

GOVERNMENT OF THE REPUBLIC OF KENYA



MINISTRY OF TRANSPORT, HOUSING AND  
URBAN DEVELOPMENT  
State Department of Housing and Urban Development

SECOND KENYA INFORMAL SETTLEMENT IMPROVEMENT PROJECT (KISIP 2)

Financed By:



CONTRACT NUMBER: KE-MOTI-298199-CS-QCBS



CONSULTANCY SERVICES FOR RESETTLEMENT ACTION PLAN (RAP) AND ENVIRONMENTAL AND SOCIAL  
IMPACT ASSESSEMENT (ESIA) REPORTS AND SUPERVISION OF CONSTRUCTION WORKS IN SELECTED  
INFORMAL SETTLEMENTS (MISUFINI) IN MOMBASA COUNTY

COMPREHENSIVE PROJECT REPORT FOR MISUFINI SETTLEMENT

MOMBASA COUNTY

DATE: JULY 2024

## CONSULTANT

 <b>STUDIO GALLI INGEGNERIA</b>	<b>In Joint Venture with</b>	 <b>East African Engineering Consultants</b>
HEADQUATER ITALY  Via della Provvidenza, 15  35030 – Sarmeola di Rubano (PD) – Italia  SGI STUDIO GALLI KENYA  Coral Bells Apartments, Suite A608  Off Kiambu Road  P.O BOX 21053 - 00100 - G.P.O  Nairobi		Lenana Court off Lenana Road, House No.3 Kilimani  P.O. Box 30707-00100  Nairobi, Kenya  Tel: +254-20-2714514/5  Email: info@eaecgroup.com, eaecenya@gmail.com

## DOCUMENT CONTROL

Document Reference Number **2309701**

DOCUMENT REFERENCE NUMBER - 2309701					
n°	REVISION	DATE	WRITTEN	APPROVED	REMARK
0	Emission	March 2024	East Africa Engineering Company	Emission	
1	Emission	April 2024	East Africa Engineering Company	Emission	
2	Emission	May 2024	East Africa Engineering Company		
3	Emission	July 2024	East Africa Engineering Company		

## DECLARATION

### Certificate of Declaration and Document Authentication

This document has been prepared in accordance with the Environmental (Impact Assessment and Audit) Regulations, 2003 of the Kenya Gazette Supplement No.56 of 13th June 2003, Legal Notice No. 101.

This report is prepared for and on behalf of:

### The Proponent

The County Government of Mombasa, Ministry of Lands, Public Works, Housing and Urban Development, State Department of Housing and Urban Development.

P.O. Box

Nairobi - Kenya.

Designation -----

Name -----

Signature ----- Date -----

### Lead Expert

I, **Charles Muyembe Lwanga, Lead Expert Registration Number 1283** on behalf of The Government of the Republic of Kenya, Ministry of Lands, Public Works, Housing and Urban Development, State Department of Housing and Urban Development, submit this Comprehensive Project Report Study of the infrastructure upgrading plans, detailed engineering designs and preparation of procurement documents, Abbreviated Resettlement Action Plan (ARAP) and Comprehensive Project Report, and Screening Reports where applicable, and supervision of construction works in selected informal settlements for Misufini Settlement Upgrade Project. The Comprehensive Project Report has been prepared in accordance with the Client Guidelines, Environmental Management and Coordination Act, Cap 387, and the Environmental (Impact Assessment and Audit) Regulations, 2003 (and the amendment Regulations of 2016).

Signed at ..... on this ..... day of **July 2024**

Signature: .....

Designation: **ESIA/AUDIT LEAD EXPERT REG. NO 1283**

## TABLE OF CONTENTS

CONSULTANT .....	ii
DOCUMENT CONTROL .....	ii
DECLARATION .....	iii
TABLE OF CONTENTS .....	iv
LIST OF FIGURES .....	xi
LIST OF TABLES .....	xi
LIST OF APPENDICES .....	xvi
LIST OF ABBREVIATIONS .....	xvii
EXECUTIVE SUMMARY .....	xviii
1 INTRODUCTION .....	1
1.1 Project Background .....	1
1.2 Objectives of the project .....	1
1.3 Objectives of the ESIA .....	1
1.4 Terms of References (TORS) .....	1
1.5 Justification of the ESIA .....	2
1.6 Environmental and Social Impact and Assessment Team .....	2
1.7 ESIA Approach and Methodology .....	3
1.7.1 Environmental and Social Screening .....	3
1.7.2 Environmental Social Management Framework .....	4
1.7.3 Relocation Policy framework .....	4
1.7.4 Environmental and Social Scoping .....	5

1.7.5	Desktop Study .....	5
1.7.6	Site Assessment .....	5
1.7.7	Public Participation .....	5
1.7.8	General questionnaires .....	5
1.7.9	Key informants' interviews .....	6
1.7.10	Socio-economic surveys .....	6
1.7.11	Public meeting .....	6
1.7.12	Data Analysis, Reporting and Documentation .....	6
2	PROPOSED PROJECT DESCRIPTION .....	8
2.1	Project Location .....	8
2.2	Projects description .....	10
2.3	Road and Drainage System .....	11
2.3.1	Conceptual Design .....	12
2.3.2	Geometric Design .....	12
2.4	Street Lighting Works .....	18
2.4.1	Installation of High-Mast lights .....	18
2.5	Water Supply .....	19
3	PROJECT ALTERNATIVE .....	21
3.1	The "No-action" Alternative .....	21
3.2	Upgrade of Roads .....	21
3.2.1	Alternative 1: Patch and Repair .....	21
3.2.2	Alternative 2: Incremental Upgrade .....	22
3.2.3	Alternative 3: New Road Alignment .....	22

3.3	Construction of Storm Water Drainage .....	22
3.3.1	Alternative 1: Green Infrastructure .....	22
3.3.2	Alternative 2: Traditional Drainage Systems .....	23
3.3.3	Alternative 3: Regional Detention Ponds .....	23
3.4	Installation of High-Mast Lights .....	23
3.4.1	Alternative 1: Solar-Powered Lights .....	23
3.4.2	Alternative 2: Smart Lighting Systems .....	24
3.4.3	Alternative 3: Decorative Lighting .....	24
3.5	The Alternative Analysis .....	24
4	SOCIO-ECONOMIC AND ENVIRONMENTAL BASELINE INFORMATION .....	26
4.1	Introduction .....	26
4.2	Biophysical .....	26
4.2.1	Physical environment .....	26
4.2.2	Biological Environment .....	27
4.3	Socio-Economic Baseline .....	27
4.3.1	Population .....	27
4.3.2	Land tenure .....	28
4.3.3	Population Projection .....	28
4.3.4	Demographics: .....	29
4.3.5	Water Sources, Storage, Disposal, Quality and Reliability .....	31
4.3.6	Personal Hygiene .....	33
4.3.7	Sanitation situation .....	34
4.3.8	Safety and security in the settlement .....	36

5	POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK .....	37
5.1	National Laws and Regulations .....	37
	County Government Act No.17 of 2012 .....	38
5.2	County Laws and Regulation .....	39
5.3	National Policy Framework .....	39
5.4	County Policy Framework .....	40
5.5	Sustainable Development Goals .....	41
5.6	Multilateral Environmental Agreements .....	42
5.7	World Bank Operational Safeguards .....	43
5.8	KISIP 2 Instruments .....	44
6	PUBLIC PARTICIPATION .....	45
6.1	Legal and Policy Provisions for Stakeholder Consultations .....	45
6.2	Objectives of the Consultation and Public Participation (CPP) .....	45
6.3	Methodology Used in The CPP .....	45
6.4	Notification of the Marginalized .....	46
6.5	Schedule of Stakeholder Consultations .....	46
6.6	Public Disclosure of ESIA, RAP, CPR and Annual Monitoring Reports .....	47
6.7	Construction, Operation and Decommissioning Phase Consultations .....	48
6.8	Community Relations in Construction Phase .....	51
6.9	Construction Contractor's Role in Community Liaison .....	51
6.10	Community Relations in Operational Phase .....	51
6.11	Decommissioning .....	51
7	IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES .....	52

7.1 Anticipated project positive impacts During Pre-construction Phase .....	53
7.1.1 Roads & Drainage .....	53
7.1.2 Street lighting .....	54
7.2 Anticipated Positive Impacts During Construction Phase .....	54
7.2.1 Roads & Drainage .....	54
7.2.2 Street lighting .....	56
7.3 Anticipated positive impacts during Operation Phase .....	56
7.3.1 Roads and Drainage .....	56
7.3.2 Street lighting .....	57
7.4 Anticipated Positive impacts During Decommissioning Phase .....	57
7.4.1 Roads & Drainage .....	57
7.4.2 Street lighting .....	58
7.5 Anticipated Negative impacts during pre-construction phase .....	58
7.5.1 Roads and footpaths .....	58
7.5.2 Drainages .....	60
7.5.3 Street Lighting .....	61
7.6 Anticipated Negative Impacts during Construction .....	63
7.6.1 Roads and footpaths .....	63
7.6.2 Drainages .....	72
7.6.3 Street Lighting .....	80
7.7 Anticipated Negative Impacts during Operation stage .....	85
7.7.1 Roads and footpaths .....	85
7.7.2 Drainages .....	91



7.7.3 Street Lighting .....	93
7.8 Anticipated Negative Impacts During Decommissioning Phase .....	96
7.8.1 Roads and Foot paths .....	96
7.8.2 Drainages .....	98
7.8.3 Street Lighting .....	100
8 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMP) .....	103
8.1 Introduction .....	103
8.2 Purpose and Objectives of ESMMP .....	103
8.3 Auditing of the ESMMP .....	103
8.4 Responsibilities for the Implementation of the ESMMP .....	104
8.4.1 Kenya Informal Settlement Improvement Project (KISIP) .....	104
8.4.2 National Environment Management Authority (NEMA) .....	104
8.4.3 The Contractor(s) .....	104
8.4.4 Supervising Consultant .....	105
8.4.5 Directorate of Safety and Health Services (DOSHS) .....	105
8.4.6 Mombasa County Government .....	105
8.5 Mitigation of Design Stage Impacts .....	106
8.6 ESMMP .....	107
8.6.1 ESMMP for Preconstruction Stage .....	107
8.6.2 ESMMP for Construction Phase .....	111
8.6.3 ESMMP for Operational Phase .....	133
8.6.4 ESMMP for Decommissioning Phase .....	142
9. GRIEVANCE REDRESS MECHANISM .....	151

9.1 Introduction .....	151
9.2 Objectives of the GRM .....	151
9.3 The Three Tier of Grievance Redress Mechanism .....	151
9.4 Proposed Grievance Redress Procedure .....	152
9.5 Worker Grievance Procedure .....	154
9.6 GRM Cost Estimate .....	154
10 CONCLUSION AND RECOMMENDATIONS .....	156
10.1 CONCLUSION .....	156
10.2 RECOMMENDATION .....	156
References .....	158
APPENDICES .....	159

## LIST OF FIGURES

Figure 1: Map of kenya .....	8
Figure 2: Settlements of KISIP 2 , source: project design report .....	9
Figure 3: Misufini settlement location map, source: project design report .....	9
Figure 4 : misufini landscape .....	20
Figure 5: vegetation found at the project area .....	27
Figure 6: sources of income .....	30
Figure 7: type of housing structure .....	31
Figure 8: sources of drinking water .....	31
Figure 9: Alternative sources of water .....	32
Figure 10: Hand washing facilities .....	34
Figure 11: Sharing of toilets .....	35
Figure 12: Access to sanitation facilities .....	35
Figure 13: public participation with Misufini community .....	47

## LIST OF TABLES

Table 1: Team of expert .....	2
Table 2: Scope of works .....	10
There are 5 roads that have been prioritized Table 3: Proposed roads to be upgraded .....	11
Table 4: Road project details .....	11
Table 5: Summary of road works .....	12
Table 6: Functional Road Characteristics (Urban Road Design Manual) .....	13
Table 7: Design Vehicle as a Design Control Parameter .....	13

Table 8: Stopping Sight Distance .....	14
Table 9: Normal Travel Way Cross Slope .....	16
Table 10: Recommended Design Slopes .....	16
Table 11: Summary of street lighting works .....	18
Table 12: Water supply project details .....	19
Table 13: Summary of water works .....	19
Table 14: population projections .....	29
Table 15: National Laws .....	37
Table 16: County Laws .....	39
Table 17: National Policies .....	39
Table 18: County Policies .....	40
Table 19: Sustainable Development Goals .....	41
Table 20: World Bank Safeguard Policies .....	43
Table 21: KISIP INstruments .....	44
Table 22: Schedule of Public Consultation Meetings .....	46
Table 23: Summary of issues raised in consultations during the assessment .....	46
Table 24: Stakeholder Consultations during Project Construction and Operation Phase .....	49
Table 25: Impacts Consequences .....	52
Table 26: Impacts Likelihood .....	52
Table 27: Significance Rating Matrix .....	53
Table 28: Negative Impacts ratings and associated colour codes .....	53
Table 12: Approval delays impacts rating .....	58
Table 13: Clearing of project corridor impacts rating .....	58

Table 14: <b>Risk of excluding some beneficiaries impacts rating</b> .....	59
Table 15: <b>Divided opinion impacts rating</b> .....	60
Table 16: Approval delays impacts rating .....	60
Table 17: <b>Risk of excluding some beneficiaries impacts rating</b> .....	60
Table 18: <b>Divided opinion impacts rating</b> .....	61
Table 19: Approval delays impacts rating .....	62
Table 20: <b>Risk of excluding some beneficiaries impacts rating</b> .....	62
Table 21: <b>Divided opinion impacts rating</b> .....	62
Table 24: Surface and ground water pollution Impacts Rating .....	63
Table 25: Air Pollution Impacts Rating .....	64
Table 26: Increased Crime and Insecurity impacts rating .....	65
Table 27: Occupational Health and Safety Risks Impacts Rating .....	65
Table 28: Sexual Exploitation and Abuse Impacts Rating .....	66
Table 29: Inadequate stakeholder Engagement Impacts Rating .....	66
Table 30: Ineffective Grievance Management Impacts Rating .....	67
Table 31: Child labour and Abuse Impacts Rating .....	69
Table 32: Disruption to Public Services Impacts Rating .....	69
Table 33: Solid waste Impacts Rating .....	70
Table 34: GBV Impacts Rating .....	71
Table 35: Noise Pollution Impacts Rating .....	71
Table 36: Risk of excluding some beneficiaries Impacts Rating .....	72
Table 37: Surface and ground water pollution Impacts Rating .....	72
Table 38: Air Pollution Impacts Rating .....	73

Table 39: Increased Crime and Insecurity impacts rating .....	74
Table 40: Occupational Health and Safety Risks Impacts Rating .....	74
Table 41: Sexual Exploitation and Abuse Impacts Rating .....	75
Table 42: Inadequate stakeholder Engagement Impacts Rating .....	76
Table 43: Child labour and Abuse Impacts Rating .....	76
Table 45: Disruption to Public Services Impacts Rating .....	77
Table 46: Solid waste Impacts Rating .....	77
Table 47: GBV Impacts Rating .....	78
Table 48: Noise Pollution Impacts Rating .....	79
Table 49: Risk of excluding some beneficiaries Impacts Rating .....	80
Table 40: Occupational Health and Safety Risks Impacts Rating .....	80
Table 41: Sexual Exploitation and Abuse Impacts Rating .....	81
Table 42: Inadequate stakeholder Engagement Impacts Rating .....	81
Table 43: Child labour and Abuse Impacts Rating .....	82
Table 45: Disruption to Public Services Impacts Rating .....	83
Table 46: Solid waste Impacts Rating .....	83
Table 47: GBV Impacts Rating .....	84
Table 49: Risk of excluding some beneficiaries Impacts Rating .....	84
Table 50: Gender based violence Impacts Rating .....	86
Table 51: Ineffective Grievance Management Impacts Rating .....	86
Table 52: Inadequate stakeholder Engagement Impacts Rating b .....	88
Table 53: Energy Consumption Impacts Rating .....	88
Table 54: Light and Visual Discomfort Impacts Rating .....	89

