The guidelines provide fall protection within the trenches and work hour limits (8 hours maximum).

**Chemical Hazards** - Chemical hazards represent potential for illness or injury due to single acute exposure or chronic repetitive exposure to toxic, corrosive, sensitizing or oxidative substances.

**Personal Protective Equipment (PPE)** - Personal Protective Equipment (PPE) provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems. PPE is considered to be a last resort that is above and beyond the other facility controls and provides the worker with an extra level of personal protection. The Contractor will have to provide the relevant PPE for staff on site for the different job descriptions. In addition, visitors to site will have to be provided with some minimal form of PPE during their visits.

**Monitoring** - Occupational health and safety monitoring programs should verify the effectiveness of prevention and control strategies. The selected indicators should be representative of the most significant occupational, health, and safety hazards, and the implementation of prevention and control strategies. The Contractor will have to employ a health and safety officer who will come up with an occupational health and safety monitoring program for implementation by the Contractor. In addition, the Contractor will provide a clinic and log of accidents and incidences on site as a control measure for ensuring health and safety.

**Sexual harassment and women's empowerment** - Women and men may be exposed to different physical and psychological hazards and risks at the workplace. In addition, exposure to the same risks may also impact women and men differently. To ensure continued improvement in workplace safety and health for women, gender differences must be taken into account in the design of Occupational Safety and Health (OSH) processes and preventive measures. To address gender disparities in OSH, gender integration should respond to the specific hazards and risks impacting women including sexual harassment and GBV.

#### **Community Health and Safety Guidelines**

These guidelines complement the environmental and occupational health and safety guidelines. However, these guidelines specifically address the impact of the project activities on the surrounding community. The guidelines involve the following aspects:

**Water Quality and Availability** – Some of the Contractor's activities will interfere with the water supply to some areas. In these cases, the Contractor should give prior notice to the residents on a schedule of interruption so as to assure planning.

**Structural Safety of Project Infrastructure** – All the project will be located within existing road reserves, as such open trenches may pose a risk to pedestrians. As such safety measures have to be taken into account. The Contractor will have to provide physical buffers such as cordons to prevent falls into the trenches, as well as safe crossing points across the trenches at suitable intervals to provide safe crossing. In addition, the Contractor should provide concrete barriers or similar to segregate motor traffic from the work space.

**Traffic Safety** – Due to the fact that the project area is located within an urban setting, the area has high vehicular traffic. As such the Contractor will have to provide a traffic management plan in order to ensure safety of motorists and other road users. The traffic management plan will include alternative routes for transport, concrete barriers to separate the work area from vehicles, a traffic controller to divert traffic and road signage.

**Emergency Preparedness and Response** – These are designed to deal with events and acts that are unplanned when a project operation loses control, or could lose control, of a situation that may result in risks to human health, property, or the environment, either within the facility or in the local community. Emergencies do not normally include safe work practices for frequent upsets or events that are covered by occupational health and safety. The Contractor will prepare an emergency preparedness and response plan, including training of staff, drills to gauge responses to preparedness, and communication with the local community in case of rise.

GBV, SEA and the spread of HIV – Interactions both between the project staff and the host community, as well as among members of the community themselves, may enhance occurrence of GBV, SEA and the spread of HIV/AIDs due to changes in financial status resulting from availability of jobs and increased business opportunities or because of cultural contamination arising from immigration. The contractor will be required to put in place measures to arrest such ills including through training on the spread and prevention of HIV and AIDs, provision of robust, effective and gender sensitive dispute resolution mechanism in the event of GBV/SEA as well as linkages with local administration to facilitate arrests and evidence recovery in the event of criminal activities touching on GBV/SEA and child abuse.

#### Construction and Decommissioning Guidelines

These guidelines will govern the project components that will require decommissioning including the settlements and camp. The Contractor will have to prepare a decommissioning plan for all these features taking into account the previous EHS guidelines mentioned above.

#### 4.7 International Conventions

Relevant international agreements, treaties and conventions that have a social and/or environmental aspect, to which Kenya is a signatory or has acceded to/ratified, are detailed in table below.

**Table 29: International Conventions**

Convention	Date Ratified/Acceded to	Relevance to the project
African Convention for the Conservation of Nature and Natural Resources (2003)	Ratified (12 May 1969)	The ESMP contains measures to natural resources including avoiding unnecessarily cutting of trees. Additional trees will be planted under this project promote nature conservation
Convention on Biological Diversity (1992)	Ratified (26 July 1994)	Biodiversity management plan will be prepared to protect prevent degradation of project area biodiversity
UNESCO Convention for the Protection of the World	Acceded to (1 May 1964)	This project does not affect any known cultural heritage site.

Convention	Date Ratified/Accessed to	Relevance to the project
Cultural and Natural Heritage (1972)		However, chance find procedure is included in this report.
Convention on the Conservation of Migratory Species of Wild Animals (1985) 1 The African-Eurasian Water-bird Agreement (AEWA). 2 The Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA).	Acceded to (26 February 1999)	The project does not affect the habitats of migratory species of wild animals
Convention on Wetlands of International Importance (the Ramsar Convention 1971)	Only signatory	The project does not affect any wetland
Convention on Persistent Organic Pollutants (2001)	Ratified (24 September 2004)	Waste management plan has been developed to avoid environmental pollution
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (1995)	Acceded to (1 June 2000)	Waste management plan has been developed to avoid environmental pollution
Bamako Convention on the Ban of the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes within Africa (1991)	Only signatory	Waste management plan has been developed to avoid environmental pollution
<i>The Paris Agreement on Climate Change (2015)</i>	Ratified (25 February 2005)	This agreement sets overarching global goals to limit temperature increase to well below 2 degrees Celsius and pursue efforts to limit increase to 1.5. This project will be implemented in line with climate change act 2023
Convention on the Elimination of All Forms of Discrimination against Women.	Ratified 1984	The ESMP has a provision to provide project opportunities to both men and women
Convention on the Rights of the Child	Ratified 1990	The ESMP has provision that bars the contractor from engaging in child labor
Convention on the Rights of Persons with Disabilities	Ratified 2008	The designed road will serve the persons with disabilities as well

Convention	Date Ratified/Acceded to	Relevance to the project
The African Charter on Human and Peoples' Rights (African Charter)	Ratified 1981	The construction of the road will not violate human rights.

#### 4.8 Administrative Framework

##### 4.8.1 National Environment Council

The National Environmental Council (The Council) is responsible for policy formulation and directions for the purposes of developing the EMCA. The Council also sets national goals and objectives, and determines policies, and priorities for the protection of the environment.

##### 4.8.2 NEMA

The responsibility of the National Environment Management Authority (NEMA) is to exercise general supervision and, co-ordination of all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment. The Authority shall review the ESIA report for the project, visit the project site to verify information provided in the report and issue an ESIA license if it considers that all the issues relevant to the project have been identified and mitigation measures to manage them proposed.

##### 4.8.3 The Standards and Enforcement Review Committee

In addition to NEMA, the Act provides for the establishment and enforcement of environmental quality standards to be set by a technical committee of NEMA known as the Standards and Enforcement Review Committee (SERC). NEMA through EMCA has established standards for the various environmental parameters that require management, and these include the water quality standards, noise and vibration control standards, and the waste management standards, amongst other. The committee through the Compliance and Enforcement Department of NEMA monitors the compliance level of various projects to ensure pollution control standards are implemented. The committee also follows on pollution complaints reported by the public.

##### 4.8.4 The County Environment Committees

The County Environment Committee contributes to decentralization of activities undertaken by NEMA and thus enables local communities to have access to environmental management information. It also enables the County Environment Committees to conduct quick site visits and review reports of localized project on time.

##### 4.8.5 Environment and Land Court

This court is established pursuant to Article 162(2) of the Constitution and Section 4 of the Environment and Land Court Act. The court is a superior court and has jurisdiction throughout Kenya with original and appellate jurisdiction to hear and determine disputes relating to environment planning, climate change issues and any other disputes related to land and the environment as per Section 13 of the Act.

##### 4.8.6 National Environment Tribunal

The National Environment Tribunal is established under section 125 of the EMCA with jurisdiction to entertain appeals from parties aggrieved by decisions made by NEMA, such as:

- i. The grant of a license or permit or a refusal to grant a license or permit, or the transfer of a license or permit, under the EMCA or its regulations

- ii. The imposition of any condition, limitation or restriction on a person's license under the EMCA or its regulations
- iii. The revocation, suspension, or variation of a person's license under the EMCA or its regulations
- iv. The amount of money required to be paid as a fee under the EMCA or its regulations and
- v. The imposition against a person of an environmental restoration order or environmental improvement order by the NEMA under the EMCA or its regulations

#### 4.8.7 The RE and County Government of Kilifi

The responsibilities for ensuring that mitigation measures specified in this ESMP are implemented will lie with the RE under *County government of Kilifi*. The environmental monitoring staff from the RE will undertake monitoring of environmental and social impacts during construction. The RE will be expected to issue the OSH and environmental legal requirements, which the Contractor must comply with in the execution of the project.

#### 4.8.8 National Environmental Complaints Committee

The National Environmental Complaints Committee (NECC) is responsible for the investigation of allegations or complains related to the environment; preparation of annual reports on the state of the environment; and undertaking public interest litigation on behalf of the citizens, in environmental matters. It was established to replace the Public Complaints Committee (PCC).

#### 4.8.9 Directorate of Occupational Safety and Health Services

The mandate of the Directorate of Occupational Safety and Health Services (DOSHS) is to ensure compliance with the provisions of the Occupational Safety and Health Act (OSHA 2007) and subsidiary legislations, and promote safety and health of workers. Key functions include:

- i. Inspecting workplaces to ensure compliance with safety and health law
- ii. Examination and testing of steam boilers, air & steam receivers, gas cylinders, lifts, cranes chains and other lifting equipment
- iii. Measurements of workplace pollutants for purposes of their control
- iv. Investigation of occupational accidents and diseases with a view to preventing recurrence
- v. Medical examinations of workers
- vi. Training on Occupational safety and health, first aid and fire safety
- vii. Approving architectural plans of building intended for use as workplaces
- viii. Disseminating information on occupational safety and health to customers

#### 4.8.10 County Government

The proposed is in Kilifi County. The counties were envisioned by the 2010 Constitution of Kenya as the units of devolved government. The functions of governments assigned to counties by the fourth schedule of the Constitution of Kenya in relation to road projects are:

- i. Provision of land for social facilities including markets, parking areas, drainage and access roads.
- ii. Collaborate on physical planning of relevance to the project road
- iii. Review master plans for compatibility with the improved roads

## 5 DESCRIPTION OF BIO - PHYSICAL PROJECT ENVIRONMENT

### 5.1 Location of the Project

The construction works will be undertaken concurrently in the five settlements within Kilifi town and one settlement in Malindi town.

#### Kilifi town

Works will be carried out in the Informal Settlements of Mtaani, Kisumu Ndogo, Kalolo, Kibaoni and Baya Magonzi falling within Sokoni ward in Kilifi North Sub-County in Kilifi County. In terms of national government administrative units, the project is located in Kilifi township location, sokoni (Kisumu ndogo and Mtaani) and hospital (KKB) sub locations.

#### Malindi town

Works will be carried out in the Informal Settlement of Muyeye Phase I.

Muyeye Informal settlement is a 26 Ha informal settlement located in Malindi town, Shella Ward, Malindi Sub-County of Kilifi County. Muyeye is located in Malindi location, shella sub-location

#### Location of Kilifi County In Kenya

Kilifi County covers an area of 12,245.90 Km<sup>2</sup> and is located in the coastal region of Kenya. It borders Taita Taveta County to the west, Tana River County to the North, Mombasa County to the South and Indian Ocean to the East. Its geographical coordinates are 3° 38' 0" South, 39° 51' 0" East. It has a population of 1,453,787 as per the 2019 national population census. The map of Kilifi County is provided in figure 1 below.

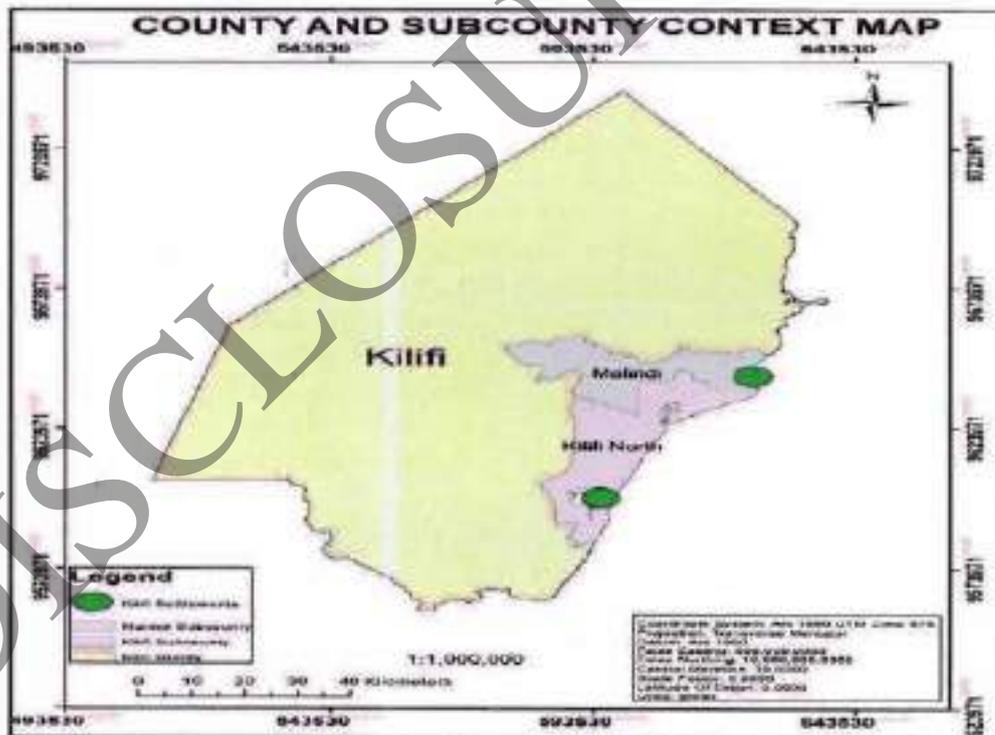


Figure 18: Kilifi County Map, Source: KNBS 2019





Figure 20: Kisumu Ndogo Informal Settlement; Source: Google Earth

DISCLOSED



Figure 21: Kibaoni Informal Settlement, Source: Google Earth

DISCLOSURE



Figure 22: Kalolo Informal Settlement; Source: Google Earth



Figure 23: Muyeye Informal Settlement; Source: Google Earth

5.2 Project area vegetation and physical features

Table 30: Photo Plate: KKB Informal Settlement in Kilifi Town

<p>A small-scale maize farm in BayaMangonzi 9600258N, 594740E</p>	<p>A photo showing a coconut tree 9600142N, 594677E</p>

town, in Kilifi County.

**Table 31: Photos of Mtaani Kisumu Ndogo**

	
<p>Coral rocks used for house construction 9599915N, 594602E</p>	
	
<p>A small scale maize farm in Mtaani 9599943.86N, 594596.27E</p>	<p>A photo showing popular <i>Mukurudadi</i> tree 9599941N, 594603E</p>

**Table 32: Environmental Situation in Muyeye Informal Settlement**

	
<p>Coral/Granite rocks in the area: 9642992N, 623872E</p>	
	
<p>A small-scale maize farm in Muyeye 9642948N, 623908E</p>	<p>A photo showing popular <i>Mukurudadi</i> tree 9642932N, 623884E</p>

### 5.3 Physical Environment

#### 5.3.1 Climate

The average annual rainfall ranges from 300mm in the hinterland to 1,300mm at the coastal belt. The coastal belt receives an average annual rainfall of about 900mm to 1,100mm with marked decrease in intensity to the hinterland. The annual temperatures in the County range between 21°C and 30°C in the coastal belt and between 30°C and 34°C in the hinterland. The county experiences relatively low wind speeds ranging between 4.8 km/hr and 12 Km/hr. (Source: IPE Global).

Figure 24 below presents a map of rainfall distribution in the Project area

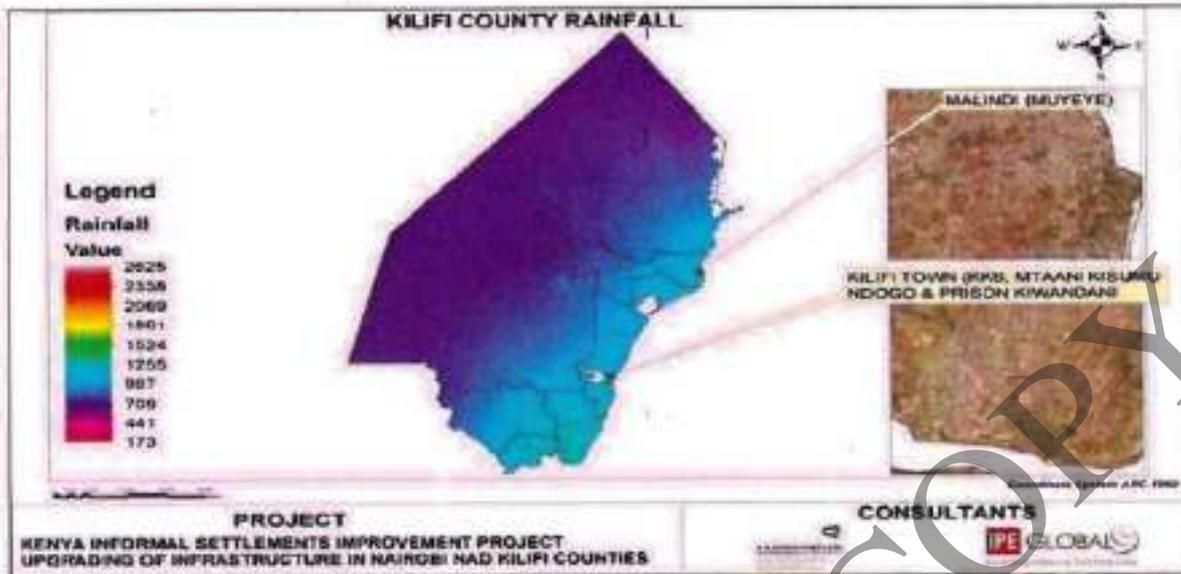


Figure 24: Map of rainfall distribution

### 5.3.2 Topography

Altitude ranges from the sea level on the coastal plain in Kilifi ranges from 705M on the coastal range to a maximum of 900M on the Plateau. Figure 7 below presents Elevation of the Project area

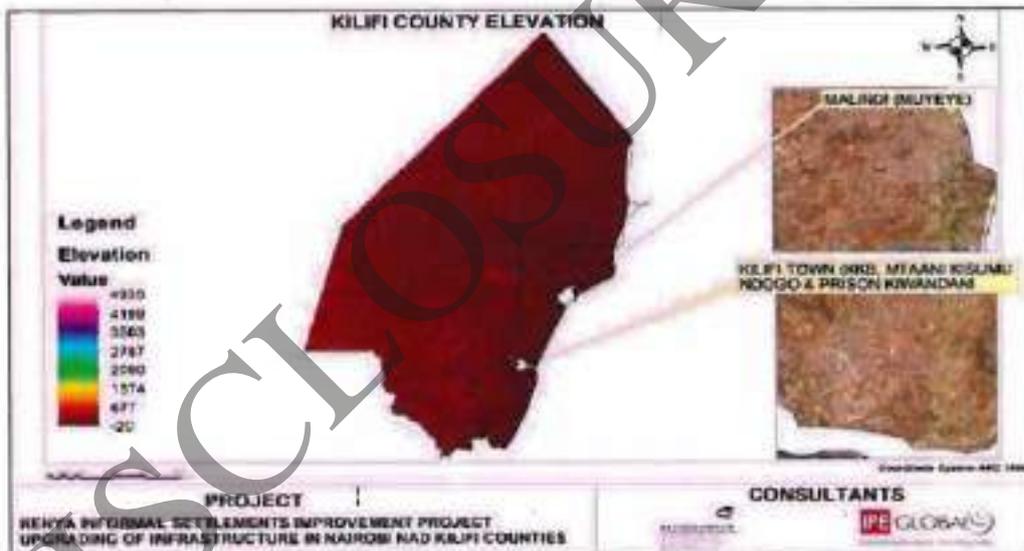


Figure 25: Elevation of the Project Area

### 5.3.3 Hydrology

The drainage pattern for the county is formed by a permanent river (Sabaki) and seasonal rivers, which drain into Indian Ocean through the various creeks along the coastline. The seasonal rivers are Nzovuni, Rare, Goshi and Kombeni. There are also streams which include Wimbi, Muhomkulu and Mleji. The prevailing drainage direction is Northwest to Southeast. The uplands of the

Magarini formation form a barrier for the MtoMkuu drainage system that therefore runs from north to south to the Mtwapa Creek. Figure 26 illustrated Hydrology Map of the Project Area.

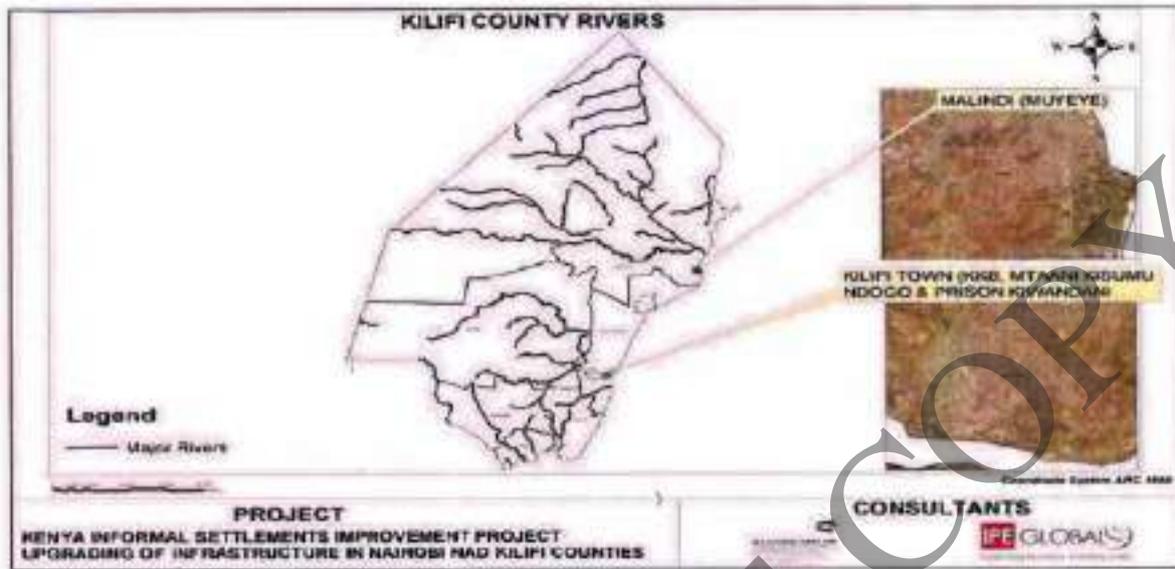


Figure 26: Hydrology Map of the Project Area

### 5.3.4 Geology and Soils

The soils of Kilifi area represent a wide range of profile characteristics. Differences in (e.g., parent material, age or drainage condition) have delivered an array of soils from high to low agricultural potential.

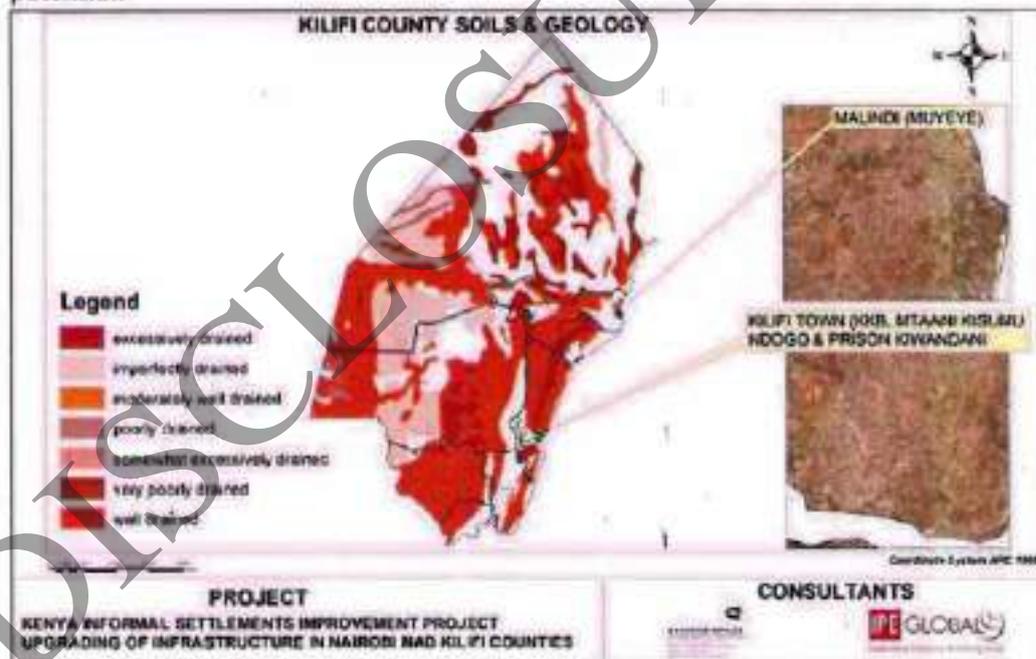


Figure 27: Geology and Soils

### 5.3.5 Vegetation and Flora

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

#### (i) Coconut-Cassava Zone:

This zone has the highest potential for crop production in the county spreading along the coastal uplands and low-level coastal plains. Major farming activities include tree cropping (mango, citrus, cashew nuts, and coconuts), vegetables (chilli, brinjals, okra etc.), food crops (maize, bananas, cowpeas, green grams etc.) and upland rice. Dairy farming also does well in this zone. It has an average precipitation of 1,300mm per annum and mean annual temperature of 24 0C.

#### (ii) Livestock-Millet Zone:

The zone is of lower agriculture potential with precipitation of 700 – 900mm. The area is suitable for dry land farming especially drought tolerant crops and livestock ranching

#### (iii) Lowland Ranching:

It varies in altitude of 90-300m with mean annual temperature of 270 C and annual precipitation of 350-700mm. Major activities within this zone include ranching and wildlife.

#### (iv) Coconut Cashew nut-Cassava Zone:

This zone is mainly found in Kilifi South and North Constituencies and is the smallest of all the zones. It varies in altitude from 30-310m above sea level with mean temperature of 270 C and annual precipitation of 900mm per annum. The area has potential for those crops grown in the coconut-cassava zones and cashew nut-cassava zones. Figure 28 below presents vegetation map of the Project area.

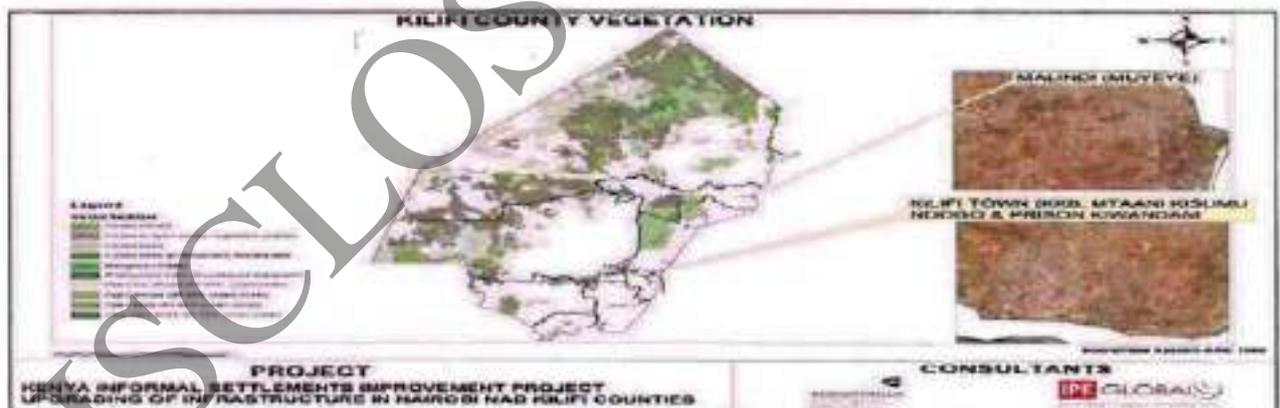


Figure 28: Vegetation Map of Project Area

## 6 DESCRIPTION OF THE SOCIO-ECONOMIC PROJECT ENVIRONMENT

### 6.1 Background

The information provided in this section was collected during the initial field study conducted in July 2017. The additional socio-economic study to update the ESIA report was conducted in January, 2023. A socio-economic survey was carried out to collect quantitative and qualitative socio-economic data from the households including household demographics, education and skills, livelihoods, health and nutrition, basic services and community facilities. The data forms the basis of a better understanding of the structure and make-up of the households, their livelihoods practices adopted to secure household food needs and income. The socio-economic survey was conducted using a sample size of 40 Households randomly selected from the six settlements. There was only one respondent per affected household.

#### Data privacy protocols

Data privacy protocols were explained to respondents before undertaking the surveys. They were informed that the information obtained from them would be treated with utmost confidentiality and that their names shall not be availed publicly without their express consent from. The identities of the respondents are not included in this report.

#### The criteria for selecting the 40 Households

The Consultant used random sampling to select the 40 households spread across the six settlements. Equal consideration was given to each settlement and the breakdown per settlement is given in the table below:

Table 33: Sampling Criteria

Site/Settlement	Male
Baya Magonzi	5
Mtaani	5
Kalolo	5
Kisumu Ndogo	5
Kibaoni	10
Muyeye Phase	10
<b>Total</b>	<b>40</b>

### 6.2 Kilifi County

#### 6.2.1 Position and Size

Kilifi County was formed in 2010 as a result of a merger of Kilifi District and Malindi District, Kenya. Its capital is Kilifi and its largest town is Malindi. Kilifi county is one of the five counties [1] that make up the Kenyan Coast. The latitude of Kilifi is -3.510651, and the longitude is 39.909327 and the GPS coordinates of 3° 30' 38.3436" S and 39° 54' 33.5772" E. The elevation of Kilifi is 5,089.

#### 6.2.2 Administrative Units

The county has 7 Constituencies and 35 wards as shown in the table

Table 34: Administrative and Political Units

Constituency	Area (km <sup>2</sup> )	Number of wards	Wards
Ganze	2,942	4	Ganze, Bamba, Jaribuni, Sokoke

Constituency	Area (km <sup>2</sup> )	Number of wards	Wards
Kaloleni	651	4	Mariakani, Kayafungo, Kaloleni, Mwana Mwinga
Kilifi North	405	7	Tezo, Sokoni, Kibarani, Dabaso, Matsangoni, Watamu, Mnarani
Kilifi South	401	5	Junju, Mwarakaya, Shimo la Tewa, Chasimba, Mtepeni
Magarini	6,979	6	Maarafa, Magarini, Gongoni, Adu, Garashi, Sabaki
Malindi	627	5	Jilore, Kakuyuni, Ganda, Malindi Town, Shella
Rabai	241	4	Mwawesa, Ruruma, Kambe-Ribe, Rabai/Kisurutuni
<b>Total</b>	<b>12,245.90</b>	<b>35</b>	

### 6.2.3 Age distribution

The majority of the respondents (44%) were aged 65 years and above. This is because most of the respondents were household heads. It is culturally and socially appropriate to obtain household information from the head of the households when they are present during the interviews unless they volunteer either of the family members to take the interviews on their behalf.

### 6.2.4 Gender Distribution of the Respondents

The survey data from the respondents indicates that 57% of household heads were males while 43% were female. The data suggests that most of the surveyed households are headed by males. Nuclear family is the most preferred family type by most of the respondents interviewed within the project area. The changing cultural and social norms and the high cost of living are driving most people to coalesce around nuclear family setup. The gender distribution is presented in figure 28 below. Information on gender will also enhance gender mainstreaming into the project activities as per the legal, policy and guiding world best practices i.e. vision 2030 policy.

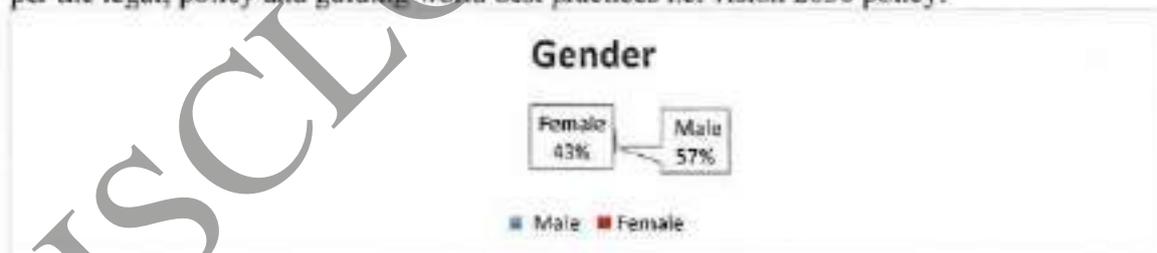


Figure 29: Gender Distribution of Household Heads

### 6.2.5 Educational Level

Majority of the respondents have attained middle level and secondary education. Out of the households surveyed, 35 male members and 38 female members of those households have received secondary level education. However, there are a few illiterate respondents who may require assistance during the implementation of the road project as shown in figure 30 below. The analysis and the findings of the socio-economic survey should inform the involvement of the PAPs in the

project execution/ works i.e. the skilled PAPs can be involved/ prioritised during construction workers' recruitment while unskilled PAPs can also be involved in construction works that conforms with their abilities.

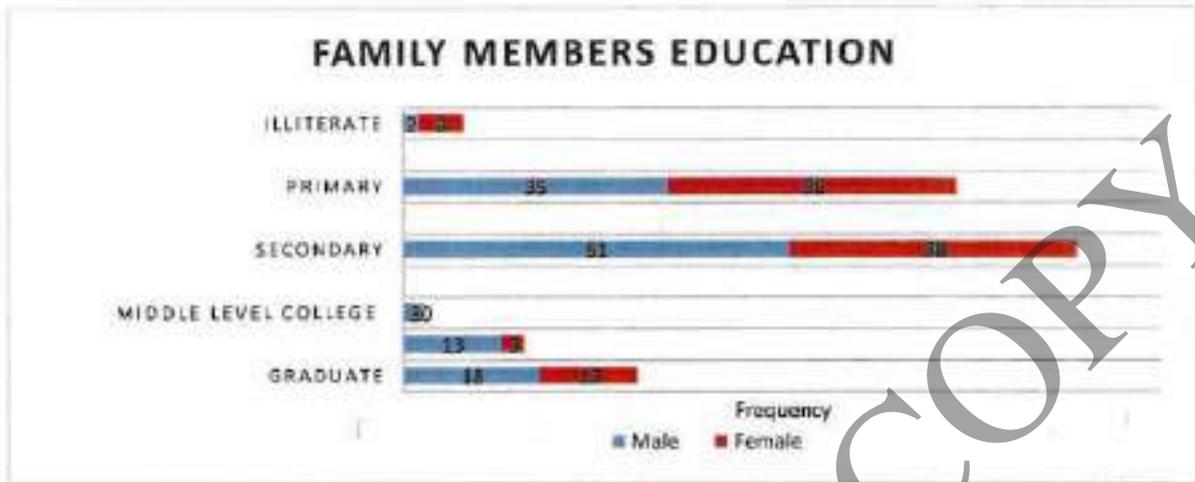


Figure 30: Education Status

### 6.2.6 Occupation/employment status

Majority of the PAPs who were interviewed are self-employed and involved in small trades in the make-shift structures which shall be affected by the proposed various roads within the project. Such families will require assistance to relocate their businesses and an appropriate livelihood restoration program as part of the intervention as shown in figure 31.

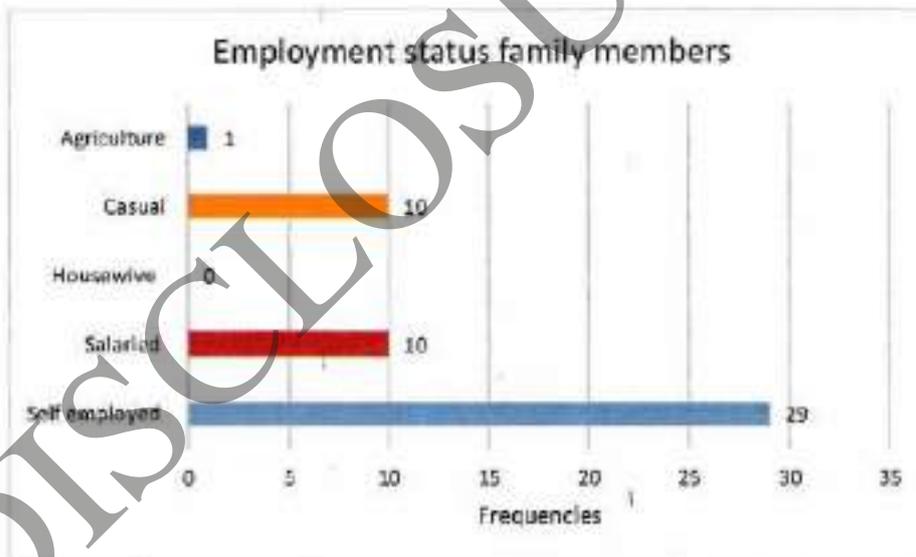


Figure 31: Occupation

### 6.2.7 Household Incomes and Expenditures

Majority (17) of the respondents earn a monthly income of KES. 20,000 from the businesses they operate as shown in figure 11. This shows that income levels of the respondents are low. Much of the income is spent on food and education respectively as shown in figure 32

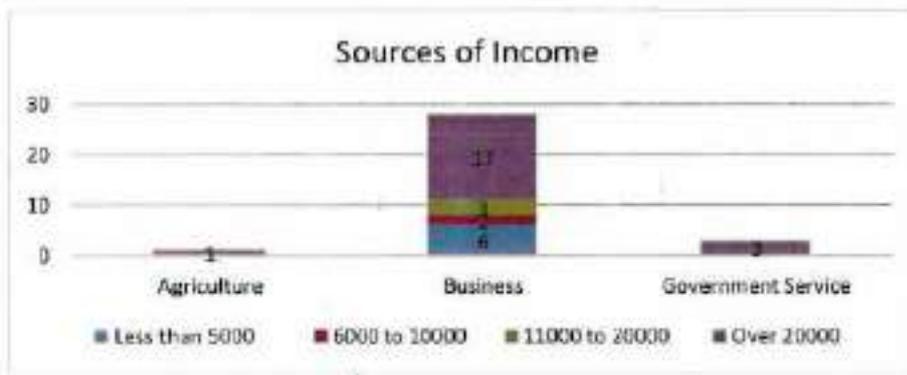


Figure 32: Household Incomes

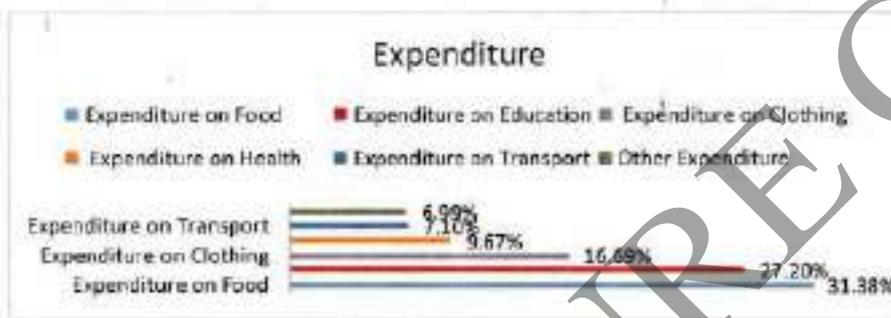


Figure 33: Expenditure

### 6.2.8 Energy

#### Access to Electricity

Majority (28) respondents have access to electric connectivity as shown in figure 34 below.



Figure 34: Access to Electricity and Connectivity

#### Access to Cooking Energy

Majority (52%) of the respondents use gas for cooking in their households. This being an urban setting, using gas is friendly compared to firewood which is in short supply and out of access by many urban households as shown in figure 35 below.

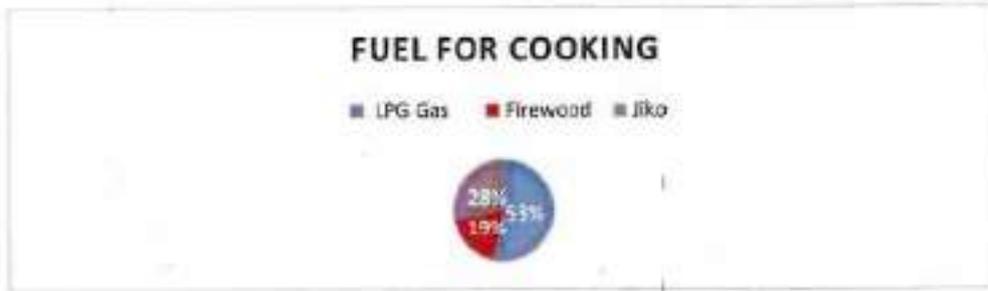


Figure 35: Cooking Energy

### 6.2.9 Sanitation

Almost all (30) of the respondents have access to toilet facilities. This is why most the respondents have prioritized road construction ahead of water supply and construction of sanitary facilities as shown in figure 36.



Figure 36: Toilet Facilities

### 6.2.10 Water

Most of the respondents (88%) have access to tapped water for drinking. The water is either connected to the households by the County water company KIMAWASCO. Those without direct connections to their households buy tapped water from the nearby water kiosks as shown in figure 37.

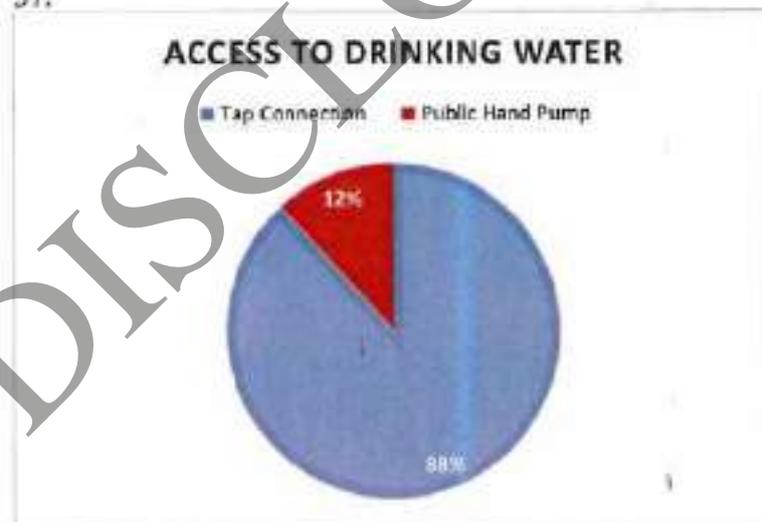


Figure 37: Access to Water

### 6.2.11 Housing Types and Ownership

Housing is one of the basic requirements for growth and development of the economy. Majority (74%) of the respondents own their houses. KISIP-1 facilitated land owners to regularize land tenure systems and many of the respondents have built their own homes within the settlement areas. In Kenya housing is classified in terms of roofing, walling and flooring materials. In the settlements the main materials used for roofing are corrugated iron sheets. Corrugated iron sheet is the leading roofing material as indicated by 25 respondents. The preferred wall type is bricks used by 80% of the respondents as shown in figures 38, 39 and 40 respectively. The Land tenure in the settlement is freehold while the land parcel affected by the project is public land owned by the County government of Kilifi.

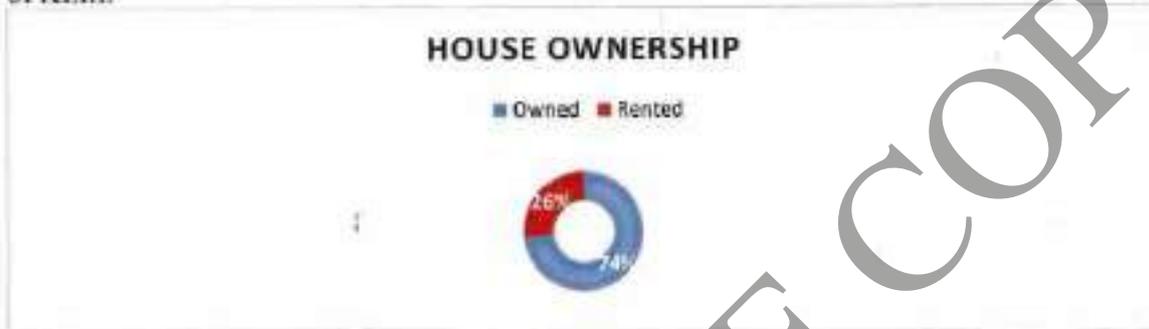


Figure 38; House Ownership

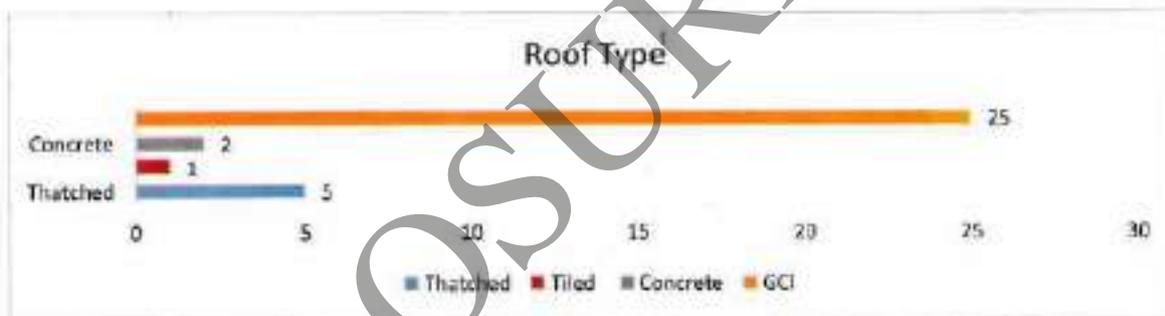


Figure 39; Roof Type

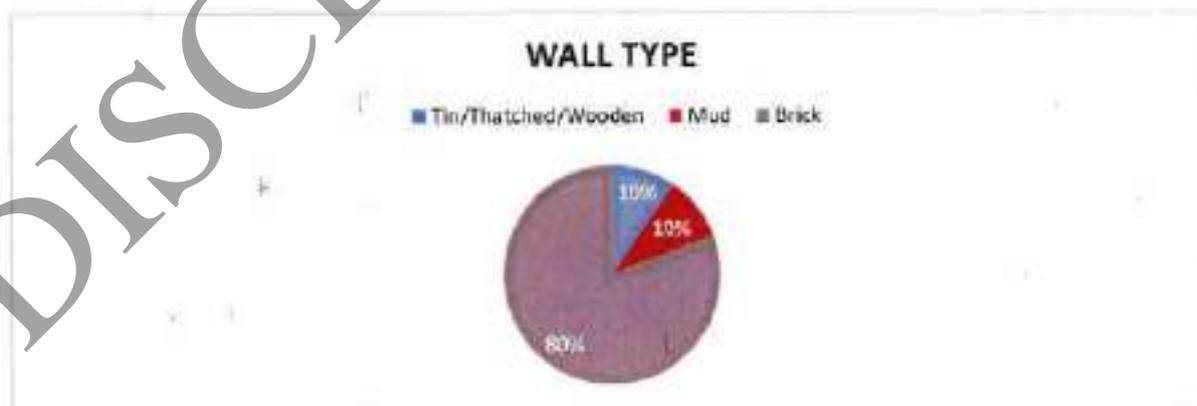


Figure 40; Wall Type

### 6.2.12 Morbidity

Very few respondents reported having suffered serious illness in the last one year and the morbidity is reported as very low as indicated below. Majority (8) out of those who reported disease prevalence indicated that they obtained treatment from the hospital as shown in figure 41 and 42.

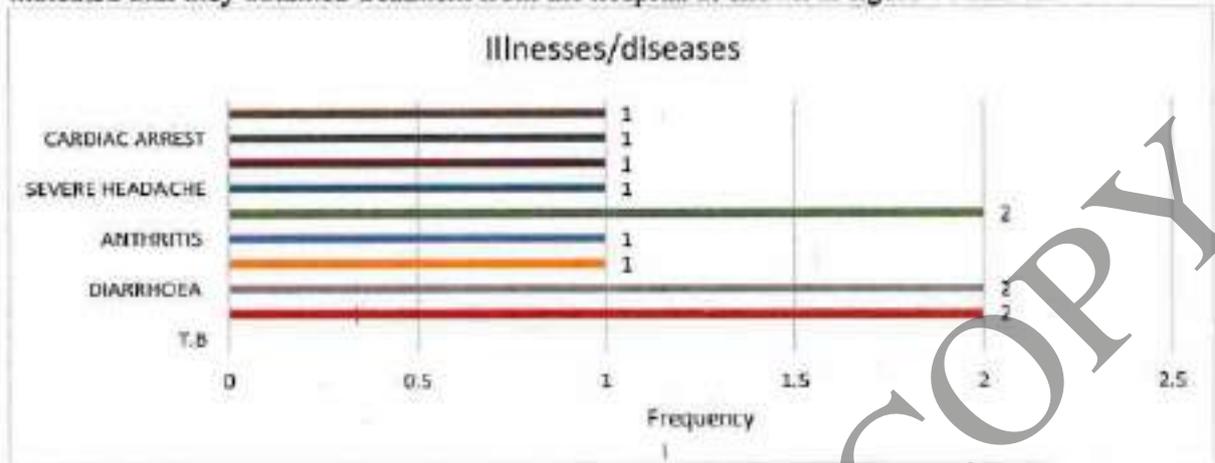


Figure 41; Morbidity

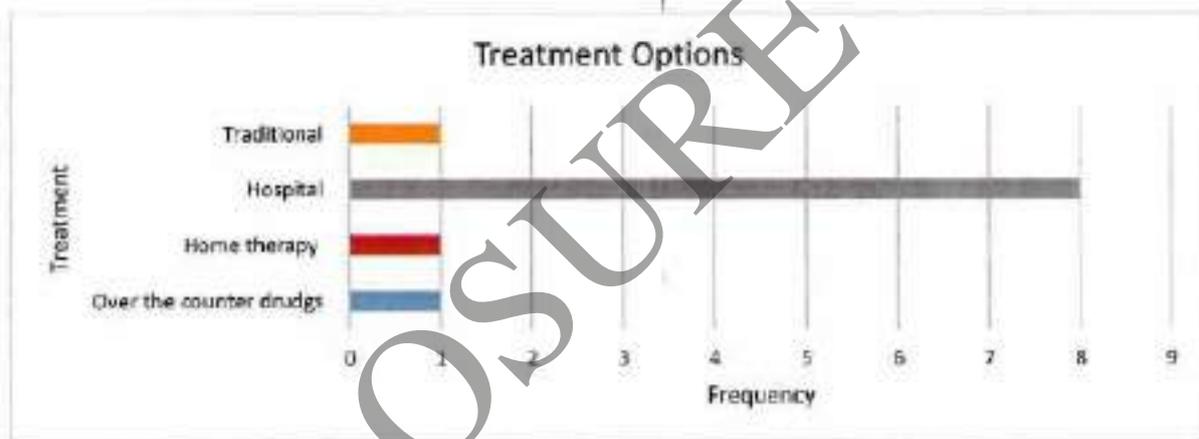


Figure 42; Treatment Options

### 6.2.13 HIV Awareness

Most of the respondents (30) reported that they have knowledge about the spread of HIV, and (94 %) of the respondents also said that they know how it spreads. They also reported a number of prevention strategies with use of condoms ranked highest by 33 respondents. The main source of information about HIV awareness and prevention is Radio as reported by 18 respondents. KISIP-2 will have to continue creating awareness to ensure that more and more settlements residence are made aware as shown in figures 43, 44, 45 and 46 respectively.

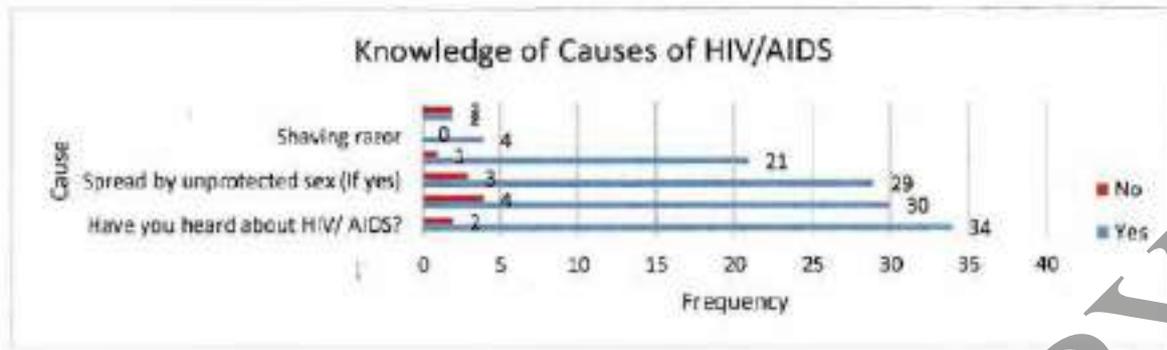


Figure 43: Knowledge of causes of HIV/AIDS

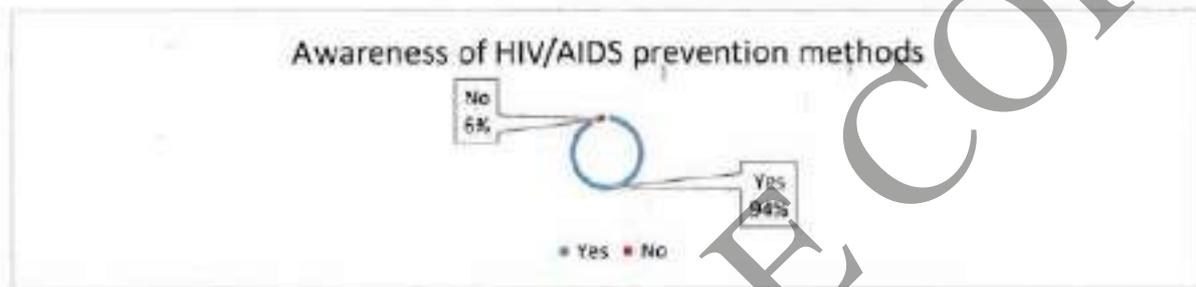


Figure 44: Awareness of HIV/AIDS prevention methods

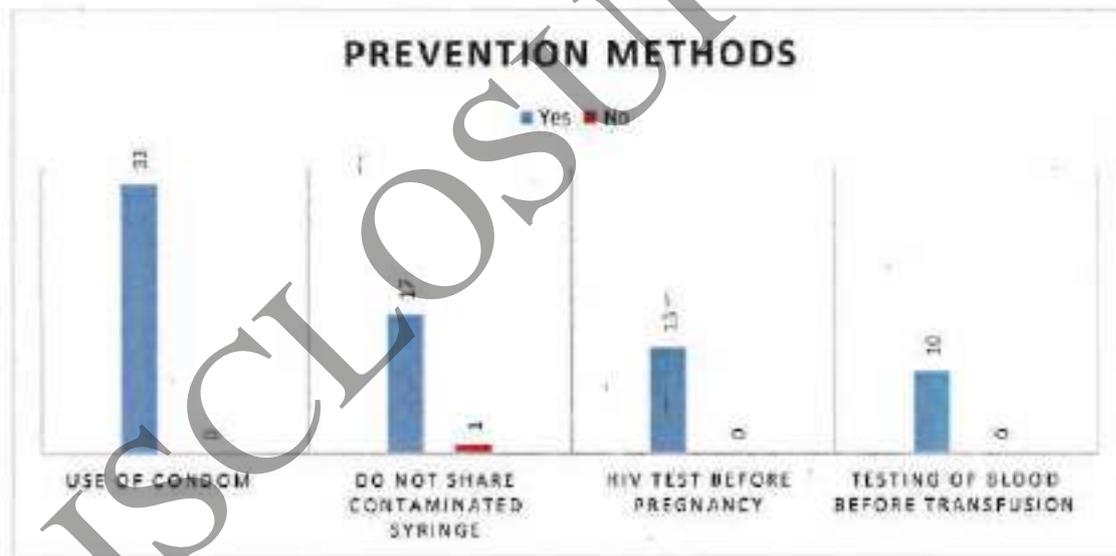


Figure 45: Prevention methods

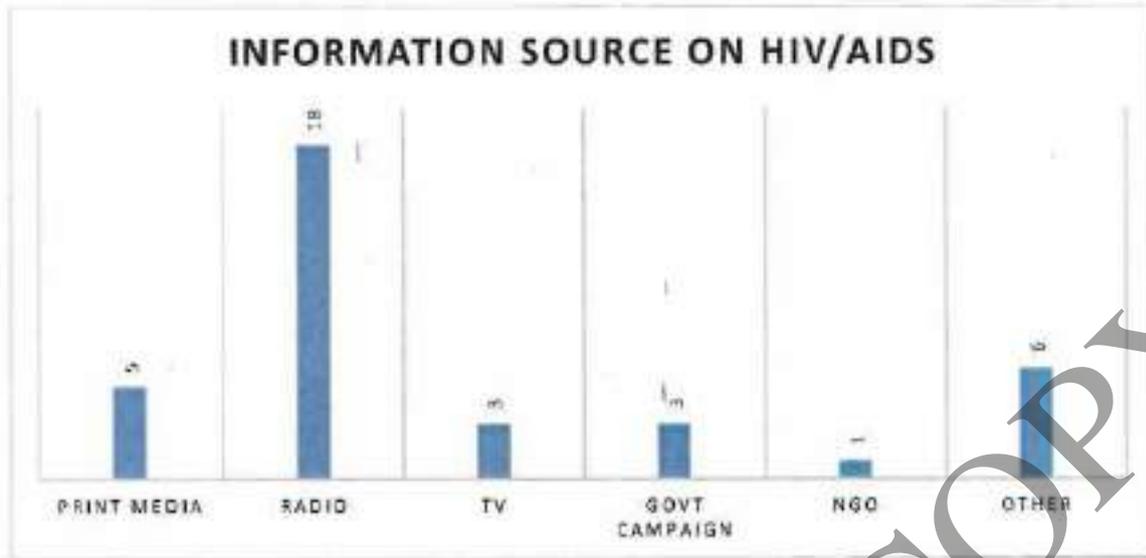


Figure 46; Source of HIV/AIDS Information

#### 6.2.14 Gender Issues

The main gender issues are contained under the customary practices where the male vests ownership and control of productive assets. Women in the settlements are faced with a number of challenges including inadequate access to credit, lack of technical skills, multiplicity of roles for women and inadequate access to education and training. The traditional delineation of labour persists with women assuming the entire responsibility for childcare, provision of food, water and firewood collection and the general maintenance of the homestead among others. Majority (28) respondents said that household chores is predominantly performed by women. An equal number (18) respondents said that women own land and houses within the settlements. The majority of respondents also said that women are involved in decisions concerning household matters but were also quick to point out that final decision is made by men and this was confirmed by 74% of the respondents. KISIP-2 should ensure that women also benefit from the opportunities presented by the projects to be implemented. This will include the recruitment of casual labors and also compensation of lost household assets and livelihood restoration interventions as shown in figures 47,48, 49 and 50.

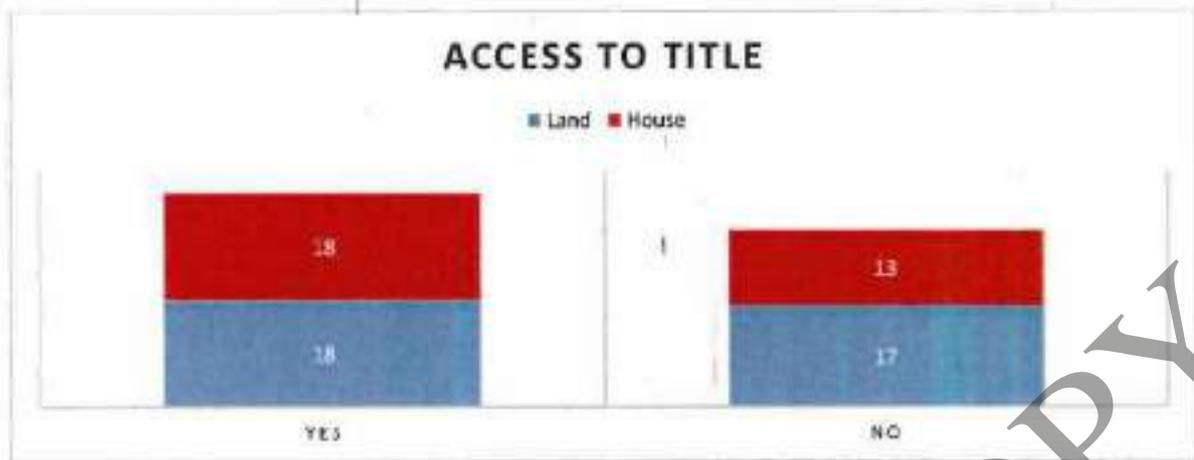


Figure 47; Land and house ownership



Figure 48; Involvement in decision making



Figure 49; Primary tasks

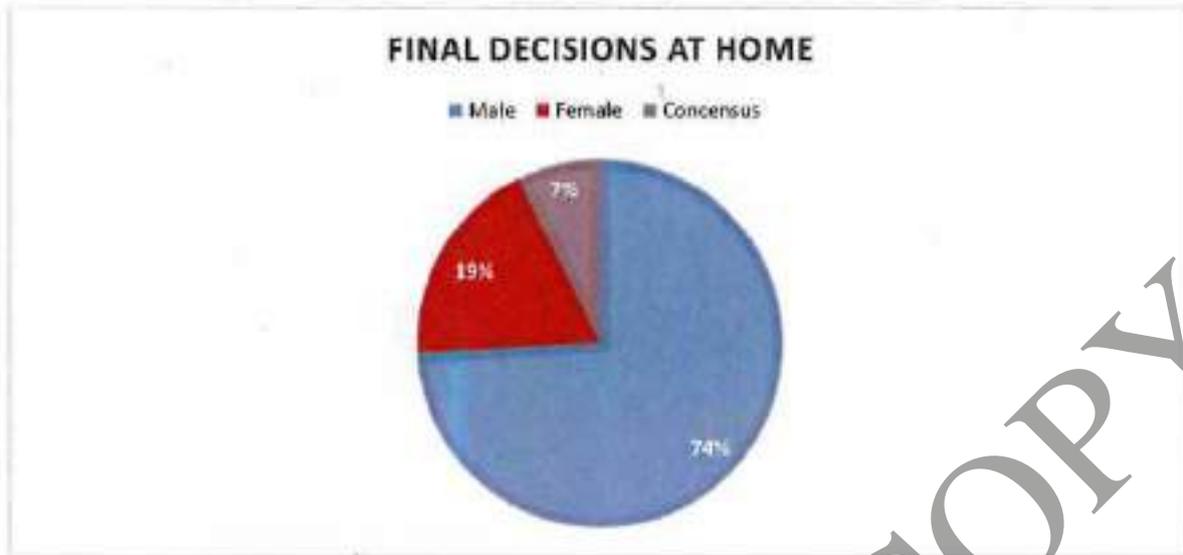


Figure 50; Final Decision

**6.2.15 Vulnerable Groups**

The information from the respondents indicates that the elderly (76%) constitutes majority of the vulnerable group in the project area. Other vulnerable groups include orphans (5%), widows (5%). KISIP-2 will ensure that the vulnerable population are accorded special considerations in all the program work. This will include relocation assistance and livelihood restoration and compensation as shown in figure 51.