Table 55: Water pollution impacts rating .....	89
Table 56: Alteration of natural drainage patterns impacts rating .....	90
Table 57: Disturbance to nocturnal wildlife impacts rating .....	90
Table 50: Gender based violence Impacts Rating .....	91
Table 52: Inadequate stakeholder Engagement Impacts Rating .....	91
Table 55: Water pollution impacts rating .....	92
Table 56: Alteration of natural drainage patterns impacts rating .....	92
Table 50: Gender based violence Impacts Rating .....	93
Table 51: Ineffective Grievance Management Impacts Rating .....	93
Table 52: Inadequate stakeholder Engagement Impacts Rating b .....	94
Table 53: Energy Consumption Impacts Rating .....	94
Table 54: Light and Visual Discomfort Impacts Rating .....	95
Table 57: Disturbance to nocturnal wildlife impacts rating .....	95
Table 58: Disruption of se4rvices impacts rating .....	96
Table 59: Environmental disturbance impacts rating .....	96
Table 60: Waste generation impacts rating .....	97
Table 61: Economic loss impacts rating .....	97
Table 62: Health and safety concerns impacts rating .....	98
Table 58: Disruption of se4rvices impacts rating .....	98
Table 59: Environmental disturbance impacts rating .....	99
Table 60: Waste generation impacts rating .....	99
Table 61: Economic loss impacts rating .....	99
Table 62: Health and safety concerns impacts rating .....	100

Table 58: Disruption of services impacts rating .....	100
Table 59: Environmental disturbance impacts rating .....	101
Table 60: Waste generation impacts rating .....	101
Table 61: Economic loss impacts rating .....	102
Table 62: Health and safety concerns impacts rating .....	102
Table 58: The potential impacts classification formula .....	<b>Error! Bookmark not defined.</b>
Table 63: GRC Guiding Principles .....	153
Table 64: Grievance Redress Mechanism .....	153
Table 65: GRM cost .....	154

## LIST OF APPENDICES

Appendix 1: Situation Analysis Report .....	159
Appendix 2: Checklist .....	161
Appendix 3: Questionnaire .....	176
Appendix 4: Attendance list .....	180
Appendix 5: <i>Minutes</i> .....	182
Appendix 5: Expert License .....	186
Appendix 6: Photo Plate .....	189



## LIST OF ABBREVIATIONS

<b>ARAP</b>	Abbreviated Resettlement Action Plan
<b>AFDB</b>	African Development Bank
<b>AFD</b>	Agence Francaise de Development
<b>BoQ</b>	Bill of Quantities
<b>CPR</b>	Comprehensive Project Report
<b>DOSHS</b>	Directorate of Occupational Health and Safety Services
<b>EHS</b>	Environment Health and Safety
<b>EA</b>	Environmental Assessment
<b>ESAAP</b>	Environment and Social Audit Action Plan
<b>ESIA</b>	Environmental and Social Impact Assessment
<b>ESMMP</b>	Environment and Social Management & Monitoring Plan
<b>EMCA</b>	Environmental Management and Coordination Act
<b>GoK</b>	Government of Kenya
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Green House Gases
<b>HSP</b>	Health and Safety Plan
<b>MTIH&amp;UD</b>	Ministry of Transport, Infrastructure Housing and Urban Development
<b>MTP</b>	Medium Term Plan
<b>MDG</b>	Millennium Development Goal
<b>MSF</b>	Sustainable Development Goals
<b>NEC</b>	National Environment Council
<b>NEP</b>	National Environment Policy
<b>NEMA</b>	National Environment Management Authority
<b>NGO</b>	Non-Governmental Organization
<b>PCR</b>	Physical Cultural Resources
<b>PCT</b>	Project Committee Team
<b>PDO</b>	Project Development Objectives
<b>PRSP</b>	Poverty Reduction Strategy Paper
<b>RAP</b>	Resettlement Action Plan
<b>OP</b>	Operation Policy
<b>OSHA</b>	Occupational Health and Safety
<b>SDH&amp;UD</b>	State Department of Housing and Urban Development
<b>SDG</b>	Sustainable Development Goals
<b>SUP</b>	Socially Uplifting Project
<b>WB</b>	World Bank

## **EXECUTIVE SUMMARY**

### **Project Background**

The Government of Kenya has received a credit from International Development Association (IDA) and Agence Francaise Developement (AFD) towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP 2)

KISIP 2 builds on the successes and lessons learnt of KISIP 1 and continues to support the interventions that have been successful. The overall project development objective of the KISIP 2 programme is to improve access to basic services and tenure security of residents in participating urban informal settlement and strengthen institutional capacity for slum upgrading in Kenya in consultation with the community.

This Project, while concentrating on informal settlements, complements 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.

The Misufini Settlement Improvement Project is a strategic initiative aimed at enhancing infrastructure and amenities within the Misufini Settlement located in Jomvu Sub-County, Mombasa County, Kenya. The project encompasses road upgrades, drainage system improvements, installation of street lighting, and enhancement of water supply networks. These interventions are designed to elevate living standards, promote community development, and foster socio-economic growth in the area. The settlement has a population of 1789 residents under an area of 24 Ha.

### **Objectives of the ESIA**

The main objective of the ESIA study is to predict, assess, and analyze the possible positive and negative environmental and social impacts that are expected during the construction, operation and decommissioning phases of the project. The specific objectives are: -

- Prediction and evaluation of potential environmental impacts of the project, and propose workable mitigation measures for the significant negative impacts of the project on the environment.
- Preparation of a detailed Environmental Monitoring Plan for the proposed project.
- Preparation of a detailed Environmental and Social Management Plan (ESMP) for the proposed project.

Ministry of Transport, Infrastructure, Housing and Urban Development (MOTIH&UD) - State Department for Housing and Urban Development (SDFH&UD) (hereafter referred to as the Client) has engaged Charles Lwanga Muyembe (hereafter referred to as the Lead Consultant) to provide the Consultancy Services for Environmental and Social Impact Assessment (ESIA) Study of the Feasibility Studies, Preliminary and Detailed Designs and Preparation of Tender Documents for Misufini settlement Upgrade Project (hereafter referred to as the Project).

### **Terms of Reference**

The consultant is expected to undertake activities that will ensure that outputs are consistent with the professional and legal requirements. All outputs will be presented using modern techniques/technology and will form part of the digital land information systems for informal settlements being generated by KISIP 2. It is also required that the data is generated through a consultative process that guarantees authenticity and ownership through the following specific tasks.

1. Desktop study
2. Community mobilization and sensitization for stakeholder engagement.

3. Identification and preparation of base maps of the existing informal settlements.
4. Undertake Environmental and Social Impact Assessment and prepare a Social Management Plan and or a Resettlement Action Plan.
5. Undertaking socio-economic surveys and physical mapping of the settlements.
6. Land Information System (LIS).

### **ESIA Approach and Methodology.**

*TABLE A- 1: Esia approach methodology*

Visiting the project site	consulting with the local communities, and other relevant key stakeholders
Data Collection Methods and Procedures	Questionnaires/standard interview schedules, key informant interviews, focused group discussions, use of checklists, observations and photography, site visits, desktop environmental studies and scientific tests, where necessary
Environmental Screening	Assess whether there will be a need for an environmental and social impact assessment
Environmental Scoping	Conducted to help narrow down onto the most critical issues requiring attention during the assessment.
Desktop Study	Review on the nature of the proposed activities, project documents, designs, policy and legislative framework as well as the environmental setting of the area among others.
Site Assessment	Field visits were made for physical inspections of the areas around the project site and the environmental status of the surrounding areas to determine the anticipated impacts.
Public Participation	Public participation meetings were conducted specifically the project area.
Data Analysis, Reporting and Documentation	Data was quantitatively and qualitatively analyzed in terms of themes.

### **Project Description**

The project encompasses road upgrades, drainage system improvements, installation of street lighting, and enhancement of water supply networks.

### **Project Location and Size**

The Misufini Settlement project, situated in Jomvu Sub-County, Mombasa County, is a crucial infrastructure upgrade initiative aimed at enhancing the overall quality of life, mobility, and safety within the community. Covering an area of approximately 14.999 hectares on plot number MN/V/514, the settlement is situated within Jomvu Sub-County, Jomvu Kuu ward. Accessible primarily from the 'Raphia Bags' go-down off the Mombasa-Nairobi A109 highway near Jomvu shopping center, the settlement extends across the A109 road, commonly known as Dhome. It shares borders with neighboring settlements such as the Miritini World Bank settlement scheme to the east, Bandika/Chiranga/Kombo settlement schemes to the north, Compact to the west, Raffia bags to the northwest, and Zubedi to the south. Originating from the abundant 'Misufini' trees, which are cotton

trees once widely grown in the area, the settlement's name reflects its natural surroundings. The settlement's population, estimated at 1789 people, is derived from available data from the 2019 census, indicating the settlement's demographic profile and serving as a baseline for project planning and implementation.

### Proposed Scope of works

The proposed projects for the Misufini Settlement encompass a comprehensive upgrade initiative that includes the construction of roads, footpaths, drainage systems, extension of water lines, and streetlight works.

Table A- 2: Scope of works

Proposed Projects	Description				
	No of Footpaths	No of roads	Widths	Total lengths	Nature of upgrade
1. Roads	-	6	3m, and 6m	1,442.03m	Upgrade to bitumen standard with side pavements, culverts and crossing paths
2. Drainage system	Description				
	Construction of Lined up open drains and infiltration pits with No culverts no crossing points				
3. Street Lighting- Installation off High Mast lighting	Description				
	No of High Mast lighting		Height	Luminous Radius (Coverage)	
	3		30m	150m	
4. Water Supply	Description				
	Water Supply Pipelines, 591 Consumer Connections together with 1 Air Valves 1 Washouts, 1 Flanged Gate valves				

### Project cost estimate

#### 1. Roads, Footpaths, and Drainage System

There are five roads prioritized by the project. The road improvement initiative involves six roads within the Misufini Settlement, each designated with a unique road number. The total length of these roads amounts to 1442.03 meters. The proposed road works include the creation of carriage ways ranging from 3.0 to 6.0 meters in width. The pavement structure is designed to consist of a 300mm thick improved subgrade, compacted in two layers of 150mm to 100% Modified AASHTO T99 Maximum Dry Density (MDD). This is followed by a 200mm thick natural gravel material sub-base with a minimum CBR of 30%, a 150mm thick 2% Cement Treated Gravel Base, a 50mm sand/quarry dust layer course, and finally, an 80mm layer of heavy-duty concrete paving blocks. Additionally, the drainage system construction includes the installation of cross pipe culverts, access culverts, and shallow open drains to effectively manage storm water runoff.

## Proposed projects

*TABLE A- 3: Roads and drainages*

S/N	DESCRIPTION	AMOUNT
1	SITE CLEARANCE AND TOPSOIL STRIPPING	1,227,407.49
2	EARTHWORKS	21,029,133.11
3	CULVERT & DRAINAGE WORKS	30,454,620.62
4	PASSAGE OF TRAFFIC	1,539,610.63
5	NATURAL MATERIAL FOR SUBBASE AND BASE	8,670,436.50
6	CEMENT AND LIME TREATMENT	2,088,091.69
7	BITUMINOUS SURFACE TREATMENT	6,222,518.44
8	WEARING COURSE	26,570,336.00
9	ROAD FURNITURE	11,811,294.42
10	ENVIRONMENTAL & SOCIAL SAFEGUARDS	21,760,000.00
	<b>SUB - TOTAL 1</b>	<b>109,613,448.89</b>

## 2. Street Lighting Works

The project incorporates street lighting works to enhance safety and security in the settlement. This involves the installation of 5 high mast lights, each featuring a 30-meter high steel tower. The lights come complete with a lockable electrical control switchgear and power meter chamber, anchored on a substantial 3000mm by 3000mm concrete foundation. The radius of illumination for each high mast light spans an impressive 150 meters, contributing significantly to the overall safety and well-being of the community during nighttime.

*TABLE A- 4: Street lighting budget*

S/N	DESCRIPTION	AMOUNT
1	FLOODLIGHTING AND OTHER SERVICES	8,976,300.00
2	CIVIL AND STRUCTURAL WORKS	2,769,300.00
	<b>SUB TOTAL</b>	<b>11,745,600.00</b>

## 3. Water Supply

The works shall also entail the connection of 591 new consumers with Complete consumer connection including 90° HDPE bend, HDPE ferrule adopter, consumer connection pipe HDPE BPT Adopter, meter box include short threaded, pipe piece, isolating ball valve, volumetric domestic water meter c/w strainer plus non return, meter cap nut, short threaded pipe piece, lock nut plastic washers, concrete base class 15/20, all socketed Ts and 90° socketed bend.

*TABLE A- 5: Water supply budget*

S/N	DESCRIPTION	AMOUNT
1	MISUFINI WATER SUPPLY	11,726,814.99
	<b>SUB TOTAL</b>	<b>11,726,814.99</b>

### Project Activities and Processes

Projects to be Undertaken;

- Roads and Storm Water Drains
- High mast security lighting
- Enhancement of water supply pipeline

### Project Budget Summary

TABLE A- 6: Summary budget

S/N	DESCRIPTION	AMOUNT
1	109,613,448.89	109,613,448.89
2	11,745,600.00	11,745,600.00
3	11,726,814.99	11,726,814.99
<b>TOTAL</b>		<b>133,085,863.88</b>

### Socio-economic

The Misufini Settlement project, 3°59'50"S, 39°34'44"E situated in Jomvu Sub-County, Mombasa County, elevation of 63M above sea level is a crucial infrastructure upgrade initiative aimed at enhancing the overall quality of life, mobility, and safety within the community. Covering an area of approximately 14.999 hectares. The settlement's population, estimated at 1789 people.

The climate of Mombasa is influenced by the semi-annual passage of the inter-tropical convergence zone (ITCZ) and the monsoons. The Northeast monsoon occurs from December to March, and the Southeast monsoon from May to October. The mean annual rainfall is 1038 mm, peaking in May and October. Average annual temperatures for the two seasons are 23.9°C and 28.5°C respectively.

The Project area has been influenced by development and is characterized by a belt of trees (coconut, indigenous, fruit), Grassland. There is presence of household trees some used for fencing and micro climate component. There are mangrove forests occupy 1'465 ha at Tudor creek which is approximately 5km from the project site. The project area already has minimal Fauna, due to its highly urban nature, thus little vegetation may be affected by the proposed construction and rehabilitation works.

### Current situation

- **Water Infrastructure:** Many the residents have access to piped water, a small percentage access through rain water or streams while the rest did not have access to piped water.
- **Roads and Drainage:** Misufini settlement slopes steadily on either side to the lowlands with seasonal streams that drain runoff from the settlement. Internal access roads within the settlement are too narrow and there is encroachment with some plots not properly aligned.

## **Policy, Legal and Administrative Framework**

The ESIA Report preparation was guided by provision of relevant policies, legislation and institutional frameworks that guide preparation of ESIA in Kenya and the international standards, including the World Bank O Safeguard Policies. These instruments are presented as follows:

### **Policy Provision**

- National Policy for Disaster Management in Kenya 2009
- National Disaster Response Plan, 2009,
- Constitution of Kenya 2010
- Kenya Vision 2030
- The Sustainable Development Goals
- National Environment Policy (NEP)
- National Land Policy
- HIV and AIDS Policy 2009
- Gender Policy 2011

### **Acts of Parliament**

- Environmental Management and Coordination Act (EMCA) 1999 amended in 2015
- Water Act 2002 amended in 2016
- County Government Act no 17 of 2012
- Physical Planning Act 1996 (286)
- Occupational Health and Safety Act (OSHA 2007), Public Health Act (Cap.242)
- Works Injuries and Benefits Acts (2007)

### **Institutional framework**

- KISIP, Mombasa County, Kenya National Highways Authority, Kenya Rural Roads Authority, Community Based Organizations, Kenya Power, Water Service Boards supplying water to the settlement

### **International Safeguard Policies and Standards**

- World Bank OP 4.01 on Environment Assessment
- World Bank Group Environment, Health and Safety Guidelines

Other international instruments used included AfDB Integrated Safeguard System, International Finance Cooperation (IFC) Performance Standard, Labour and Working Conditions, and other applicable international conventions and treaties were also reviewed.

### **Project Alternative**

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study / Project Report subsequent to which, subsection (i) requires an analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site. Therefore, this section analyses the Project alternatives in terms of site, technology scale and waste management options. However, under this study the alternative that was considered for the Project was focused on:

- a) "No-action" Alternative

- b) Alternative Routes
- c) Alternative Mode of Transportation
- d) Analysis of Alternative Construction Materials and Technology

## Highlights of Stakeholder Engagement

### Stakeholder Engagement Findings

The assessment involved consultations with relevant stakeholders in target Project area. The aim of stakeholder consultations was to give a platform for information sharing and opinion gathering in relation to the proposed Project. Consultations were done in form of public meetings and key informant interviews. The issues were then analyzed and presented to design team for finalization of Project designs and planning on how best to implement the Project. The main meetings were held within the month of March 2024; attendance of the meetings was from diverse sectors of the society as summarized below.