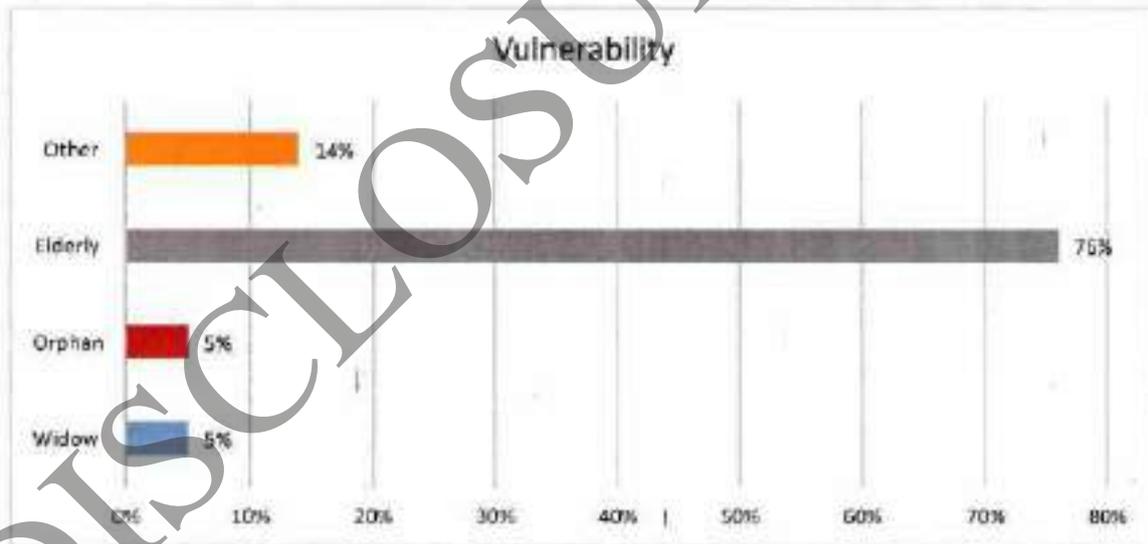


Figure 51; Vulnerability

## 7 STAKEHOLDER ENGAGEMENT

- Re-scoping of project Dissemination information to the public and stakeholders to allow members of the community in the settlements to choose their priority projects according to allocated budgets.
- Awareness creation and recording concerns raised by affected parties.
- Build community consensus.
- Conduct public stakeholder disclosure meetings in the settlement (ALL). etc

### 7.1 Schedule of Stakeholder Consultations and Meeting Points

#### i. Engagement meetings held in 2017

**Table 35: Primary stakeholder engagement meetings**

Date	Settlement	Stakeholder Consulted	Meeting Attendance
10 <sup>th</sup> July 2017	Mtaani Kisumu Ndogo and KKB	Settlement Executive Committee members (SEC) for Mtaani Kisumu Ndogo and KKB, Area chief and members of the community	37
12 <sup>th</sup> July 2017	Muyeye Informal Settlement	Settlement Executive Committee members (SEC) for Muyeye Informal Settlement, Area chief and members of the community	14
11 <sup>th</sup> July 2017	Prison Kiwandani	Settlement Executive Committee members (SEC) for Prison Kiwandani, Area chief and members of the community	23

**Table 36: Secondary stakeholder engagement meetings**

Date	Settlement	Stakeholder Consulted	Meeting Attendance
10 <sup>th</sup> July 2017	Mtaani Kisumu Ndogo and KKB	E.I.A team, Civil engineer, Surveyor, Urban developer, Planner, Sociologist Kilifi County government officer,	37
12 <sup>th</sup> July 2017	Muyeye Informal Settlement	E.I.A team, Civil engineer, Surveyor, Urban developer, Planner, Sociologist Kilifi County government officer,	14

11 <sup>th</sup> July 2017	Prison Kiwandani	E.I.A team, Civil engineer, Surveyor, Urban developer, Planner, Sociologist Kilifi County government officer,	23
-------------------------------	---------------------	---	----

### ii. Engagement meetings held in 2023

**Table 37: Public consultation Barazas in the project area**

Date	Time	Site/Settlement	Type of stakeholders	Male	Female
Wed 18-Jan- 2023	11:00AM to 1:00PM	Baya Magonzi	Settlement residents	23	20
	2:00PM to 4:00PM	Mtaani	Settlement residents	11	24
Thur 19-Jan- 2023	11:00AM to 1:00PM	Kalolo	Settlement residents	21	15
	2:00PM to 4:00PM	Kisumu Ndogo	Settlement residents	22	10
Fri 20-Jan- 2023	11:00AM to 1:00PM	Kibaoni	Settlement residents	23	13
	2:00PM to 3:00PM	Muyeye Phase	Settlement residents	24	17

### iii. Consultation for Muyeye sanitation facilities

A public meeting targeting the community members dwelling in the project area, and committee members were invited by the SOBICON Consultants, MAWASCO staff, and the County Government staff on July 20<sup>th</sup>, 2023, where issues of social and environmental impacts were discussed. The discussion evolved around the project design of the modern toilets and other concerns. The team told the meeting that a plan had been identified and will be prepared for them to take cognizance of any social and environmental management issues

### iv. Stakeholder engagement meeting points

The coordinates for the meeting points during stakeholder consultation meetings is presented in table 38 below.

**Table 38: Meeting Points for stakeholder engagement within the settlement**

Name of Settlement	Venue	Latitude	Longitude
Kibaoni	Near Tsangirani guest house (Meeting site kibaoni Open ground )	3°37'15.86"S	39°51'0.21"E
Kalolo	Survey grounds kalolo	3°37'33.40"S	39°51'14.07"E
Bayamangonzi	Bethany Church	3°37'17.60"S	39°51'23.12"E
Mtaani	Kilifi primary school	3°37'44.71"S	39°51'5.78"E

Kisumu ndogo	Kilifi primary school	3°37'44.71"S	39°51'5.78"E
Muyeye	Sayuni church	3°14'7.46"S	40° 6'48.58"
Muyeye	Under a mango tree (near municipal health center)	3°13'58.38"S	40° 6'55.29"E

The pin locations for the provided coordinates is shown in the figures below.



Figure 52: Locations for stakeholder meetings for Kalolo, Kibaoni and Bayamagonzi settlements



*Figure 53: Location for stakeholder meetings for Mtaani and Kisumu Ndogo settlements*



*Figure 54: Location for stakeholder meetings for Muyeye settlement*

## 7.2 Summary of Concerns raised by PAPs and Stakeholder during the various consultation meetings.

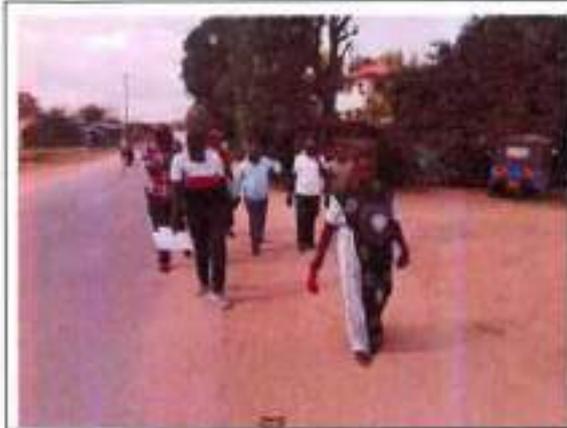
**Table 39: Summary of Concerns raised by PAPs and Stakeholder during the various consultation meetings.**

No.	Questions	Answers
<b>Bayamagonzi</b>		
1	Will there be streetlights on the roads being done as per their proposals during the social economic meeting?	The consultant Geomastro is to submit a report to the national KISIP team which will forward to their consultant so as to know if their option is viable. But the concerns have been noted.
2	Will the other village members participate in the opinion process when works commence?	The village members will be called and informed on the scope of the project according to the designated budget.
3	What is the project time frame?	The project time frame was explained as follows as at January 2023 3months design review 3months tendering Works may begin in August this 2023. They were assured this is a time-based project it will be implemented as planned.
<b>Kalolo</b>		
1	Why is prioritization being done on the proposed infrastructure improvement works?	Prioritization is being done because the available budget cannot cater for all the proposed development works.
	How much has been allocated for Kalolo?	KISIP national team determines the allocation of the budget, budgets will be availed after tendering.
2	Where will the project savings go to?	The Resident Engineer will write to the county about the savings, the county will then notify the community to give proposals on their new desires, if they are feasible the county will then instruct the resident engineer to ensure the new proposals are done. All the money allocated to Kalolo settlement will fully be used to develop the area. It won't be spilled over to a different region.
3	Will the local youth be employed during the project implementation?	The contractor will be unveiled to the people before commencement of works and the youth have been assured of employment especially the unskilled labor. (Employment will depend on the availability of the human resource in the area)
4	Are the local residents allowed to take up positions of sub-contractors	Tender advertisements will be public, in case one meets the qualifications he / she can apply for the contract.
5	When will the construction work commence?	Tentatively August this 2023.
6	Which Road class is being constructed in the area?	The type of the road class depends on the function and the road serves.

7	Urged for total cooperation among the inhabitants	This will be ensured through continuous engagement with the locals
8	If possible KISIP funds should do the major access roads and leave the minor roads within the area for county government.	The priority has been agreed upon
9	Security should be a priority during construction.	Security shall be enhanced
<b>Kibrauni</b>		
1	The roads on the map, that were picked recently by Geomastro are not in the map?	This was a map from the 2018 proposals. The recent selection was done during socio-economic survey with Geomastro. The consultant Geomastro is to submit a report to the national KISIP team which will forward to their consultant so as to know if their option is viable. But the concerns have been noted.
2	What of the street lights and where will the pipe water pass? As a concern because recently a pipe was done in the middle of the road reserve which will mean destruction of waterline during construction	The consultant will involve other county and national government agencies to ensure proper distribution of services and to avoid duplication of works. On issue of water line laid on the road has been noted and further discussions will be held with Kilifi and Malindi Water and Sanitation Companies
3	A survey for water has been done without community participation and thus to be looked into for the said line.	The Consultant will consult Kilifi and Malindi Water and Sanitation Companies
4	What is the timeframe and what happens to the remaining budget allocated?	The project time frame was explained as follows as at January 2023 3months design review 3months tendering Works may begin in August this 23. They were assured this is a time-based project it will be implemented as planned. The remaining budget the community shall be called for a meeting with the consultants and agree on what project to undertake then a letter is done to KISIP for approval of the project.
5	The contractor to prioritize allocation of jobs to the youth in the settlement	Youths will be given priority on the available jobs based on the skills set
<b>Kisumu Ndogo</b>		
1	Will the streetlights be placed on all roads in the settlement or be placed on the proposed roads during KISIP 1?	Infrastructure improvement works depend entirely on the budget allocation. Energy department in the county plus KISIP will harmonize their developments plans in the area to avoid any duplication.
2	Will the Project Affected Persons on road reserves be facilitated?	The County government of Kilifi will provide compensation for PAPs to relocate their structures

3	Upon harmonization of the projects with all entities, will the entity that started a project finish to the end or not?	There is no need to worry all the projects will be done to completion unless the consultants face any disruption from the community.
4	Will the project employ the local youth?	Employment depends on the availability of the human resource. Yes, they will be employed if they are available with the relevant skills and manpower required
5	What are the plans with the savings?	In case of any savings it will be channeled to other development plans in the area.
<b>Mtambani</b>		
1	Who will repair the nonfunctional streetlights in the area?	The County Governor is aware of the issue and has promised to send a team to work on the repairs.
2	Is the bill of quantities ready?	Tender documents to be availed after the design review process has been completed.
3	Will all the proposed developments be done by KISIP?	KISIP will do their part in the infrastructure improvements works within the allocated budget and at least compare their plans with other government bodies in order to avoid duplication.
4	Will the local youth be employed during the project implementation?	The contractor will be availed to the people before commencement of works and the youth have been assured of employment especially the unskilled labor.
5	In case of any savings in the project can it be used to rehabilitate the existing roads even though they were not part of the proposed infrastructure?	The Resident Engineer will write to the county about the savings, the county will then notify the community to give proposals on their new desires, if they are feasible the county will then instruct the resident engineer to ensure the new proposals are done.
5	Will the new roads have signage?	The signage will be implemented.
<b>Muyeye</b>		
1	In case the money gets depleted will some projects be left out?	Yes, the projects will be done according to budget allocated but the county will take over in such cases to ensure completion of projects.
2	Can KISIP aid in acquiring of titles in an existing block titled land?	KISIP deals with public land and not private land thus it cannot.
3	It was reported that most of the beneficiaries have not collected their title deeds.	KISIP county coordinator in liaison with the ward administrator and Assistant Chief will arrange on how to bring the documents closer to the people to collect them instead of heading to the registry in Kilifi
4	Need for Cooperation with the Consultant	The ward administrator urged the residents to cooperate with the consultant so as to ensure smooth running of the project

Below are the images from Consultative meetings and settlement field visit



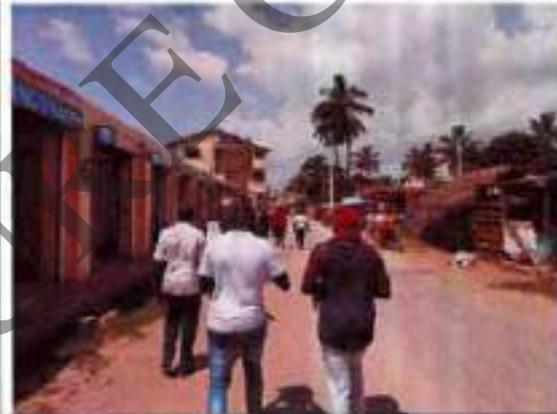
Walkthrough in Bayamagonzi with a section of SEC members led by the chairman, County officials and the consultant team



Reprioritization meeting with Bayamagonzi SEC members, County officials and the consultant team.



Reprioritization meeting with Kalolo SEC members, County officials and the consultant team.



Walkthrough in Kalolo with a section of SEC members led by the chairman, County officials and the consultant team



Walkthrough in Kibaoni with a section of SEC members led by the chairman, County officials and the consultant team



Reprioritization meeting with Kibaoni SEC members, County officials and the consultant team.

	
<p>Walkthrough in Kisumu Ndogo with a section of SEC members led by the chairman, County officials and the consultant team</p>	<p>Reprioritization meeting with Kisumu Ndogo SEC members, County officials and the consultant team.</p>
	
<p>Reprioritization meeting with Muyeye SEC members, County officials and the consultant team.</p>	<p>Walkthrough in Muyeye with a section of SEC members led by the chairman, County officials and the consultant team</p>
	
<p>Walkthrough in Mtsani with a section of SEC members led by the chairman, County officials and the consultant team</p>	<p>Reprioritization meeting with Mtsani SEC members, County officials and the consultant team</p>

**7.3 Grievance redress mechanism**

RPF recommends a four-tier grievance mechanism- at the community, County, national and resolution through courts of law. It is desirable to resolve all the grievances at the community level to the greatest extent possible. To achieve the community or settlement level grievance mechanism

must be credible and generally acceptable. The grievance redress mechanisms will aim to solve disputes at the earliest possible time in the interest of all parties concerned.

Grievance procedures may be invoked at any time, depending on the complaint. No person or community from whom land or other productive assets are to be taken will be required to surrender those assets until any complaints he/she has about the method or value of the assets or proposed measures are satisfactorily resolved.

#### **7.4 Uptake of Sexual Exploitation Abuse and Harassment (SEAH) through GRM**

The project GRM will be made GBV (SEA) -responsive

##### **7.4.1 Grievance tiers**

The project has four grievance tiers as shown below

##### **e. Tier 1: Settlement Grievance Redress Committee (SGRC)**

The first level in addressing grievances will be at the settlement. The settlement will form a Settlement Grievance Redress Committee comprising of two members from SEC, and three other respected community members who are not PAPs. The committee should be elected by the community in a transparent manner and after sensitization by KISIP PCT.

##### **f. Tier 2: County Resettlement Implementation Committee (CRICs)**

The second level of grievance mechanism will involve the County Resettlement Implementation Committee (CRICs). The CRICs will consider grievance reports forwarded to it from the community grievance committee and make a determination. The CRIC will comprise of the County Coordinator, Environment Officer, Social/Community Officer, Component Heads for Infrastructure, and Land tenure, Assistant Deputy County Commissioners, and Ward Administrator.

##### **g. Tier 3: National Resettlement Implementation Committee (NRIC)**

The third level of grievance mechanism will involve the NPCT, (NRIC) which will comprise of the National Project Coordinator, Heads of Components, Environment and Social Safeguard heads, and a designated Grievance Redress Officer who will be the Secretary. It will handle grievances referred to it by the CGRCs and monitor the performance of the whole GRM for the project.

##### **h. Tier 4: Court of Law/ Alternative Dispute Resolution (ADR).**

If complainants are not satisfied by the decisions of the grievance's committees, they can seek redress from a court of law or resort to Alternative Dispute Resolution (ADR).

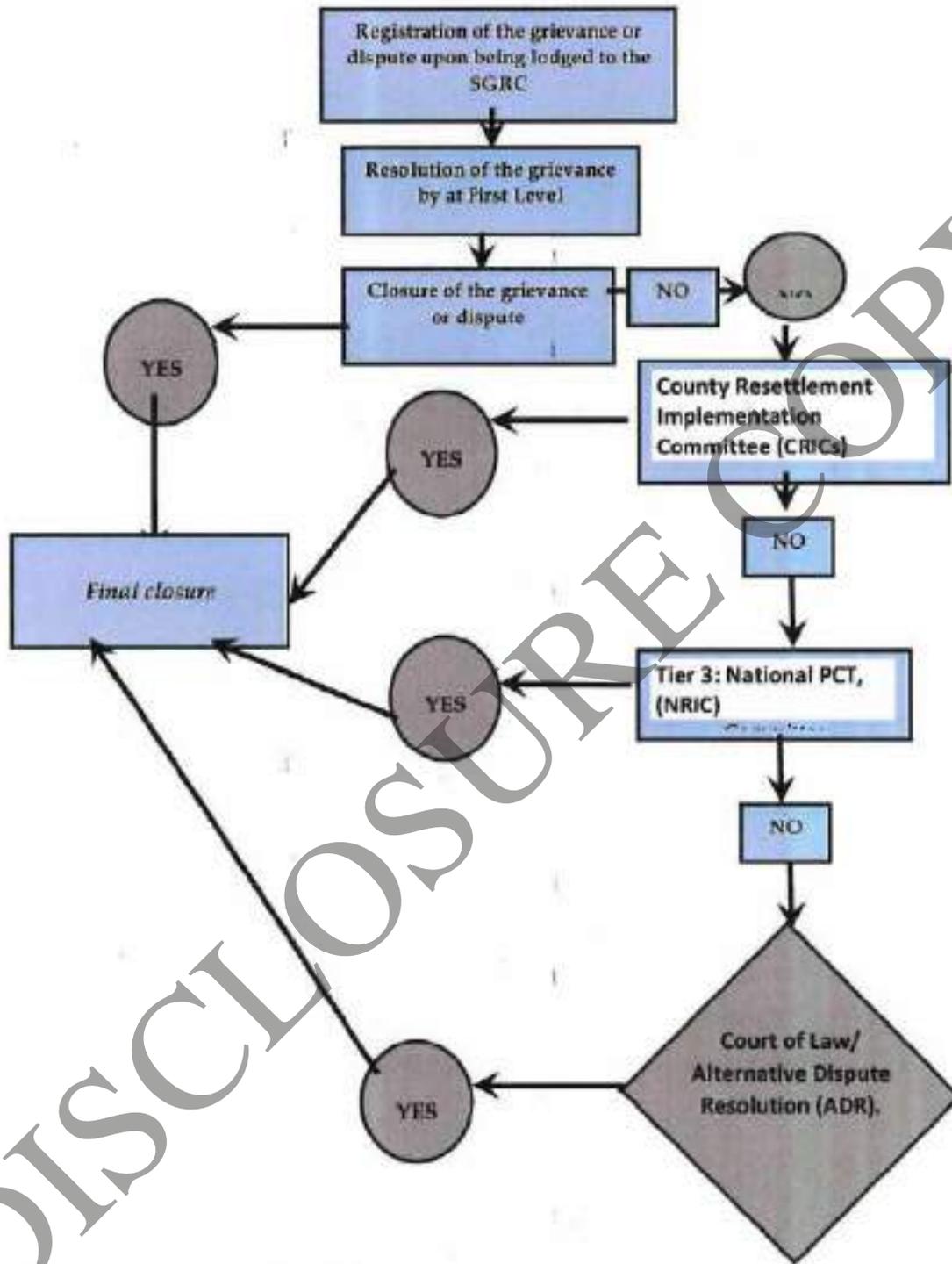


Figure 55: Grievance Redress flow Chart

## 7.5 World Bank GRM

The GRS considers a complaint admissible when:

- i. The complaint relates to a World Bank-supported project that is under preparation, active, or has been closed for less than 15 months
- ii. The complaint is submitted by individuals or communities affected by a World Bank-supported project, or by their authorized representative; and
- iii. The complainant(s) allege that they have been or will be affected by the World Bank-supported project.

Complaints must be in writing and addressed to the GRS. They can be sent by the following methods:

- i. Online, access the online form By email to [grievances@worldbank.org](mailto:grievances@worldbank.org)
- ii. By letter or by hand delivery to the World Bank Headquarters in Washington D.C., United States or any World Bank Country Office – print and use this form (DOCX)

### Information to include in a complaint

Complaints must:

- i. Identify the project subject of the complaint
- ii. Clearly state the project's adverse impact(s)
- iii. Identify the individual(s) submitting the complaint
- iv. Specify if the complaint is submitted by a representative of the person(s) or community affected by the project
- v. If the complaint is submitted by a representative, include the name, signature, contact details, and written proof of authority of the representative.

Supporting evidence is not necessary but may be helpful in reviewing and resolving the complaint. The complaint may also include suggestions on how the individuals believe the complaint could be resolved. All complaints will be treated as confidential. The GRS will not disclose any personal data that may reveal the identity of complainants without their consent

Source: <https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>.

## 8 ASSESSMENT OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

### 8.1 Positive Impacts

#### a. Construction of footpaths, bike paths, roads and vendor platforms

The construction of foot and cycle paths, roads and vending platforms will improve the aesthetics of the project areas. The presence of vending platforms will offer better business operating conditions for the small-scale entrepreneurs. Since the construction of roads will be built to the required standards, incidents of emergency vehicles not being able to access areas of distress will be minimized. Depending on the extent of paving, soil erosion and dust in the areas will be reduced, hence reduction in respiratory diseases that are brought about by dust.

#### b. Reduction in traffic accidents:

Investment in footpaths, bike paths and roads will reduce interaction between human and vehicular traffic and thus minimize incidence of traffic accidents. The same will reduce time wasted on congested informal settlements roads.

#### c. Benefits of provision of street lighting

The main benefit will be lighting of the project areas in the night, thus offering better view of the routes and the surrounding areas to road users. Business persons will also be in a position to operate for long hours into the night while insecurity will be minimized.

#### d. Storm water drainage infrastructure and maintenance equipment:

Storm water drainage systems and maintenance of the same, coupled with improved road system and solid waste management will ensure that storm water is evacuated fast enough and that stagnant water does not collect.

#### e. Water supply and sanitation infrastructure:

Availability of potable water supply implies that there will be less incidents of water borne diseases, thus improved health to the residents. Cleanliness too will be enhanced. The time that is spent fetching water will be greatly minimized and there will now be more time available to engage in more value adding activities.

#### f. Creation of employment and business opportunities for local residents

Construction projects are labour intensive and it is expected that they will be contracted to local groups as happens under the Kazi Kwa Vijana programme in which case local residents who seek employment will have opportunities for gainful engagement. Consultants will also benefit from the short-term opportunities occasioned by the Feasibility Studies; design and supervision work on the sub-projects.

#### g. Availability of solid waste collection and transportation routes

Construction of roads in the proposed settlements will provide easy access to households and therefore accessibility to solid waste collection points and transportation to the nearest transfer station. Effective collection of solid waste provides a conducive living environment for the settlement community and the urban area in general.

#### h. Positive impacts during preconstruction phase

#### *Positive impacts*

Leasing/allocation of land for contract for facilities and workers' camps has provide benefit the owners of the leased land

### *Negative impacts*

Displacement of PAPs: PAPs shall lose structures on the corridor

### *Mitigation measures*

PAPs shall be compensated and A RAP has been prepared

## **8.2 Construction phase potential negative impacts**

### **8.2.1 Soil Erosion**

Soil erosion is a gradual process by which the topsoil is moved or transported by various physical agents particularly wind and water causing its deterioration in the long term. Construction of the road will involve site clearance to pave way for the expansion of the road and although most of the road corridor has been cleared. A few sections of the road that shall experience significant erosion incidences.

### **Mitigation measures**

- i. All earth cuttings need to be at a gentle angle, wherever possible and economic, in order to allow vegetation to grow. Steep side-slopes tend to result in seeds washing away rather than having a chance to become established (see Annex 2 on cut and fill sections)
- ii. Practice sound road engineering by maintaining good drainage and natural water flows. However, the drainage ditches should only be constructed where necessary.
- iii. To minimize potential soil erosion along embankments, back slope, other cleared areas, road verges, etc. immediate landscaping will be required. The contractor should consider planting of appropriate grass such as couch grass.
- iv. Develop an erosion control and revegetation plan to delineate measures to minimize soil loss and reduce sedimentation to protect water quality especially for sections that will interact with water resources.
- v. Areas affected by construction related activities and/or susceptible to erosion must be monitored regularly.
- vi. Design runoff control features especially on the roadside drainages channels to minimize soil erosion.
- vii. Limit cleared areas to project footprint to avoid unnecessary exposure of soil to agents of erosion.
- viii. Line side-drains with concrete or by stone pitching in erosion prone soils to avoid gully formation
- ix. The contractor should adhere to specified cut and fill gradients and planting embankments with shrubs and grass to reduce erosion and take care of stability problems of road embankments. Areas cleared for improving sight distance should be planted with grass to reduce erosion (where possible)
- x. Excavated materials and excess earth should be kept at appropriate sites approved by the Supervising Engineer

### **8.2.2 Air pollution**

Adverse impacts on air quality are anticipated to occur during construction of the road. These will be aggravated by the earthworks and excavation works which will be undertaken. The works may lead to generation of fugitive dust when the soils are exposed to wind erosion. Other sources of air

pollutants are vehicular emissions from construction vehicles and machinery used to undertake various tasks e.g., excavator, roller, paver etc; as well as construction vehicles transporting material. The impacts of vehicular and construction machinery are however anticipated to be cumulative in nature since the road is an existing road. In addition, borrowing activities for gravel, quarrying and batching plant operations may also be contributors to fugitive dust. These are highly localized, and their impacts will be largely influenced by management practices.

#### Mitigation measures

- i. Use dust suppressants as far as possible, especially within the towns.
- ii. All workers should wear dust masks at all times when at the sites of high dust generation
- iii. Warn the neighborhood of possible generation of dust beyond normal levels
- iv. Construction machinery should be well serviced and as far as practically possible low Sulphur diesel should be used
- v. Sensitize workers on air pollution. Maintained all construction machinery serviced in
- vi. accordance with the owner's manual;
- vii. Workers shall be trained on dust minimization techniques;
- viii. Comply with all legal and statutory requirements as contained in EMCA air quality regulations.
- ix. Project-specific design improvements to limit motor vehicle air pollution impacts.
- x. Crusher plants to be installed with dust suppressants.
- xi. As far as feasible considering the hot dry climate, water sprays shall be used on all earthworks areas and transport routes close to towns and settlements.
- xii. To minimize further generation of dust in the already dust environment, vehicles delivering soil materials shall be covered to reduce spills and wind-blown dust;

Any complaints received by the Contractor regarding dust should be recorded and communicated to the Resident Engineer (RE).

#### 8.2.3 Noise and Excessive Vibration

The main source of noise would most likely be from bull dozers, vibrating roller, grader and dumper trucks to be used along the road.

#### Mitigation measures

- i. As far as possible, attempt to minimize noise, especially noise from heavy equipment when construction is on-going through areas with significant populations
- ii. Special care should be taken when construction is taking place near sensitive receptors such as schools and hospitals
- iii. Schools, hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity
- iv. To the extent possible, heavy vehicles should not be used at night across populated areas with residential areas
- v. Construction workers will be required to use PPEs appropriately in noisy work areas
- vi. Equipment should be maintained regularly to reduce noise resulting from friction;
- vii. No unnecessary hooting by project vehicles across the three major settlement areas;

- viii. Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE.
- ix. Ensure that construction equipment is operating optimally and with operational noise mufflers where possible.

#### 8.2.4 Water pollution

The potential sources of pollution will include sediments accruing from soil erosion and possible oil spillages. Another source of water pollution is effluent and grey water from the camp sites. Impacts on water quality could result in sedimentation and siltation of the water sources, and pollution in the event of uncontrolled discharges from the campsite and accidental oil spillages. Nonetheless, impacts on water sources have been rated medium considering the numerous water sources albeit seasonal within the project area that could be impacted and the significant population of the project area.

#### Mitigation measures.

- i. Uncontrolled water discharges from the Camp and other installations should not be channelled directly into water sources
- ii. Camp sites, waste disposal and soil dumping areas should be located at least 100m away from the surface water sources
- iii. Grey water should be channelled to a soak pit to prevent mixing with run off that would eventually find their way to nearby water sources.
- iv. All stockpiles should be covered especially during the rainy season

#### 8.2.5 Waste Management

##### i. Generation of solid waste

During construction there will be solid waste generated. These shall include unusable soil, mainly overburden and topsoil excavated from material sites and road carriageway, wrapping materials discarded by the workers on site, food waste from the kitchens, waste from the workshops and offices including waste papers, toners and cartridges, broken equipment, material containers e.g. the paint containers. These solid wastes will require proper disposal to minimize pollution and abate the visual intrusion caused by improperly disposed waste.

There are also containers used to store chemicals, bitumen and paint. The containers contain chemical residues and may be poisonous to humans and other live forms if used to ferry water for humans and domestic / wild animals. Therefore, disposal of containers of used oil, lubricants, paint and other toxic substances should therefore be carried out with care.

#### Mitigation measures

- i. The contractor shall develop a comprehensive waste management plan to be approved by the Engineer
- ii. Properly labelled and strategically placed waste disposal containers shall be provided at all the places of work
- iii. Construction workers shall be sensitized on the need for proper waste disposal
- iv. No burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted unless approved by the Engineer or by relevant authorities
- v. The contractor shall contract a licensed hazardous materials waste handler and evidence presented to the Engineer
- vi. Where feasible construction materials shall be recycled especially containers and cartons.

- vii. For the spoil generated, disposal shall be done on pre identified sites more than 20 meters from
- viii. watercourses and in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse

#### ii. Liquid waste/ effluent

During the construction phase, various liquid wastes including grey and black water (respectively washing water and sewage), concrete washings, runoff from camp and workshop areas, and various liquid waste streams from washing construction vehicle and equipment washing will be generated. These pose real toxicity and quality threats to the soil and ground water, and the existing water sources within the area.

#### Mitigation Measures

- i. No grey water runoff or uncontrolled discharges from the site/working areas (including wash-down areas) to adjacent watercourses and/or water bodies shall be permitted;
- ii. Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills;
- iii. The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies;
- iv. Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;
- v. Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;
- vi. The Contractor shall notify the RE of any pollution incidents on site.

#### 8.2.6 Community safety and Security

The project roads are existing. As much as practically possible the road alignment endeavors to follow the existing alignment. Excavation works along the road may also considerably affect accessibility into homes, receptor areas e.g. schools, health centres, businesses. Further, movement of haulage trucks and operation of machinery along operational road corridors may lead to increased accidents among local communities and construction workers. Therefore, as much as possible the contractor should endeavor to minimize the impacts on community safety and security especially near schools. Another impact relates to congestion hampering traffic movement within populated sections especially within the settlements may result in vehicular collisions with pedestrians. Safety risks to motorists may also occur at diversions which in most cases are deserted at night, have poor visibility, low level of information and inadequate signage. Poor maintenance of the diversions exacerbates their potential to become accident sites. Therefore, the contractor must implement adequate measures to avert this.

#### Mitigation measures

Develop a traffic management plan to be implemented in consideration of the project related activities. It shall include

- i. Construction traffic driving rules (e.g. speed limits, hours of driving, required breaks, carrying passengers and use of mobile phones/ radios).
- ii. Driver qualifications and driver selection (e.g. defensive driving courses, accident history and practical driving tests, interviews and references).

- iii. Driver education and training on driving rules and requirements, including incident reporting.
- iv. Delivery routes to and from the project /construction camp / quarry and borrow pit sites, considering community safety as well as traffic impacts.
- v. Vehicle safety equipment standards (e.g. seat belts and first aid kits).
- vi. Vehicle inspection and maintenance (in line with manufacture requirements for vehicle roadworthiness and Project standards).
- vii. Emergency preparedness and response procedures.
- viii. Disciplinary procedures.

### 8.2.7 Occupational Safety and Health

During construction occupational accidents may occur. These could be practically in all forms and may include cuts, falls, knocks, electrocution, vehicular accidents and even result in fatality if precautionary measures are not undertaken. Temporary facilities such as quarries, material yards, camps may also present occupational hazards including being hit by flying and split rocks, cuts, falls and accidents through vehicular operations. The Contractor and supervisors will be required to implement all reasonable precautions to protect the health and safety of workers. Preventive and protective measures will be introduced according to the following order of priority:

- i. Elimination where an activity that presents the hazard is completely avoided to eliminate the risk
- ii. Substitution – involves substitution of one hazard with another that creates less risk
- iii. Engineering controls – where an engineering solution is provided to control the hazard. It may involve:
  - a. Isolation or enclosure of the hazard so that no one is exposed to the hazard,
  - b. Separation or segregation so that the hazard is placed in an accessible location
  - c. Partial enclosure
  - d. Safety devices which ensure that the item that presents the hazard is used in the correct way that does not present a safety risk to the worker
- iv. Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- v. Provision of personal protective equipment while training the workers on proper use and maintenance of the PPE provided

#### Mitigation measures

- i. The contractor should comply with all the Occupational Safety and Health regulations outlined in the Occupational Safety and Health Act 2007 (OSHA) and International Labour Organization (ILO) Guidelines on Safety and Public Health in the construction activities
- ii. Provision of appropriate personal protective equipment to all workers in the construction site
- iii. The contractor should ensure there are warning signs on the construction site and on the road to protect from accidents.
- iv. Road construction sections with running machines should be protected from general public to avoid accidents or unnecessary interference with the working procedures

- v. The contractor should provide standard first aid kit at the site.
- vi. A safety officer who has safety training and knowledge of safety procedures should be present on site to ensure that all the workers have guidance on the safety procedures.
- vii. The contractor must have an insurance cover for all workers
- viii. Speed limits appropriate to the vehicles driven should be observed at all times.

### 8.2.8 Construction material sourcing

There are material sites (borrow pits and quarries) that have been identified and proposed, from where construction materials will be sourced. These borrow pits and quarries, if not rehabilitated, form pits and badlands that are visually intrusive and agriculturally unproductive. The pits that are left when filled with pools of water may be hazardous and create potential accidents. They can also form breeding grounds for disease vectors.

#### Mitigation measures

- i. Environmental Impact assessment study shall be carried out by the contractor prior to the extraction of materials from these sites.
- ii. The material sites should be fenced off to minimize incidents of accident occurring for borrow pits and quarries.
- iii. Rehabilitation of the material sites should be done as soon as extraction of materials from the sites is complete.
- iv. Signs that warn about the hazardous nature of these material sites shall be placed in strategic locations in the appropriate local languages to minimize the accidents.
- v. Agreements between land owners and the contractor(s) should be verified by the RE, local administrators etc before signing.
- vi. The contractor should prepare a borrow pit and quarry rehabilitation and management plan to be used during the construction phase of the project.
- vii. The contractor should keep vegetation clearance to a minimum to reduce interference with the scenic appearance of these areas.
- viii. The contractor should ensure that the detours and access roads to the borrow pits and quarries are marked with warning signs.

### 8.2.9 Construction water sources

During construction water may be abstracted from water sources within the project corridor in large volumes to meet the huge construction water demands for large infrastructure projects such as this. This may affect the water availability within the project area. These may become sources of conflicts especially during the dry season for the communities within the project corridor. Therefore, the water sources used during construction may be handed over back to the community and thus must be properly selected to avoid such conflicts.

#### Mitigation measures

- i. The contractor should be encouraged to avoid abstraction from community water sources and provide new sources for exclusive use of the project
- ii. No uncontrolled discharges to water sources shall be permitted to the water sources within the project area
- iii. The contractor to obtain all the requisite permits required for abstraction of water from both surface water and ground water resources from the relevant authorities i.e. NEMA and Water Resources Authority (WRA).

- iv. In case boreholes are to be handed over to the community then only those to avoid conflicts between the communities.

### 8.2.10 Public Health

Potential public health and safety issues will be directly and indirectly associated with the activities of the project. The direct impacts include effects of dust, noise and fumes from machinery and construction traffic, as well as noise and fumes from the expected increase in truck traffic along the road. Construction workers will be most pre-disposed to these direct impacts, during the construction phase.

Influx of people into the project area may also cause an increase in the HIV and AIDS statistics of the project area due to the interactions of project staff and the local community. This impact while it may increase the statistics of the people with HIV and AIDS may not have a significant bearing on the HIV prevalence of the project area as a whole and therefore this impact is considered moderate.

Another impact, though insignificant, is related to the creation of mosquito breeding grounds. Construction activities may create water-holding ditches, and containers left lying around can hold water for days, creating breeding grounds for mosquitoes.

#### Mitigation measures

- i. Road construction workers should be informed about diseases that are prevalent in the project area, and how they can minimize their exposure to, and the transmission of, such diseases
- ii. Conduct a yearly audit of occupational health and safety within all premises of the contractors and at sites of works as required by law
- iii. Construction sites should avoid ponding of water during the rainy season. The ambient high temperature in the area implies rapid proliferation of mosquitoes during the rainy season and ponding can worsen the situation.
- iv. The contractor should establish a clinic within the main camp with a full-time nurse since health facilities in the area are far between. The clinic should be linked to the Ministry of Health in order that the clinic can support the local community who may want medical attention.
- v. Sensitization and awareness campaigns should be the responsibility of the National Aids Control Councils in Kenya together with their county coordinators. Trainings on HIV should also be implemented alongside the awareness and sensitization campaigns
- vi. Prevention measures to include access to free condoms to all workers within the project
- vii. Regular wetting of diversion roads to ensure visibility is maintained and to ensure low dust levels.
- viii. Provision of acceptable sanitation facilities in all work areas
- ix. Establishment of emergency medical action for the workers during the entire construction period
- x. Facilitate flow of runoff to avoid ponding along the road and unnecessary flooding
- xi. Provide wellness centres along the pre-identified locations along the project corridor

### 8.2.11 Disruption of Public Utilities and services

Temporary disruption of public utilities and services may occur due to the relocation of the services along the road corridor during construction. These services include public water sources, water pipelines, power lines, telephone lines and drainage systems. Other disruptions include disruption to accesses to residential areas and commercial centres along the road, disruption and displacement of small-scale informal traders along sections of the corridor through markets and urban centres, temporary and permanent disruption of agricultural land and livestock grazing areas, disruption and inconveniences to transit goods and people occasioned by traffic congestion or use of diversion.

#### Mitigation measures

- i. Enhance facilitated accessibility into premises whenever need arises
- ii. Provide liaison person with landowners on timing and approach directions for effective flow of general traffic at all times
- iii. Make provisions for small-scale traders along the road corridor as part of the long terms physical planning of the area
- iv. Inform residents and circulate announcements on impending disruption to public utilities and services
- v. Relocate public amenities and services in an efficient and timely manner

### 8.2.12 Labour conditions

The project will employ a large number of skilled and unskilled personnel. Impacts may occur from poor health and safety conditions at work which may increase the risk of injuries, child labour, informal employment which may lead to violation of workers' rights, lack of contractor oversight hence physical and mental abuse. Poor labour and working conditions can become potential triggers for social problems such as drug and alcohol abuse and GBV. Large infrastructure projects such as this one, may lead to an influx of workers and job seekers which may negatively affect the social acceptability of the Project as surrounding communities miss out on employment opportunities.

#### Mitigation measures

- i. Develop and implement a Labour Management Plan
- ii. Include minimum criteria for employment to be implemented by the contractor and subcontractors
- iii. Regular monitoring of contractor and subcontractors' staff to ensure compliance to the labour laws
- iv. Document and create awareness of the employment rights of the workers on site
- v. Develop and implement a Grievance Redress Mechanism

### 8.2.13 Resettlement concerns

Further, demolition of structures along the road reserve shall result in displacement of businesses. This may lead to loss of livelihoods as well as employment opportunities and therefore decline in incomes for the displaced. A separate RAP has been prepared to guide the resettlement.

#### Mitigation measures

- i. Resettlement Action Plan (RAP) report should be completed and the provisions therein verified in collaboration with key stakeholders.

- ii. A comprehensive compensation process should be undertaken and compensation issued prior to commencement of the project works
- iii. Where disruptions of livelihoods occur, livelihoods restorations should be done
- iv. Institute legal provisions for acquisition of encroached road reserve.

### 8.3 Operation phase potential adverse impacts

#### 8.3.1 Air pollution

Whereas the ambient air quality levels within the project area are expected to slightly increase, this increase is expected to be very minimal and shall be restricted to the project area. The traffic levels are expected to rise slightly due to expansion of the road as transport within the corridor improves the economic environment of the project area. However, since the road is existing any impacts on air quality are expected to be low and cumulative. It is anticipated that the air pollutants that will be affected shall be NO<sub>x</sub>, CO, SO<sub>x</sub> and PM (2.5,10). Nonetheless, these increments are expected to be quite low. Additionally, the impacts in this section may be slightly elevated due to the dry land vegetation hence minimal carbon sequestration. Overall, it is expected that the impacts on air quality shall be low in the immediate future but medium in the long term.

#### Mitigation measures

Mitigating impacts during the operation phase is challenging. This is because increase in traffic volumes along the project road is inevitable and dependent on extraneous factors such as the overall performance of the economy. This impact is therefore considered permanent within the context of the current fuel sources for the internal combustion engines that are still the dominant types of motor vehicles on Kenyan roads. This situation is likely to persist in the medium term.

#### 8.3.2 Community Safety and Security

Improved road conditions may encourage motorists to drive at significantly higher speeds that can cause accidents. Although traffic signs will be provided along the roads to warn motorists, accident occurrences from collision of motorists and animals cannot be overruled.

#### Mitigation measures

- i. Adequate road signage and, where very necessary, speed bumps or pedestrian bridges should be provided close to school for use by the kids who need to cross the roads
- ii. Sensitize the community on relevant road safety measures by installing road safety messages within the project corridor to warn motorists of the dangers of the road
- iii. Speed calming features should be provided in affected sections to help in slowing down traffic across these sections
- iv. Provide safe and convenient pedestrian paths and crossing points along the road alignment including under and over passes
- v. Ensure installation and maintenance of speed control and traffic control systems at pedestrian crossing areas
- vi. Ensure installation and maintenance of appropriate road signs, signals, markings, and other traffic regulation devices related to pedestrian facilities and to regular local and regional vehicular traffic

### 8.3.3 Soil Erosion

The soil erosion impacts during operation will result from road cut and fill embankments and the drainage outfall discharges on the road. The embankments cause soil erosion due to the steep slopes, the low vegetative cover and presence of loose soils. Additionally, drainage structures that will divert water from the impervious road surface and the embankments through the culverts may also cause soil erosion because of the increased surface run off and increased flow velocities in an area that is already vulnerable to soil erosion concerns. However, since the roads are already in existence, most impacts, which are associated with the road acting as a barrier that concentrates flow, have already been seen and noted. Optimized new drainage structures and improved capacities of the new drainage structures should generally improve on drainage and in combination with specific erosion protection works will reduce soil erosion from that currently experienced. In fact, soil erosion occasioned by surface runoff could impact on the road more than the road would cause soil erosion as has been noted with the current roads.

#### Mitigation measures

This impact has been partially mitigated in the design by providing for erosion protection works. Additionally,

- i. Erosion prone areas should be periodically monitored as part of road maintenance program to assess the impacts and the efficacy of the drainage structures provided for the road.
- ii. Monitoring for any complaints from the public concerning soil erosions and conflicts arising from water channeling and resolving them

### 8.3.4 Waste Management (solid waste)

The project will encourage increased migration of people and business developments to areas adjacent to the road. Increased traffic volume and the elevated economic activities could lead to increased volumes of solid waste generation and corresponding problems of waste management. Roadside litter is bound to increase with rising social and economic activities along the road.

#### Mitigation measures

- i. Liaison the County government on the removal and disposal of the roadside solid wastes to approved dumping areas.

### 8.4 Decommissioning phase

The constructed roads are expected to be in operation for several years and therefore decommissioning is not anticipated to happen in the near future but should this happen all the positive impacts mentioned in this report would be reversed to be negative. Other negative impacts during decommissioning may include:

- i. Waste generation
- ii. Noise pollution
- iii. Dust and exhaust emissions
- iv. Occupational hazards

Positive impacts may be realized during decommissioning phase. They may include:

- i. Rehabilitation of the whole area
- ii. Employment opportunities

#### 8.4.1 Camp Site and Asphalt Plant

The Environmental impact assessment reports that will be produced for the camps, asphalt plants, quarries and all other facilities that falls in the second category of the EMCA regulations are expected to spell out in details the proposed decommissioning plan for each facility. County government of Kilifi is expected to review these ESIA reports to ensure the minimum standards are met.

DISCLOSURE COPY

**Table 40: Summary of Negative Impacts**

Construction phase				
Issue	Potential Impact	Impact Type and Rating	Extent	Duration
Air pollution	Emissions from construction vehicles and equipment.	Direct, Minor	Local	Temporary
Noise pollution	Noise pollution from vehicles and construction equipment may cause nuisances to neighbouring communities.	Direct, Minor	Local	Temporary
Water pollution	Water pollution may result from: i) accidental spillage of fuels, lubricants and other chemicals. ii) siltation of water courses from runoff laden with sediment and dust. iii) high suspended solids from soil eroded from trenches (sediment runoff)	Direct, Minor	Local	Temporary
Soil erosion and contamination	Site clearance of vegetation and excavation works using equipment may induce/accelerate soil erosion and siltation of water courses. Contamination may occur as a result of accidental or structural spillage of fuels, lubricant chemicals, sanitary wastewater, etc., as well as from leakage from inadequately protected solid waste storage facilities and sites. Soil may lose its fertility because of removal of topsoil. However, the project sites are in non-agricultural areas (peri-urban) hence soil erosion and implication on agriculture is minor.	Direct, Minor	Local	Temporary
Solid waste generation	Vegetation and soil from excavation, construction waste material and packaging material may produce moderate quantities of waste.	Direct, Minor	Local	Temporary
Impacts on	Removal of vegetation may lead to potential habitat loss of its associated fauna.	Direct, Minor	Local	Temporary

flora and fauna				
Public health problems	Pools of stagnant water may be a source of water borne diseases especially if the trenches are left open (not back filled) over a long period of time.	Direct, Minor	Local	Temporary
Public Safety	Safety problems at the construction sites may arise from excavations, transportation and movement of equipment. Manually executed works expected to dominate the foundation will take a longer construction time leading to prolonged safety risks such as falling into trenches.	Direct, Minor	Local	Temporary
Visual amenities	Laying of foundations and pipelines may have a negative impact on aesthetics of the surroundings such as the soils from the trenches that will be dumped in the trenches	Direct, Minor	Local	Temporary
Disturbance and interruption of commercial and social activities	Improper laying of pipelines may cause traffic disruptions and congestion, resulting in temporary disturbance and interruption of commercial and social activities. It may also cause damage to infrastructure (roads, utility lines) and disruption of public services.	Direct, Minor	Local	Temporary
Socioeconomic disruption	Trenches for the foundations and pipelines may be dug in front of shops, displacing kiosks along road reserves and other properties which will affect their livelihood and incomes. Furthermore, influx of people in the area may cause alteration of culture and introduce behavioural changes.	Direct, Minor	Local	Temporary
Occupational health and safety	Workers may be exposed to occupational health and safety hazards from project activities such as: accidents in excavations during trenching; working with equipment; working under noisy conditions., working in	Direct, Minor	Local	Temporary



Water pollution	Water pollution may result from spillage of fuel and lubricants during maintenance; waste disposal along damaged lines may also cause pollution.	Direct, Minor	Local	Temporary
Noise pollution	Noise generated from vehicles used during maintenance or from generators in case they are used to pump the water can be a nuisance to sensitive receptors.	Direct, Minor	Local	Temporary
Air pollution	This could be in form of emissions from maintenance vehicles	Direct, Minor	Local	Temporary
Solid waste generation	Solid wastes may be produced by maintenance works,	Direct, Minor	Local	Temporary
Soil erosion and contamination	Inspection and maintenance works for the estate may require clearance of sites of vegetation, as well as the execution of excavation works, possibly using equipment. This may induce or accelerate erosion.	Direct, Minor	Local	Temporary
Impacts on flora and fauna	Inspection and maintenance works may require the removal of the natural vegetation, leading to potential habitat loss of its associated fauna.	Direct, Minor	Local	Temporary
Nuisances and public health risks as a result of operational failures of the water network	Accidental ruptures and structural degradation of pipelines and other utilities that may accrue from ageing and poor maintenance, accompanied by low pressure in the pipes may allow the intrusion of potentially polluted groundwater into the drinking water distribution system. Ruptured pipes may also cause flooding and if the water stagnates, this may pose a risk of water-borne diseases.	Direct, Minor	Local	Long term
Occupational health and safety	Occupational health and safety problems may arise during maintenance of the Settlement. These may include: lifting of heavy and sharp objects and transportation of materials for maintenance, storage as well as handling and use of dangerous substances.	Direct, Minor	Local	Temporary

		Direct, Minor	Wide	Long term
Local incapacity/ Inexperience to manage the facilities	This will lead to poor operation and maintenance as well as deterioration of infrastructure as well as accidents due to lack of enough technical knowledge in safety requirements for equipment/machinery operation. Inadequate monitoring of environmental impacts of project activities.	Direct, Minor	Wide	Long term
Disturbance and interruption of commercial and social activities	Interference with commercial and social activities will be very low.	Direct, Minor	Limited	Temporary
Disturbance and interruption of commercial and social activities	Maintenance activities for utilities network may cause traffic disruptions and congestion, resulting in disturbance and interruption of commercial and social activities. Other infrastructure e.g., roads, sewer lines, drains may also be disrupted.	Direct, Minor	Limited	Temporary

Table 41: Ranking of Impacts

Impact Ranking	Element	Impacts
HIGH	Soil Resources	<ul style="list-style-type: none"> <li>Loss of topsoil hence alterations of soil profile at borrow pits</li> <li>Land clearance leading to exposure to erosion agents</li> </ul>
	Resettlement	<ul style="list-style-type: none"> <li>Family disruptions and relocation of business premises</li> </ul>
MEDIUM	Water resources	<ul style="list-style-type: none"> <li>Increased surface runoff and resulting soil erosion from channeled water</li> <li>Contamination of downstream surface water</li> <li>Water abstraction for construction</li> </ul>
	Air pollution	<ul style="list-style-type: none"> <li>Increased CO2 emission from use of fossil fuel</li> <li>Dust and/or smoke generation during works</li> </ul>
	Social disturbance	<ul style="list-style-type: none"> <li>Impacts on commercial activities at local centres and pedestrian movements</li> <li>Temporary disruptions to accesses and possible traffic congestion within centres</li> </ul>
	Waste management	<ul style="list-style-type: none"> <li>Reduction in aesthetics</li> <li>Potential for contamination</li> </ul>
LOW	Noise and excessive vibration above ambient	<ul style="list-style-type: none"> <li>Use of plant and equipment, construction traffic, blasting at quarries and long term vehicular noise</li> </ul>

## 9 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

### 9.1 Introduction

The ESMP provides guidelines for use in the implementation of the project. It provides the scope and extent of management programs to be implemented in the execution of the project to ensure that adverse impacts of the project to the biophysical and socio – economic environment are avoided where possible and mitigated where avoidance cannot be achieved.

The ESMP provides the scope upon which the contractor shall be expected to prepare a more elaborate construction environmental management plan having known the equipment that shall be used, the materials, the processes, and the technology to be implemented during upgrading of the project.

### 9.2 Scope of the ESMP

This ESMP gives a brief description of the nature of the construction work of the project, the expected impacts to the environment, and gives the suggested means of mitigating the impacts. The status of the project in relation to the relevant legal requirements has also been reviewed. Offsite activities such as dumping of excavated soil from the site, traffic control and borrow pits have been addressed. This ESMP is a dynamic document which can be updated whenever new information is received, or site conditions change.

### 9.3 Objectives of the ESMP

This ESMP aims to provide a framework for environmental management of the site and to ensure that impacts on the environment are minimized, and embrace environmental mainstreaming in the project's design and implementation. The main objective of this ESMP is to ensure environmental impacts are identified, avoided, or mitigated during the planning, design, and construction phases of this project.

The objectives of the ESMP are:

- i. To bring the project into compliance with applicable national environmental and social legal requirements (especially EMCA 1999), social policies and procedures
- ii. To outline the mitigating, monitoring, consultative and institutional measures required to enhance the project
- iii. Ensure that the excavation and construction works are carried out in accordance with appropriate environmental statutory requirements and in an environmentally friendly manner.
- iv. Prescribe procedures that promote minimum potential environmental degradation, especially implementation of best environmental practice
- v. Spell out practices that ensure all personnel engaged in the works comply with the prescriptions of the ESMP
- vi. Ensure that no change is made to the ESMP without the written permission of the Project Manager, or their nominated representative(s)
- vii. Respond to changes in environmental conditions during the proposed works through review and monitoring and control programmes in consultation with the RE or Supervision Environment Representative (SER); and ensure that corrective actions are completed in a timely manner.
- viii. Prescribe preventive measures that the contractor should institutionalize to mitigate any adverse environmental and social impacts
- ix. To ensure environmental mainstreaming during the implementation of the project

- x. To enable for a systematic and proactive approach to addressing environmental and social issues during the project's implementation
- xi. Ensure compliance to, among others: NEMA regulations, Occupational Health and Safety among others.
- xii. Provide guidelines for record keeping on site.

This ESMP framework is to be used by the Contractor to prepare own C-ESMP and the attendant Sub-Plans that are responsive to the environmental and social circumstances prevailing at the time of construction. The ESMP will therefore remain an active document that will be continuously upgraded.

#### 9.4 Responsibilities

To ensure the sound development and effective implementation of the ESMP, it will be necessary to identify and define the responsibilities and authority of the various persons and organizations that will be involved in the project. The following entities will be involved on the implementation of this ESMP:

- County Government of Kilifi
- National Environmental Management Authority
- Resident Engineer
- Environmental officer
- Social Officer and Community Liaison
- Contractor
- Ministry of Transport

##### 1. County Government of Kilifi

The project road is under the jurisdiction of County Government of Kilifi (the project proponent). Therefore, the responsibility for ensuring that mitigation measures specified in this ESMP, and the contract documents are implemented will lie with them.

##### 2. National Environmental Management Authority (NEMA)

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

##### 3. The Resident Engineer

The environmental responsibilities of the Project Manager include:

- i. Ensure all works comply with relevant regulatory and Project requirements
- ii. Ensure the requirements of this C-ESMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements
- iii. Endorse and support the Project environmental policy
- iv. Liaise with the Environmental Supervision Representative and other government authorities as required
- v. Participate and provide guidance in the regular review of this C-ESMP and supporting documentation
- vi. Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation, and maintenance of this C-ESMP
- vii. Ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements

- viii. Ensure that complaints are investigated, and issues raised resolved in accordance with Complaints and Enquiries Procedure
- ix. Stop work immediately where there is an actual or potential risk of harm to the environment.

#### 4. The Contractor

The Contractor will be appointed by the County government of Kilifi and will be required to comply with the requirements of the ESIA/ ESMP and the Standard Specifications for Road Works in Kenya, which include specifications for Environmental Protection and Waste disposal, Borrow Pit and Quarry Acquisition and Exploitation, Landscaping and grassing and so on.

#### 9.5 Environmental & Social Management Plan

- i. The set of instructions provided in this Chapter and summarized in Table 51 constitute the Environmental & Social Management Plan (ESMP).
- ii. The following issues require special attention:
- iii. Material sources, especially the quarry sites and borrow pits
- iv. Designs must take into considerations the soil conditions especially the poorly drained soil areas
- v. Informative signs shall be considered for all social amenities (educational institutions, hospitals, trading centres)
- vi. The Contractor shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on site and are strictly enforced / adhered to
- vii. The Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract.

#### Positive impacts

- i. The construction of foot and cycle paths, roads and vending platforms will improve the aesthetics of the project areas.
- ii. Investment in footpaths, bike paths and roads will reduce interaction between human and vehicular traffic and thus minimize incidence of traffic accidents.
- iii. Lighting of the project areas in the night, thus offering better view of the routes and the surrounding areas to road users.
- iv. Business persons will also be in a position to operate for long hours into the night while insecurity will be minimized.
- v. Storm water drainage systems and maintenance of the same, coupled with improved road system and solid waste management will ensure that storm water is evacuated fast enough and that stagnant water does not collect.
- vi. Availability of potable water supply implies that there will be less incidents of water borne diseases, thus improved health to the residents.
- vii. Cleanliness too will be enhanced.



- viii. The time that is spent fetching water will be greatly minimized and there will now be more time available to engage in more value adding activities.
- ix. Improved roads provides easy access to solid waste collection and transportation hence contributing to clean urban environment.