TABLE A- 7: Meeting schedule

Date	Meeting Venue	Stakeholder Consulted	Number of male in Attendance	Number of female in Attendance
13 <sup>th</sup> March 2024	Misufini	GRC members, SEC members, PAPS and ESIA experts	8	5

### Summary of Stakeholder Consultation Issues below.

TABLE A- 8: Summary of stakeholder consultation issues

	Issue	Response
1.	The Valuation of KISIP 1 was not satisfactory since The money compensated is less than the value of the property affected	They were informed that the reason for the meeting is to acquire their grievances and look for ways to improve the project thus issues of Valuation will be captured and ways of improvement sort after.
2.	There was no proper communication to the PAPS concerning compensation. Thus most of them received money though where not aware it was for what purpose	They were informed that the reason for the meeting is to acquire their grievances and look for ways to improve the project thus lack of communication will be captured and ways of improvement sort after.
3.	There was interest that the SEC and GRC committees get to know the exact list of PAPS paid and those that were not from the office of the county	They were informed that due to sensitivity of the information. Some information may not be disclosed to them
4.	The attendees of the meeting wanted to know how the valuation is done and how normally PAPS are compensated	The ESIA expert informed them that there is usually a RAP process initiated where a valuer is the one who does the valuation and a budget is drawn and the community are to be involved fully in the process that why we were there.



Details of stakeholder consultations are presented in **PUBLIC PARTICIPATION** of this Report

DISCLOSURE COPY

## Summary of Potential Positive Impacts

On a rating of 1-5 on its significance to the local community 1 being less significant 5 being most significant

TABLE A- 9: Summary of potential positive impacts

				Rating	Maximizing Measure
1	Positive	Short Term	Job Creation Increased	5	The contractor to outsource that are readily available at the project site without sabotaging the quality of work, Construction camps promoting local businesses for food and other ingredients
			Connectivity Enhanced Safety	4	Improving existing reporting mechanism in case incidents of insecurity are still there
			Flood Prevention	4	Doing a flood risk survey to assess areas prone to flood and place further mechanism for flood prevention
			Reduced Erosion	3	Creation of awareness to the public on how to further control erosion
			Increased Property Values	4	Proper development of incorruptible systems of buying and selling of land and removing the middle man in order the local can benefit Higher from sale of his/her land
			Improved Pedestrian Infrastructure	3	
			Access to Education	3	
			Access to Healthcare	3	
			Social Cohesion		
			Prevention of Waterlogging	3	
			Aesthetic Improvement of Urban Areas	4	
			Community Development	4	
		Long term	Sustainable Development	4	Other CSR sustainable project e.g. improved sanitation to follow the success of the project
			Infrastructure	3	

			<b>Resilience</b>		
			<b>Environmental Protection</b>	<b>3</b>	
			<b>Reduced Maintenance Costs</b>	<b>3</b>	
			<b>Improved Connectivity</b>	<b>4</b>	
			<b>Increased Revenue to the municipality, county, National and Regional Governments</b>	<b>3</b>	
			<b>After implementation of the Settlement Development Project it is likely to attract other community development projects.</b>	<b>3</b>	

#### **Summary of negative impacts**

1. Potential for Soil Contamination
2. Dust and Air Quality Concerns
3. Aesthetic Impact on Surrounding Properties
4. Environmental Disturbance
5. Construction Waste Generation
6. Alteration of Drainage Patterns
7. Increased Congestion During Construction
8. Compromised Water Supply
9. Community Conflicts
10. Construction accidents:
11. Disruption of the Local Businesses
12. Noise and Air Pollution
13. Traffic Disruptions

14. Impact on Property Values
15. HIV/Aids/STI's
16. Energy Consumption
17. Environmental Pollution
18. Light pollution
19. Visual intrusion
20. Water Runoff Issues
21. Glare
22. Impact on Fauna
23. Social Disruption
24. Vandalism of the high Mast Lights
25. Habitat Loss and Fragmentation Soil Disturbance Air and Noise Pollution Waste

#### **MITIGATION MEASURES OF THESE POTENTIAL NEGATIVE IMPACTS**

1. The contractor adhering/complying to laws and regulations concerning labour, air, noise, and basic components of the projects.
2. The contractor's strict adherence to the Environmental Management Plan.
3. The Contractor's clear display of Road signs to avoid accidents and installation of barriers.
4. Construction activities will be limited to project sites / routes which already exist therefore limited destruction to vegetation cover.
5. Proper rehabilitation of the environment through replanting of vegetation after construction and decommissioning to handle habitat loss and fragmentation.
6. Installation of top Security and reporting mechanism to handle any issues of vandalism, or accidents etc.
7. Public Community awareness of potential disruption/diversions on road access, spread of HIV/Aids etc.
8. Construction wastes (residual earth, debris and scrap materials) to be removed for safe disposal and encourage recycling where possible (concrete debris for access road surfacing)
9. Proper Compensation of the PAPS according to RAP report and world bank guidelines.
10. Construction material sourced from within to ensure environmentally sustainable (approved accordingly) and avoid unnecessary pollution.
11. The contractor should generate a waste disposal plan.

## ESMMP

### ESMMP for Preconstruction Stage

#### ESMMP for Roads, footpaths

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							
Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses Degree of completion of set of required approvals/ issued permits	County Government of Mombasa Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	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.	Displacements Number of facilitated PAPs	County Government of Mombasa Consultant KISIP	Visibly marked of road reserve	During designing time and construction	242,000.00
Social impacts							
Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC	-Total project support by all	Throughout all stages from onset	200,000.00

				SEC			
				KISIP			
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation held.	KISIP Contactor Consultant GRC EC	SEC/GRC meetings	During designing Stage	250,000.00

#### ESMMP for Drainages

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							
Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses Degree of completion of set of required approvals/ issued permits	County Government Mombasa Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	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.	Displacements Number of facilitated PAPs	County Government Mombasa Consultant	Visibly marked of road reserve	During designing time and construction	242,000.00

				KISIP			
Social impacts							
Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC SEC KISIP	-Total project support by all	Throughout all stages from onset	200,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation held.	KISIP Contactor Consultant GRC EC	SEC/GRC meetings	During designing Stage	250,000.00

#### ESMMP for Streetlights

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							

Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses Degree of completion of set of required approvals/ permits issued	County Government Mombasa Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	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.	Displacements Number of facilitated PAPs	County Government Mombasa Consultant KISIP	Visibly marked offroad reserve	During designing time and construction	242,000.00
Social impacts							
Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC SEC KISIP	-Total project support by all	Throughout all stages from onset	200,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation forums held.	KISIP Contractor Consultant GRC EC	SEC/GRC meetings	During designing Stage	250,000.00



## ESMMP for Construction Phase

### ESMMP for Roads and footpaths

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						
Noise pollution and Excessive Vibrations	Moderate	<p>Enforce EMCA 1999, Revised 2015 (Noise and Excessive Vibrations Regulations of 2009)</p> <p>Maintain noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas</p> <p>Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity</p> <p>Undertake Noise and Excessive Vibration Assessments</p> <p>Effective use of appropriate PPE (earmuffs) for exposed workers.</p> <p>Proper maintenance of machines.</p>	<p>Reported complaints from community and institutions</p> <p>Records of machine and vehicle maintenance</p> <p>Availability and use of Ear Muffs</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	400,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		Record and communicated to the Supervising Engineer all noise and excess vibration complains for appropriate action.				
Air pollution	Moderate	<p>Maintain a speed limit of 20km/h within the site during construction phase to reduce dust particles emission.</p> <p>Use of environmentally friendly fuels such as Low Sulphur diesel.</p> <p>Regular maintenance and service of construction machinery and equipment in accordance to manufacturer specifications to minimize the generation of hazardous gases.</p> <p>Providing PPEs such as nose masks to the workers in dusty areas on the site.</p> <p>Maintain regular training of all personnel on methods for minimizing air quality impacts during construction.</p> <p>Ensure a strict schedule plan for all equipment to avoid unnecessary trips and minimize idling of engines.</p> <p>Enforce of EMCA 2015 (Air Quality Regulations 2014)</p> <p>Avoid carrying out dust generating activities</p>	<p>Cases of respiratory complication at nearby health centre.</p> <p>Records of machine and vehicle maintenance</p> <p>Low dust generation during construction</p> <p>Availability and use of Nose Masks</p>	Environmental Consultants Contractor	Continuous	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>especially during strong winds</p> <p>Use of covered trucks for material delivery to avoid spills and windblown dust</p> <p>Communicate air quality monitoring results to the public and address concerns proactively.</p> <p>Monitor air quality in the construction area and surrounding neighborhood.</p> <p>Spraying of all earthwork's areas within 200 meters of human settlement to reduce dust.</p>				
Water Pollution	Low	<p>Implement best management practices for construction activities to prevent runoff contamination.</p> <p>Ensure all machineries are serviced at a dedicated service bay to avoid spillages of oil and other fluids</p> <p>Implement erosion control measures to prevent soil runoff into water bodies.</p> <p>Regularly monitor water quality in nearby water bodies during construction and implementing corrective measures.</p> <p>Collaborate with local water authorities to ensure compliance with water quality standards</p>	<p>Water Quality Reports</p> <p>Records of machine and vehicle</p>	<p>Environmental Management Team</p> <p>Water Quality Experts</p>	Throughout Project	500,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Soil pollution / Erosion	Low	<p>Implement soil erosion control measures to prevent the release of contaminants during construction.</p> <p>Regularly monitor soil quality in construction areas and implement corrective measures.</p> <p>Collaborate with environmental agencies to ensure compliance with soil quality standards.</p>	Ground cover in Constructed areas	<p>Environmental Management Team/consultant</p> <p>Contractor</p>	Monthly	400,000.00
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management plan.</p> <p>Practice waste recycling, re use and reduction of waste generation</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management</p> <p>Contractor</p>	Throughout Project	500,000.00
Social Risks						
Sexual Exploitation and Abuse	Low Medium	<p>Implement an awareness and prevention program for project workers and the local community.</p> <p>Provide access to HIV testing and counselling services, ensuring confidentiality and non-</p>	<p>HIV/AIDS awareness trainings</p> <p>Availability of VCT facilities</p>	<p>Sociologists</p> <p>Environmental and Safety Management</p>	Throughout Project	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>discrimination.</p> <p>Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing stigma.</p> <p>Alias with local security administration for insecurity management</p>	Social awareness and trainings	<p>Manager</p> <p>Contractor</p>		
Occupational Safety and Health issues	Moderate	<p>Enforce strict safety protocols and provide regular training for all construction personnel.</p> <p>Conduct routine safety inspections and audits to identify and address potential hazards.</p> <p>Establish an emergency response plan to handle accidents promptly and efficiently.</p> <p>Provide all workers with appropriate full protective gear. These include working boots, overalls, helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p>	<p>Accidents occurrence incidences recorded in the Incidence Book</p> <p>Workers have Safety Gear(PPEs)</p> <p>Emergency contacts for Hospital and Police available</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p> <p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	<p>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.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and</p>	List of workers that does not contain underage persons	<p>SEC</p> <p>GRC</p> <p>Contractor</p>	Daily	200,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register regularly.</p> <p>Comply with the national labor laws and labour management practices.</p> <p>Put visible signage on site "No Jobs for children."</p>				
Increased Crime and Insecurity	Very High	<p>Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.</p> <p>Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices</p>	<p>Availability of security officers</p> <p>Number of security concerns reported.</p>	<p>Environmental and Safety Management Manager</p> <p>Mombasa County Traffic Department Officials</p>	Daily	900,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>	Number of stakeholders involved and proof of their support.	<p>Contractor</p> <p>SEC and GRC</p> <p>County Government officials, Department of Traffic management</p> <p>Environmental And Safety Management Manager</p>	Throughout Project	250,000.00
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>SEC</p> <p>GRC</p> <p>Contractor</p> <p>Mombasa County Government Officials</p>	Throughout Project	150,000.00



Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County coordinator</p>	Throughout Project	100,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	Number of beneficiaries engaged during the public participation meetings	<p>KISIP</p> <p>Contractor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

#### ESMMP for Drainages

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Noise pollution and Excessive Vibrations	Moderate	<p>Enforce EMCA 1999, Revised 2015 (Noise and Excessive Vibrations Regulations of 2009)</p> <p>Maintain noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas</p> <p>Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity</p> <p>Undertake Noise and Excessive Vibration Assessments</p> <p>Effective use of appropriate PPE ( earmuffs) for exposed workers.</p> <p>Proper maintenance of machines.</p> <p>Record and communicated to the Supervising Engineer all noise and excess vibration complains for appropriate action.</p>	<p>Reported complaints from neighbour community and institutions</p> <p>Records of machine and vehicle maintenance</p> <p>Availability and use of Ear Muffs</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	400,000.00
Air pollution	Moderate	<p>Maintain a speed limit of 20km/h within the site during construction phase to reduce dust particles emission.</p> <p>Use of environmentally friendly fuels such as Low</p>	<p>Cases of respiratory complication at nearby health centre.</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Sulphur diesel.</p> <p>Regular maintenance and service of construction machinery and equipment in accordance to manufacturer specifications to minimize the generation of hazardous gases.</p> <p>Providing PPEs such as nose masks to the workers in dusty areas on the site.</p> <p>Maintain regular training of all personnel on methods for minimizing air quality impacts during construction.</p> <p>Ensure a strict schedule plan for all equipment to avoid unnecessary trips and minimize idling of engines.</p> <p>Enforce of EMCA 2015 (Air Quality Regulations 2014)</p> <p>Avoid carrying out dust generating activities especially during strong winds</p> <p>Use of covered trucks for material delivery to avoid spills and windblown dust</p> <p>Communicate air quality monitoring results to the public and address concerns proactively.</p> <p>Monitor air quality in the construction area and</p>	<p>Records of machine and vehicle maintenance</p> <p>Low dust generation during construction</p> <p>Availability and use of Nose Masks</p>			

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		surrounding neighborhood.  Spraying of all earthwork's areas within 200 meters of human settlement to reduce dust.				
Water Pollution	Low	Implement best management practices for construction activities to prevent runoff contamination.  Ensure all machineries are serviced at a dedicated service bay to avoid spillages of oil and other fluids  Implement erosion control measures to prevent soil runoff into water bodies.  Regularly monitor water quality in nearby water bodies during construction and implementing corrective measures.  Collaborate with local water authorities to ensure compliance with water quality standards	Water Quality Reports  Records of machine and vehicle	Environmental Management Team  Water Quality Experts	Throughout Project	500,000.00
Soil pollution / Erosion	Low	Implement soil erosion control measures to prevent the release of contaminants during construction.  Regularly monitor soil quality in construction areas and implement corrective measures.  Collaborate with environmental agencies to ensure compliance with soil quality standards.	Ground cover in Constructed areas	Environmental Management Team/consultant  Contractor	Monthly	400,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management plan.</p> <p>Practice waste recycling, re use and reduction of waste generation</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management Contractor</p>	Throughout Project	500,000.00
Social Risks						
Sexual Exploitation and Abuse	Low Medium	<p>Implement an awareness and prevention program for project workers and the local community.</p> <p>Provide access to HIV testing and counselling services, ensuring confidentiality and non-discrimination.</p> <p>Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing stigma.</p> <p>Alias with local security administration for insecurity management</p>	<p>HIV/AIDS awareness trainings</p> <p>Availability of VCT facilities</p> <p>Social awareness and trainings</p>	<p>Sociologists</p> <p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Throughout Project	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Occupational Safety and Health issues	Moderate	<p>Enforce strict safety protocols and provide regular training for all construction personnel.</p> <p>Conduct routine safety inspections and audits to identify and address potential hazards.</p> <p>Establish an emergency response plan to handle accidents promptly and efficiently.</p> <p>Provide all workers with appropriate full protective gear. These include working boots, overalls, helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p> <p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p>	<p>Accidents occurrence incidences recorded in the Incidence Book</p> <p>Workers have Safety Gear(PPEs)</p> <p>Emergency contacts for Hospital and Police available</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	<p>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.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register regularly.</p> <p>Comply with the national labor laws and labour management practices.</p> <p>Put visible signage on site "No Jobs for children."</p>	List of workers that does not contain underage persons	<p>SEC</p> <p>GRC</p> <p>Contractor</p>	Daily	200,000.00
Increased Crime and Insecurity	Very High	Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project	Availability of security officers on site	Environmental and Safety Management	Daily	900,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>implementation.</p> <p>Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices</p>		<p>Manager</p> <p>Mombasa County Traffic Department Officials</p>		
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>	Number of stakeholders involved and proof of their support.	<p>Contractor</p> <p>SEC and GRC</p> <p>County Government officials, Department of Traffic management</p> <p>Environmental And Safety Management Manager</p>	Throughout Project	250,000.00



Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>SEC</p> <p>GRC</p> <p>Contractor</p> <p>Mombasa County Government Officials</p>	Throughout Project	150,000.00
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County coordinator</p>	Throughout Project	100,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	<p>Number of beneficiaries engaged during the public participation meetings</p>	<p>KISIP</p> <p>Contractor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