DISCLOSURE COPY

**Table 42: Environmental and Social Management Plan**

Phase/ Impact Type	Potential Impact	Mitigation Measures	Monitoring Indicator	Responsibility	Monitoring Institution	Budget
<b>Pre-Construction Phase</b>						
Displacement of PAPs	PAPs shall lose structures on the corridor	PAPs shall be paid and A RAP has been prepared	Number of PAPs compensated	County government of Kilifi	County government of Kilifi	7,900,000
Clearance of Corridors	Loss of structures and trees	In line with the provisions of the RPF, prepare and effectively implement a plan for managing the land-related impacts. Facilitate all affected persons and address all grievances prior to commencing works.	<ul style="list-style-type: none"> <li>• Consultation minutes and signed lists of participants.</li> <li>• Type and amount of facilitation/compensation provided to affected persons.</li> <li>• Number of Project Persons affected - facilitated/compensated</li> <li>• Number and type of Grievances reported.</li> <li>• Number of Grievances resolved/not resolved.</li> </ul>	County government of Kilifi	County government of Kilifi	200,000
<b>Construction Phase (works)</b>						
A1. Air pollution	Emissions from vehicles and construction equipment.	A1-1: Maintain vehicle and equipment according to	-Record of repairs	Contractor	NEMA, KISIP and Supervising Engineer	900,000

	manufactures' specifications.	-Fuels and lubricants conforming specifications					
A1-2: Use standard fuel and lubricants.	A1-3: Sprinkle water to work areas to reduce and prevent dust during dry weather periods.	-Record of water sprinkling	Contractor	NEMA, KISIP and Supervising Engineer			
A1-4: Clean access routes in surrounding area on a daily basis to prevent dust.	A1-5: Collect and half sanitary and cleaning wastes in appropriate container.	Record of cleaning	Contractor	NEMA, KISIP and Supervising Engineer			
A1-6: Workers who may unavoidably have to work in dusty workplaces should be provided with nose and ear masks to protect them from excessive dust.	A2-1: Minimize noise from vehicles and	-Designated sanitary containers	Contractor	NEMA, KISIP and Supervising Engineer			
A2. Noise pollution	Intermittent noise from vehicles and	Distribution of list/stores, percentage of workers using nose and ear masks	Contractor	NEMA, KISIP and Supervising Engineer			
	Intermittent noise from vehicles and	-Noise machines/equipment fitted with mufflers	Contractor	NEMA, KISIP and Supervising Engineer			850,000

equipment to sensitive receptors	Kenya standards and World Bank guidelines. A2-2: Control noise and vibration on site. A2-3: Install adequate noise prevention devices, e.g. mufflers on noise generating sources.	-Record of noise measurements	Supervising Engineer
A2-4: Maintain vehicle and equipment according to manufactures' specifications.	-Record of vehicle and equipment maintenance	Contractor	NEMA, KISIP and Supervising Engineer
A2-5: Switch off engines of vehicles and machinery while not in use.	-Equipment log sheets	Contractor	NEMA, KISIP and Supervising Engineer
A2-6: Provide information to the local communities (e.g. through the local system or local radio (FM) stations) with regard to work programme, and strict adherence to such.	-Receipts from radio stations for announcements made	Contractor	NEMA, KISIP and Supervising Engineer
A2-7: Workers who may unavoidably have to	-Store of PPEs including nose and ear masks	Contractor	NEMA, KISIP and

		<p>work with noise generating equipment, e.g. earth-moving equipment should be provided with ear plugs and advised/monitored to put them on.</p>		Supervising Engineer	
<p>A3 Water pollution</p>	<p>Water pollution from dredging activities, accidental spillage of fuel, lubricants, sediment run-off</p>	<p>A3-1: Contain solid wastes so that no solid waste, fuels or oils should be discharged into surface water bodies.</p>	<p>-Monitoring reports on status of waste management</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p> <p>1,550,000</p>
		<p>A3-3: Hold and store sanitary and cleaning wastes in appropriate containers to be disposed of at approved sites.</p>	<p>-Designated sanitary containers</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>
		<p>A3-4: Park vehicles preferably on paved platforms A3-5: Fuel storages should not leak, and should be periodically monitored, and repaired or replaced when necessary.</p>	<p>-Monitoring reports on parking of vehicles and status of fuel storages</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>

<p>A4 Soil erosion and contamination</p>	<p>A3-5: Sites for cleaning, fuelling and maintaining vehicles should be able to prevent leakage (e.g. paved). A3-7: Maintain fuel and clean vehicles and equipment at workshops/sites with adequate leakage prevention (e.g. impermeable surface, scummers and oil separator). A-3-8. Cover backfill material when not used as backfill on same day; stop works when there is extreme rains leading to flooding;</p>	<p>A4-1: Carry out work under mild weather (not strong rains or winds). A4-2: Contaminated soil should be isolated and treated/disposed of in a</p>	<p>-Stockpiles of topsoil -Written down soil protection measures and record of implementation</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>1,350,000</p>
--	---	---	---	-------------------	---	------------------

<p>way that will depend on the contaminant type.</p> <p>A4-3: Remove and store topsoil in separate piles and reinstate after refilling of trenches, to enable natural revegetation. Cover backfill material when not used as backfill on same day; stop works when there is extreme rains leading to flooding;</p> <p>A4-4: Storing all hazardous, sanitary and cleaning wastes in facilities approved by NEMA.</p> <p>A4-5: Installing leak-proof fuel storages on concrete platform with gutters and grease separators, which are monitored periodically and repaired or replaced when required.</p>	<p>-Results of chemical analysis of treated soils</p>	<p>Contractor</p> <p>NEMA, KISIP and Supervising Engineer</p>
--	---	---

	<p>A4-6: Strictly enforce and monitor standard procedures for storing and handling hazardous wastes and raw material (e.g. fuel or chemicals).</p> <p>A4-7: Place strong drums for oil storage on impermeable floors in the stores.</p> <p>A4-8: Provide appropriate hoses for refuelling of pumps and vehicles.</p> <p>A4-9: Parking vehicles on paved platforms whenever possible</p> <p>A4-10: Sites for cleaning, fuelling and maintaining equipment and vehicles should be able to prevent leakage (e.g. paved or with settlers).</p> <p>A4-11: Treat wastewater from maintenance workshops in oil</p>	<p>A4-6: Strictly enforce and monitor standard procedures for storing and handling hazardous wastes and raw material (e.g. fuel or chemicals).</p> <p>A4-7: Place strong drums for oil storage on impermeable floors in the stores.</p> <p>A4-8: Provide appropriate hoses for refuelling of pumps and vehicles.</p> <p>A4-9: Parking vehicles on paved platforms whenever possible</p> <p>A4-10: Sites for cleaning, fuelling and maintaining equipment and vehicles should be able to prevent leakage (e.g. paved or with settlers).</p> <p>A4-11: Treat wastewater from maintenance workshops in oil</p>	<p>-Monitoring reports</p> <p>-Designated sanitary containers</p> <p>-Monitoring reports on parking of vehicles and status of fuel storages</p> <p>-Reports on water quality analyses</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
--	---	---	---	---	---	--

A5: Solid waste generation	Cleared vegetation may compromise aesthetic value of the sites;	separators before discharge to sewers.	Written down Solid Waste Management Plan (SWMP) and Implementation schedule	Contractor	Supervising Engineer	850,000
A5-1: The Contractor should prepare a Solid Waste Management Plan, as described in this report.	A5-2: The contractor should maintain records of types, quantities, origin, (temporary) storage, transport and elimination/reuse of solid waste	A5-3: Any waste including excess soil should be disposed of at gazetted sites.  The solid waste shall not accumulate on site, to cause odour, fly, or rodent problems.	-Records of types of wastes generated, transport and delivery to gazette sites	Contractor	NEMA, KISIP and Supervising Engineer	-
A5-4: Excavated soils should be reused as	-	-	-No visible soil stockpiles -Depressions filled	Contractor	NEMA, KISIP and	-

	<p>much as possible as filling material</p> <p>A5-5: Provisional material storage on site should be designed and undertaken in such a way as to ensure that soils and underground water are not polluted.</p> <p>A5-6: Use licensed recycling companies to externally collect and recycle, recover or dispose off waste</p>	<p>-Sealed storage containers on site</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
<p>A6: Impacts on flora and fauna</p>	<p>Plants and associated fauna may be affected</p>	<p>-Contracts with licensed waste disposal/recycling firms</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>750,000</p>
	<p>A6-1: Zone out working areas to reduce ecological destruction.</p> <p>A6-2: Agree with and compensate owners of fruit and commercial trees</p>	<p>-Zoned out areas</p> <p>-Written agreement with the owners and indication the amount of money to be paid for the compensation of the trees.</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
	<p>A6-3: Restore disturbed natural sites through environmental</p>	<p>-Disturbed sites restored after well completion</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	

<p>A7: Public Safety</p>	<p>Excavations, transportation equipment, workers and debris and movement of heavy equipment may pose a safety risk to the general public</p>	<p>rehabilitation; restoring top soils and (re-)introduce genetic species similar to those destroyed in order to re-establish the natural local ecology.</p>	<p>-Demarcated work sites and signals</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>925,000</p>
	<p>A7-1: Ensure that work sites (especially excavation works), have proper protection with clear marking of safety borders and signals and fence off all dangerous areas</p>			<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
	<p>A7-2: Inform communities about the construction programme in advance</p>		<p>-Written communication to neighbouring communities -Receipts from radio stations for announcement</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
	<p>A7-3: Confine access to restricted work sites (including those with operation of mechanical and electric equipment) to persons with permits.</p>		<p>-Security guards to restrict access</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	
	<p>A7-4: Implement appropriate traffic plans with the help of local</p>		<p>-A Traffic Management Plan</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	

<p>A8: Raw material use</p>	<p>Quantities of construction material will be involved, for example, cement, steel, oil fuel, pipe materials (e.g. PVC, uPVC, concrete and/or steel).</p> <p>Also, large quantities of local materials, e.g. sand, gravel will be involved. If not well stored and utilized, as well as instituting management measures for waste materials, they can contaminate the environment</p>	<p>police when (partial) closure of roads is required</p>	<p>A8-1: Consider environmental performance of suppliers of raw material in the selection process.</p> <p>A8-2: Explore ways of reducing raw material use.</p> <p>A8-3: Special emphasis should be made on raw materials that may be reused and/or recycled/recovered.</p>	<p>-List of suppliers for raw materials</p> <p>-Records of raw materials used</p>	<p>Supervising Engineer</p> <p>NEMA, KISIP and Supervising Engineer</p>	<p>750,000</p>
<p>A9: Public health problems</p>	<p>Pools of stagnant water may form in pits, holes and excavated ditches which can create</p>	<p>A9-1: Fill up all depressions to avoid pools of stagnant water that may form in pits, holes and excavated ditches which can create</p>	<p>-All excavated depressions re-instated, filled and re-vegetated.</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>1,350,000</p>

<p>A10: Spread of communicable diseases and HIV/AIDS infection</p>	<p>Spread of communicable diseases and HIV/AIDS infection</p>	<p>Suitable habitats for insect disease vectors such as mosquitoes. People may fall in ditches and be injured</p> <p>A9-2: Mark all dangerous areas and fence them off. A9-3: Restrict access to work areas by unauthorized persons</p> <ul style="list-style-type: none"> <li>Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training, awareness campaigns, multimedia workshops or during community barazas.</li> <li>Provide information, education and communication</li> </ul>	<p>Suitable habitats for insect disease vectors such as mosquitoes which cause malaria.</p> <p>A9-2: Mark all dangerous areas and fence them off. A9-3: Restrict access to work areas by unauthorized persons</p>	<p>-All dangerous areas fenced off and warning signs -Written communication to Neighbouring communities -Security guards to restrict access</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>
		<ul style="list-style-type: none"> <li>Interview staff and community members</li> <li>Training attendance lists</li> <li>Number of Trainings Held</li> <li>Number of community members and workers in attendance in trainings</li> </ul>	<p>-All dangerous areas fenced off and warning signs -Written communication to Neighbouring communities -Security guards to restrict access</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>1,250,000</p>



	<p>about safe uses of drinking water.</p> <ul style="list-style-type: none"> <li>• Provide an on-site clinic to provide Voluntary Counselling and Testing (VCT) services to construction crew and provision of Anti-Retroviral (ARVs) for vulnerable community members</li> <li>• Integrate monitoring of HIV/AIDS preventive activities as part of the construction supervision. Basic knowledge, attitude and practices are among the parameters to be monitored, particularly on provision of condoms.</li> </ul>		
--	--	--	--

<p>testing and use of ARVs, as well as sexual health and rights</p> <ul style="list-style-type: none"> <li>• Ensure safety of women and girls in provision of VCT services</li> <li>• Provision of condoms, contraceptives and mosquito nets.</li> <li>• Conduction of campaign meetings on transmission of diseases like HIV/AIDS and other STDs.</li> </ul>				<p>-Written down Health and Safety Management Plan (HSMP) including the suggested mitigation measures with a HSMP Committee to oversee its implementation</p>	<p>Contractor</p> <p>NEMA, KISIP and Supervising Engineer</p> <p>1,800,000</p>
<p>Occupational health and safety</p>	<p>Exposure of workers to occupational health and safety hazards from activities such as: excavations; working</p>	<p>All-1: Ensure that work sites (especially excavation works), especially in the night have proper protection with clear marking of safety borders and signals and fence off all dangerous areas</p>			

<p>with heavy equipment; working under noisy conditions, working in confined spaces; lifting of heavy objects; storage, handling and use of hazardous substances and wastes.</p>	<p>A11-2: Inform riparian neighbours about the construction programme in advance.</p> <p>A11-3: Confine access to restricted work sites (including those with operation, mechanical and electric equipment) to persons with permits.</p> <p>A11-4: Train KISIP staff and contractor staff in Environment and Safety.</p> <ul style="list-style-type: none"> <li>• SH Policy</li> <li>• SH provisions in CoC</li> <li>• Discrete SH reporting pathway</li> <li>• The contractor will ensure that clear human resources policy against sexual harassment that is aligned with national law</li> </ul>	<p>Written communication to neighbouring communities</p> <ul style="list-style-type: none"> <li>-Receipts from radio stations for announcement</li> <li>-Presence of security guards</li> </ul>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p> <p>NEMA, KISIP and Supervising Engineer</p> <p>NEMA, KISIP and Supervising Engineer</p>	
--	---	---	---	---	--



<p>A12: Sexual exploitation and abuse by project workers against community members</p>	<p>Sexual exploitation and abuse by project workers against community members</p>	<ul style="list-style-type: none"> <li>• Provide PPE to all workers using chemicals.</li> </ul> <p>Develop and implement an SEA plan with an Accountability and Response Framework as part of the C-ESMP.</p> <p>The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).</p> <p>The SEA action plan will include how the project will ensure necessary steps are in place for:</p> <ul style="list-style-type: none"> <li>• Prevention of SEA; including COCs and ongoing sensitization of staff</li> </ul>	<ul style="list-style-type: none"> <li>• Review monthly minutes from SEA coordination meetings</li> <li>• Interviews with staff and local community</li> <li>• Code of Conduct</li> <li>• Number of staff trainings</li> <li>• SEA FP</li> <li>• Community Liaison Officer trained in PSEA</li> <li>• IEC for materials workers sites and community</li> </ul>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>650,000</p>
--	---	---	--	-------------------	---	----------------



<p>on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;</p> <ul style="list-style-type: none"> <li>• Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;</li> <li>• Engagement with the community;</li> </ul>			<ul style="list-style-type: none"> <li>• Discrete SEA reporting pathway</li> <li>• Relevant policies, investigations and discipline and whistle blower protection e.g.</li> </ul>
--	--	--	---





<p>A13: Gender-based violence at the community level</p>	<p>Gender-based violence at the community level</p>	<p>The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:</p> <ul style="list-style-type: none"> <li>• Effective and on-going community engagement and consultation, particularly with women and girls;</li> <li>• Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes for women, employments schemes for women, etc.;</li> <li>• Specific plan for mitigating these known risks, e.g. sensitization around</li> </ul>	<ul style="list-style-type: none"> <li>• Interview staff and community members</li> <li>• Liaise with other stakeholders</li> <li>• Training attendance lists</li> <li>• Documentation of SEA cases</li> <li>• Consultations with community members, women and girls</li> <li>• GBV Risk Assessment</li> </ul>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>650,000</p>
--	---	--	--	-------------------	---	----------------

	<p>gender-equitable approaches to compensation and employment</p> <p>The contractor will ensure adequate referrals mechanisms are in place if a case of GBV at the community level is reported related to project implementation</p> <ul style="list-style-type: none"> <li>• GBV Action Plan</li> <li>• Mitigation plan for GBV occurring at the community level as a result of project implementation</li> <li>• Discrete GBV reporting pathway</li> <li>• Number of GBV cases at the community level that receive survivor-centered referral and care</li> </ul>		
--	---	--	--

<p>A14: Violation of children rights by contractor and labour force on site</p>	<p>The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project.</p> <p>All staff of the project must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour</p> <p>Children under the age of 18 years should NOT be hired on site as provided by Child Rights Act (Amendment Bill) 2014</p> <ul style="list-style-type: none"> <li>• Ensure each employee signs a code of conduct that covers child protection ensuring no children are employed on site in accordance with national labour laws.</li> </ul>	<ul style="list-style-type: none"> <li>• Review of records</li> <li>• Interviews with staff and local communities</li> <li>• Record of employees including IDs</li> <li>• Number of cases reported involving abuse of children</li> <li>• Records of Child protection cases reported in the project.</li> <li>• Develop a child protection Code of Conduct</li> <li>• Number of Inductions sessions on Child protection Code of Conduct.</li> <li>• Number of refresher awareness training on Child protection Code of Conduct.</li> </ul>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>500,000</p>
---	--	--	-------------------	---	----------------

<p>A15: Labour Influx and Recruitment</p>	<p>Labour Management Local recruitment</p>	<p>Influx Labour</p>	<p>The contractor will prepare the Labour Influx Management Plan as well as the Labour and Recruitment Plan</p>	<p>Contractor</p>	<p>KISIP and Supervising Engineer</p>	<p>416,000</p>
			<ul style="list-style-type: none"> <li>• Ensure that any child sexual offenses among contractors' workers are promptly reported to the police.</li> <li>• Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</li> <li>• Implement and monitor the employment register regularly.</li> <li>• Comply with the national labor laws and labour management practices.</li> </ul> <p>Put visible signage on site "No Jobs for children."</p>	<ul style="list-style-type: none"> <li>• Number of staff who have signed Code of Conduct.</li> </ul>		

A.16: Gender empowerment	Gender empowerment	<p>Institution of a "code of conduct for workers". This code of conduct will be signed and followed by all workers involved in the project.</p> <p>The contractor to prioritize recruitment of local labour. Local labour Recruitment policy and plan will be developed and implemented.</p> <p>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.</p> <p>Ensuring equitable distribution of employment opportunities between men and women</p>	Contractor	KISIP and Supervising Engineer	555,000
--------------------------	--------------------	--	------------	--------------------------------	---------

<p>A17: Increased vehicular traffic</p>	<p>Increase in the likelihood of accidents within and around the vicinity of works area.</p>	<p>A17-1: Inform local communities about the construction programme in advance. A17-2: In case access roads have to be closed, inform local communities and road users in advance.</p>	<p>A17-3: Use reflective signature to direct traffic to designated areas. A17-4: Use flag men to give directions to traffic. A17-5: Install speed reduction humps at crossings of many people, e.g. at a school, market.</p>	<p>Written communication to neighbouring communities -Receipts from radio stations for announcements</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	<p>625,000</p>
			<p>-Traffic Management Plan (TMP) in place -Record of vehicular accidents and incidents</p>	<p>Sensitization reports</p>	<p>Contractor</p>	<p>NEMA, KISIP and Supervising Engineer</p>	

A18: Visual amenities	Construction sites, if not well managed, have impacts on aesthetics of the surroundings with the possibility to affect the neighbouring residents.	A18-1. Do not pile excavated soil to form high stockpiles for long durations. A18-2: Clean up the site upon completion of the works.	Cleared and restored site	Contractor	NEMA, KISIP and Supervising Engineer	395,000
A19: Disturbance and interruption of commercial and social activities	Interference with commercial and social activities	A19-1: Inform local communities about the construction programme in advance. A19-2: In case access roads have to be closed, inform local communities in advance. A19-3: Clean and maintain access roads in the neighbourhood of earth and sand on a daily basis.	-Communication to neighbouring communities - Presence of access roads - Refer also to TMP A11-3 to A11-5 - Record of protection and/or compensation of items of cultural values	Contractor	NEMA, KISIP and Supervising Engineer	350,000



	<p>A19-4: Provide temporary access ways with the approval of local authorities where access roads are closed.</p> <p>A19-5: Carry out work under mild weather (not strong rains or winds).</p> <p>A19-6: Reduce obstruction of access to and use and occupation of roads, footpaths and bridges.</p> <p>A19-7: Protect any items and/or sites of archaeological or cultural value (e.g. private graveyards) discovered during works with the aid of the appropriate authorities.</p>					
<p>A18: Disruption of social order</p>	<p>A18-1: Sensitize all workers to ensure</p>	<p>Record of sensitization sessions</p>	<p>Contractor</p>	<p>NEMA, KISIP and</p>	<p>350,000</p>	

<p>Influx of people in the area may affect the local economy, cause alteration of culture and introduce behavioural changes</p>	<p>awareness of and sensitivity to the local cultures, traditions and lifestyles,                      A18-2: Implement the HIV/AIDS impact mitigation plan that will involve providing a comprehensive range of services.</p>				Supervising Engineer
	<p>A18-3: HIV/AIDS sensitisation, identification of possible HIV/AIDS cases, testing with pre- and post-counselling, the treatment of associated infections, referral of appropriate cases, education to promote better quality of life and promotion of precautions, provision of condoms and the application of HIV occupational exposure policies (this applies to the whole project cycle).</p>	Receipts		Contractor	NEMA, KISIP and Supervising Engineer

<p>Loss of life, injury and damage to private property</p>	<p>Loss of life, injury and damage to private property</p>	<ul style="list-style-type: none"> <li>Record of accidents and damages done</li> </ul>	<ul style="list-style-type: none"> <li>Review of records</li> <li>Interviews with staff and local community.</li> </ul>	<p>NEMA, KISIP and Supervising Engineer</p>
<p>Local Employment</p>	<p>Lack of employment for locals</p>	<ul style="list-style-type: none"> <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> </ul>	<ul style="list-style-type: none"> <li>Fair and transparent local recruitment plan in place.</li> <li>Recruitment processes (job adverts, interviews, selection etc.).</li> <li>Number of locals employed based on gender, vulnerability, ethnic group, clan etc.</li> <li>Type of employment (skilled, semi-skilled and unskilled).</li> <li>Grievances raised, those aggrieved, status of resolution.</li> </ul>	<p>Contractor</p>
		<ul style="list-style-type: none"> <li>Adhere to labour laws, and labour management practices (timely remunerations, equitable compensation for both genders for equal work etc.)</li> </ul>		<p>County Government of Kilif</p>
				<p>100,000</p>

<p>Local Sourcing</p>	<p>Sourcing of materials from non-locals</p>	<p>Create awareness to workers and the community on worker and project grievance redress mechanisms.</p> <ul style="list-style-type: none"> <li>Source materials from local businesses/communities.</li> <li>As applicable, give opportunities to businesses owned or operated by vulnerable individuals.</li> </ul>	<p>Number and types of businesses sourced from.</p> <ul style="list-style-type: none"> <li>Number and types of businesses owned and operated by vulnerable individuals.</li> </ul>	<p>Contractor</p>	<p>County Government of Kilifi</p>	<p>50,000</p>
<p>Inadequate stakeholder Engagement Exclusion of disadvantaged and vulnerable groups</p>	<p>Lack of project information</p>	<ul style="list-style-type: none"> <li>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</li> <li>Introduce measures for affirmative action that would ensure especially persons with disability, the</li> </ul>	<ul style="list-style-type: none"> <li>Number of Vulnerable and disadvantaged groups mapped in each of the settlements.</li> <li>Minutes of all meetings held with disadvantaged groups.</li> </ul>	<p>Contractor</p>	<p>County Government of Kilifi</p>	<p>100,000</p>

<p>Ineffective Grievance Management</p>	<p>Escalation of grievances to conflicts</p>	<p>elderly and women have access to job opportunities.</p> <ul style="list-style-type: none"> <li>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</li> <li>Develop and implementation of a stakeholder engagement plan.</li> </ul> <p>Engage Stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>	<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> </ul>	<ul style="list-style-type: none"> <li>Local Grievances Committee in place, of composition of committee.</li> <li>Number of nature of cases received and logged (updated logs/register).</li> <li>Number and type of pending grievances.</li> </ul>	<p>County Government of Kilifi</p>	<p>50,000</p>
---	--	--	---	---	------------------------------------	---------------



	<ul style="list-style-type: none"> <li>• Implement a workers 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> <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 confidential reporting of particularly sensitive social aspects such as</li> </ul>	<ul style="list-style-type: none"> <li>• Number of GRC meetings conducted and grievances resolved in the GRC meetings.</li> <li>• Number and type of facilitations done for the SEC/GRC to solve community Grievances.</li> <li>• Awareness of community and workers on project and worker GRMs.</li> <li>• Number of grievances resolved in a timely manner.</li> <li>• Number of grievances escalated to national courts and the World Bank Grievances Redress Service and Inspection Panel.</li> </ul>	
--	--	---	--

		GBV, as well as anonymity.					
<b>Operation and Maintenance</b>							
B1: Air pollution	Emissions from generators	B1-1: Same as in construction phase	Logs of maintenance schedules	County Government of Kilifi	NEMA	20,000	
B2: Noise pollution	Intermittent noise from generators	B2-1: Same as in construction phase,	Logs of maintenance schedules	County Government of Kilifi	NEMA	20,000	
B3: Solid waste generation	Little amounts of wastes generated during maintenance	B4-1: Same as in construction phase,	SWMP in place and implemented, neat premises	County Government of Kilifi	NEMA	30,000	
B4: Impacts on flora and fauna	Little or no impact of flora and fauna	B5-1: Same as in construction phase		County Government of Kilifi	NEMA	30,000	
B5: Occupational health and safety	Exposure of workers to occupational health and safety hazards during repair and maintenance  Failure to achieve desired public health associated water supply	B7-1: Same as in construction phase  B7-2: Sensitize local communities about personal hygiene and cleanliness of water sources.	Availability of protective wear, e.g. masks, helmets etc.  Use clean water containers for collecting water and home use	County Government of Kilifi	NEMA	30,000	

<p>Inadequate stakeholder Engagement</p> <p>Exclusion of disadvantaged and vulnerable groups</p>	<p>Lack of inclusion in project information and activities</p>	<ul style="list-style-type: none"> <li>Engage stakeholders and share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Vulnerable and disadvantaged groups mapped in each of the settlements.</li> <li>Minutes of all meetings held with disadvantaged groups.</li> </ul>	<p>County Government of Kilifi</p>	<p>30,000</p>
<p>Ineffective Grievance Management</p>	<p>Failure in addressing grievances</p>	<ul style="list-style-type: none"> <li>Log date, process, resolve and close out all reported grievances are in a timely manner.</li> </ul>	<ul style="list-style-type: none"> <li>Number of nature of cases received and logged (updated GR logs/register).</li> <li>Number and type of pending grievances.</li> <li>Number of GRC meetings conducted and grievances resolved in the GRC meetings.</li> <li>Number and type of facilitations done for the SEC/GRC to solve community Grievances.</li> <li>Number of grievances resolved in a timely manner.</li> </ul>	<p>County Government of Kilifi</p>	<p>20,000</p>



**Decommissioning Phase**

	<p>compensation for both genders for equal work etc.)</p> <ul style="list-style-type: none"> <li>Create awareness to workers and the community on worker and project grievance redress mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>Source materials from local businesses/communities.</li> <li>As applicable, give opportunities to businesses owned or operated by vulnerable individuals.</li> </ul>	<ul style="list-style-type: none"> <li>Number and types of businesses sourced from.</li> <li>Number and types of businesses owned and operated by vulnerable individuals.</li> </ul>	<p>County Government of Kilifi</p>	<p>20,000</p>
<p><b>Local Sourcing</b></p>	<ul style="list-style-type: none"> <li>Local Sourcing</li> </ul>		<p>County Government of Kilifi</p>		
<p><b>Inadequate stakeholder Engagement</b></p>	<ul style="list-style-type: none"> <li>Inadequate stakeholder Engagement</li> </ul>	<ul style="list-style-type: none"> <li>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Vulnerable and disadvantaged groups mapped in each of the settlements.</li> <li>Minutes of all meetings held with</li> </ul>	<p>County Government of Kilifi</p>	<p>20,000</p>
<p><b>Exclusion of disadvantaged and vulnerable groups</b></p>	<ul style="list-style-type: none"> <li>Exclusion of disadvantaged and vulnerable groups</li> </ul>				

**Decommissioning Phase**

- Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.
- Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.
- Develop and implementation of a stakeholder engagement plan.
- Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.

disadvantaged/vulnerable groups.

Decommissioning Phase				20,000	
<p><b>Ineffective Grievance Management</b></p>	<ul style="list-style-type: none"> <li>Ineffective Grievance Management</li> </ul>	<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 workers 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> <li>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</li> </ul>	<ul style="list-style-type: none"> <li>Local Grievances Committee in place, composition of committee.</li> <li>Number of nature of cases received and logged (updated GR logs/register).</li> <li>Number and type of pending grievances.</li> <li>Number of GRC meetings conducted and grievances resolved in the GRC meetings.</li> <li>Number and type of facilitations done for the SEC/GRC to solve community Grievances.</li> <li>Awareness of community and workers on project and worker GRMs.</li> <li>Number of grievances resolved in a timely manner.</li> <li>Number of grievances escalated to national</li> </ul>	<p>County Government of Kilifi</p>	<p>County Government of Kilifi</p>

Decommissioning Phase					
<p><b>Gender-Based Violence</b></p> <p><b>Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)</b></p>	<ul style="list-style-type: none"> <li>• Gender-Based Violence</li> <li>• Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure proportionate representation of disadvantaged persons in the local grievance committee.</li> <li>• Enable the GRM to provide confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</li> <li>• Develop and implement a policy on 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</li> </ul>	<p>courts and the World Bank Grievances Redress Service and Inspection Panel.</p>	<p>County Government of Kilifi</p>	<p>20,000</p>

Decommissioning Phase				
<p><b>Child Exploitation and Abuse</b></p>	<ul style="list-style-type: none"> <li>• <b>Child Exploitation and Abuse</b></li> </ul>	<ul style="list-style-type: none"> <li>• Understand the Code of Conduct.</li> <li>• Put in place measures for monitoring GBV/sexual harassment.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of Continuous training and awareness training done through toolbox talks.</li> <li>• Number of IEC materials done to create awareness.</li> <li>• Number of stakeholder engagements conducted on GBV/SEA/SH.</li> <li>• Establishment of a grievance responsive GRM.</li> <li>• Records of Child protection cases reported in the project.</li> <li>• Develop a child protection Code of Conduct.</li> <li>• Number of Inductions sessions on Child protection Code of Conduct.</li> <li>• Number of refresher awareness training on Child protection Code of Conduct.</li> </ul>	<p>Contractor</p> <p>County Government of Kilifi</p> <p>20,000</p>

**Decommissioning Phase**

		<ul style="list-style-type: none"> <li>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</li> <li>Implement and monitor the employment register regularly.</li> <li>Comply with the national labor laws and labour management practices.</li> <li>Put visible signage on site "No Jobs for children."</li> </ul>	<ul style="list-style-type: none"> <li>Number of staff who have signed Code of Conduct.</li> </ul>		

DISCLOSED COPY

### 9.5.1 Monitoring of ESMP

Environmental and social monitoring is an essential component of the ESMP. It is necessary in order to ascertain whether the mitigation measures are implemented properly and whether the implemented measures are capable of mitigating the adverse impacts as intended.

Environmental and social monitoring is mainly compliance and impact monitoring; this includes compliance with the conditions stipulated in the decision letter from NEMA granting approval for the project, but also compliance with World Bank safeguards policies.

The Environmental and Social Monitoring Plan (ESMMP) provides the general guidance on the monitoring requirements of the ESMP. Monitoring will be implemented during construction and operational phases of the project. Monitoring will focus on the actual implementation of the mitigation measures contained in the ESMP and the status of compliance with the World Bank safeguards policies.

The ESMMP will be conducted to ensure that all parties take the specified action to provide the required mitigation, to assess whether the action has adequately protected human health and the environment, and to determine whether any additional measures may be necessary.

NEMA may, after the environmental audit, require KISIP to carry out specified remedial actions and further audits at such times as the NEMA considers necessary. An environmental audit report shall be prepared after each audit and shall be submitted to the NEMA by KISIP within such time as the NEMA may determine.

#### **Contractors**

The contractors shall be responsible for the actual implementation of the project ensuring its performance meets the required standards and quality of workmanship. The contractors shall be required to prepare and submit Contractor's Environmental and Social Management Plan (C-ESMP) consistent with the project ESMP. In addition, the Contractor shall ensure that employment opportunities are maximized for qualified local residents (both male and female) and those employees receive monetary compensation consistent with the employment laws of Kenya. The contractor monthly reporting requirements shall include an environmental and social safeguards section for verification by the Resident Engineer (RE). The Contractor shall likewise immediately address environmental and social concerns brought to its attention by concerned stakeholders. Corrective measures shall be to the satisfaction of the stakeholders concerned. The contractor shall hire a GBV consultant who will be responsible for handling gender-based violence issues, sexual abuse and exploitation etc.

#### **Contractor's ESMP (C-ESMP)**

The requirement to prepare the C-ESMP is included in the Technical Specifications of the Bidding Documents. Specifications for the C-ESMP and Health and Safety Plan are included in the Bidding Documents. The guidelines and templates for to be used by the contractor while preparing specific sub-plans is provided in annex 2.

## 10 CONCLUSION AND RECOMMENDATION

### 10.1 Conclusion

The findings of the ESIA indicate that the project will have general positive implications on the socio-economic environment. However moderate to low impacts are anticipated on the biophysical environment. The most important socio-economic impacts are increased social and economic gains, employment creation, flood control and improved living environment. Negative impacts include air pollution, Noise and excessive vibrations to the sensitive receptors; social disturbances from temporary disruptions during construction, soil erosion and possible contamination of water resources due to uncontrolled discharges; strain on water supply.

The most important potential social impacts relate to displacement of informal business owners with structures on the road reserve and the attendant compensation issues, temporary disruption of public utilities and services along the road corridor during construction e.g. public water sources, water pipelines, power lines, telephone lines and drainage systems; disruption to accesses to residential areas and commercial; disruption and inconveniences to transit goods and people occasioned by traffic congestion or use of diversions. Others are labour issues; public safety and communicable diseases. All these social impacts can be effectively avoided or mitigated effectively through social tools that have been developed for the project including GRM, SEP and proactive planning including prompt compensation of the PAPs.