## ESMMP for Streetlights

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management plan.</p> <p>Practice waste recycling, re use and reduction of waste generation</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management Contractor</p>	Throughout Project	500,000.00
<b>Social Risks</b>						
Sexual Exploitation and Abuse	Low Medium	<p>Implement an awareness and prevention program for project workers and the local community.</p> <p>Provide access to HIV testing and counselling services, ensuring confidentiality and non-discrimination.</p> <p>Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing</p>	<p>HIV/AIDS awareness trainings</p> <p>Availability of VCT facilities</p> <p>Social awareness and trainings</p>	<p>Sociologists</p> <p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Throughout Project	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>stigma.</p> <p>Alias with local security administration for insecurity management</p>				
Occupational Safety and Health issues	Moderate	<p>Enforce strict safety protocols and provide regular training for all construction personnel.</p> <p>Conduct routine safety inspections and audits to identify and address potential hazards.</p> <p>Establish an emergency response plan to handle accidents promptly and efficiently.</p> <p>Provide all workers with appropriate full protective gear. These include working boots, overalls, helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p> <p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard</p>	<p>Accidents occurrence incidences recorded in the Incidence Book</p> <p>Workers have Safety Gear(PPEs)</p> <p>Emergency contacts for Hospital and Police available</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p> <p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	<p>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.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register regularly.</p> <p>Comply with the national labor laws and labour</p>	List of workers that does not contain underage persons	<p>SEC</p> <p>GRC</p> <p>Contractor</p>	Daily	200,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		management practices.  Put visible signage on site "No Jobs for children."				
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.  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.	Number of stakeholders involved and proof of their support.	Contractor SEC and GRC  County Government officials, Department of Traffic management  Environmental And Safety Management Manager	Throughout Project	250,000.00
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	Develop and implement a plan to manage the risk of SEA/SH.  Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.  Ensure the GRM is SEA/SH-responsive	Number of GBV cases reported and solved.  GBV Awareness trainings	SEC GRC  Contractor  Mombasa County Government	Throughout Project	150,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
				Officials		
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County coordinator</p>	Throughout Project	100,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	Number of beneficiaries engaged during the public participation meetings	<p>KISIP</p> <p>Contractor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

DISCLOSURE COPY

## ESMMP for Operational Phase

### ESMMP for Roads and footpaths

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive.</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	County Government of Mombasa; Department of Traffic management, KISIP	Throughout Project	No additional cost
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local</p>	<p>Awareness conducted trainings</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	County Government of Mombasa, KISIP, Contractor	Throughout Project	No additional cost



Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		grievances committee.  Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.				
Water Pollution/Contamination	Very Low	<p>Prioritize integrated water management approaches that address both the root causes and symptoms of pollution.</p> <p>Investing in infrastructure for safe drinking water supply, wastewater treatment, and solid waste management</p> <p>Promoting sustainable agricultural practices to reduce runoff and pollution</p> <p>Strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members.</p> <p>Taking proactive measures to protect water resources</p>	Water quality standards and tests	SEC, GRC, KISIP	Ongoing	No additional cost
Inadequate stakeholder Engagement and Exclusion of disadvantaged and	Medium high	Share project information widely and in a timely manner through diverse, feasible and accessible channels of	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
vulnerable groups		<p>communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				

#### ESMMP for Drainages

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>County Government of Mombasa;</p> <p>Department of Traffic management, KISIP</p>	Throughout Project	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		men on the risk of SEA/SH.  Ensure the GRM is SEA/SH-responsive.				
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</p> <p>Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</p>	<p>Awareness trainings conducted</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	County Government of Mombasa, KISIP, Contractor	Throughout Project	No additional cost
Water Pollution/Contamination	Very Low	Prioritize integrated water management approaches that address both the root	Water quality standards and tests	SEC, GRC, KISIP	Ongoing	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>causes and symptoms of pollution.</p> <p>Investing in infrastructure for safe drinking water supply, wastewater treatment, and solid waste management</p> <p>Promoting sustainable agricultural practices to reduce runoff and pollution</p> <p>Strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members.</p> <p>Taking proactive measures to protect water resources</p>				
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently,</p>	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				
Alteration of Natural Drainage Patterns	Very Low	<p>Conduct detailed hydrological studies to understand natural drainage patterns.</p> <p>Design drainage systems that mimic natural flow to reduce environmental impact</p>		SEC, GRC, KISIP	Quarterly	200,000.00

#### ESMMP for Streetlights

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>County Government of Mombasa;</p> <p>Department of Traffic management, KISIP</p>	Throughout Project	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive.</p>				
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</p> <p>Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</p>	<p>Awareness trainings conducted</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	County Government of Mombasa, KISIP, Contractor	Throughout Project	No additional cost
Energy Consumption	Low Medium	<p>A programmable timer shall control exterior lights.</p> <p>Generator should be provided as a full</p>	Reduced and conservative use of energy	County Government of Mombasa, KISIP, Contractor	Throughout Project	300,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>backup energy source throughout the development.</p> <p>Install and routine maintenance of energy efficient appliances e.g. LED bulbs etc.</p> <p>Monitor energy use during construction and set reasonable limit.</p> <p>Put off all lights immediately when not in use or are not needed.</p> <p>The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.</p> <p>Turn off machinery and equipment when not in use.</p> <p>Use of solar energy as an alternative source of energy at contractor's camp sites.</p>				
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have</p>	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				
Light and Visual discomfort	Medium High	<p>Properly design and angle light fixtures to minimize glare.</p> <p>Consider installing light shields or diffusers to control light direction.</p> <p>Seek aviation lighting design principles</p> <p>Use shielded fixtures and directional lighting to minimize light spillage.</p> <p>Implement curfew times for non-essential lighting.</p> <p>Educate the community on responsible lighting practices.</p>		SEC, GRC, KISIP	Throughout Project	No additional cost



Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Disturbance to Nocturnal Wildlife	Very Low	<p>Install motion sensors or timers to reduce lighting intensity during periods of low activity.</p> <p>Choose warm-coloured lights that are less disruptive to wildlife.</p>		SEC, GRC, KISIP	Throughout Project	No additional cost

### ESMMP for Decommissioning Phase

#### ESMMP for Roads and footpaths

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and</p>	<p>Compliance with environmental regulations and permits.</p> <p>Inspection frequency and</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	To be established

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		water pollution.  Replant native vegetation and restore habitats affected by decommissioning activities.	compliance with erosion control practices  Survival rates of replanted native vegetation			
Waste Generation	Low Medium	Implement recycling and reuse programs for materials like concrete and asphalt.  Properly dispose of hazardous materials in accordance with regulations.  Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.	Adoption rate of recycled materials in new construction projects  Compliance with hazardous waste disposal regulations  Implementation of practices to reduce packaging waste, excess materials, and unnecessary disposal.	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00
Economic Loss	Low Medium	Provide support and incentives for local businesses affected by decommissioning.  Offer compensation or assistance programs to mitigate financial losses.  Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.	Service disruption metrics and traffic flow management.  Compliance with environmental regulations and effectiveness of restoration efforts.  Quantity of recycled materials, hazardous waste disposal compliance, and waste reduction.  Number of businesses	KISIP, SEC, GRC	Throughout Decommissioning	100,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
			supported, financial assistance effectiveness, and economic diversification progress.			
Health and Safety Concerns	Medium	<p>Enforce strict safety regulations and provide adequate training for workers.</p> <p>Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.</p> <p>Communicate potential risks to the public and provide guidance on safety precautions.</p>	<p>Adherence to safety regulations and incident rates.</p> <p>Monitoring dust and noise levels, and compliance with pollution limits.</p> <p>Public awareness and feedback on risk communication effectiveness.</p>	KISIP,SEC,GRC	Throughout Decommissioning	200,000.00
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Completion and compliance of environmental impact assessments.</p> <p>Effectiveness of erosion and sediment control measures.</p> <p>Success of habitat restoration and native vegetation replanting.</p> <p>Water quality monitoring results.</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
			<p>Stakeholder feedback on environmental impacts and restoration efforts.</p> <p>Adherence to environmental regulations and reporting requirements.</p>			

#### ESMMP for Drainages

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	Conduct thorough environmental impact	Compliance with environmental regulations	Environmental Management	Throughout Decommissioning	To be established

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		assessments prior to decommissioning.  Implement erosion and sediment control measures to prevent soil erosion and water pollution.  Replant native vegetation and restore habitats affected by decommissioning activities.	and permits.  Inspection frequency and compliance with erosion control practices  Survival rates of replanted native vegetation	Team/Consultant, KISIP		
Waste Generation	Low Medium	Implement recycling and reuse programs for materials like concrete and asphalt.  Properly dispose of hazardous materials in accordance with regulations.  Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.	Adoption rate of recycled materials in new construction projects  Compliance with hazardous waste disposal regulations  Implementation of practices to reduce packaging waste, excess materials, and unnecessary disposal.	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00
Economic Loss	Low Medium	Provide support and incentives for local businesses affected by decommissioning.  Offer compensation or assistance programs to mitigate financial losses.  Develop alternative economic opportunities or infrastructure projects to	Service disruption metrics and traffic flow management.  Compliance with environmental regulations and effectiveness of restoration efforts.  Quantity of recycled materials, hazardous waste	KISIP, SEC, GRC	Throughout Decommissioning	100,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		offset any negative economic impacts.	disposal compliance, and waste reduction.  Number of businesses supported, financial assistance effectiveness, and economic diversification progress.			
Health and Safety Concerns	Medium	Enforce strict safety regulations and provide adequate training for workers.  Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.  Communicate potential risks to the public and provide guidance on safety precautions.	Adherence to safety regulations and incident rates.  Monitoring dust and noise levels, and compliance with pollution limits.  Public awareness and feedback on risk communication effectiveness.	KISIP, SEC, GRC	Throughout Decommissioning	200,000.00
Environmental Disturbance	Low Medium	Conduct thorough environmental impact assessments prior to decommissioning.  Implement erosion and sediment control measures to prevent soil erosion and water pollution.  Replant native vegetation and restore habitats affected by decommissioning	Completion and compliance of environmental impact assessments.  Effectiveness of erosion and sediment control measures.  Success of habitat restoration and native	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		activities.	vegetation replanting.  Water quality monitoring results.  Stakeholder feedback on environmental impacts and restoration efforts.  Adherence to environmental regulations and reporting requirements.			

## ESMMP for Street lighting

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Compliance with environmental regulations and permits.</p> <p>Inspection frequency and compliance with erosion control practices</p> <p>Survival rates of replanted native vegetation</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	To be established
Waste Generation	Low Medium	<p>Implement recycling and reuse programs for materials like concrete and asphalt.</p> <p>Properly dispose of hazardous materials in accordance with regulations.</p> <p>Encourage contractors to minimize waste</p>	<p>Adoption rate of recycled materials in new construction projects</p> <p>Compliance with hazardous waste disposal regulations</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00



Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		generation through efficient construction and decommissioning practices.	Implementation of practices to reduce packaging waste, excess materials, and unnecessary disposal.			
Economic Loss	Low Medium	<p>Provide support and incentives for local businesses affected by decommissioning.</p> <p>Offer compensation or assistance programs to mitigate financial losses.</p> <p>Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.</p>	<p>Service disruption metrics and traffic flow management.</p> <p>Compliance with environmental regulations and effectiveness of restoration efforts.</p> <p>Quantity of recycled materials, hazardous waste disposal compliance, and waste reduction.</p> <p>Number of businesses supported, financial assistance effectiveness, and economic diversification progress.</p>	KISIP,SEC,GRC	Throughout Decommissioning	100,000.00
Health and Safety Concerns	Medium	<p>Enforce strict safety regulations and provide adequate training for workers.</p> <p>Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.</p>	<p>Adherence to safety regulations and incident rates.</p> <p>Monitoring dust and noise levels, and compliance with pollution limits.</p>	KISIP,SEC,GRC	Throughout Decommissioning	200,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		Communicate potential risks to the public and provide guidance on safety precautions.	Public awareness and feedback on risk communication effectiveness.			
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Completion and compliance of environmental impact assessments.</p> <p>Effectiveness of erosion and sediment control measures.</p> <p>Success of habitat restoration and native vegetation replanting.</p> <p>Water quality monitoring results.</p> <p>Stakeholder feedback on environmental impacts and restoration efforts.</p> <p>Adherence to environmental regulations and reporting requirements.</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

## **GRIEVANCE REDRESS MECHANISM**

This section describes the project's Grievance Redress Mechanism. The overall objective of the GRM is to establish an effective communication channel among project stakeholders for providing a timely and efficient two-way feedback mechanism to address any grievances and complaints against the project from multiple stakeholders and Project Affected. This GRM complies with the Law of Kenya and international best practices. During the proposed implementation of Misufini settlement project, grievances, complaints as well as disputes are expected to arise from several stages of the project including design and implementation phase.

Effective and timely response to community complaints is essential for maintaining good community relations. KISIP is committed to having an effective complaints handling system that reflects the needs, expectations and rights of complainants.

### **Conclusion**

In conclusion, the Misufini Settlement Improvement Project holds significant potential to enhance living conditions and promote sustainable development in the area. However, careful consideration of environmental and social impacts, along with robust mitigation measures, is crucial for successful project implementation. Therefore, it is recommended that the project undergo a Comprehensive Project Report to further evaluate potential impacts and develop detailed mitigation plans. Also, ARAP is required for 20 PAPs identified. Collaboration with relevant stakeholders, adherence to regulatory standards, and continuous monitoring and evaluation are essential for ensuring the project's success and maximizing positive outcomes for both the community and the environment.

### **Recommendation**

To ensure the successful execution of the project and mitigate the identified impacts, the initiation of a comprehensive project report is strongly recommended. This assessment will serve as a vital tool to thoroughly examine the potential effects on the natural and human environment, propose tailored mitigation measures, and develop an effective Environmental and Social Management Plan (ESMP). This proactive approach aligns with the project's commitment to environmental sustainability and social responsibility.

Furthermore, considering that the proposed projects fall within the Second Schedule of the Environmental Management and Coordination Act (EMCA) and are categorized under Category B of the World Bank's environmental screening classification, it is crucial to subject the project to a comprehensive project report. This ensures compliance with regulatory standards and international best practices.

This comprehensive project report, accompanied by a robust ESMP, not only safeguards against potential negative impacts but also fosters a myriad of benefits. Improved infrastructure will enhance local livelihoods, providing better access to education, healthcare, and economic opportunities. Stakeholders, including the local community, stand to gain from upgraded amenities, increased safety, and enhanced connectivity. The transparent and consultative process embedded in the comprehensive project report also ensures that diverse perspectives are considered, promoting a sense of ownership and shared responsibility.

# **1 INTRODUCTION**

## **1.1 Project Background**

The Government of Kenya has received a credit from International Development Association (IDA) and Agence Francaise de Development (AfD) towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP 2)

KISIP 2 builds on the successes and lessons learnt of KISIP 1 and continues to support the interventions that have been successful. The overall project development objective of the KISIP 2 programme is to improve access to basic services and tenure security of residents in participating urban informal settlement and strengthen institutional capacity for slum upgrading in Kenya in consultation with the community.

This Project, while concentrating on informal settlements, complements 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.

The Misufini Settlement Improvement Project is a strategic initiative aimed at enhancing infrastructure and amenities within the Misufini Settlement located in Jomvu Sub-County, Mombasa County, Kenya. The project encompasses road upgrades, drainage system improvements, installation of street lighting, and enhancement of water supply networks. These interventions are designed to elevate living standards, promote community development, and foster socio-economic growth in the area.

## **1.2 Objectives of the project**

The Kenya informal settlements improvement project aims to upgrade various infrastructural components and the implementation of the project as a whole is inclusive of the residents of these settlements, which are its direct beneficiaries, at all, stages.

## **1.3 Objectives of the ESIA**

The main objective of the ESIA study is to predict, assess, and analyze the possible positive and negative environmental and social impacts that are expected during the construction, operation and decommissioning phases of the project. The specific objectives are: -

- Prediction and evaluation of potential environmental impacts of the project, and propose workable mitigation measures for the significant negative impacts of the project on the environment.
- Preparation of a detailed Environmental Monitoring Plan for the proposed project.
- Preparation of a detailed Environmental and Social Management Plan (ESMP) for the proposed project.

## **1.4 Terms of References (TORS)**

In compliance with legal and professional requirements, it is expected that the outputs from this study reflect a consultative process whose presentation will be through modern technology that will form part of digital land information systems for informal settlements being generated by KISIP.

The authenticity requires the consultant to conduct the below tasks

1. Assessment and description of location/site, objectives, scope, nature of the proposed project,
2. Analysis of the proposed project activities during the proposed project cycle; construction, operation, decommissioning phases,
3. Establish the suitability of the proposed project in the proposed location,

4. Review and establish all relevant baseline information as will be required by NEMA (Physical, Biological and Social Cultural and economic) and identify any information gaps,
5. Description and analysis of policy legal and institutional framework including but not limited to Kenyan policies, laws, regulation and guidelines which have a bearing on the proposed project and will also serve as benchmarks for monitoring and evaluation, and future environmental audits,
6. In-depth description of the proposed project and associated works together with the requirements for carrying out the works,
7. Analysis of the designs, technology, procedures and processes to be used, in the implementation of the works,
8. Consultation and Public Participation (CPP): Identify key stakeholders and affected persons; hold a public meeting and provide /collect written evidence i.e. minutes,
9. Identify and analyze proposed project alternatives including but not limited to: Scale and extent; project site alternatives, no project alternatives, design alternatives, material alternatives and technologies alternatives,
10. Identify, predict and carry out in-depth analysis all actual potential and significant impacts on flora, fauna, soils, air, water, the social, cultural and community settings; the direct, indirect, cumulative, irreversible, short-term and long-term effects anticipated to be generated by the proposed project, both positive and negative throughout the project cycle,
11. Recommend sufficient mitigation measures for all the potential negative impacts identified,
12. Analyze occupational health and safety issue associated with the proposed project,
13. Develop an Environmental and Social Management Plan (ESMMP) proposing the measures for eliminating, minimizing or mitigating adverse impacts on the environment, including the cost, timeframe and responsibility to implement the measures.

## 1.5 Justification of the ESIA

The implementation of the proposed project shall have both socio-economic and environmental impacts on the project area. In order to alleviate any detrimental effects of the project, there is need to assess possible impacts of the development on the environment and the socio-economic attributes of the project area. At first, the proposed project will be evaluated against the framework provided by the Physical Development plan to ensure proper alignment. Then an Environmental Impact Assessment is conducted in accordance with the Client Guidelines, Environmental Management and Co-ordination Act (EMCA), Act, Cap 387, and the Environmental (Impact Assessment and Audit) Regulations, 2009 (and the amendment Regulations of 2019).

Due to the likely socio-economic impacts of the project, our Environmental Specialist and Socio-Economic Specialist have also collected socio-economic data to support the Environmental Impact Assessment and also to be used for Economic Evaluation of the Project. They were assisted by Field Assistants and a group of Enumerators especially in the process of acquiring the primary data in the field.

The execution of the assignment was carried out during the preliminary design of the Project to ensure that the designs produced comply with environmental requirements and take into account socio-economic status in the areas. The outcome of the Environmental Impact Assessment will be used to moderate the Engineers' Designs to ensure that they are in harmony with the environmental and socio-economic attributes of the project area. This approach will enhance the protection of the environment and the local community from negative effects of development.

## 1.6 Environmental and Social Impact and Assessment Team

*Table 1: Team of expert*

Designation	Name	Responsibilities
-------------	------	------------------

Lead Expert	Charles Muyembe	<ul style="list-style-type: none"> <li>• Supervise ESIA field Surveys and Socio economic field surveys'</li> <li>• Provide general guidance</li> <li>• Review Comprehensive Project Reports, Screening reports and Socio Economic Reports</li> </ul>
Environmentalists	1. Alex Muriuki 2. Frederick Gaya 3. Kashim Oginga 4. Allan Kirombo 5. Michael Morse 6. Saraphina Nasimiyu	<ul style="list-style-type: none"> <li>• Carrying out Field Surveys/Assessments</li> <li>• Drafting of Screening Reports, Socio-economic Reports and the Comprehensive Project Reports</li> </ul>
Sociologists	Charity Gathuthi	<ul style="list-style-type: none"> <li>• Conducting Socio-economic Field assessments</li> <li>• Drafting of socio-economic reports</li> </ul>

## 1.7 ESIA Approach and Methodology

As stated earlier, the ESIA Study was carried out in compliance with the government of Kenya's Environment Management and Coordination Act of 1999 and the Environmental (Impact Assessment and Audit) Regulations 2003, World Banks Environmental and Social Performance Standards and Equator Principles among other relevant laws, regulations and guideline standards.

The general steps followed during the assessment were as follows:

- Environmental and social screening, in which the project was identified as among those requiring Environmental and Social Impact Assessment under schedule 2 of EMCA, 1999
- Environmental scoping that provided the key environmental issues
- Desktop studies
- Physical inspection of the area and surrounding areas
- ESIA Public participation via the use of general questionnaires, key informants' interviews, socio-economic surveys and interactive meetings
- Data analysis and
- Report preparation.

### 1.7.1 Environmental and Social Screening

This step was conducted through legal review and desktop studies to assess whether there will be a need for an environmental and social impact assessment, and what level of assessment is necessary. This was done using a screening checklist in reference to requirements of the EMCA, 1999, and specifically the second schedule. The proposed projects are listed as medium risk projects in Legal Notice 31&32 of EMCA and under the World Banks framework, as Category B – Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures. The consultant did screening of the project and prepared a screening report. The screening checklist has been annexed below : **Appendix 4: Checklist**

### 1.7.2 Environmental Social Management Framework

An Environmental Social and Management Framework (ESMF) serves as a comprehensive guideline for ensuring that projects adhere to environmental and social sustainability principles.

The Environmental Social and Management Framework (ESMF) outlined the policies, procedures, and guidelines for managing environmental and social risks associated with project implementation. It provided a systematic approach to identify, assess, and mitigate potential environmental and social impacts throughout the project lifecycle.

An ESMF provides a structured approach to managing environmental and social risks associated with project implementation, aligning with the objectives of EMCA to ensure sustainable development and environmental protection. Additionally, World Bank's OP 4.01 requires projects to assess and manage environmental and social risks, and an ESMF serves as a tool to fulfil this requirement comprehensively. The ESMF has been annexed below: **Appendix 4: Checklist**

### 1.7.3 Relocation Policy framework

Relocation Policy framework screening can be utilized as a methodology in an Environmental Social Impact Assessment (ESIA) to assess the potential impacts of a project on communities and individuals who may be displaced or affected by relocation.

The World Bank's Safeguard Policies provide guidelines for projects it finances to ensure that adverse social and environmental impacts are identified and mitigated. While the World Bank does not have a specific Safeguard Policy dedicated solely to relocation, aspects of relocation are addressed in several of its policies, including:

1. **Involuntary Resettlement (OP/BP 4.12):** This policy outlines measures to address the adverse impacts of involuntary resettlement, including compensation, assistance with relocation, and opportunities for affected people to participate in planning and implementing resettlement programs. It emphasizes avoiding or minimizing displacement whenever possible and improving the livelihoods of affected people.
2. **Environmental Assessment (OP/BP 4.01):** This policy requires projects to assess potential environmental and social impacts, including those related to relocation. It emphasizes the importance of identifying and mitigating adverse impacts on affected communities, including through appropriate resettlement measures.
3. **Labor and Working Conditions (OP/BP 4.11):** This policy includes provisions related to involuntary resettlement, ensuring that affected workers are provided with adequate compensation, assistance with relocation, and opportunities for alternative employment or income-generation activities.
4. **World Bank Group Environment, Health and Safety Guidelines (EHSGs):** The World Bank Group Environment, Health, and Safety Guidelines (EHSGs) provide technical advice and guidance on best practices for managing environmental, health, and safety risks associated with various industries and sectors. These guidelines aim to assist project developers, financiers, and other stakeholders in identifying potential environmental and social impacts, as well as implementing measures to minimize or mitigate these impacts. The EHSGs cover a wide range of topics, including air and water pollution, biodiversity conservation, occupational health and safety, and community health and safety. They are based on international standards and best practices, taking into account the specific circumstances and requirements of different regions and industries. Overall, the EHSGs serve as a valuable resource for promoting sustainable development and responsible business practices across the globe.
5. **Operational Policy (OP 4.07) on Natural Habitats:** aimed at guiding projects financed by the World Bank to effectively manage and conserve natural habitats. This policy emphasizes the importance of protecting biodiversity and ecosystem services while promoting sustainable development. OP 4.07 outlines principles and standards for assessing and managing potential impacts on natural habitats throughout the project lifecycle. Key aspects covered include the identification of critical habitats, assessment of potential impacts, avoidance and minimization measures, and compensation for residual impacts. The policy also emphasizes

the importance of stakeholder engagement, transparency, and accountability in natural habitat conservation efforts. By adhering to OP 4.07, project proponent can ensure that their activities are conducted in a manner that preserves biodiversity and ecosystem integrity, contributing to long-term environmental sustainability.

6. **Operational Policy (OP 4.09) on Water Resources Management:** it guides projects funded by the World Bank in sustainable water management, emphasizing integrated approaches to address water scarcity, pollution, and access challenges. The policy promotes water efficiency, quality protection, and equitable access to safe water and sanitation services. It also prioritizes stakeholder engagement, gender equality, and climate resilience. Adhering to OP 4.09 helps achieve sustainable water management, enhancing water security and livelihoods while protecting ecosystems.

**The resettlement policy framework checklist has been annexed below: Appendix 4:Checklist**

#### 1.7.4 Environmental and Social Scoping

The scoping process, through an ESIA scoping checklist, was conducted to help narrow down onto the most critical issues requiring attention during the assessment. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects. It also included discussions with key stakeholders, managers and design engineers as well as interviews with local communities. Data from secondary sources was used to outline the bio-physical features, socio-economic characteristics of the residents, the existing infrastructure services and the forms of land tenure.

#### 1.7.5 Desktop Study

Desktop study included document review on the nature of the proposed activities, project documents, designs, policy and legislative framework as well as the environmental setting of the area among others.

#### 1.7.6 Site Assessment

Field visits were made for physical inspections of the areas around the project site and the environmental status of the surrounding areas to determine the anticipated impacts.

#### 1.7.7 Public Participation

Public participation meetings were conducted specifically the project area. Random surveys and Focused Group Discussions (FGDs) were conducted in the smaller groups of residents located along the road corridor. To ensure adequate public participation in the ESIA process, questionnaires were administered to the local communities, and the information gathered was subsequently synthesized and incorporated into the ESIA Comprehensive Project Report (CPR). Additionally, the consultant incorporated the concerns and views of all stakeholders and the affected people.

#### 1.7.8 General questionnaires

Questionnaires were structured to gather data from respondents on various subjects. Typically, they began with an introduction outlining the purpose; followed by sections for demographic information such as age, gender, education, and occupation.

The main body of the questionnaire comprises clear and specific questions, including both closed-ended (multiple-choice, yes/no) and open-ended formats, organized logically to address the primary objectives. Additional sections allow for detailed feedback or exploration of specific topics. Before deployment, questionnaires undergo review and pilot testing to ensure clarity, relevance, and accuracy. Sample questionnaires have been annexed below: **Appendix 3:Questionnaires**



#### 1.7.9 Key informants' interviews

Following this, background information is gathered from the informant, including details about their expertise or experience. The main body of the interview consists of focused questions designed to elicit detailed insights or perspectives on specific aspects of the topic, with the interviewer probing further and seeking clarification where necessary.

Towards the end of the interview, the interviewer may summarize key points discussed, inviting the informant to reflect on additional insights. The interview concludes with gratitude for participation and a reminder of any follow-up steps. Subsequently, the conversation is transcribed and analyzed to extract relevant themes and insights.

Key informant interviews served as invaluable tools for obtaining rich qualitative data, offering nuanced perspectives that complement quantitative research methods.

Some of the key informants came from members of the youth, people with disabilities, women, public facility institutions and religious leaders. The sample questionnaires have been annexed below:

#### 1.7.10 Socio-economic surveys

This was carried out by conducting a household survey within the settlement, used as a method of public participation.

Socioeconomic surveys are comprehensive data collection efforts aimed at understanding the social and economic characteristics of a population or specific groups within it.

These surveys began with the careful selection of a representative sample using various sampling techniques to ensure accuracy and reliability. A structured questionnaire is then developed to gather information on demographics, income, education, employment, housing, health, and access to services. Trained surveyors administered the questionnaire through face-to-face interviews, adhering to standardized protocols to maintain data quality.

Once data collection was completed, the collected data underwent rigorous analysis, utilizing both descriptive and inferential statistical methods to summarize trends and draw meaningful conclusions.

The findings of the socioeconomic survey were then interpreted and reported, providing valuable insights to inform decisions and program planning,

#### 1.7.11 Public meeting

These meeting was characterized by active engagement, with participants encouraged to contribute their insights, ask questions, and provide feedback. Through interactive tools such as brainstorming sessions, group discussions, and breakout activities, attendees had the opportunity to explore topics in depth, share diverse perspectives, and generate innovative solutions. Facilitators/consultants played a crucial role in guiding the discussions, ensuring that all voices are heard, and maintaining a constructive and inclusive environment. By fostering meaningful interaction and collaboration, interactive meetings led a better decision-making, and largely informed the consultants on proposed projects.

#### 1.7.12 Data Analysis, Reporting and Documentation

Data was quantitatively and qualitatively analysed in terms of themes. The Environmental Social Impact Assessment Study Report was compiled from the findings in accordance with the guidelines issued by NEMA for

such works and prepared and submitted by the proponent for consideration and approval. The Consultant ensured constant briefing of the client during the exercise.

DISCLOSURE COPY

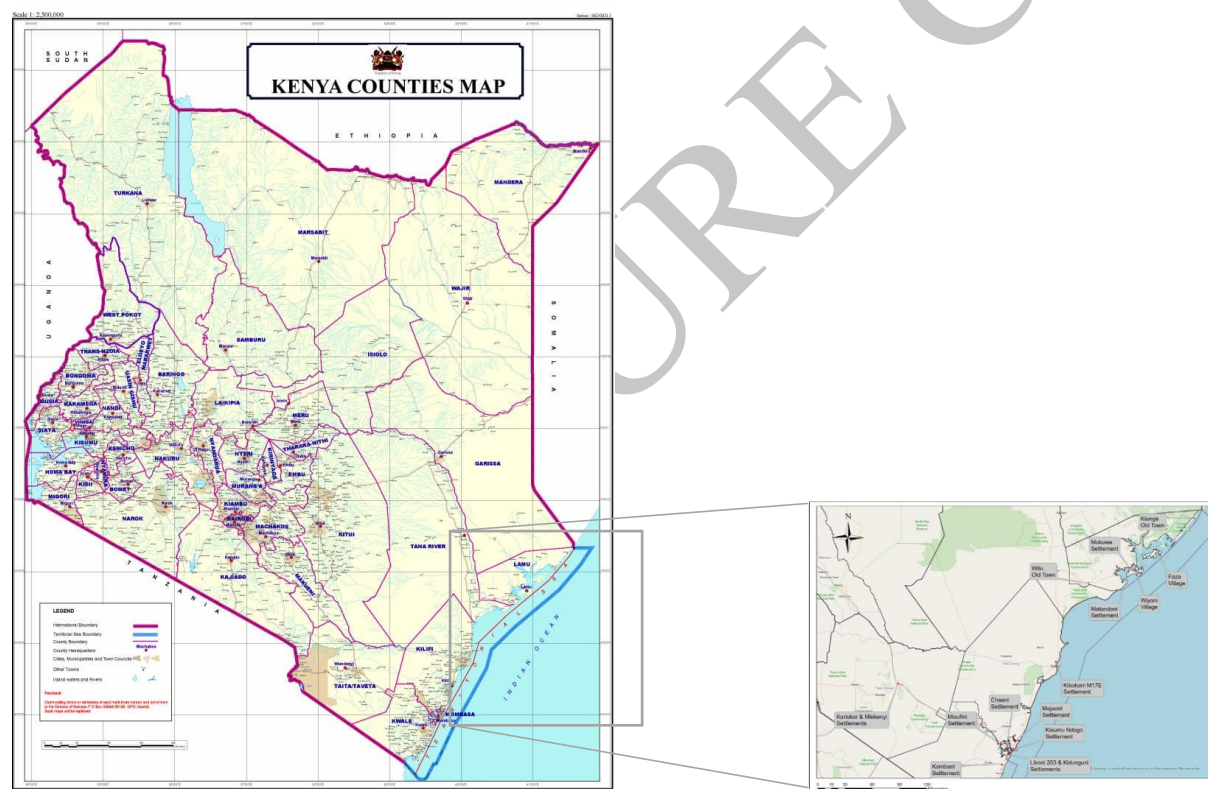
## 2 PROPOSED PROJECT DESCRIPTION

### 2.1 Project Location

The Misufini Settlement project, situated in Jomvu Sub-County, Mombasa County, is a crucial infrastructure upgrade initiative aimed at enhancing the overall quality of life, mobility, and safety within the community. Covering an area of approximately 14.999 hectares on plot number MN/V/514, the settlement is situated within Jomvu Sub-County, Jomvu Kuu ward. Accessible primarily from the 'Raphia Bags' go-down off the Mombasa-Nairobi A109 highway near Jomvu shopping center, the settlement extends across the A109 road, commonly known as Dhome. It shares borders with neighboring settlements such as the Miritini World Bank settlement scheme to the east, Bandika/Chiranga/Kombo settlement schemes to the north, Compact to the west, Raffia bags to the northwest, and Zubedi to the south. Originating from the abundant 'Misufini' trees, which are cotton trees once widely grown in the area, the settlement's name reflects its natural surroundings.