Most of the environmental and social management measures proposed are generally straight forward and clearly outlined. Most of the measures relate directly to sound operating practices both during the construction phase and subsequently over the operational life of the road project. The management plans have been developed to guide implementation of sound environmental and social practices to maximize the benefits of the project with minimal or no residual impacts on the project environment. A monitoring plan has also been provided in the ESMP to enable assessment of the project environmental and social performance of the project. Therefore, if the project is implemented with due regard to the proposed mitigation measures it is anticipated that the project will have minimal residual negative impacts on both the socioeconomic and biophysical project environment.

The estimated cost to implement the mitigation measures outlined in the ESMMP is estimate at **KES 17Million**. Cost of resettlement action plan is estimate at **KES 8Million** and the report is provided as a separate in the scope of the consultancy.

### 10.2 Recommendation

The following are the consultant's recommendations

- The contractor to be guided by the ESMP, develop specific ESMPs for each component to be reviewed and approved by the project engineers before implementation.
- Develop a robust labour management plan- with clear code of ethics for employment guided by employment act.
- Develop robust waste management plan- that aligns sustainable waste ACT, 2022 and the county legislation.

- A comprehensive GR procedure to be developed by the contractor for review and approval by Engineer.
- Permits and licenses /approvals be acquired and availed for inspection.
- Before start of project, entry (Kick off) meetings be held in each settlement.
- Contractor to develop a local recruitment plan.
- Contractor to have a local community liaison officer
- Keep GRC and SEC motivated to deliver the mandate- have some allowance (meals during meetings)

DISCLOSURE COPY

## REFERENCES

1. Constitution of Kenya 2010
2. Employment Act 2007
3. Environmental (Impact Assessment and audit) regulations, 2003 [I.n. 101/2003, corr. No. 40/2003, I.n. 133/2007, I.n. 30/2009, I.n. 32/2019.]
4. GoK (2000): National Gender and Development Policy
5. Government of Kenya (2008) Kenya Vision 2030: A Globally Competitive and Prosperous Kenya. National Economic and Social Council (NESC), Nairobi.
6. HIV and AIDs prevention and control act 2006
7. <https://en.climate-data.org/africa/kenya/nairobi-1677/>
8. Integrated National Transport Policy, 2009, Sessional paper 2012
9. Kenya Population and Housing Census report, 2019
10. Legal notice no. 121: Environmental Management and co-ordination (waste management) regulations 2006
11. National Environment Action Plan, 2003 (Revised 2007)
12. National Environment policy 2014
13. Republic of Kenya. Laws of Kenya: Employment Act No. 11 of 2000
14. Republic of Kenya. Laws of Kenya: Traffic act Cap 403
15. Republic of Kenya. Laws of Kenya; Public Roads and Roads of Access Act Cap 399.
16. Republic of Kenya. Physical Planning Act Cap 286
17. Republic of Kenya. The Occupational Health and safety Act 2007
18. Sessional paper No. 1 of 2020 of wildlife policy
19. Sexual offences Act No. 3 of 2006
20. The Occupational Safety and health Act 2007
21. The work Injury Benefit Act,2007
22. Use of Poisonous Substance Act, Cap 247 (Revised 2021)
23. Vulnerability, impacts and adaptation assessment in the East African Region-2017
24. World Bank OP 4.01

## ANNEXES

Annex 1: Applicable Licenses and Permits

Annex 2: Templates and guidelines for Specific social and environmental management plans

Annex 3: Attendance sheet

Annex 4: Chance find procedure

DISCLOSURE COPY

### **Annex 1: Applicable Licenses and Permits**

The table below presents a summary of the applicable licenses and permits required for the project

DISCLOSURE COPY

**Table 43: Applicable Licenses and Permits**

Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
Environmental Social Impact Assessment (ESIA) License	Environmental Management and Coordination Act, EMCA 1999 (Amendment 2015) and Environmental (Impact Assessment and Audit) Regulations, 2003 and NEMA guidelines	The following reports will be submitted to NEMA for licensing: -ESIA Study report for the main road project -ESIA reports and project reports for associated facilities	21 working days after submission for project reports. 45-90 working days after submission for study report. License issued by the NEMA	The Authority may, at any time after it issues a license under these Regulations, on the advice of the Standards Enforcement and Review Committee suspend the ESIA license if there is non-compliance
Air Emissions License	Environmental Management and Coordination (Air Quality) Regulations, 2014 (Revised 2016)	The contractor shall apply for emission license by submitting to the Authority, an application as set out in Form I, of the Ninth Schedule. The application shall be done for every activity that is likely to cause air pollution	Authority shall decide in respect of a license application within 90 days after receipt	A person who commits an offence and is liable on conviction to a fine of Five Hundred Thousand Shillings or imprisonment for a term not exceeding six months.
Noise and/or Vibration permit/license	Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Regulations, 2009	For any activity that will exceed the noise and /or vibration limits stipulated in the Fourth Schedule of these Regulations, the contractor shall ensure that	The Authority shall process the application for a license within two days from the date of receipt of the application.	Any person who commits an offence and is liable, upon conviction, to a fine not exceeding three hundred and fifty thousand shillings or to



Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
Water Abstraction permits and Water Diversion permits	Water Act, 2016	<p>licenses or permits are secured before the undertaking of such activities</p> <p>Obtain a permit for the following activities:-</p> <p>Use of water from a water resource;</p> <p>-Drainage of any swamp or other land</p> <p>-The discharge of a pollutant into any water resource; or</p> <p>-Any purpose, to be carried out in or in relation to a water resource, which is prescribed by rules made under this Act to be a purpose for which a permit is required</p>	<p>A license issued under this Regulation shall be valid for a period not exceeding seven (7) days</p> <p>Water Resource Use permit takes 6 months upon application.</p> <p>-Abstraction of surface water takes 3 months upon application.</p> <p>-Groundwater wells and boreholes take 6 months upon application</p> <p>All the permits are issued by the WRA.</p>	<p>A person who commits an offence under this Act, or under any Regulations or made under this Act, shall, if no other penalty is prescribed in respect of the offence, be liable to a fine not exceeding one million shillings or to imprisonment for a term not exceeding two years, or to both such fine and imprisonment</p>
Effluent Discharge License	Environmental Management and Coordination (Water Quality) Regulations, 2006	<p>Ensure that no activities directly or indirectly cause immediate or subsequent water pollution. Prohibit</p>	<p>Decision of the Authority shall be communicated to the applicant within 30 working days from the date</p>	<p>Any person who contravenes any of these Regulations commits an offence and shall be liable</p>

Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
		any person from allowing any liquid, solid or gaseous substance or deposit to cause pollution to a water resource.	Where the Authority approves an application, it shall issue an effluent discharge license within 21 days. Permit is issued by the NEMA	on conviction to a fine not exceeding five hundred thousand shillings
Waste Licenses	Environmental and Co-ordination (Waste Management), 2006	The contractor shall apply waste management license if project activities are likely to produce solid, industrial, hazardous, biomedical or wastes radioactive that will need to be managed, transported and disposed of in the prescribed manner stated in the regulation	Waste transport license 30-51 working days upon application. Waste disposal license takes 45- 51 working days upon application.	Liable to imprisonment for a term of not less than two years or to a fine of not less than one million shillings, or both.
Blasting, explosive, storage and movement permits for quarries	Explosives Act Cap 115	Authorization from the Kenya Mines and Geology Department to; purchase, or otherwise acquire blasting materials; import or export any blasting materials and explosives; keep, store or be in possession of any	License to store blasting explosives takes 2 months upon application. Permit to use blasting material takes 22 working days to process. Permit to purchase blasting explosives takes 1 working day to process. Permits	Liable to a fine not exceeding three thousand shillings, or, in default of payment, to imprisonment for a term not exceeding one year, and the explosive in respect of which the contravention has taken place shall be forfeited

Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
Business Permit	Business License Act and Regulations, 2002	authorized or unauthorized explosives; sell, deal in or dispose of any explosives; and convey explosives or cause them to be conveyed in Kenya The contractor and all sub-contractors working on the road project are legally required to apply for business permits	issued by the Mines and Geology Department in the Ministry of Mining	Where the business licensing officer imposes a penalty under regulation 14(5), the penalty amount shall be 10,000 Kenyan shillings
Work place registration certificate	The Occupational Safety and Health Act, 2007	Before any person occupies or uses any premises as a workplace, he shall apply for the registration of the premises. Construction areas including the workers camps, quarries fall under the category of workplaces that require registration	The turn-around time lies with the Director's satisfaction that the premises are a suitable workplace to be registered and shall issue a certificate upon filling form set in the fifth schedule and payment of the prescribed fee. Workplace licenses renewed annually	On conviction, liable to a fine not exceeding one hundred thousand shillings or to imprisonment for a term not exceeding three months or to both

Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
Lease/Land documents/Land Agreements	The Lands Act No. 6 of 2012 and Land Registration Act No.2 of 2012	All land parcels under the road construction project outside the road reserve be it under freehold; leasehold; or such forms of partial interest as may be defined under the Act including easements and customary land rights should have evidence of registered land documents	Turn-around time not specified in the Act but requires the developer and the land owners to come to an agreement to lease land, provide land documents and develop land agreement	-
Development Permission	The Physical Planning and Land Use Planning Act No. 13 of 2019	Applies to the development of Construction Camps  Ensure that development permission is secured from the respective local authority for the undertaking of the development activities.	Development permit issued 30 working days upon application. Permit issued by the Director, Physical Planning.	Liable to a fine not exceeding one hundred thousand shillings or to an imprisonment not exceeding five years, or both.
Vehicle Petroleum Permit	The Energy Act, 2019	A person shall not use a vehicle for the purpose of transporting petroleum unless there is in force, in respect of that vehicle, a	30 working days Vehicle Petroleum Permit issued by the Energy Regulatory Commission (ERC)	Liable, on conviction, to a fine not exceeding one million shillings, or to a maximum term of

Permit Required	Regulation Name	Applicability And Scope	Turn-Around Time And Validity	Penalties For Non-Compliance
Driver Certificates	The Energy Act, 2019	valid petroleum permit issued under this Act No person shall drive a vehicle, or engage a driver, for the purpose of transporting petroleum unless such driver is certified for that purpose in accordance with this Act	30 working days after submission of application. License issued by the ERC	imprisonment of one year, or both Liable, on conviction, to a fine not exceeding one million shillings, or to a maximum term of imprisonment of one year, or both

## Annex 2: Templates for sub-plans

### 1. Road Safety Management Plan(RSMP)

The Road Safety management plan shall be developed to ensure safe movement of traffic within the project area. It shall also provide guidance on the safety of pedestrians and motorists throughout the project period.

#### Objectives

The objectives of the RSMP among others include to;

- i. Control and ensure safe movement of traffic
- ii. To provide protection to workers and the general public from traffic hazards that may arise as a result of the construction activity.
- iii. To manage potential adverse impacts on traffic flows to ensure network performance is maintained at an acceptable level.
- iv. To minimize adverse impacts on users of the road reserve and adjacent properties and facilities.

#### Project Activities Resulting in Road Safety Impacts

The works that may result in Road safety issues are works within market centres, relocation of utilities, diversion of traffic, lack of warning signs and speed calming measures

#### Responsibility

The RSMP shall present a management structure with a concise description of the responsible parties while defining their respective roles. It shall also provide linkages with the Police Traffic department, the county government and the Stakeholder Engagement Plan.

#### Performance Criteria

The road safety performance of the project shall be evaluated through the:

- i. Availability of a traffic management plan
- ii. Traffic accidents resulting from the project both directly and indirectly
- iii. The log of all the accidents and incidents occurring on the project corridor
- iv. Record of accidents and incidents along the project road kept on site
- v. Investigation of accidents and determination of route cause analysis of the accidents and incidents on the project road
- vi. Classification of the type of accident i.e. minor, major, fatal

**Table 44: Road Safety Management Plan**

Ref No.	Aspect / Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
1.	Traffic Management Plan	Contractor to compile a standalone Traffic Management Plan for the Construction Phase for the Construction Phase incorporating the requirements given below.	Prior to Construction	to TMP in place	Contractor	TMP in place, approved by Supervisor Consultant and approved by County government of Kilifi
2.	Project Related Activities	<p>A Traffic Management Plan (TMP) will be developed and implemented including consideration of Project related activities, which includes:</p> <ul style="list-style-type: none"> <li>Construction traffic driving rules (e.g. speed limits, hours of driving, required breaks, carrying passengers and use of mobile phones/radios).</li> <li>Driver qualifications and driver selection (e.g. defensive driving courses, accident history and practical driving tests, interviews and references).</li> <li>Driver education and training on driving rules and requirements, including incident reporting.</li> <li>Delivery routes to and from the project /construction camp / quarry and borrow pit sites, considering community safety as well as traffic impacts.</li> <li>Vehicle safety equipment standards (e.g. seat belts and first aid kits).</li> </ul>	Prior to and throughout construction	<p>and Traffic incident log that includes:</p> <ul style="list-style-type: none"> <li>Date/time of incident;</li> <li>Name of persons involved;</li> <li>Nature of the incident; and</li> <li>Lessons learnt/future mitigation.</li> </ul>	Contractor	<p>Log of traffic of incidents kept.</p> <p>Log of grievances related to construction road traffic lodged by community members, and status resolution.</p>

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
3.	<p><b>Driver Competence</b></p>	<p>Vehicle inspection and maintenance (in line with manufacture requirements for vehicle roadworthiness and Project standards).                      Accident/incident reporting and investigation process and requirements (noting County government of Kilkenny's specific requirement in this regard).                      Emergency preparedness and response procedures.                      Disciplinary procedures.</p>	<p>Prior to driver engagement and before throughout construction period.</p>	<p>Applicable grievances lodged by community members logged</p>	<p>Contractor</p>	<p>Driver training records and driver logs in place.                      Number of incident reports related to drivers employed by the Project.</p>

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
4.	Community Safety	<p>Traffic safety requirements with regards to Community health and safety, will include:</p> <p>Regulation of traffic flow and signage, signals to manage the build-up of traffic and mitigate incidents.</p> <p>Setting of speed limits for traffic.</p> <p>Maintenance of construction traffic routes to ensure smooth riding surface (through repair of potholes, grading etc). This to ensure free flow of traffic, comfort of riders and to reduce noise levels associated with an uneven road surface.</p> <p>Careful consideration for the placement of speed humps, especially with regards noise sensitive receptors.</p> <p>Regular wetting of diversion roads to ensure visibility is maintained and to ensure low dust levels.</p> <p>Construction of roadside rest areas at key strategic locations to encourage driver breaks to minimize fatigue.</p> <p>Installation and maintenance of measures to reduce livestock collisions (e.g. use of signs to alert drivers on road segments at key animal and herding crossing points.</p>	<p>Prior to construction</p>	<p>Road signage maintenance records</p> <p>Noise and Air Quality monitoring records.</p> <p>Applicable grievances lodged by community members logged.</p>	<p>and Contractor</p>	<p>Presence of appropriate and sufficient road signage.</p> <p>Quality of diversion routes</p> <p>Identified and signed animal crossing locations.</p> <p>Log of grievances related to construction road traffic lodged by community members, and status of resolution.</p>

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
5.	Permits for Wide Loads	During the construction phase, arrangements and routes for unusual wide loads (if required) will be agreed in advance with the relevant authorities, such as County government of Kilifi, and the appropriate permit will be obtained for the use of public roads.	Prior to construction	Permit log to track and maintain those required	Contractor	Agreements with County government of Kilifi in place for wide load permits, etc. Presence of valid permit.
6.	NMT Safety Awareness	A traffic safety awareness campaign will be carried out prior to construction and during the construction period in communities along the road reserve and in schools. Training will include details on: safe pathways to key areas, crossing points and rules of the road (e.g. stop, look, listen), Incident reporting, Interpretation of signage, Rules regarding driver behavior such as speed requirements and sexual harassment.	Prior to construction	Training log that captures the time, date and purpose of training programmes	Contractor	Records of stakeholder engagement meetings, including registers and photos. Training / awareness materials.
7.	Safety Management of NMT	NMT includes pedestrians and cyclists. Safety Management includes: Installation and maintenance of safe crossing points that have been determined following engagement with communities along the road	Prior to construction	NMT management maintenance records.	Contractor	Number of incidents involving NMT. Number of grievances raised by NMT.

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
9.	<p>Traffic Incident Reporting</p>	<p>reserve and through observing key crossing points / identification of local public services such as trading areas, schools, health facilities etc. Construction and maintenance of pathways dedicated to NMT only. Installation and maintenance of appropriate signage showing hazardous areas, cross points, speed limits etc. Installation of barriers (e.g. fencing or plants, as well as concrete barriers) to deter pedestrian access to the road, except at dedicated crossing points. Installation and maintenance of driver controls such as traffic signals and speed management measures such as speed humps.</p> <p>In the event of an incident caused by the Project in which a community member is harmed, County government of Kilifi or the contractor will assume the responsibility for transporting the injured person to an appropriate health facility capable of dealing with the injuries, and will cover the cost of the person's medical treatment.</p> <p>Drivers are required to report all incidents in accordance with County government of Kilifi incident reporting procedures. Incident reporting and investigation procedures will identify corrective measures to reduce the risk of the accident happening again.</p>	<p>Throughout construction</p>	<p>Traffic incident reporting log</p>	<p>Contractor</p>	<p>Log-of traffic incidents within the project road by both public and project related vehicles.</p>

## 2. Air Quality Management Plan

### Objectives

The overall objective for air quality management during the construction is to preserve air quality levels to the extent that impacts on the closest and/or most affected receptors situated in the vicinity of the proposed project and associated construction infrastructure are minimized. Furthermore, a key objective is to keep local communities and the regulators informed of the activities and to respond quickly and effectively to issues and complaints.

Construction activities are to be conducted in a manner that air quality emissions comply with performance criteria established for air quality both locally and to the international standards. It also important to note that the financier air quality regulation should also be observed.

For operations, air quality management is related to clean up of spills on the road surface, maintenance of vehicle speed, and most significantly, the reduction of congestion.

### Project Activities

With regard to construction, there are potential impacts associated with emissions of dust arising from;

- i. Exposure of soils during site clearance and construction;
- ii. Crushing of aggregate and extraction of borrow material;
- iii. Vehicle movement over unpaved surfaces, including on temporary by-passes;
- iv. Vehicles exhaust emissions;
- v. Exhaust emissions from diesel powered generators used during construction; and
- vi. Transport, handling and stockpiling of friable materials required for construction.

### Responsibility

The Contractor shall prepare an Air Quality Management Plan that details the responsibilities of all parties. It shall also provide linkages with County Government of Kilifi and applicable government agencies e.g NEMA. Linkages with the Stakeholder Management Plan shall also be provided within the Plan

## Performance Criteria

The primary performance criteria associated with air quality management for the proposed Project include:

- i. No. of complaints or grievances on excessive noise and vibration
- ii. Turnaround time for resolving of the grievances
- iii. Air quality baseline measurements
- iv. Bi-annual air quality monitoring measurements records
- v. Dust suppression mechanisms

DISCLOSURE COPY

**Table 45: Air quality Management Plan**

Ref No.	Aspect Activity	Management Measure	Timing	Monitoring measures	Responsibility	Performance indicator
<b>Construction Dust Management</b>						
1.	Grievances	<p>The Project will utilize the Grievance Mechanism in place (Start of (included as part of the Stakeholder Engagement Plan), in the construction event of any dust complaints being received.</p> <p>All potentially impacted receptors will be informed of the nature of works to be carried out, as per the Induction/Information Session to be undertaken just prior to Construction. The Grievance Mechanism will be communicated again at this forum</p> <p>The Project will make efforts to prevent grievances by monitoring conditions and surroundings and taking action to prevent dust emissions off the project site.</p>	Start of construction	<p>Regular review of grievance redress reporting desk</p> <p>Regular posting of expected project activities</p> <p>Number of grievances</p>	Supervision Consultant and Contractor	<p>Supervision Consultant records grievance mechanism</p> <p>Engagement records and grievance mechanism</p>
2.	Vehicles Management	<p>Impacts associated with construction road traffic during the construction phase will be mitigated by applying dust suppression on unpaved road, to prevent or minimize dust emission from construction vehicles.</p> <p>Speed limits will be reasonably set (&lt;60 km/h) on unpaved roads throughout construction to minimise dust generation.</p>	Throughout construction	<p>Regular application of dust suppression measures along the road</p> <p>Erection of traffic warning signs along the road</p>	Contractor	<p>Visual observations and dust complaints</p> <p>PM10 and PM2.5</p>

Ref No.	Aspect Activity	Management Measure	Timing	Monitoring measures	Responsibility	Performance indicator
		Work vehicles will be kept sufficiently clean to avoid tracking dirt around and off the site.	Throughout construction		Contractor	monitoring data
		Work vehicles transporting friable materials will be kept adequately covered to prevent materials being spread around and off the site.	Throughout construction		Contractor	
3.	Site Clearing and Earthworks	Where practical and feasible, surface binding agents will be used on exposed open earthworks (e.g. laydown yards).  The smallest possible area for cleared ground for work will be exposed, and where practically feasible, surface binding agents will be used on exposed open earthworks. Where the use of surface binding agents is not possible, the use of localized dampening and activity-specific dampening will be used to reduce localized emissions of dust.	Throughout construction	Watering before any earth clearance	Contractor	Visual observations and dust complaints
		The approach to site layout, site clearance, and topsoil management will be in accordance with the mitigation management measures	Throughout construction		Contractor	Visual observations and dust complaints
4.	Stockpiles	Stockpile will be managed in a way that will help in reducing dust emissions	Throughout construction	Provision of stockpiling area within the design.	Contractor	Method Statement defining site layout and clearance  Documented evidence of topsoil recovery and stockpiled.

Ref No.	Aspect Activity	Management Measure	Timing	Monitoring measures/Responsibility	Performance Indicator
	Prevention of reducing impacts of air activities of pollutants	<p>Site layout will be planned so that machinery and dust causing activities are located away from receptors, as far as is possible.</p> <p>Solid screens or barriers will be erected around dusty activities of the site boundary during excavation works.</p> <p>Regular dust suppression will be conducted at sensitive receptors using water trucks to prevent dust formation.</p> <p>Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process, in which case it will be ensured that appropriate additional control measures are in place.</p> <p>Bulk cement and other fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.</p> <p>The contractor(s) will ensure that all on-road vehicles comply with the applicable emissions standards.</p> <p>The manufacturer-recommended engine maintenance programs will be implemented by the fleet owners / operators.</p>	Throughout construction	Site layout, Records of various actions	Contractor Records of the various actions

### 3. Noise Management Plan

#### Objectives

The primary objective for noise and vibration management during construction is to minimize the impact on the closest and/or most affected noise sensitive receptor situated in the vicinity of the proposed project and associated construction infrastructure are minimized. Furthermore, a key objective is to keep local communities and regulators informed of activities and to respond quickly and effectively to the issues and grievances.

The emphasis of noise and vibration management is to minimize the impact and to demonstrate that the impact has been reduced to a level that is low as reasonably practicable.

#### Project activities resulting in Noise and Vibration impacts

During the construction most of noise and vibration emission sources will be influenced;

- i. Construction noise from construction camps and associated plants
- ii. Construction noise from active work sites along the proposed road
- iii. Noise and vibration from blasting required for quarrying and road construction earthworks
- iv. Noise and vibration from piling and use of vibrator compactor

#### Responsibility

The works contractor under the supervision of the supervision consultant shall assume responsibility for ensuring the noise and vibration management system is applied during construction activities.

#### Performance Criteria

- i. No. of complaints or grievances on excessive noise and vibration
- ii. Turnaround time for resolving of the grievances
- iii. Noise and vibrations baseline measurements
- iv. Annual noise and excessive vibration monitoring measurements records
- v. Kenyan noise standards for construction

**Table 46: Noise Management Plan**

Ref/Aspect Activity No.	Management Measure	Timing	Monitoring measure/Responsibility	Performance Indicator
<b>Noise Management</b>				
1.	Grievance from the locals about noise. Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE.	Throughout construction	Installation of noise and vibration monitors next to sensitive receptors	Supervision of Contractor and compliance with legislative requirements
2.	Setback Distances Special care should be taken when construction is taking place near sensitive receptors such as schools and hospitals Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE. To the extent possible, heavy vehicles should not be used at night across populated areas with residential areas	Throughout construction	Respective residents of those areas should be consulted before any establishment.	Establish quarry/borrow pit at least 2 km from residential receptors
3.	Transport Routes No unnecessary hooting by project vehicles across the three major settlement areas	Throughout construction	Installation of no hooting signs next to sensitive receptors	Transport routes that as far as possible should avoid residential areas.

Ref/Aspect No.	Management Measure	Timing	Monitoring measure	Responsibility	Performance Indicator
5.	Noise from equipment	Ensure that construction equipment is operating optimally and with operational noise mufflers and silencers as recommended by the manufacturer	Equipment should be maintained regularly to reduce noise resulting from friction Where practicable, noisy equipment will be sited as far away as possible from receptors. Where practicable, noisy equipment will be orientated to face away from the receptors at which moderate or major noise impacts are predicted. Alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric-controlled	Regular monitoring of noise and vibration produced. Records of equipment service	Permits visible smoke in place.

Ref/Aspect No.	Management Measure	Timing	Monitoring measure/Responsibility/Performance Indicator
	<p>units, will be used, where practicable.</p> <p>Where practicable, stationary equipment will be located in an acoustically treated enclosure.</p> <p>Throttle settings will be reduced and equipment and plant turned off, when not being used.</p> <p>Equipment will be regularly inspected and maintained to ensure it is in good working order. The condition of mufflers will also be checked. Equipment will not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified.</p> <p>Compressors, generators and pumps fitted with properly lined and sealed acoustic covers or enclosures, which will be kept enclosed whenever the machines are in use, will be used and all</p>		

Ref Aspect No.	Management Measure	Limiting	Monitoring measure	Responsibility	Performance Indicator
	<p>auxiliary plant (e.g., generators, compressors) will be positioned so as to cause minimum noise disturbance.</p> <p>For machines with fitted enclosures, doors and door seals will be checked to ensure they are in good working order; also that the doors close properly against the seals.</p> <p>Machines in intermittent use will be shut down in the intervening periods between work.</p>				
6	<p>Material handling and other activities</p> <p>Onsite chutes and bins will be lined with damping material.</p> <p>Excavated material will be stored between the construction site and the sensitive receptors to form a natural noise barrier (with cover to avoid dust erosion).</p> <p>Drop height of materials will be minimalised.</p>	<p>Construction period</p>	<p>Field monitoring</p>	<p>Contractor</p>	<p>Physical existence of the recommended measures</p>



#### 4. Occupational Safety and Health Management Plan

Road construction activities pose potential threats to the health and safety of workers and visitors. This may be in the form of dust from excavation works, fumes from machinery and vehicles accessing the site, accidents from machinery and equipment, injuries that may result from excavation activities and accidental falls. During rainy seasons, abandoned quarry and borrow pits may become important breeding grounds for disease causing pathogens or lead to drowning in case of accidental falls.

##### Objectives

The purpose of health and safety monitoring plan is to assess existing controls alongside potential health and safety risks in order to develop an effective plan of action and to ensure compliance with Occupational Safety and Health Act, 2007; International Labour Organisation (ILO) standards; World bank EHS Guidelines; World Bank Environmental and Social Framework.

##### Project Activities Resulting in Road Safety Impacts

The plan shall provide a description of the project activities likely to result in occupational safety and health risks. These shall include but not limited to ;

- i. Blasting operations
- ii. General construction works e.g. excavations
- iii. Vehicle movement

##### Responsibility

The Occupational Safety and Health management plan shall contain concise description of the management structure with clear specification of the responsibilities of the responsible parties. It shall also provide linkages with the Directorate of Occupational Health Services and the County Government.

The water management plan shall contain succinct description of the management structure with clear specification of the responsibilities of the responsible parties. It shall also provide linkages with the Water Resources Authority, the County Government and the Stakeholder Management Plan.

### Performance criteria

The performance of the OHSMP will be based on the following;

- i. No. of Risk assessments conducted
- ii. No. and type of Incident and accident reports
- iii. No. and type of Safety and health trainings
- iv. No. of penalties for breaches of occupational safety and health guidelines
- v. No. of tool box talks provided
- vi. Employee inductions conducted

DISCLOSURE COPY

**Table 47: Occupational Safety and Health Management Plan (OHSMP)**

Ref No.	Aspect Activity	Management Measure	Timing	Responsibility	Performance Indicator
<b>Occupational Safety and Health management - Construction</b>					
	<b>Risk Assessment</b>	The contractor shall prepare and implement a OHSMP which shall be approved by the RE Conduct periodic risk assessments and the details of the risk assessments documented and available for review on site All work sites shall be subject to risk assessment and regular monitoring of health, working conditions and hours of work	During construction	Contractor Contractor's SER, RE County Government of Kilifi NEMA	Risk assessment conducted
	<b>Incidents and accidents reporting in an incident log</b>	All accidents and incidents should be reported and recorded throughout the construction period The incident log should be kept on site and shall be available for preview on site The contractor shall keep an incident log which contains the date of the incident / accident place of occurrence time of occurrence	Throughout the construction period	Contractor Contractor's SER RE County Government of Kilifi NEMA DOSHS	No. of Incidents and accidents Type of incidents and accidents Place of incident/accident

	<p>the time incident was reported</p> <p>Parties of those involved</p> <p>Type of incident i.e. minor, major, fatal</p> <p>All accidents and incidents shall be investigated and root cause analysis conducted for all major and fatal accidents and incidents</p>			
<p>Competence and Training</p>	<p>Workers including subcontractors will be provided with health and safety trainings including hazardous work</p> <p>The health and safety trainings shall be in form of</p> <p>Tool box talks</p> <p>Safety inductions for new staff</p> <p>Daily prestart meetings</p> <p>The contractor shall provide for a safety committee that shall meet regularly to deliberate on the relevant safety trainings on site</p>	<p>Throughout the construction period</p>	<p>Contractor</p> <p>Contractor's SER</p> <p>RE</p> <p>County Government of Kilifi</p> <p>NEMA</p> <p>DOSHS</p>	<p>No. of toolbox talks</p> <p>No. of new employees viz-a-viz the no. of safety and health inductions</p> <p>No. of safety committee meetings</p> <p>Type of trainings provided</p>
<p>Welfare (Workers safety and health)</p>	<p>Contractor shall provide PPE to the personnel at no extra cost</p> <p>Workers shall be provided with basic health and first aid at all work sites</p>			<p>Standard First Aid kit provided</p> <p>PPE provide for workers including subcontractor</p>

<p>Emergency Response preparedness plan(ERPP)</p>	<p>An emergency response and preparedness plan shall be prepared. The plan shall comprise the following</p> <p>Communication with stakeholders in case of emergency;</p> <p>Training section describing how on-site response workers will be trained and how general workers will be trained to notify/respond (e.g., what types of alarms will be used in what types of situations);</p> <p>A clearly defined "notification of emergency" hierarchy, with alternatives listed if someone is not available. The names and phone numbers of off-site response groups should be listed, with the hierarchy clearing noting who would make the decision to call in assistance. The hierarchy section should include an appended list of trained on-site emergency response personnel (or, if not known at this point, expectations for numbers of people trained in various categories, such as first aid, or spill/fire response teams);</p> <p>An explanation on where emergency response phone numbers, protocols, emergency response equipment will be kept and how employees will be notified of where this information/equipment is located;</p> <p>Section on procedures for post-emergency recovery and lessons learned; and</p> <p>Maps of the site/s showing evacuation routes and muster points.</p>	<p>Throughout the construction period</p>	<p>Contractor's SER, RE County Government of Kilifi NEMA DOSHS</p>	<p>An ERPP has been prepared Training on the ERPP conducted for the workers</p>
---	--	---	--	---

		<p>The contractor shall designate an emergency response team</p>			
<p>Penalties for breaches</p>		<p>for Penalties for non-conformance to safety and health Throughout the Contractor provisions shall be integrated in the contract documents and construction the penalties for breaches clearly defined. These shall be period included but shall not be limited to; suspension of works, suing to the law courts, termination of contract</p>		<p>Contractor's SER                  RE                  County Government of Kilifi                  NEMA                  DOSHS</p>	<p>No. of breaches</p>

## 5. Water Management Plan

The water management plan is prepared to provide guidance on management of water resources within the project environment. These guidelines will relate to management of water availability, quality and quantity of the water sources utilized for the project area. These will relate to the abstraction points for the surface water resources and boreholes as well as project drainage structures.