The settlement's population, estimated at 1789 people (KNBS 2019), is derived from available data, indicating the settlement's demographic profile and serving as a baseline for project planning and implementation.

Figure 1: Map of Kenya



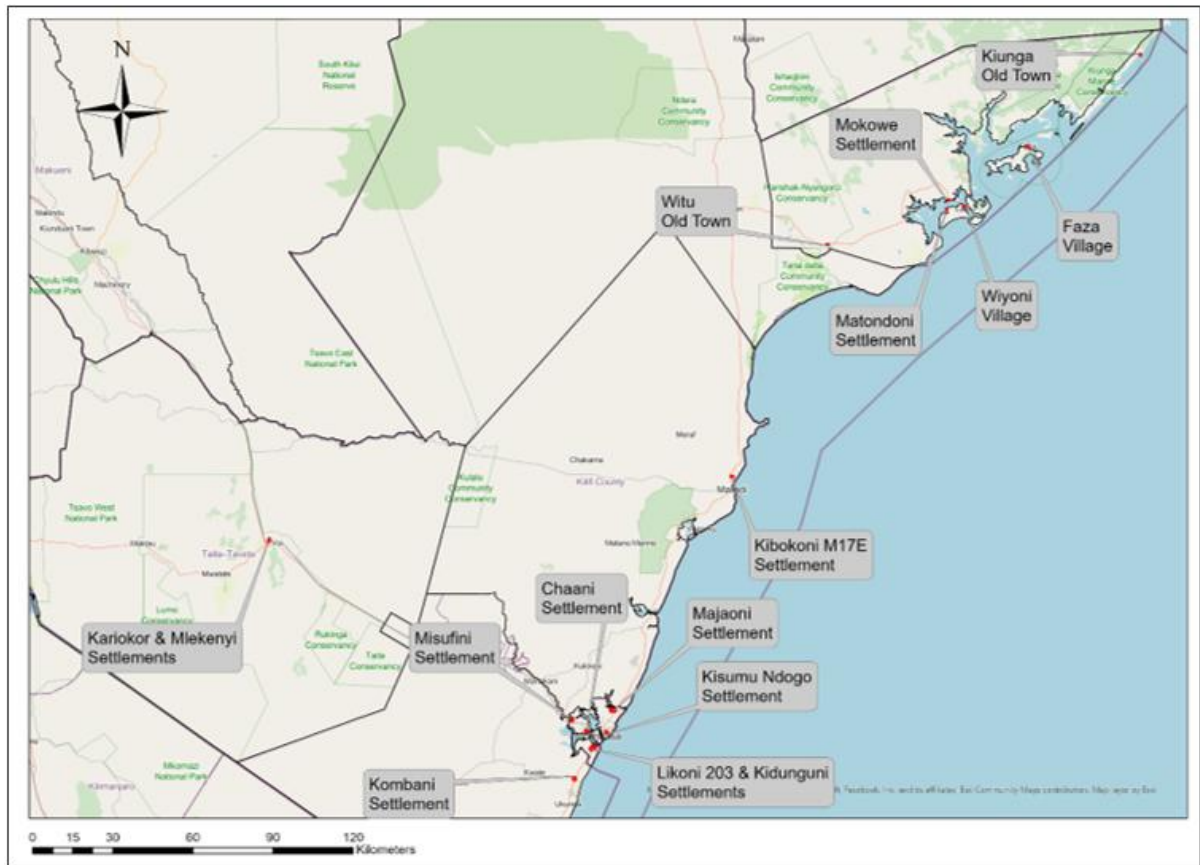


Figure 2: Settlements of KISIP 2 , source: project design report

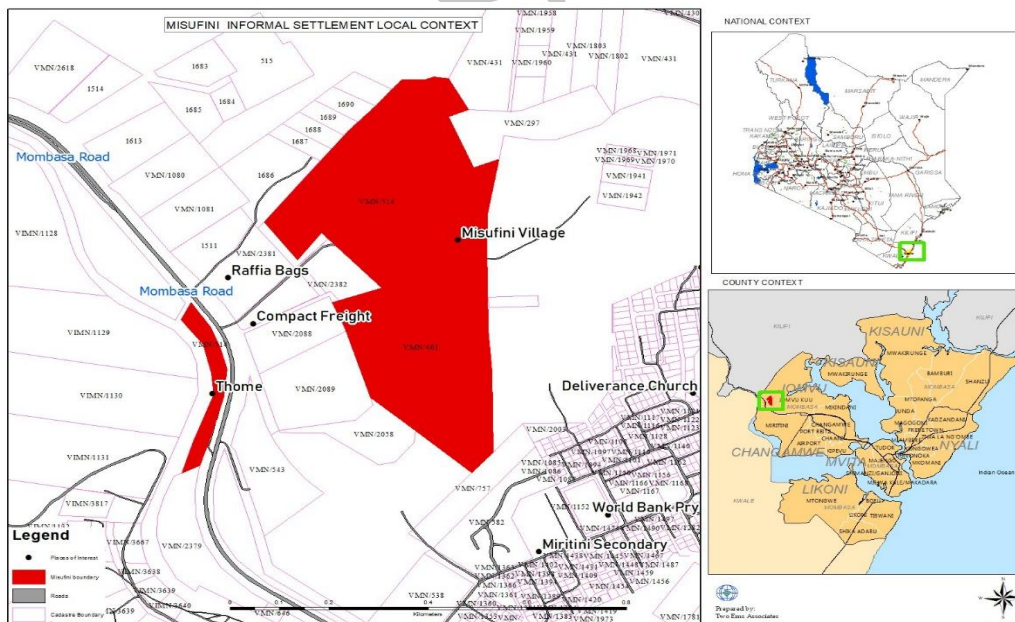


Figure 3: Misufini settlement location map, source: project design report

## 2.2 Projects description

The Misufini Settlement infrastructure upgrade encompasses two crucial components: roads and drainage systems, and street lighting.

### Proposed scope of works

Table 2: Scope of works

Proposed Projects	Description				
	No of Footpaths	No of roads	Widths	Total lengths	Nature of upgrade
1. Roads	-	6	3m, and 6m	1,442.03m	Upgrade to bitumen standard with side pavements, culverts and crossing paths
2. Drainage system	Description				
	Construction of Lined up open drains and infiltration pits with No culverts no crossing points				
3. Street Lighting- Installation off High Mast lighting	Description				
	No of High Mast lighting		Height		Luminous Radius (Coverage)
	3		30m		150m

## 2.3 Road and Drainage System

There are 5 roads that have been prioritized Table 3: Proposed roads to be upgraded

Table 4: Road project details

ROAD NUMBER	DRAWING REFERENCE NAME	ROAD LENGTH (METRES)	WIDTH (M)
Road 1	KISIP 2/MSA/PP/MISUFINI ROAD 01	403.48	6
Road 2	KISIP 2/MSA/PP/MISUFINI ROAD 02	250.04	3
Road 3	KISIP 2/MSA/PP/MISUFINI ROAD 03	492.05	6
Road 4	KISIP 2/MSA/PP/MISUFINI ROAD 04	40.03	3
Road 5	KISIP 2/MSA/PP/MISUFINI ROAD 05	141.53	3
Road 6	KISIP 2/MSA/PP/MISUFINI ROAD 06	114.9	6
Total		1442.03	

The road improvement initiative involves six roads within the Misufini Settlement, each designated with a unique road number. The total length of these roads amounts to 1442.03 meters. The proposed road works include the creation of carriage ways ranging from 3.0 to 6.0 meters in width. The pavement structure is designed to consist of a 300mm thick improved subgrade, compacted in two layers of 150mm to 100% Modified AASHTO T99 Maximum Dry Density (MDD). This is followed by a 200mm thick natural gravel material sub-base with a minimum CBR of 30%, a 150mm thick 2% Cement Treated Gravel Base, a 50mm sand/quarry dust layer course, and finally, an 80mm layer of heavy-duty concrete paving blocks. Additionally, the drainage system construction includes the installation of cross pipe culverts, access culverts, and shallow open drains to effectively manage storm water runoff.

The drainage system construction includes the installation of cross pipe culverts and access culverts, along with lined open drains. This comprehensive drainage network is designed to efficiently manage storm water and mitigate potential flooding risks, ensuring the overall resilience of the settlement's infrastructure.

The Road works entail.

Carriage way of widths of 3.0 to 6.0m

*Pavement structure comprising of;*

- 300mm thick improved subgrade compacted in two layers of 150mm to 100% MDD (AASHTO T99)
- 200mm thick Natural Gravel material Sub base, minimum CBR 30%
- 150mm thick 2% Cement Treated Gravel Base
- 50mm Sand/ Quarry dust layer course
- 80mm heavy duty concrete paving blocks

The Drainage system construction works shall include;

- Cross pipe culverts and access culverts
- Shallow open drains

Table 5: Summary of road works

S/N	DESCRIPTION	AMOUNT
1	SITE CLEARANCE AND TOPSOIL STRIPPING	1,227,407.49
2	EARTHWORKS	21,029,133.11
3	CULVERT & DRAINAGE WORKS	30,454,620.62
4	PASSAGE OF TRAFFIC	1,539,610.63
5	NATURAL MATERIAL FOR SUBBASE AND BASE	8,670,436.50
6	CEMENT AND LIME TREATMENT	2,088,091.69
7	BITUMINOUS SURFACE TREATMENT	6,222,518.44
8	WEARING COURSE	26,570,336.00
9	ROAD FURNITURE	11,811,294.42
10	ENVIRONMENTAL & SOCIAL SAFEGUARDS	21,760,000.00
	<b>SUB - TOTAL 1</b>	<b>109,613,448.89</b>

### 2.3.1 Conceptual Design

#### Traffic Surveys and Analysis

The traffic class adopted will be based on traffic studies provided in earlier design reports. Based on the poor state of the roads, relatively low economic activity and the insecurity in the project areas, traffic had not changed significantly since the last survey. Traffic Class T3 will be adopted for conceptual design. The Consortium shall carry out a comprehensive traffic study to ascertain present and future traffic.

### 2.3.2 Geometric Design

The geometric designs of the project roads were done in such a way that it followed the existing road alignments as close as possible. This was done in order minimize on land acquisition and relocation of the inhabitants of the settlements. Aspects considered in the geometric design include but are not necessarily limited to:

- horizontal alignment,
- vertical alignment,
- Road cross section
- Junctions
- Road Furniture
- Crossing structures
- Road Drainage

The geometric design was carried out by use of AutoCAD's Civil 3D software.



The design has taken into consideration design limiting factors such as encroachments to way leave and zoning or other regulatory restrictions.

Functional characteristics that were considered in the design as per the Urban Roads Design Manual are outlined in the table below:

*Table 6: Functional Road Characteristics (Urban Road Design Manual)*

No	Function	Local Street
1	Traffic movement	Secondary access
2	Flow conditions	Interrupted flow
3	Design Speed	30 – 40 km/hr
4	Running speed	20 – 40 km/hr
5	Road reserve width	3-9 m
6	Carriageway width	3-6 m
7	Property access	primary
8	Connections	Minor Collectors and local streets
9	Parking	Accepted

### Design Speed

The alignment design elements, e.g. curvature, sight distances and vertical grades are directly related to design speed. The selection of the appropriate design speed is therefore an important aspect of alignment design.

The design speed for the road was chosen as 40km/hour due to the fact that the roads are basically residential access roads.

Design speed is one factor that determines the degree of curvature in the horizontal alignment design. In this case the roads are within the residential areas where land development and encroachments to the road reserve are the main factors affecting the horizontal curvature of the design. Therefore, some curves impose low level of comfort to the drivers.

Taking into account the limitations imposed by existing developments on horizontal curves, crest curves and sag curves, the curve radii adopted ranged from minimum of 5m at junctions for turning, to 200m on the curves along the alignment.

### Design Vehicles

The design vehicle governing the geometric design is indicated below:

*Table 7: Design Vehicle as a Design Control Parameter*

Design vehicle type	Overall, m			Overhang, m		Wheel base, m	Minimum design turning radius, m	Minimum inside radius, m
	Height	width	length	front	rear			
4x4 passenger car	1.3	2.1	5.8	0.9	1.5	3.4	7.3	4.2
Single unit truck	4.1	2.6	9.1	1.2	1.8	6.1	12.8	8.5



## Design Cross-sections

The typical section was adopted for urban condition taking into account the road reserve width available. The project roads had different road reserve as follows:

- Public roads to the settlement 6m
- Internal roads 3 - 4m
- Footpaths 2 - 3m

The proposed cross sections (provided in the book of drawings) have a carriageway width of **3 -6m** with **1m** shoulders in road reserves of 9m as well as covered drains for additional space to cater for non-motorized traffic.

## Alignment

Horizontal and vertical alignments of a road are designed to an optimum balance so as to provide the most direct, practical and economic route flowing with the terrain and with minimum disturbance to the existing route and without compromising on road safety.

The followings assumptions were made during the design of vertical alignments:

- Drivers eye height -1.10m
- Object height for stopping sight distance -0.10m
- Object height for meeting and passing sight distance - 1.10m

The vertical parabolic curves were fitted using the Autodesk Civil 3D software. For each vertical intersection point, the curve was fitted by inputting the required length and balancing with the design speed.

## Sight Distance

Minimum stopping sight distance for urban streets ranges from 30 – 60m. Design for passing sight distance is seldom applicable in urban streets.

Table 8: Stopping Sight Distance

Design speed km/h	Brake reaction distance, m	Braking distance on level, m	Calculated stopping sight distance, m	Design stopping sight distance, m
20	13.9	4.6	18.5	20
30	20.9	10.3	31.2	35
40	27.8	18.4	46.2	50
50	34.8	28.7	63.5	65

Source: AASHTO Geometric design of highways, Exhibit 3.1

## Grades

Grades for informal settlements should be as level as practical, consistent with the surrounding terrain. The gradient adopted for local streets will be less than 15%. Where grades of 4% or steeper are necessary, the drainage design may become critical. For proper drainage, the desirable minimum grade that will be adopted for the access roads with outer curbs will be 0.30%, but a minimum grade of 0.2% may be used.

### **Cross slope**

For efficient drainage, pavement cross slopes should be adequate. The normal travelled cross slopes suggested by AASHTO for both highways and low pavement surfaces are shown in the table below:

For efficient drainage, pavement cross slopes should be adequate. The normal travelled cross slopes suggested by AASHTO for both highways and low pavement surfaces are shown in the table below:

DISCLOSURE COPY

Table 9: Normal Travel Way Cross Slope

Surface Type	Range in cross slope rate, %
High	1.5 - 2
Low	2 - 6

Source: AASHTO Geometric design of highways, Exhibit 4.4

High type pavements are those that retain smooth riding qualities and good non-skid properties in all weather

### Junctions

Junctions and accesses were provided at required sections. The road is an urban road and therefore, unrestricted access is provided.

Most junctions were for residential accesses, but some were accesses to major and other existing urban roads in the area.

The turning radii provided fit the turning characteristics of passenger car with the minimum being 5m.

### Side slopes

The side slopes have been taken as 1:1.5 (vertical: horizontal). According to urban road design manual, suggested slopes for cut and fill conditions are shown in the table below:

Table 10: Recommended Design Slopes

Height of fill or cut, m	Earth slope, vertical to horizontal		
	Flat	Moderately steep	Steep
0 – 1.5	1:4	1:4	1:4
1.5 – 3	1:4	1:3	1:2
3 – 4.5	1:3	1:2.5	1:1.5
4.5 – 6	1:2	1:2	1:1.5
Over 6	1:2	1:1.5	1:1.5

### Accesses

Access culverts have been provided to allow for accesses to various plots along the road.

### Footpaths

The width of the footpath has been estimated on the basis of minimum width required as 1.2m. However, a width of 2m was adopted due to availability of space. The surfacing is of bitumen standards.

### Cycle tracks

Due to volume of traffic projected, cycle tracks have not been provided separately and therefore they will use the same carriageway with other motorized traffic.

## Road furniture

Road furniture including road signs, guardrails, speed bumps and miscellaneous furniture were considered in the detailed design.

## Roads Operation Phase Activities

This is the phase when the road is actually in use. Most of the activities in this phase will involve monitoring of the activities of the project in line to the objectives of the project. These will include repairs to destroyed areas, expansions, policy development and implementation and general maintenance of the road and the associated structures.

## Roads Decommissioning Phase

Decommissioning refers to the final disposal of the project and associated materials at the expiry of the project life span. In respect to the road, decommissioning is not anticipated. However, it will be sustained in accordance to transportation demands of the project area.

Nevertheless, after the construction period, construction equipment and dismantled camp materials will be salvaged and removed from the site by the contractor.

## Environmental Protection

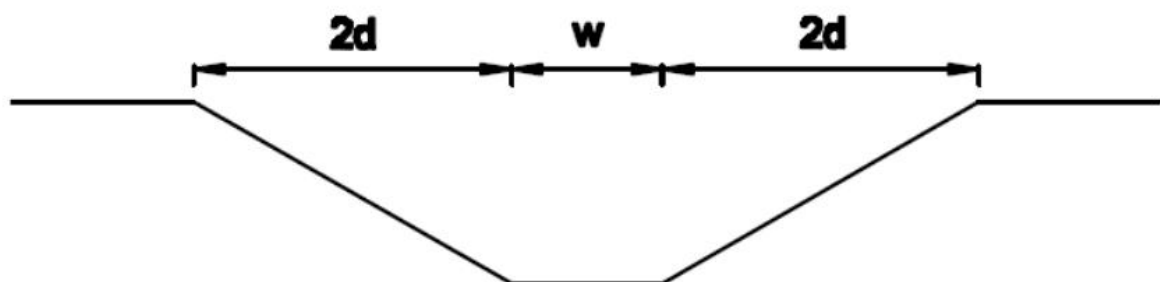
The Contractor is supposed to ensure so far as is reasonably practicable and to the satisfaction of the responsible proponent agent; that the impact of the construction on the environment shall be kept to a minimum and that appropriate measures as brought out in the ESMMP are taken to mitigate any adverse effects during the construction. These measures shall include:

- a) After extraction of construction materials, all quarries and borrow pits shall be back-filled and landscaped to their original state to the satisfaction of the Engineer. In particular, those near the project road shall be back-filled in such a way that no water collects in them.
- b) Spilling of bitumen, fuels, oils, lubricants and other pollutants shall be avoided and if spilt, shall be collected and disposed off in such a way as not to adversely affect the environment.

Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case all diversions shall be kept damp and dust free.

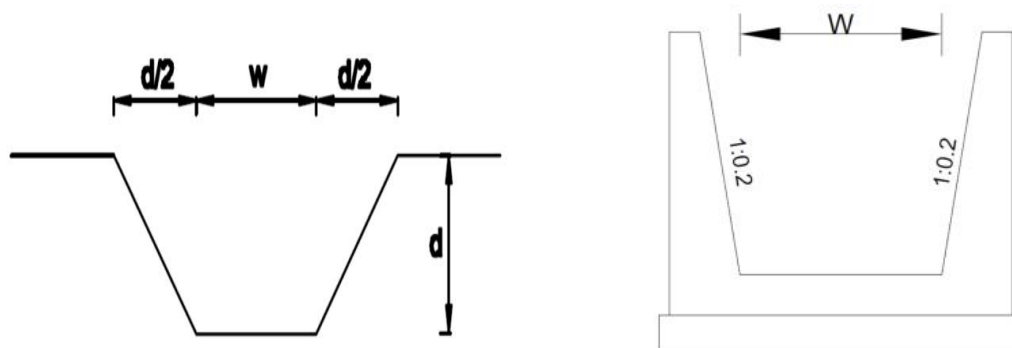
## Drainage Facilities Design

Major channels are designed as V-shaped. The major channels run through reserve areas, which are undeveloped areas. The loose slope of the channel is H: V=2:1 which does not require reinforced concrete structure. By adopting this design, construction and management cost can be saved.



## 1V-Shape Drain (H:V=2:1)

Meanwhile, side ditches along roads are designed as U-shaped, to provide a large area for roadside land use. The slope of the channel is H:V = 1:1 or H:V = 1:2, depending on their widths. The maximum width of a U-shape drain with slope H:V=1:1 and without reinforcement is 1,000 mm.



## 2.4 Street Lighting Works

The Street Lighting works shall comprise of installation of 3Nr. High Mast lights with a 30 m high steel tower complete with a lockable electrical control switchgear and power meter chamber and 3000mm by 3000mm concrete foundation. Radius of illumination is 150m Current state.

Table 11: Summary of street lighting works

S/N	DESCRIPTION	AMOUNT
1	FLOODLIGHTING AND OTHER SERVICES	8,976,300.00
2	CIVIL AND STRUCTURAL WORKS	2,769,300.00
	<b>SUB TOTAL</b>	<b>11,745,600.00</b>

### 2.4.1 Installation of High-Mast lights

The installation of high-mast lights involves several activities to ensure the proper functioning and safety of the lighting system. Below is a list of activities typically involved in the installation process:

- **Site Assessment:** Conduct a thorough assessment of the installation site to determine the optimal locations for high-mast lights. Consider factors such as visibility requirements, surrounding infrastructure, and potential obstacles.
- **Design and Planning:** Develop a detailed design plan for the high-mast lighting system, including the height, and the placement of lights. Plan the electrical wiring and power supply for the entire system.
- **Foundation Installation:** Excavate and prepare the foundation for each high-mast pole according to engineering specifications. Install the anchor bolts and secure the foundation to ensure stability.
- **Mast Erection:** Use appropriate equipment to lift and install the high-mast poles onto the prepared foundations. Ensure the correct alignment and verticality of each mast.
- **Electrical Wiring:** Connect the electrical wiring from the power source to each high-mast pole. Install control panels, switches, and other electrical components.

- **Light Fixture Installation:** Mount the high-intensity light fixtures onto the top of each mast. Ensure proper alignment and secure fastening to prevent movement.
- **Testing and Commissioning:** Conduct comprehensive testing of the entire high-mast lighting system to ensure functionality. Verify the performance of each light fixture, the power supply, and the control system.
- Establish a maintenance agreement outlining responsibilities and schedules for ongoing upkeep.

**Anticipated Waste:** The installation process for high mast lights may generate waste such as packaging materials, old lighting fixtures, wiring scraps, and possibly excess concrete or foundation materials.

**Products and By-Products:** The products are the installed high mast lights and improved lighting infrastructure. By-products could include recyclable materials from packaging and old fixtures.

**Waste Management:** Waste can be managed by recycling packaging materials, properly disposing of old lighting fixtures and wiring in accordance with waste regulations, and reusing or recycling excess construction materials where feasible

## 2.5 Water Supply

The water supply works shall comprise the following pipelines

*Table 12: Water supply project details*

Description	Unit	Quantity
OD32PN16 in trenches with depth range not exceeding 1.5	m	2955
OD50PN16 in trenches with depth range not exceeding 1.5	m	1711
OD75PN10 in trenches with depth range not exceeding 1.5	m	970

The works shall also entail the connection of 591 new consumers with Complete consumer connection including 90° HDPE bend, HDPE ferrule adopter, consumer connection pipe HDPE BPT Adopter, meter box include short threaded, pipe piece, isolating ball valve, volumetric domestic water meter c/w strainer plus non return, meter cap nut, short threaded pipe piece, lock nut plastic washers, concrete base class 15/20, all socketed Ts and 90° socketed bend.

A drinking water supply system will usually consist of the following main parts:

- Identification of a suitable source (quantity, quality, distance).
- Construction of a reservoir (water tower or similar) and main ducts to the settlement.
- Distribution system (to houses, standpipes etc.).

*Table 13: Summary of water works*

BILL No.	DESCRIPTION	AMOUNT
2.0	MISUFINI WATER SUPPLY	11,726,814.99
	<b>SUB TOTAL</b>	<b>11,726,814.99</b>



*Figure 4 : misufini landscape*

### 3 PROJECT ALTERNATIVE

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study / Project Report subsequent to which, subsection (i) requires an analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site. Therefore, this section analyses the Project alternatives in terms of site, technology scale and waste management options. However, under this study the alternative that was considered for the Project was focused on:

- a) "No-action" Alternative
- b) Alternative Routes
- c) Alternative Mode of Transportation
- d) Analysis of Alternative Construction Materials and Technology

#### 3.1 The "No-action" Alternative

The selection of the "No-action" alternative would mean the discontinuation of all projects designs and result in the site being retained in its existing form. If the site is left undeveloped, the proponent would lose in terms of not achieving development goals. In this case, the road already exists in the type of murram road, therefore there is no standard "no-action" scenario if the strategic objectives of the MoM are in constructing the road in bitumen material to improve its standard. There is no other macro-transport alternative like water and overland rail which can be applicable to connect these two towns. The possible alternative is air transport but this is not adequate and affordable to the short distance to be covered and it's not economical.

This is defined as maintaining the road in passable condition. Intermittent repairs are undertaken from time to time. "Without-the-project" scenario is therefore to assume that similar interventions will continue in the future and that the maintenance strategy will be to ensure that the road remains passable. The maintenance strategy may involve environmentally sustainable and friendly mechanisms.

#### 3.2 Upgrade of Roads

##### 3.2.1 Alternative 1: Patch and Repair

Instead of a comprehensive road upgrade, this alternative involves patching and repairing specific sections of the existing roads. It is a cost-effective option but may not address long-term issues.

Pros:

- Cost-effective in the short term.
- Minimal disruption to traffic.

Cons:

- Limited long-term effectiveness.
- May lead to recurring maintenance needs



### **3.2.2 Alternative 2: Incremental Upgrade**

Implement a phased approach to road upgrades, focusing on critical sections first. This allows for budgetary flexibility and minimizes disruptions to traffic and communities.

Pros:

- Phased approach allows for flexibility.
- Minimizes immediate financial burden.

Cons:

- Prolonged disruption as upgrades occur in phases.
- Potential delays in addressing critical road sections.

### **3.2.3 Alternative 3: New Road Alignment**

Consider creating new road alignments or bypasses to alleviate traffic congestion and address issues in a more strategic manner, though this may involve acquiring new land.

Pros:

- Addresses traffic congestion strategically.
- Allows for optimized road design.

Cons:

- Land acquisition challenges.
- Higher upfront costs.

Therefore, the incremental upgrade alternative may strike a balance between immediate improvements and long-term considerations. Further detailed analysis is needed to determine the optimal phasing and critical sections for initial upgrades.

## **3.3 Construction of Storm Water Drainage**

### **3.3.1 Alternative 1: Green Infrastructure**

Explore the incorporation of green infrastructure solutions, such as permeable pavements and green roofs, to manage storm water naturally and enhance environmental sustainability.

Pros:

- Environmentally sustainable.
- Potential for community engagement.

Cons:

- Initial implementation costs may be higher.
- Requires ongoing maintenance.

### 3.3.2 **Alternative 2: Traditional Drainage Systems**

Opt for traditional drainage systems with concrete pipes and culverts. This alternative may be more straightforward but could have higher associated costs and environmental impacts.

Pros:

- Proven effectiveness.
- Standardized construction methods.

Cons:

- Potential environmental impact.
- Limited flexibility in managing storm water naturally.

### 3.3.3 **Alternative 3: Regional Detention Ponds**

Implement regional detention ponds to manage storm water runoff at specific locations, providing a more centralized and controlled approach to drainage.

Pros:

- Centralized storm water management.
- Reduces flood risk in specific areas.

Cons:

- Requires significant space.
- Potential impact on existing ecosystems.

Therefore, the selection between green infrastructure and traditional drainage systems depends on the environmental goals and community preferences. Further study on costs and long-term impacts is necessary.

## 3.4 **Installation of High-Mast Lights**

### 3.4.1 **Alternative 1: Solar-Powered Lights**

Consider the use of solar-powered high-mast lights to reduce reliance on traditional energy sources, promote sustainability, and potentially lower long-term operational costs.

Pros:

- Sustainable and environmentally friendly.

- Potential long-term cost savings.

Cons:

- Higher initial investment.
- Weather-dependent efficiency.

#### 3.4.2 **Alternative 2: Smart Lighting Systems**

Implement smart lighting systems with sensors and controls to optimize energy usage and adjust lighting levels based on real-time conditions, improving efficiency and reducing environmental impact.

Pros:

- Energy-efficient and adaptable.
- Allows for real-time adjustments.

Cons:

- Initial setup costs may be higher.
- Requires technological expertise.

#### 3.4.3 **Alternative 3: Decorative Lighting**

Explore the installation of decorative high-mast lights that not only provide illumination but also contribute to the aesthetic enhancement of the area, considering the cultural and visual preferences of the community.

When considering project alternatives, factors such as cost, environmental impact, community preferences, and long-term sustainability should be carefully evaluated. This evaluation process helps decision-makers choose the most suitable and effective approach for achieving the project objectives while mitigating potential negative impacts.

Pros:

- Aesthetic enhancement.
- Community-focused design.

Cons:

- Potential higher upfront costs.
- Balancing aesthetics with functional lighting requirements.

### 3.5 **The Alternative Analysis**

The analysis of project alternatives provides valuable insights into various options for the upgrade of roads, construction of storm water drainage, and installation of high-mast lights. The considerations for each alternative

are essential in making informed decisions that align with environmental regulations, community needs, and project objectives.

The "no-action" alternative would impede the achievement of development goals for the upgrade of roads, construction of storm water drainage, solid waste collection and disposal points and installation of high-mast lights. This alternative is not feasible, given the strategic objectives of the projects in Misufini settlement. The alternatives for road upgrades offer a spectrum of choices, each with its own set of advantages and challenges. The road design highlighted appears to strike a balance between immediate improvements and long-term considerations. The alternatives for storm water drainage emphasize the need to balance environmental sustainability with practicality. The selection the designed drainage systems costs effective, and has long-term impacts. The alternatives for high-mast lights present options ranging from solar-powered solutions to smart lighting systems and decorative lighting. The decision-making process involves weighing the benefits of sustainability, efficiency, and aesthetics against the associated costs.

The document underscores the importance of a comprehensive evaluation process, taking into account financial considerations, environmental impact, community preferences, and long-term sustainability. It emphasizes the need for further detailed analysis in certain areas to make well-informed decisions.

Further detailed analysis is recommended for specific aspects, such as the optimal phasing and critical sections for road upgrades, the costs and long-term impacts of storm water drainage alternatives, and the careful consideration of the balance between aesthetics and functionality in high-mast lighting.

The project alternatives analysis provides a solid foundation for decision-makers to choose the most suitable and effective approaches for the identified projects. It reflects a commitment to responsible and sustainable development, considering the diverse needs and concerns of the community and adhering to environmental regulations.

## **4 SOCIO-ECONOMIC AND ENVIRONMENTAL BASELINE INFORMATION**

### **4.1 Introduction**

This section describes the project area's physical, biological and socio-economic environments. The project needs to put to consideration various environmental aspects as it shall make utility of environmental resources.

### **4.2 Biophysical**

#### **4.2.1 Physical environment**

##### **1. Climate**

The climate of Mombasa is influenced by the semi-annual passage of the inter-tropical convergence zone (ITCZ) and the monsoons. The Northeast monsoon occurs from December to March, and the Southeast monsoon from May to October. The mean annual rainfall is 1038 mm, peaking in May and October. Average annual temperatures for the two seasons are 23.9°C and 28.5°C respectively.

The city is vulnerable to flooding because of its low altitude for a 4-6 km band extending from the coast inwards, which lies at an altitude between sea level and approximately 45m above sea level (UN Habitat 2010). The city has a history of disasters related to climate extremes, including floods that cause serious damage to property and even loss of life (Awuar et al. 2008).

As a seaport, Mombasa is subject to detrimental consequences of a fluctuating climate. Mombasa experiences large floods due to the El nino effect which has affected more than 80,000 household's country wide.

Due to rising sea levels, the coastline has been eroding at 2.5–20 cm per year. This has increased the number of annual floods.

##### **2. Wind**

The surface wind speeds vary between 10.8Km/hr and 18Km/Hr. The windiest month of the year Within the settlement is May and June (18km/hr) while the month with the lowest wind speed is November (10.8Km/hr). Average wind speed 13.19kmh | 8.2mph.

##### **3. Sunshine**

In Mombasa, there are on average 8.5 hours of sunshine per day. So, the sun shines 68% of the time. The month with the most daily hours of sunshine is March with an average of 8.3hours of sunshine. The month with the fewest daily hours of sunshine in Mombasa is May with an average of 6.8 hours of sunshine a day. Around 2930 hours of sunshine are counted in Mombasa throughout the year.