### Objectives

The objective of the water management plan is to among others:

- i. Identify the water sources within the vicinity of the project that may be affected by the project
- ii. Outline project activities that are likely to result in deterioration of the quality and quantity of water within the project environment
- iii. To encourage efficient use of the water resources within the project area
- iv. To assist with compliance to the Kenyan and International Legislations
- v. Minimize impacts on livelihoods of communities within the project area

### Project Activities Resulting in Water Quality Impacts

The contractor shall develop a water management plan that specifies the project activities likely to result in water quality impacts. These shall include but shall not be limited to;

- i. Sediments and silt washed downstream by runoff with potential for siltation and sedimentation of the water sources
- ii. Inadequate and improper use of sanitation facilities

### Responsibility

The water management plan shall contain succinct description of the management structure with clear specification of the responsibilities of the responsible parties. It shall also provide linkages with the Water Resources Authority, the County Government and the Stakeholder Management Plan.

### Performance Criteria

The performance of water management will be monitored in the following ways:

- i. Adherence of Project abstraction volumes with volumes permitted in approved water abstraction license(s);
- ii. Adherence of the quantity and quality of water discharged from Project activities including Construction Camps and plants to volumes and quality standards in approved management plans and relevant legislation.
- iii. Discharges should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality

**Table 48: Water Management Plan**

Ref No.	Aspect / Activity	Management Measure	Timing	Responsibility	Performance Indicator
<b>Water Management During Construction</b>					
	All Construction activities	<p>All reasonable measures will be taken to minimise the risk of causing adverse impacts to surface and groundwater quality in the broader area of the Project Footprint. These measures include:</p> <p>Proper storage, handling and disposal of waste</p> <p>Prevention of soil erosion and spills of oils and fuel</p> <p>Appropriate treatment of wastewater discharged from the project to meet legislated discharge standards in Kenya;</p>	Throughout construction	Contractor	Site audit reports
	Dewatering of Construction Sites	Storm water management of construction sites will be planned in advance and implemented to separate clean and dirty water systems to avoid the transport of contaminants and sedimentation into aquatic systems.	Throughout construction	Contractor	Detailed project planning designs; Site audit reports
	Water use efficiency	The Contractor should aim at optimal use of water resources by harvesting rain water and re-using	Throughout construction	Contractor	Savings on pumped or trucked water

	water especially for general use such as vehicle washing, irrigation, cleaning, etc.				
Vehicle Management	<p>The washing of Project vehicles in any surface water bodies in and around the proposed Project will be prohibited.</p> <p>The maintenance of vehicles in and around the area of the proposed Project will as far as possible be avoided. Major planned maintenance will be performed at a designated workshop. The workshop will include containment and an oil/grease trap.</p>	Throughout construction	Contractor	Visual records and observations	
Wastewater Management	<p>If used, domestic wastewater from Construction Camps and water used for dust suppression will be shown free of toxins and will meet the legislated standards in Kenya.</p> <p>Sufficient temporary toilets will be located in strategic locations near active work sites and sited away from any water bodies or wetlands. These toilets will have doors and locks and will be secured to prevent them blowing over. Temporary toilets will be serviced regularly by a competent and suitably qualified person. Emptied waste will be</p>	Throughout construction	Contractor	Water monitoring reports	
		Throughout construction	Contractor	Visual observations	

		<p>transported and disposed of at the sewage treatment plant at the closest Construction Camp.</p>			
6	Excavated materials	<p>Excavated soils will be re-used in the Project area as far as possible and seeking alternative uses for surplus spoil where practicable (e.g., landscaping and earthworks for other projects) to minimize the requirements for off-site disposal.</p> <p>Once the dumpsites are identified, additional E&amp;S studies and stakeholder engagements shall be conducted prior to usage of dumpsites to understand the current baseline conditions and define the mitigation measures to avoid and minimize the potential E&amp;S and H&amp;S impacts.</p>	Throughout construction	Contractor	Volumes of dumped earth

## 6. Community health, safety and security management Plan

A community health safety and security management plan has been prepared to evaluate the health and safety from the community perspective only. The plan guidance aims to establish linkages between the project activities and potential risks while seeking to propose management measures that may be adopted and streamlined for implementation in the project through preparation of the C-ESMP.

### Objectives

- i. Avoid or limit risks to, and impacts on, the health, safety and security of the community during the construction phase from both routine and non-routine circumstances.
- ii. Ensure that safeguarding of personnel and property is conducted in an appropriate manner that avoids or limits risks to the community's safety and security.
- iii. Maintain a monitoring and evaluation program that is community-based, participatory, transparent and covers construction and operational phases of the project.

### Project activities likely to result in community safety and security impacts

- i. Blasting at hardstone quarries
- ii. Handling of hazardous substances
- iii. Use of construction vehicles and machinery

### Responsibility

The contractor shall develop a health safety and security management plan that seeks to ensure that health safety and security risks to the community from project activities is avoided and where avoidance cannot be achieved is reduced to an acceptable level. The health and safety security management plan shall seek to establish linkages with external parties if any and their responsibilities clearly defined. The role of County Government of Kilifi and the reporting mechanisms for incidents and accidents involving the community shall also be defined.

### Performance Criteria

- i. No. of complaints received concerning community safety and security
- ii. No. and location of the sensitization awareness meetings
- iii. Incidents and fatalities related to the project
- iv. Road and signage maintenance records
- v. No. of incidents due to excessive use of force by security personnel
- vi. Noise and Air Quality monitoring records.

**Table 49: Community, Health and Security Plan**

Ref No.	Aspect / Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
	<b>Community Safety and Health</b>				
	<p><b>Risk of Traffic Accidents</b></p> <p>Traffic safety requirements with regards to Community health and safety, will include:</p> <ul style="list-style-type: none"> <li>Regulation of traffic flow and signage, signals to manage the build-up of traffic and mitigate incidents.</li> <li>Setting of speed limits for traffic.</li> <li>Maintenance of construction traffic routes to ensure smooth riding surface (though repair of potholes, grading etc). This to ensure free flow of traffic, comfort of riders and to reduce noise levels associated with an uneven road surface.</li> <li>Conduct baseline measurements for noise and air quality measurements in specified locations along the project alignment</li> <li>Conducting bi-annual noise and air quality monitoring measurements</li> </ul>	<p>Prior to and throughout construction</p>	<p>Road and signage Contractor</p> <p>Noise and Air Quality monitoring records.</p> <p>Applicable grievances lodged by community members logged.</p>	<p>Presence of appropriate and sufficient road signage.</p> <p>Quality of diversion routes</p> <p>Identified and signed animal crossing locations.</p> <p>Log of grievances related to construction road traffic lodged by community members and status of resolution.</p>	

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		<p>Careful consideration for the placement of speed humps, especially with regards noise sensitive receptors.</p> <p>Regular wetting of diversion roads to ensure visibility is maintained and to ensure low dust levels.</p> <p>Construction of roadside rest areas at key strategic locations to encourage driver breaks to minimise fatigue.</p> <p>Installation and maintenance of measures to reduce livestock collisions (e.g. use of signs to alert drivers on road segments at key animal and herding crossing points.</p> <p>Maintenance of safe crossing points for pedestrians and cyclists</p> <p>Conducting a traffic safety awareness for the community prior to commencement of construction works along the road reserve and in schools. Training will include details on: safe pathways to key areas,</p>				

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		crossing points and rules of the road (e.g. stop, look, listen), Incident reporting, Interpretation of signage, Rules regarding driver behavior such as speed requirements and sexual harassment.				
	Unanticipated and unmanaged impacts on nearby receptors e.g. blasting impacts	Identify emergency scenarios and develop emergency preparedness and response plans with local communities and authorities Develop specific stakeholder engagement plan based on consultation and participation with government and communities regarding the nature and potential consequences of the risks Define protocol for community reporting of observed incidents	Prior to and throughout construction	Grievances reported	Contractor	No. of grievances reported
	Infrastructure and equipment design safety drainage	Hazard risk assessment to be undertaken on a daily basis to observe site risks that could pose a threat to local communities.	Throughout construction	Hazard log to track and manage site risks, to ensure that appropriate	Contractor	Hazard risk assessment in place. Number of hazards recorded by type

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
	structures and soil erosion control measures	Place hazard signage in English and in Swahili in areas where activities are taking place.	Throughout construction	As above	Contractor	Hazard signage in place in English and Swahili.
		Undertake a community sensitization programme within communities and nearby schools to raise awareness of Project hazards using interactive/practical methods of communication.	Throughout construction	As above	Contractor	Number of communities engaged. Number of incidents involving community members.
		The Worker Code of Conduct will include provisions for protection of the community in relation to Project hazards.	Throughout construction	As above	Contractor	Worker Code of Conduct in place.
		The Grievance Mechanism developed for the Project will include capturing grievances related to Project hazards.	Throughout construction	Grievance log to track and manage grievances	Community Liaisons Officers (CLOs)	Percentage of grievances received about hazards. Percentage of grievances resolved within agreed timelines.



Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
	Hazardous materials management and safety Community exposure.	<p>Evaluate the potential for substituting hazardous materials with safer alternatives.</p> <p>Implement measures to avoid spills affecting communities, as defined in the Emergency Preparedness Plan.</p> <p>Location of the flammable chemicals storage areas and fuel storage areas shall be identified based on a risk assessment focusing on wildfire risks and results of the risk assessment shall also define the mitigation measures for storage and handling of the flammable chemicals.</p>	Throughout the construction period			
	Emergency preparedness and response					
Community Security						
	Site security	A Security Management Plan (SMP) containing measures to protect the Project facilities and personnel against potential violent protest or social unrest and to train security personnel in safeguarding of community human rights will be developed and implemented.	Throughout construction	Security Management Plan	Contractor	100% compliance with measures in plan.

Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		<p>The SMP will include compliance measures that comply with Kenyan laws and regulations as well as the requirements of the Voluntary Principles for Security and Human Rights.</p> <p><a href="http://www.voluntaryprinciples.org/what-are-the-voluntary-principles/">http://www.voluntaryprinciples.org/what-are-the-voluntary-principles/</a></p> <p>Additionally, the SMP will include requirements for selection of personnel based on a careful background screening, training with regards to human rights requirements, and monitoring of performance.</p>				
	Security staff	All security staff should be trained and act in line with the Voluntary Principles on Security and Human Rights.	Prior to and throughout construction	Security Management Plan, including training requirements for security personnel	County government for Kilifi and contractor	Security personnel training records Number of security personnel trained in the Voluntary Principles on Security and Human Rights



Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
	Grievance Redress Mechanism	A grievance redress mechanism shall be adopted across all work sites. The community members shall be sensitized on the grievance redress mechanism which shall include the methods of logging their grievances and the channels of redress	Throughout construction	Sensitization of GRM Availability of the grievance log	the Contractor County Government of Kilifi	Number of contracts in place detailing requirements Training conducted No. and type of grievances received about security issues. Percentage of grievances resolved within agreed timelines.

## 7. Labour and Local labour management Plan

### Objectives

The main objective of this plan is to maintain and promote worker health, safety and rights throughout the Project development. The plan also promotes recruitment of local labour. Specific objectives are as follows:

- i. To provide a framework to continuously identify, evaluate and prioritize the risks and impacts related to the labour and working conditions of workers;
- ii. Implement measures to prevent and avoid incidents, fatalities and conflicts that may cause harm to the workforce and local communities
- iii. To provide a foundation for implementing worker rights, in particular in relation to working conditions and freedom of association;
- iv. Ensure that gender is mainstreamed into worker rights, recruitment and occupational health and safety to ensure that conditions meet specific gender needs and that women also have an opportunity to access job opportunities and are free from discrimination and harassment;
- v. To provide performance indicators, monitoring requirements and review procedures for activities associated with labour and working conditions;
- vi. Facilitate protection for the workforce in relation to child and forced labour, as well as supply chain risks; and
- vii. Provide the government authorities and stakeholders with assurance that mitigation measures will be addressed, are achievable, and a common basis for measuring compliance with specific mitigation requirements in relation to labour and working conditions.
- viii. Ensure that worker accommodation is provided in line with IFC/EBRD Worker Accommodation Guidance.
- ix. Maximize the opportunity for local labour.

### Project Activities

The main Project activities leading to impacts related to labour and working conditions are as follows:

- i. Poor occupational health and safety practices that may lead to injury or death of workers;
- ii. Unfair working conditions related to pay, working hours and benefits leading to worker strikes, project delays and human rights violations;
- iii. Unfair recruitment procedures that do not consider the local community or gender equality and discrimination based on ethnicity, religion, disability, age and cultural factors that may lead to conflict between the Project workers and local community;
- iv. Worker health and wellbeing associated with camp accommodation and the condition of facilities available, in order to cater for their needs. This includes consideration of male and female needs that are tailored to meet gender specific requirements; and
- v. Risk associated with child and forced labour directly through the Project workforce and throughout the supply chain.

## Responsibility

County government of Kilifi, as Project Executing Agency (PEA), shall assume responsibility for ensuring implementation of the labour and working conditions management plan throughout the life of Project.

During construction, field implementation of the labour management plan will be managed and executed by the Contractor and audited by the Supervision Consultant.

## Performance Criteria

County government of Kilifi has policies and procedures in place in relation to labour and working conditions that are imbedded in this plan, including an incident reporting procedure that details major or serious incidents associated with workers, including:

- i. Confirmed or alleged violation of any national laws or international agreements ratified by Kenya.
- ii. Infringement of workers' rights.
- iii. Workers strikes (industrial action).
- iv. Any fatalities or serious (lost time) injuries to workers or third party.

Additionally, the performance criteria in this plan are based on national labour laws and conventions, as well as lender requirements, and the requirements of the ILO. Specific performance criteria in relation to labour and working conditions includes the following:

- i. Ensuring that fair and transparent recruitment and procurement procedures are in place, promoting local labour, gender equality and worker rights.
- ii. Ensuring that policies are in place related to prohibition of discrimination, worker rights, freedom of association, including zero tolerance for any form of forced or child labour (direct employees, subcontractors or in the supply chain).
- iii. Ensuring that all workers and contractors have a contract in line with Kenyan Law and lender requirements, outlining the terms and conditions of employment, including salary, working hours, sick leave, annual leave, maternity leave etc.
- iv. Where applicable, accommodation for workers (direct employees and subcontractors) is provided in line with Kenyan Building Code and IFC/EBRD Worker Accommodation Guidelines.
- v. All workers have the right to freedom of association and collective bargaining.
- vi. Ensuring that normal working hours and overtime are aligned to good industry construction practices and Kenyan law.
- vii. Wages for all workers are aligned with minimum wages and minimum industry standards/ to a minimum, workers are paid a living wage.

- viii. Ensuring that a worker grievance mechanism is in place and implemented, that does not compromise the position of the complainant/ no worker retribution as a result of reporting grievances.
- ix. Measures should be in place to ensure workers receive all necessary documentation at the end of their employment.

DISCLOSURE COPY

**Table 50: Labour and Local Labour Recruitment and Management Plan**

Expected Adverse Impact	Management measures	Timing	Monitoring measures	Responsibility	Performance indicator
Risk of social conflict	Provision of information regarding Worker Code of Conduct in local language(s); Provision of cultural sensitization training for workers regarding engagement with local community. Consultations with and involvement of local communities in project planning and implementation; Awareness-raising among local community and workers. Prioritize recruitment of local labour	During construction	Human Resource Management Plan (HRMP) Grievance Mechanism	Contractor	Number of workers subject to disciplinary proceedings Number of grievances raised in relation to disciplinary proceedings
Increased risk of illicit behavior and crime (including prostitution, theft and substance abuse)	Sourcing of local workforce; Creation of supervised leisure areas in workers' camp; Cooperation with local law enforcement; Introduction of sanctions (e.g., dismissal) for workers involved in criminal activities. Provision of substance abuse prevention and management programs. Sensitization campaigns both for workers and local communities.	During construction	Labor Influx Management Plan Workers' Camp Management Plan HRMP	Contractor	Number of locals employed Number of supervised leisure areas in workers' camp created Number of workers and



<p>Adverse impacts on community dynamics</p>	<p>Provision of services in the workers' camp to reduce the need for workers to use local community facilities (internet, sports); Provision of entertainment and events for workers within camp to reduce incentives for mixing with local community. Liaison with civil society organizations to create integrative action plans; provision of upfront information on potentially detrimental impacts on local communities. Investment in community participation and engagement programs.</p>	<p>During construction</p>	<p>Labor Influx Management Plan Workers' Camp Management Plan Community Investment Plan</p>	<p>Contractor</p>	<p>local communities members sensitized on substance abuse Number of workers sanctioned for involvement in criminal activities Number service points created at the camp Number of awareness creation meetings conducted</p>
--	--	----------------------------	---	-------------------	--



<p>Influx of Additional Population ("Followers")</p>	<p>Contractor to hire workers through recruitment offices and avoid hiring "at the gate" to discourage spontaneous influx of job seekers. Communications campaign to manage expectations and discourage spontaneous influx of job seekers;</p>	<p>During construction</p>	<p>Labor Influx Management Plan HRMP</p>	<p>Contractor</p>	<p>Number of workers employed through recruitment offices Number of community members sensitized on available job opportunities</p>
<p>Increased burden on public service Provision</p>	<p>Workers' camp to include wastewater disposal and septic systems; Identification of authorized water supply source and prohibition of use from other community sources; Separate service providers for community and workers' camp/construction site; Worker Code of Conduct on water and electricity consumption. Contingency plans for temporary rise in demand for utilities and public service provision.</p>	<p>During construction</p>	<p>Workers' Camp Management Plan Community Investment Plan</p>	<p>Contractor</p>	<p>Number of septic tanks provided Number of water points created by the contractor Number of local public service</p>

	Investment in and capacity building of local public service providers	Throughout construction	Health Surveillance Monitoring System	Contractor	providers capacity built
Increased risk of communicable diseases (including STDs and HIV/AIDS)	<p>Vaccinating workers against common and locally prevalent diseases;</p> <p>Contracting of an HIV service provider to be available on-site;</p> <p>Implementation of HIV/AIDS education program;</p> <p>Information campaigns on STDs among the workers and local community;</p> <p>Education about the transmission of diseases;</p> <p>Provision of condoms.</p>				<p>Number of Information and Education Campaigns activities implemented every other month with the workforce and affected communities.</p> <p>100% of workers receiving training.</p> <p>Number of communities and community members receiving training.</p>



<p>Gender-based violence, including sexual harassment, child abuse and exploitation</p>	<p>Mandatory and regular training for workers on required lawful conduct in host community and legal consequences for failure to comply with laws; Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; Creation of partnership with local NGO to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GRM; Provision of opportunities for workers to regularly return to their families; Provision of opportunities for workers to take advantage of entertainment opportunities away from rural host communities.</p>	<p>During construction</p>	<p>Gender Development Action Plan HRMP -</p>	<p>Contractor</p>	<p>Number of STI cases recorded. Number of workers receiving treatment. Number of condoms distributed Number of workers trained on required lawful conduct in community and legal consequences for failure to comply with laws; Number of memorandums</p>
---	--	----------------------------	--	-------------------	---

	<p>Instruction and equipping of local law enforcement to act on community complaints;</p> <p>Information and awareness-raising campaigns for community members, specifically women and girls;</p> <p>Provision of information to host community about the contractor's policies and Worker Code of Conduct (where applicable).</p>				<p>Commitments / to cooperate with law enforcement agencies investigating perpetrators of gender-based violence</p> <p>Number of memorandums signed with local NGOs</p> <p>Number of workers given opportunities to return to their families</p> <p>Number of cases reported by the community members</p>
--	--	--	--	--	---



					<p>Number of community members Sensitized about the contractor's policies and Worker Code of Conduct (where applicable).</p>
<p>Child labor and school drop out</p>	<p>Ensuring that children and minors are not employed directly or indirectly on the project.                      Communication on hiring criteria, minimum age; and applicable laws.                      Enforcement of legislation on child labor.                      In line with Kenyan employment law, children that have not attained the age of 13 shall not be employed. Children between the ages of 13 and 16 shall not be engaged in work that is harmful to the child's health and development, and that shall not affect their attendance in school or further education. This shall be included in the HRMP.</p>	<p>During construction</p>	<p>HRMP</p>	<p>Contractor</p>	<p>Number of incidents raised in relation to child labour                      Quarterly inspection records to identify cases of child labour</p>



Forced labour	Anyone engaged in forced labour shall not be employed, including involuntary or compulsory labour, such as indentured labour, bonded labour, or similar labour contracting arrangements. Additionally, trafficked persons shall not be employed	During construction	HRMP	Contractor	Number of incidents raised in relation to forced labour Quarterly inspection records in relation to forced labour

DISCLOSURE COPY

## 8. Waste Management Plans

A waste management plan guidance has been prepared to provide direction for preparation of a waste management plan by the contractor. The waste management plan shall seek to identify the project waste streams and propose management of the waste to avoid environmental pollution and visual intrusion associated with improper waste management. It also seeks to provide guidance on the principles of waste management.

### Objectives

- i. To identify and document the various waste streams within the project
- ii. To propose effective waste management measures applicable within the project
- iii. To define waste disposal measures for each waste stream including those by third parties
- iv. To ensure that impacts of waste to natural resources e.g. water, soil and ESAs are minimized
- v. To promote sustainability through efficient use of resources by promoting the principles of reduce, reuse, recycle
- vi. To define mechanisms for disposal of hazardous waste

### Project Activities Resulting in Waste Management Impacts

The contractor shall develop a waste management plan that specifies the project activities likely to result in waste management impacts. These shall include but shall not be limited to;

### Responsibility

The waste management plan shall provide a concise description of the responsible parties in management of waste. It shall ensure that the responsibilities of the parties are well described and where third parties are used for management of various waste streams it shall be properly enumerated within the plan. It shall also provide linkages with NEMA, the County government where necessary and the Stakeholder Engagement Plan.

### Performance Criteria

The performance criteria for waste management shall include but shall not be limited to the following:

- i. Waste streams correctly identified
- ii. Disposal mechanisms identified and functional
- iii. Number of reported non compliances with the requirements of this
- iv. % of wastes generated (including hazardous waste) that are being correctly managed by licensed waste contractors
- v. % of all staff who have received relevant and adequate training
- vi. % of waste re-used or recycle



**Table 51: Waste Management Plan**

Ref No.	Aspect / Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
	<p>Waste management details</p> <p>The contractor shall prepare a waste management plan that:</p> <ul style="list-style-type: none"> <li>At project commencement</li> <li>Waste streams</li> <li>Waste management strategy</li> <li>Third party waste handling</li> <li>Incorporates the principles of Reduce, reuse, recycle</li> </ul>	At project commencement	Waste management Plan	Contractor	A waste management plan available
	<p>Solid Waste handling</p> <p>The contractor shall engage a qualified waste handler registered by NEMA to handle all waste</p> <p>Water transport from the project site shall be conducted by a licensed waste handler</p> <p>Apply to the Authority for a waste management license if project activities are likely to produce hazardous wastes that will need to be managed, transported and disposed of in a prescribed manner.</p> <p>The contractor shall engage licensed waste handler to collect and manage all hazardous waste on site</p> <p>There will be no incineration of hazardous waste on site. Containers of hazardous waste will only be moved or</p>	Throughout the construction period	Waste handlers license	Contractor	Availability of a waste handler's license
				Contractor	Availability of Waste handlers license



Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		transferred to the site by qualified personnel using appropriate equipment and vehicles.				
		Properly labelled and strategically placed waste disposal containers shall be provided at all the places of work	Throughout the construction period	Waste collection containers available and marked	Contractor	Availability of waste receptacles
		No burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted unless approved by the Engineer or by relevant authorities	Throughout the construction period	Burying or burning sites	Contractor	No waste burying or burning sites
		Non-hazardous waste will be segregated into specific waste types, for those waste types that can either be recycled, reused or reclaimed (for example, paper, plastics, metals, glass, organic waste, hazardous wastes, etc.).	Throughout the construction period	All waste properly segregated on all work sites	Contractor	Waste segregation
		For the spoil generated, disposal shall be done on pre identified sites more than 20 meters from watercourses and in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse	Throughout the construction period	Location of spoil areas	Contractor	Spoil areas located at least 20m from watercourse
		Location of the flammable chemicals storage areas and fuel storage areas shall be identified based on a risk assessment focusing on wildfire risks and results of the risk assessment	Construction	Site inspections	Contractor	Risk assessment report



Ref No.	Aspect Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		<p>shall also define the mitigation measures for storage and handling of the flammable chemicals.</p>				
	<p>Effluent management</p>	<p>No grey water runoff or uncontrolled discharges from the site/working areas (including wash-down areas) to adjacent watercourses and/or water bodies shall be permitted;</p> <p>Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills.</p> <p>The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies;</p> <p>Potential pollutants of any kind and in any form shall be kept stored and used in such a manner that any escape can be contained and the water table not endangered;</p> <p>Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;</p> <p>Vehicle repair and maintenance pits will be regularly cleaned and any liquid build-up will be removed and treated as necessary.</p>	<p>Throughout the construction period</p>	<p>Wastewater collection and treatment</p> <p>Uncontrolled discharges from the worksites</p> <p>Incidents of water pollution</p> <p>Incidents of soil contamination</p> <p>Health &amp; Safety incidents relating to waste management</p>	<p>Contractor</p>	<p>Presence of waste water treatment or holding point</p> <p>Availability of sanitation facilities</p> <p>Cleaning records and no build-up of liquids</p> <p>Complaints from the community on waste water handling</p> <p>No. of pollution incidents on site</p>

Ref No.	Aspect / Activity	Management Measures	Timing	Monitoring Measure	Responsibility	Performance Indicator
		<p>A spill kit shall be kept on site to handle any accidental fuel and oil spills</p> <p>The Contractor shall notify the RE of any pollution incidents on site.</p>				
	Training and Awareness	<p>Personnel involved in waste management will be given regular training, specific to the range of wastes being generated and managed, and where relevant including hazardous waste management.</p>	Throughout the construction period	Training records	Contractor	No. of Trainings
	Auditing Contractors	<p>The Project will audit waste contractors prior to agreeing any formal contracts and will ensure that all facilities that receive wastes from the proposed Project are suitable and in line with the Kenya EMCA Waste Management Regulations of 2005 and IFC EHS General Guideline for Waste management (1.5). Waste contractors will need to keep detailed records on how waste from the Project has been disposed, or a facility as approved by NEMA.</p>	Prior to construction		Contractor	Records of waste disposal

## 9. Spill Prevention, Control and Containment Management

### Objectives

- i. The objectives for spill prevention, control and containment management are:
- ii. Protect the environment and community members who are dependent on its natural resources through the development of spill response and containment strategies and capabilities.
- iii. Identify the sources of potential land contamination associated with construction activities

### Project Activities Resulting in the need for Emergency Response

- i. During the construction phase of the proposed Project, dangerous or hazardous chemicals may accidentally be released into the environment in the form of small spills or a major unplanned event (e.g., oil tanker or cement truck accident). Spillages may occur as a result of leakage of containers used to store or transport the following pollutants:
- ii. Hydrocarbons (including diesel, greases, oils and other lubricants);
- iii. Bitumen;
- iv. Hazardous chemicals / materials (e.g., paints, batteries, etc.);
- v. Cement; and
- vi. Sewage (from chemical toilets at works areas).

### Responsibility

The spill prevention management measures shall detail the responsibilities of all parties including County government of Kilifi, as PEA, and the Supervision Consultant. During construction, field implementation of the spill prevention and management controls will be executed by the Contractor. Other parties, such as the Engineer, will also assume certain responsibilities in the design of the road in this regard which are detailed below.

### Performance Criteria

- i. No unplanned release of dangerous goods or hazardous substances.
- ii. All transport, storage and handling of dangerous goods or hazardous and dangerous substances is performed in accordance with the materials data sheets for the chemicals and the management measures included in this ESMMP.

**Table 52: Spill prevention, Control and containment management**

Ref No.	Aspect Activity	Management Measure	Timing	Responsibility	Performance Indicator
<b>Spill Prevention</b>					
1.	Training	Training regarding proper methods for transporting, transferring, and handling hazardous substances that have the potential to impact surface and groundwater resources.	Throughout construction	Contractor	Training records
2.		Train personnel with responsibility for hazardous substances. No untrained staff shall be allowed to handle hazardous substances.	Throughout construction	Contractor	Training records
3.	General Management	Concrete batching/mixing shall only take place at agreed specific areas on site (i.e. – at the Plant situated in the Construction Camp Footprint) and runoff from the batching area will not be allowed to flow into natural streams and watercourses.	Throughout construction	Contractor	No concrete batching in non-designated areas
4.		Provide collection systems (i.e. drip trays or impervious linings) under machinery or stationary equipment that may dispense or	Throughout construction	Contractor	Collection systems in place
5.		Location of the flammable chemicals storage areas and fuel storage areas shall be identified based on a risk assessment focusing on wild fire risks and results of the risk assessment shall also define the mitigation measures for storage and handling of the flammable chemicals.	Construction	Contractor	Risk assessment report

## 10. Blast Management Plan

A blast management plan guidance has been prepared to provide input for development of the blast management plan. The plan is a risk control measure to ensure that people are not harmed in a blasting event at the quarries, borrow pits and at work sites and damage to property is limited. The guidance provided therefore is expected to assist in planning a safe blasting event within the defined site.

### Objectives

- i. To identify hazards and risks associated with blasting
- ii. To identify control or mitigation measures during blasting
- iii. To Identify site-specific requirements
- iv. To control the blast process from design to initiation and in the event of a misfire.
- v. To comply with the approval specifications
- vi. To ensure safety of the public, site personnel and surrounding properties
- vii. To implement a review process to ensure that the objectives are met

### Project risks / hazards during blasting

The common risks that may result in the injuries and damage to property include but are not limited to;

- i. Unauthorized access to the blasting site
- ii. Blasting conducted by unqualified personnel
- iii. Inadequate warning of blasting to the local community
- iv. Flying or splitting rocks causing damage to property or injuries
- v. Unauthorized access to blast area
- vi. Damage to structures

### Performance criteria

- i. No occupational or community health and safety incidents because of blasting.
- ii. No complaints from communities in areas where blasting is taking place.
- iii. Compliance with blasting permit conditions and requirements included in the Explosives Act (Cap 115).

**Table 53: Blast Management Plan**

Ref Aspect No.	Management Measures	Timing	Responsibility	Performance Indicator
Blasting management plan	The contractor shall prepare a blasting management plan that provides the following details: Blasting method statements Responsibilities of management of blasting Key risks associated with blasting Measures to control the associated risks	At project commencement	Contractor	Blasting management plan
Sensitive Receptors	Prior to blasting all the sensitive receptors within a 500m radius shall be mapped and their conditions visually assessed	Prior to blasting	Contractor	Records of sensitive receptors
Training and awareness	Ensure shot firers are licensed. Train personnel in explosives products and blast design. Develop and implement procedures to check training and competency. Review competency and training.	Prior to blasting	Contractor	
Grievances	The Project grievance procedure will be implemented in such way that the CIOs are able to manage and address any blasting complaints received.	Start of construction	Contractor	Grievance register
Training	No person will handle or use any explosive material unless that person is trained and authorized to use explosives.	Throughout construction	Contractor	Training records



Ref Aspect No.	Management Measures	Timing	Responsibility	Performance Indicator
Permitting	All permit / licensing requirements for the import (if necessary), transport, storage, use and disposal of explosives will be obtained prior to construction and will be in accordance with the Explosives Act (Cap 115).	Prior to construction	Contractor	Permits / licenses obtained and valid
Storage and Transport	Explosives will be stored in appropriate (and licensed) magazines at secured, authorized locations and transported to work sites when needed. Detonators and bulk explosives will be stored and transported separately. Storage and transport will comply with the requirements of the Kenyan Explosives Act (Chap. 115 of 2016).	Throughout construction	Contractor	No storage of explosives at active work sites
Storage and Transport	Explosives will be stored in appropriate (and licensed) magazines at secured, authorized locations and transported to work sites when needed. Detonators and bulk explosives will be stored and transported separately. Storage and transport will comply with the requirements of the Kenyan Explosives Act (Chap. 115 of 2016).	Throughout construction	Contractor	No storage of explosives at active work sites
Community safety	Community awareness and emergency preparedness and response planning will be undertaken, including control of third-party access to blasting areas. Blasting will be conducted according to a consistent timetable agreed with the stakeholders who may be affected. If changes to the blasting timetable occur, nearby communities will be immediately informed of those changes.	Throughout construction	Contractor	Incidents / Complaints

Ref. No.	Aspect Activity	Management Measures	Timing	Responsibility	Performance Indicator
		<p>Residents of the local communities will receive a written notification at least 30 days in advance of nearby blasting as well as two (2) more written reminders. This notification will include the blasting schedules, as well as the name, address and telephone number of the operator; an identification of the specific areas in which blasting will take place; the dates and time periods when explosives are to be detonated; the methods to be used to control access to the blasting areas; and the type of patterns of audible warning and all-clear signals to be used before and after blasting.</p> <p>Access within the blasting area will be controlled to prevent presence of livestock or unauthorized persons during blasting. Access will remain controlled until an authorized representative of the operator has reasonably determined that no unusual hazards, such as imminent slides or undetonated charges, exist, and access to and travel within the blasting area can be safely resumed.</p> <p>Blasting schedules will be distributed to the users of the grazing areas, residents and local governments including the name, address and telephone number of the operator; an identification of the specific areas in which blasting will take place; the dates and time periods when explosives are to be detonated; the methods to be used to control access to the blasting areas; and the type of patterns of audible warning and all-clear signals to be used before and after blasting.</p> <p>Specific warning devices (e.g. horn signals and flashing lights) and procedures will be implemented before each blasting activity to alert all workers and third</p>			

Ref No.	Aspect Activity	Management Measures	Timing	Responsibility	Performance Indicator
		<p>parties in the surrounding areas (e.g. local communities). Warning procedures will include traffic limitation along local roadways and railways.</p> <p>Specific personnel training on explosives handling and safety management will be conducted.</p> <p>Blasting-permit procedures will be implemented for all personnel involved with explosives (e.g. handling, transport, storage, charging, blasting, and destruction of unused or surplus explosives).</p> <p>Blasting sites will be checked post-blast by qualified personnel for malfunctions and unexploded blasting agents, prior to resumption of work.</p> <p>Particular attention will be given to all explosives handling phases to prevent theft / improper use.</p> <p>Blasting blankets will be used to prevent rock and stone fly.</p> <p>Blasting signs are to be conspicuously placed along the edge of the blast site and area where flying debris may occur.</p>			

## 11. Rehabilitation and Site Clean-up Management

### Objectives

The overall objective of rehabilitation is to restore land damaged during construction to its pre-existing condition as far as reasonably practicable, to enhance social land uses and biodiversity recovery. Specific objectives will be to:

- i. Leave a safe environment for humans and animals;
- ii. Stabilize the soil surface and prevent erosion and sedimentation of aquatic habitats;
- iii. Prevent soil, surface water and groundwater contamination by effectively managing spills during the entire construction phase of the proposed Project;
- iv. Establish a diversity of locally indigenous plant species within rehabilitated sites, without infestations of undesirable Invasive Alien Plants (IAPs); and
- v. Comply with regulatory requirements and international good practice standards.

### Project Activities Resulting in the Need to Rehabilitate

The proposed Project extends over terrestrial and aquatic habitats. Construction activities will involve the movement of materials, equipment, machinery, vehicles and people along the length of the proposed Project alignment. Construction activities will impact on these habitats either directly or indirectly, through vegetation clearing, excavation works, exposure of soils to erosion or alien plant invasion; and accidental / unintentional pollution with construction solid waste, litter and polluted effluent.

### Responsibility

County government of Kilifi, as Project owner, shall assume responsibility for ensuring implementation of the requirements for site rehabilitation and clean-up. During construction, close out of temporary works areas and the rehabilitation and clean-up of work areas will be executed by the Contractor.

### Performance Criteria

- i. Implementation of progressive rehabilitation measures, beginning during site preparation.
- ii. Following completion of construction activities for a section of the proposed Project, rehabilitation and stabilization of all areas along that section impacted on by construction with no significant erosion events.
- iii. Rehabilitation efforts implemented for each section of the proposed Project, until natural
- iv. succession processes take over and restore the species composition to a natural state similar to surrounding or adjacent natural vegetation.
- v. Prevent invasive plant species introduction to active work areas or adjacent areas.
- vi. Monitoring of rehabilitation effort for each section of the proposed Project occurs at a frequency necessary to maximize rehabilitation success.

**Table 54: Rehabilitation and Site Clean-up Management Plan**

Ref No.	Aspect Activity	Management Measure	Timing	Responsibility	Performance Indicator
<b>Pre-construction Phase</b>					
1.	Method Statement(s) for Quarries and Borrow Pits	Method Statement(s) for the management of borrow pits and Quarries will be compiled, which will include aspects associated with design and rehabilitation.	Prior to construction	Contractor	Method Statement(s) detailing design and rehabilitation of quarries and borrow pits
<b>Construction Phase</b>					
2.	Alien Species Removal	Areas disturbed by construction activities will be continuously monitored for the presence of alien plant species. Any alien species detected will be removed per the procedures and target level controls	Throughout construction	Contractor	Visual observations, photographic records and inspection records
3.	Priority Areas Rehabilitation	For Prioritize rehabilitation interventions in high priority areas where there is a low likelihood of natural revegetation or where areas are prone to erosion from surface runoff. If impacted, wetlands shall receive highest priority for rehabilitation using separately stored hydro geomorphic soils. Cut slopes shall have	At the start throughout construction	Supervision Consultant and Contractor	Rehabilitation plans



6.	Post-closure	Post-closure follows implementation of the Closure Plans for all sites, and is the phase during which monitoring continues to ensure that residual impacts are being managed and to ensure that necessary maintenance activities are carried out. Monitoring at all sites will continue until positive and predictable environmental trends are established. Residual impacts are expected to include impacts associated with increased prevalence of alien flora, visual impact of rehabilitated areas and potential social impacts, which are currently difficult to quantify.	County government of Kilifi	Monitoring records maintained by the project

DRAFT - SURE COPY

### Annex 3: Chance finds procedure

#### Archeological and Cultural Resources

Archaeology and Cultural Heritage comprise both tangible and intangible features. Tangible features include archaeological sites, historic sites and monuments, traditional sacred sites and other places of importance. Intangible cultural heritage includes traditional beliefs and practices such as religious rites of passage, ritual, crafts and other cultural traditions.

The main sources of impacts that may affect archaeology and cultural heritage are ground movement activities such as excavation works, opening and exploitation of quarry sites and access roads.

#### Construction related potential impacts and risks that were assessed are:

- i. Potential disturbance or damage to cultural heritage sites causing loss of cultural value or historical and scientific information;
- ii. Access to cultural heritage sites;
- iii. Changes to the setting of cultural heritage sites which could inhibit spiritual or traditional practices and cause potential damage to local and national cultural identity and values.

#### Tangible Cultural Heritage

There are two types of tangible cultural heritage: Archaeological Cultural Heritage (ACH); and Living Cultural Heritage (LCH). ACH refers to sites whose primary value is historical or scientific and includes three types of sites below:

- i. Settlement sites – those with evidence of ancient human occupation (such as a village or cave dwelling);
- ii. Special Purpose sites – those with evidence of ancient human activity that does not include occupation (such as a former ritual site or craft workshop); and
- iii. Burial sites – places of interment, separate from ancient settlements, which are no longer visited by living populations.
- iv. Living Cultural Heritage on the other hand is any cultural site of importance in use by the local communities such as religious sites – places of worship, cemeteries, and tombs; Sacred sites – places where spirits live, or where fetishes are displayed or buried; and Initiation sites – male and female rite of passage sites.

Characteristics of TCH that could potentially be relevant to the project

- i. Fixed on the landscape with discrete boundaries;
- ii. Unique, non-renewable, and sometimes irreplaceable;
- iii. Sensitive to ground-disturbing construction impacts;

- iv. Difficult to identify and evaluate when underground (i.e. archaeological sites);
- v. Possible to avoid for impact mitigation, if the location is known; and
- vi. Potentially disruptive to construction schedules and project reputation if encountered as unexpected discoveries (chance finds) during construction or later.

The value of tangible cultural heritage sites varies depending on their importance to local or wider regional, national or international communities, and to the scientific community. Value may be indicated by protection of sites under local, national or international legislation or other recognized systems of designation. Physical dimensions of the sites are also relevant, as they will determine how difficult a site may be for the Project to avoid and / or evaluate and remove.

### **Intangible Cultural Heritage**

Intangible cultural heritage is the practices, expressions, knowledge and skills that communities, groups and sometimes individuals recognize as part of their cultural heritage. Also called living cultural heritage, it is usually expressed in one of the following forms: oral traditions; performing arts; social practices, rituals and festive events; knowledge and practices concerning nature and the universe; and traditional craftsmanship. No intangible forms of culture will be used for commercial purpose.

### **Physical Disturbance or Damage to Cultural Heritage**

Cultural heritage sites are fixed and discrete. Project risks and impacts will come from direct physical disturbance or damage to the resources themselves. Disturbance can result directly from earth-moving activities, from vibration and dust produced by heavy vehicles and machinery, or damage resulting from a change in water flows. The magnitude of this kind of impact is based on the percentage of the total site physically impacted by Project activities and the severity of the disturbance or damage.

### **Disruption of Access to Cultural Heritage Sites**

Project activities may disrupt access to cultural heritage sites that may have not been identified, preventing their usage and limiting their value to site users, who may include local residents and visitors. The magnitude of this type of impact is measured by the duration and severity of the disruption of access and the potential for alternative access routes. An example of a low magnitude impact would be construction activities which temporarily restrict direct access, but do not completely block users from accessing a site. An example of a high magnitude impact would arise if the existence of the roads were to act as a permanent barrier, cutting off access to sites from the communities that use them or making access difficult or dangerous.

### **Impacts On Tangible Heritage Resources**

The roads alignment has undergone a process of optimization whereby the alignment has been designed to avoid key environmental and social constraints wherever possible.

No cultural sites have been identified within the road corridor, however there may be impacts to cultural heritage sites that are undiscovered within the right-of-way of the road. It is important to

note that the construction activities will be performed within the right-of-way of the existing road reserve.

### **Management of Unknown Sites**

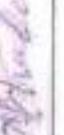
In the event of an unrecorded cultural heritage site, artefact, or burial site is discovered during any construction activities, the following requirements will be implemented:

- i. Activity within proximity of the finding will cease immediately
- ii. The person in charge of the area will inform the project manager who will in turn inform NMK
- iii. The artefact shall not be moved from where it was found, unless supervised by NMK representative
- iv. The area will be clearly marked and protected to prevent any damage or loss of removable objects
- v. The NMK representative will assess and document the site
- vi. The NMK representative will determine the appropriate actions to be taken and will inform the project team
- vii. Activity will resume in the area only after clearance is given by NMK representative
- viii. Avoidance through partial redesign or relocation of the project if possible. This ensures minimal impact to the archaeological site.
- ix. Awareness and Training
- x. Appropriate trainings and awareness should be provided to the project key personnel team at the start of the construction activities and when deemed necessary.

CONSULTANCY SERVICES FOR ENGINEERING DESIGN, REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS). CONTRACT NO. KE. MOTI-214831-CS-QCBS

ATTENDANCE SHEET NO. \_\_\_\_\_ DATE 18/01/2023

SETTLEMENT NAME: SAYA MUGONZI

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
	Dorcas R. Chama	3294243	0712041420	SOBCCON	
	Shonie Akinji Choch	33828030	0717632992	SOBCCON	
	Yego W. Shedrack	21366319	0727736477	SOBCCON	
	Dr. Poin Achiro	22735597	07245552	SOBCCON	
	Mack O'Leary Ombao	33165921	0219154648	SOBCCON	
	Ronald Obhoh	24709085	0726287037	SOBCCON	
	Willy Jerim Ombao	24614635	0722344487	SOBCCON	

~~Amount~~

DISCLOSED COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS), CONTRACT NO. KE. MOTI-214831-CS-QCBS

ATTENDANCE SHEET NO: \_\_\_\_\_ DATE 15th July 2022

SETTLEMENT NAME: Shish Mlinda

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE	Amount
	Keneth K. Rumba	1083148	0722408462	C.G.K	<i>[Signature]</i>	
	Zim Nygwa	28359070	0720264061	C.G.K	<i>[Signature]</i>	
	JACKSON HARO	4292090	0729665515	City of Kilifi	<i>[Signature]</i>	

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT; UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS). CONTRACT NO. KE. MOTI-214831-CS-QC85

ATTENDANCE SHEET NO.: \_\_\_\_\_ DATE: 10/05/2023

SETTLEMENT NAME: - Baraka

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE	Amount
1	AGNES NYAGI	2018077	075524883	V leader		
2	PURITY DAMA	34746493	0741194919	Youth Rep.		
3	ALVINO DEEZE	8466240	072870027	Secretary		
4	EMILIA TSUMBA	112606000	0728052	V Chairman		
5	SAMUEL KATANDA IHA	11734210	0793979813	V/Asst/Sec		
	BHATI CHARO	0682506	0796989417	SEC.		
	KHAMUS KATAMBO	13196987	072146502	SEC.		

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS). CONTRACT NO. KE. MOTI-214831-CS-QCBS

ATTENDANCE SHEET NO. .... DATE: 15<sup>th</sup> JANUARY 2023

SETTLEMENT NAME: - Baha

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE	Amount
	FRANCE DABAZI TUMIA	11760545	0720649252		<i>[Signature]</i>	
	FLORENCE S. DECHI	8465244	0720744637		<i>[Signature]</i>	
	PST PLESER MWAINDIJE	22246310	072272809		<i>[Signature]</i>	
	MICHAEL MUNGA KAFI	3327502	072242603		<i>[Signature]</i>	
	SERAH KATOMBE	068791	072651015		<i>[Signature]</i>	
	Anadh Salim	32028676	0713886076		<i>[Signature]</i>	
	AGNES NYALE	20181177	0715529585		<i>[Signature]</i>	

DISCLOSED COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO SETTLEMENT); CONTRACT NUMBER KE-MOTI-214831-S-QCCIS.

Sheet No. ....

Date 20/01/2023

Name of settlement... KIBONI

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
	DEEEN K Chao	32192831	08-341920	SOBUCON	[Signature]
	ENG. ORCULO Rival	2411732	0724 272	SOBUCON	[Signature]
	Yego K Shindack	2226187	0722 272	SOBUCON	[Signature]
	ENG JORIM OJUA	2411732	0724 272	SOBUCON	[Signature]
	Zim Ngowa	282902	0722 272	CGK	[Signature]
	KENNETH K. RIMBI	1031247	071405462	CGK	[Signature]
	Stanico Akingi	3167000	071405462	SOBUCON	[Signature]

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO SETTLEMENT): CONTRACT NUMBER KE -MOTI-214831-S-QCCBS.

Sheet No.....

Date 20/01/2023

Name of settlement KIBAONI

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
1	ABRARY CHARO	30338173	0713070815	V CHAIR	A=
2	BETHICE MADZO	27706647	0771106675	MEMBER	B=js
3	LIWAN D. SENTI	9390234	0726342574	CHAIR	Ali
A	SHIRAZI MWANGIRO	008655	0721131775	SECRETARY	Shirazi
5	Daniel Komba	3160025	0717106922	RESIDENT	Komba
6	Mwanankasi Hassan	220814	0723536606	GRC	Hassan
7	Khadija ALI	5022791	0713056346	GRC	Khadija
8	Rodru Uona	2467294	0717063442	MEMBER	Rodru
9	Hassan Mohamed	5458101	0720585444	MEMBER	Hassan
10	NICKUN KAMBY	2192333	0752925178	DEPUTY CHAIR	Nickun
11					

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS, UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO SETTLEMENT); CONTRACT NUMBER KE-MOTI-214831-S-QCCBS.

Sheet No. \_\_\_\_\_

Date 1<sup>st</sup> January 2023

Name of settlement: KILIFI

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
1	MALINDA SULEMAN	222300	0712121212	ASSISTANT SEC	[Signature]
2	EPHRAIM SULEMAN	222300	0712121212	SEC	[Signature]
3	KARISH KALOLA	0632407	0712121212	MEMBER	[Signature]
4	HELENI NJITTA	2052324	0712121212	Kibbondo	[Signature]
5	PAHELOO GAMBINO	4514547107	0712121212	Ambassador	[Signature]
6	JAMES LINDO	5823456789	0712121212	SEC	[Signature]
7	MWANATHA MPA	0632407	0712121212	Ambassador	[Signature]
8	Mwalid MPA	31042208831404	0712121212	YOUTH KILIFI President	[Signature]
9	Chris P...	0712121212	0712121212	SEC	[Signature]
10	...	0712121212	0712121212	Kilifi resident	[Signature]
11	Sals...	12848900	070026022	Kilifi resident	[Signature]
12	...	7135404	0712121212	Kilifi resident	[Signature]
13	FATIMA ALI	25910573	090311756	Kilifi resident	[Signature]
14	MAGIWA TILLO	3665025	079851211	Kilifi resident	[Signature]

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS, UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIM (6 NO SETTLEMENT); CONTRACT NUMBER KE-MOTI-214831-S-QCCBS.

Sheet No. ....

Date 19<sup>th</sup> JANUARY 2023

Name of settlement: KALILIS

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
1.	Louisa M. Mwangi	3189532	0704581877	STAR COO	[Signature]
2.	Khadia Nader	3481116	0704581877	SEC	[Signature]
3.	Bethari Gwangwa	2519124	0704581877	SEC	[Signature]
4.	Yvonne Mwangi	4741511	0704581877	STAR COO	[Signature]
5.	Junice Goro	3189532	0704581877	STAR COO	[Signature]
6.	Sunday Karim	3189532	0704581877	STAR COO	[Signature]
7.	Abdelaziz Al	3189532	0704581877	STAR COO	[Signature]
8.	Medina Ngugi	3189532	0704581877	STAR COO	[Signature]
9.	Joselyn Ngugi	3511157	0704581877	STAR COO	[Signature]
10.	David Mwangi	2953342	0704581877	Kalilis Resident	[Signature]
11.	Miriam Kariya	3189532	0704581877	STAR COO	M
12.	Janeth Goro	4741511	0704581877	STAR COO	[Signature]
13.	Chloe Kariya	4071610	0704581877	STAR COO	[Signature]
14.	Harriet Goro	3189532	0704581877	STAR COO	[Signature]

CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS, UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO SETTLEMENT). CONTRACT NUMBER KE-MOTI-214831-S-Q/C/CHS.

Sheet No .....

Date ... 13<sup>th</sup> January, 2023

Name of settlement ...

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
	MASHI ...	...	...	SOBUCON	...
	George Anjo	22610730	0721292221	SOBUCON	...
	Yago N. Shadrach	22366819	0720936403	SOBUCON	...
	ENG. JEROME ...	...	...	SOBUCON	...
	Dr. Dan Ad... ..	22155111	0721292221	SOBUCON	...
	Shameer Anji	...	...	SOBUCON	...
	Osore K. Chigi	...	0712244120	SOBUCON	...
	ENG. RONALD ...	...	0721292221	SOBUCON	...
	WAMUKATANI ...	...	0721469012	SEC	...
	...	...	...	CGK	...
	...	...	...	CGK	...

DISCLOSED COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGNS, REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT, UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS), CONTRACT NO. KE/MOTI-214831-CS-QCBS

ATTENDANCE SHEET NO.: ..... DATE: 1st November 2023

SETTLEMENT NAME: - M... ..

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
1	MAM OMBINO OMBINO	24153121	0719 0414 26	SONOCON	
2	ENGR. JORIM SINDOR	21461635	0712374281	SONOCON	
3	ENGR. ROBERT BUELO	24709085	0712374281	SONOCON	
4	Yogo R Shadreck	223366319	0712374281		
	BERNARD K. CIARO	24142431	0719 0414 26		
	Shamiso Obush	33828030	0711632492	"	
	Zina Nyasa	22120019	070 264 061	CGK	

Amosant

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN, REVIEW, REPACKAGING OF DETAILED ENGINEER DESIGN, AND PREPARATION OF PROCUREMENT DOCUMENT, OPERATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI NO. SETTLEMENTS: CONTRACT NO. KE/MOT/214831-CS-QC95

ATTENDANCE SHEET NO. .... DATE .....

SETTLEMENT NAME: .....

NO.	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
	Mohamed Said	1189472	072015351	V/CLERK	[Signature]
	Legea Mera	059033	072015351	V/CLERK	[Signature]
	Salim M. M.	30163230	0745055	MEMBER	[Signature]
	Fatima Khamis J	118714481	072016616	MEMBER	[Signature]
	Uha Samili	22240319	0726875152	MEMBER	[Signature]
	AZIZA AGENALLA	22344250	0712903600	MEMBER	[Signature]
	Said S. Bakha	5031304	022650298	V/CLERK	[Signature]

Amount

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN, REVIEW, REPACKAGING OF DETAILED ENGINEER'S DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT, UPDATING OF RAP AND ESA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS), CONTRACT NO. KE-MOTI-214831-C5-QCBS

ATTENDANCE SHEET NO.: ..... DATE: .....

SETTLEMENT NAME: - .....

NO.	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
1	MUSAID ABDULLI	210229	011227052	Sec	
2	MURIEL ENYIN	5579614	022222222	CONTRACTOR	
3	SAB EKHEI	3756219	011203718	CONTRACTOR	
4	ROVANA MUSAID	13019225	022292222	CONTRACTOR	
5	MURIEL SAID	23213664	01122253806	CONTRACTOR	
6	MOLIMANEN ABUL	38914019	0719557118	TOURIST	
7	EKHEI N. SAID	6691171	0722131550	B.E.C. CONTRACTOR	

Amount

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGNS, REVIEW, REPACKAGING OF DETAILED ENGINEER'S DESIGNS, AND PREPARATION OF PROCUREMENT DOCUMENT, UPDATING OF RAP AND ESA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO. SETTLEMENTS). CONTRACT NO. KE/MOT/214831-C5-QCBS

ATTENDANCE SHEET NO. 1

DATE: 15/08/2023

SETTLEMENT NAME: - KILIFI

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
	Esther Kofan	6658928	0725339347	VE	FATIMA
	JAMES G. MBIGUA	6629133	0725339347	VE	MB
	ARI A. ARI	1069637	0725339347	VE	ARI
	MALINDA E. MUMUNGU	0165007	0725339347	VE	MUR
	BARBARA A. MUMUNGU	8656597	0725339347	VE	MUR
	PAULINA FRANK TJUM	104223740	07222956069	VE	MUR
	MICHAEL MUMUNGU	024166922	0706492164	VE	MUR

Approved

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN, REVIEW, REPACKAGING OF DETAILED ENGINEERING DESIGN, AND PREPARATION OF PROCUREMENT DOCUMENT: UPDATING OF RAP AND ESA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KULFI (6 NO. SETTLEMENTS). CONTRACT NO. KE. MOTI-214831-CS-QC85

ATTENDANCE SHEET NO.: ..... DATE: .....

SETTLEMENT NAME: - ...

NO.:	NAMES	ID NO.	PHONE NUMBER	ORGANIZATION	SIGNATURE
	Milena Mwangi	22152415	011 5222		<i>Milena</i>
	KAL MUMBOYA	4965276	011 5222		<i>Kal</i>
	Sithira Mbulika	10830332	011 5222		<i>Sithira</i>

Amount

DISCLOSURE COPY

CONSULTANCY SERVICES FOR ENGINEERING DESIGN-REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND- PREPARATIONS OF PROCUREMENT DOCUMENTS; UPDATING OF RAP AND ESIA REPORTS, AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6-Nº SETTLEMENT); CONTRACT NUMBER KE-MOTI-714831-S-00018.

Sheet No. \_\_\_\_\_

Date: 20/01/2023

Name of settlement: Mchanga

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
1	Jur-ithi Fadhili	20353271	011886868	SEC	Jur-ithi
2	ABIGAIL MWAYI	553698	07342417	SEC	Abigail
3	RIZADITHI NYAMBA	12546657	071563389	Member	Rizadithi
4	MARYSA M. MACHARIA	0705787	07357878	G.R.C	Marysa
5	MICHAEL CHEPT	14671754	077245501	SEC	Michael
6	WILLIAM MURPHY	1425902	0720224095	G.R.C	William
7	SARAH VUNDI	213905	071770281	Sec	Sarah
8	NICODENUS MWAYI	14671754	0728344460	A/CHIEF	Nicodenus
9	DADI THOMAS	14671754	073709412	WARD ADMN	Dadi

DISCLOSED COPY



CONSULTANCY SERVICES FOR ENGINEERING DESIGN REVIEW, REPACKAGING OF DETAILS ENGINEERING DESIGNS AND PREPARATIONS OF PROCUREMENT DOCUMENTS; UPDATING OF RAP AND ESIA REPORTS; AND SUPERVISION OF THE PROPOSED INFRASTRUCTURES IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTY OF KILIFI (6 NO SETTLEMENT); CONTRACT NUMBER KE-MOTI-214831-S-QCCBS.

Sheet No.....

Date 13<sup>th</sup> January 2023

Name of settlement Kilifi M... ..

NO	NAME	ID NO	PHONE NO	ORGANIZATION	SIGNATURE
	Dickson Mwangi	25774000	094260679	VSI	[Signature]
	Medica Mwangi	11261258	072763091	"	[Signature]
	MNEVI STEPHEN	10305470	079402111	"	[Signature]
	S. SHAI AHMED	24003159	07666230	"	[Signature]
	Lewisa Mwangi	0680176	071111880	MC	[Signature]
	James Mwangi	2752107	07997326	"	[Signature]
	Francis Kungu	24003159	07687337	"	[Signature]
	JAVAN KUNYE	11261258	07264759	"	[Signature]
	AMAZIHI TONY	24003159	07666230	"	[Signature]
	FURAH DANI	3057609	070522526	"	[Signature]
	RAY M KIMANI	2899773	072049700	MCA	[Signature]

DISCLOSURE COPY

## **ANNEX 04: CHANCE FIND PROCEDURE**

### **1. Purpose of the chance find procedure**

The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. A Chance Find Procedure, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

### **2. Scope of the chance find procedure**

This procedure is applicable to all activities conducted by the personnel, including contractors, that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

### **3. Induction/Training**

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

### **4. Chance find procedure**

If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

1. Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;
2. Immediately notify a foreman. The foreman will then notify the Resident/Supervising Engineer and the Environment Officer (EO)/Environmental Manager (EM);
3. Record details in Incident Report and take photos of the find;
4. Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;
5. Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;
6. Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule of the Contractor. The results of all archaeological work must be reported to the National Museums of Kenya (NMK), once completed.

7. In case of significant find the National Museums of Kenya (NMK) should be informed immediately and in writing within 7 days from the find.

8. The onsite archaeologist provides the NMK with photos, other information as relevant for identification and assessment of the significance of heritage items.

9. The NMK must investigate the fact within 2 weeks from the date of notification and provide response in writing.

10. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;

11. Construction works could resume only after permission is granted from the responsible authorities.

12. In case no response received within the 2 weeks' period mentioned above, this is considered as authorization to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photo log, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports - kept.

#### 5. Additional information

##### Management options for archaeological site

- a) **Site avoidance.** If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option.)
- b) **Mitigation.** If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.)
- c) **Site Protection.** It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site-specific.

##### Management of replicable and non-replicable heritage

Different approaches for the finds apply to replicable and non-replicable heritage.

##### Replicable heritage<sup>7</sup>

Where tangible cultural heritage that is replicable and not critical is encountered, mitigation measures will be applied. The mitigation hierarchy is as follows:

---

<sup>7</sup> Replicable cultural heritage is defined as tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures.

- a) Avoidance;
- b) Minimization of adverse impacts and implementation of restoration measures, in situ;
- c) Restoration of the functionality of the cultural heritage, in a different location;
- d) Permanent removal of historical and archaeological artefacts and structures;
- e) Compensation of loss - where minimization of adverse impacts and restoration not feasible.

#### Non-replicable heritage<sup>2</sup>

Most cultural heritage is best protected by in situ preservation, since removal is likely to result in irreparable damage or even destruction of the cultural heritage. Nonreplicable cultural heritage must not be removed unless all of the following conditions are met:

- a) There are no technically or financially feasible alternatives to removal;
- b) The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and
- c) Any removal of cultural heritage must be conducted using the best available technique advised by relevant authority and supervised by archaeologist.

#### Human Remains Management Options

The handling of human remains believed to be archaeological in nature requires communication according to the same procedure described above. There are two possible courses of action:

- a) **Avoid.** The development project is redesigned to completely avoid the found remains. An assessment should be made as to whether the remains may be affected by residual or accumulative impacts associated with the development, and properly addressed by a comprehensive management plan.
- b) **Exhume.** Exhumation of the remains in a manner considered appropriate by decision makers. This will involve the predetermination of a site suitable for the reburial of the remains. Certain ceremonies or procedures may need to be followed before development activities can recommence in the area of the discovery.

---

<sup>2</sup> Nonreplicable cultural heritage may relate to the social, economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management, where the (i) cultural heritage is unique or relatively unique for the period it represents, or (ii) cultural heritage is unique or relatively unique in linking several periods in the same site. Examples of non-replicable cultural heritage may include an ancient city or temple, or a site unique in the period that it represents.