##### **4. Geology, Topography and Soils**

Mombasa County is located on coastal lowland with extensive low-lying areas rising from 8 m above sea level (m a.s.l.) in the east to about 100 m in the west. It can be divided into three main physiographic belts: the flat coastal plain, which is 6 kilometers wide and includes Mombasa Island, Kisauni on the northern mainland and Mtongwe to the south. The next belt is severely dissected and eroded, consisting of Jurassic shall overlain in places by residual sandy plateaus. These are found in the Changamwe area. Finally, the last belt consists of an undulating plateau of sandstone that is divided from the Jurassic belt by a scarp fault. Near the sea, the land is composed of Pleistocene Age coral reef, which is commercially exploited as a source of limestone for the cement industry. The seashore has extensive sandy beaches (Musingi et al. 1999).

## 5. Hydrology

There are two main rivers that drain into the coast - river Tana and River Sabaki. River Tana is the longest; originating from Mt Kenya and draining into the Indian Ocean, distance of about 850km. It has a catchment area of 132,000 km<sup>2</sup> and discharges annual average of 4.7 x 10<sup>9</sup> million m<sup>3</sup> of freshwater and 3.0 million tonnes of sediments into the Indian Ocean with peak discharges during the rainy season from April to June. It enters the ocean at Kipini. About 30 km upstream, River Tana branches and the tributary proceeds to form the Tana delta.

### 4.2.2 Biological Environment

#### 1. Fauna

The project area already has minimal Fauna, due to its highly urban nature, thus little vegetation may be affected by the proposed construction and rehabilitation works.

Though due to presence of a Sacred Kaya Forest that exists approximately 7Km away which may host some animal's species birds, butterflies, primates. Domesticated animals also exist within the project site but will be less impacted by the project.

#### 2. Flora

The Project area has been influenced by development and is characterized by a belt of trees (coconut, indigenous, fruit), Grassland. There is presence of household trees some used for fencing and micro climate component. There are mangrove forests occupy 1'465 ha at Tudor creek which is approximately 5km from the project site, and are dominated by the following species: *Avicennia marina* and *Lumnitzera racemosa* generally occupy the landward zone, whereas a *Ceriops tagal* and *Rhizophora mucronata* mosaic covers the middle zone. Wherever present, *Sonneratia alba* occupies the seaward margin, but is replaced by tall *A. marina* and *R. mucronata* along small creeks (Mohammed 2008). Other plants are Coconut trees locally known as 'mnazi' and other agricultural plants. There will be little disturbance to the nearby vegetation.



Figure 5:vegetation found at the project area.

## 4.3 Socio-Economic Baseline

### 4.3.1 Population

Population data acquired from KNBS Census records (2019) indicates the population of the Republic of Kenya is approximately 43 million. The population of Mombasa County is 939,370 including 486,924 males and 452,446 females. Since the population of Mombasa County is increasing rapidly, the total population is estimated to reach

1.2 million by 2017. The principal industries in Mombasa County are tourism (hotel industry), shipping industry and various private institutions. In addition, the Government of Kenya is also one of the principal sources of employment.

#### **4.3.2 Land tenure**

Land tenure system in Mombasa County within Misufini are well defined with most land parcels have land owners with title deeds (registered).

#### **4.3.3 Population Projection**

Historical population data was acquired from KNBS Census records (1979 – 2019) from which the adopted population growth rates were acquired. The population growth rates were calculated per constituency as shown below. The rates were in turn used to project the population to the current year (2023) and further to the ultimate year (2045).

Table 14: population projections

S N	Administrative Division	Growth Rate	Informal Settlement	Base year	Present Year	Initial Year	Future Year	Ultimate Year
				2019	2023	2025	2035	2045
1	Changamwe	3.28%	Misufini	1,789	2,036	2,171	2,999	4,142

#### 4.3.4 Demographics:

A total of 70 respondents participated in the survey. Youths aged between 18 – 35 years accounting for 11.67% of the total population of people aged above 18 years in this community. 88% of the respondents had attained a post-primary (8 years of schooling) level of education. 88.3% of the respondents reported that they owned a mobile phone. Health facilities

##### 1. Household composition:

88.3% of the respondents were household heads. Of these, (22.8%) households had women as the household heads. And (89.3%) of the household heads had completed the minimum primary education.

##### 2. Household composition:

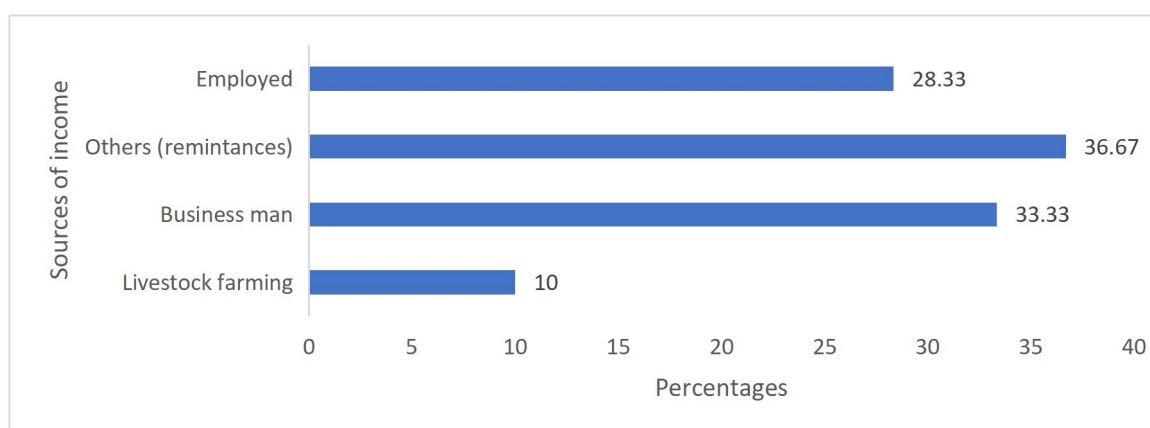
The average household size was 7 persons is comparable to the number of KDHS (2019) of 4 persons for the coastal zone and 4.3 from the 1999 population census (KNBS, 2009). This implies that residents have fairly large families and dependents.

##### 3. Sources of income:

89% of the male adults had one form of employment while 11% female members, had some engagement in some income generating activities (IGAs). Economic activities are farming and fishing. These contribute heavily to the local economy both in employment provision and income generation. Most of employment opportunities arise from these main economic ventures.



Figure 6: sources of income



Source: Misifuni Informal Settlements survey data, 2024.

#### 4. Access and Control of Household Assets by gender:

The analysis of the profile of access and control of household assets, shows that men are powerful at the household level, as they control the most important and valuable household assets/ goods and that children have limited control of household assets. This places the men as the main decision-makers.

#### 5. Sources of household income:

The primary source of income includes employment (28.33%), followed by 36.67% remittances.

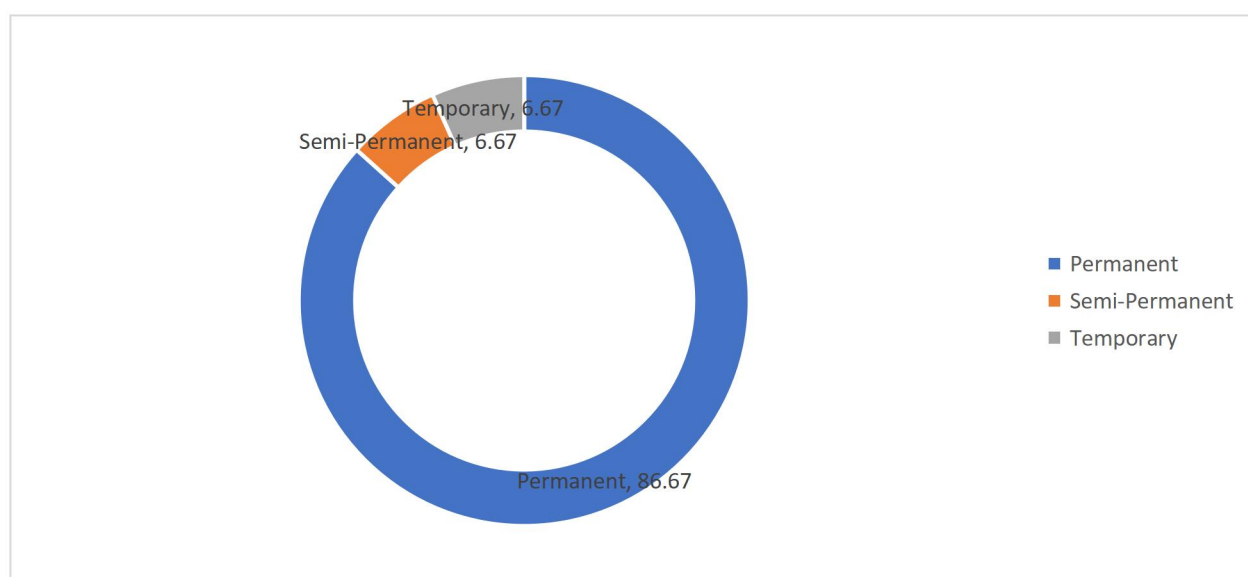
#### 6. Sources of Income and earning equivalent:

61.5% of those who relied on livestock earned less than Kshs. 5,000 per month. 42% of the employed earned over Kshs. 20,000 per month; the business community had over 34% earning between Kshs. 2,000 to 10,000 per month. This shows variation between income sources and the amount earned per month.

#### 7. Type of House Structure:

86.7% of the respondents live in permanent house structures, 6.7% live in semi-permanent and 6.6% live in temporary house structures. 80% of the households visited during the survey had connection to electricity through the national power grid.

Figure 7: type of housing structure



Source: Misifuni Informal Settlements survey data, 2024.

#### 8. Disposal of Solid Waste:

Misifuni settlement has no liquid waste disposal infrastructure due to its physical location and therefore relies on the use of septic tanks.

#### 9. Methods of garbage disposal:

Garbage disposal methods varied 6.5% through garbage pits, 31.4% burning, 9.5% through public garbage collection points and 52.6% collected and dumped in gardens. There is a poor drainage system in the settlement.

#### 10. Environmental issues in the settlement:

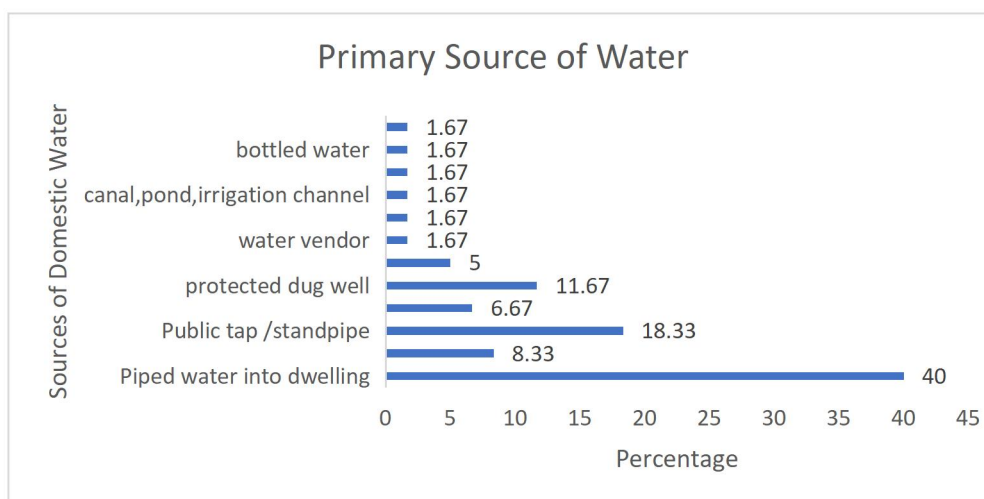
The environmental issues that affect the residents and generally the surrounding in Misifuni settlement were identified as follows; Littering with garbage, dust during dry season, open defaecation by those who do not have latrines, flooding during rainy season, disposal of waste water on foot paths and roads, soil erosion.

#### 4.3.5 Water Sources, Storage, Disposal, Quality and Reliability

##### 1. Sources drinking of water:

The principal source of domestic water for drinking and cooking in the Misifuni settlement zone s is the piped water into dwellings which accounts for 40%, while public tap/standpipe accounted for 18.33 %.

Figure 8: sources of drinking water

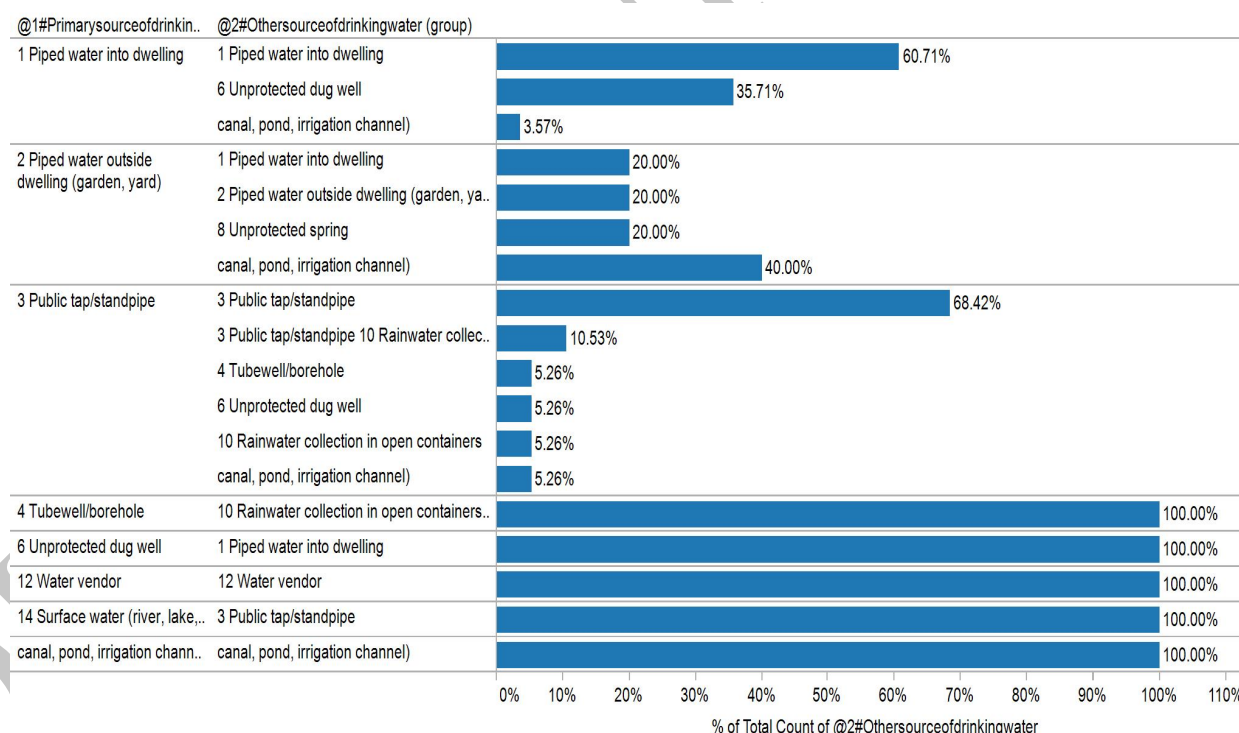


Source: Misifuni Informal Settlements survey data, 2024.

## 2. Alternative sources of waters due to climate change:

The survey established that among the households that had water piped into either their dwelling or compound, there was consistency in the sources of water occasioned by climate/weather pattern changes. However, among households whose primary source was either boreholes / wells, or public standpipe, there were changes in sourcing the commodity from either vendors or homes with piped water.

Figure 9: Alternative sources of water



Source: Misifuni Settlements zone survey data, 2024.

## 3. Water Consumption:

The average amount of water consumed in a given day among the households, is 17.5 (20 liters) jerry cans of water per day. This translates to 390 litres of water per household per day. Among the permanent structure houses, the average amount of water consumed in a given day is 9 (20 litres) jerry cans of water per day. Household spend an average of Kenya Shillings 1,980 per month to purchase water. This monthly purchase of water account or 11.5% of the monthly household expenditure.

**4. Gender roles in fetching water for domestic consumption:**

The survey established that the men (15 years or older) were the mainly responsible gender for fetching water and delivering it the household. This accounted for 73.33% of all responses. Equally the girl child (<15 years) also bore the responsibility of fetching water accounting for 51.67%. This is a shared responsibility.

**5. Drinking water treatment:**

(61.67%) reported that they usually do not treat their drinking water. This exposes them to a high risk of contracting waterborne diseases. For those respondents who treat water before drinking, they spend on average, KShs. 325 per month (minimum = Kshs. 50 and a maximum of Kshs. 1,000).

**6. Water Supply Quality:**

80% reported that the overall quality of drinking water (irrespective of the source) was good.

**7. Household water storage facilities:**

(40%) of the respondents reported that they cleaned their household water storage containers once a week. However, 8% reported they usually clean their water containers at less often than half yearly.

**8. Disposal of waste (grey) water:**

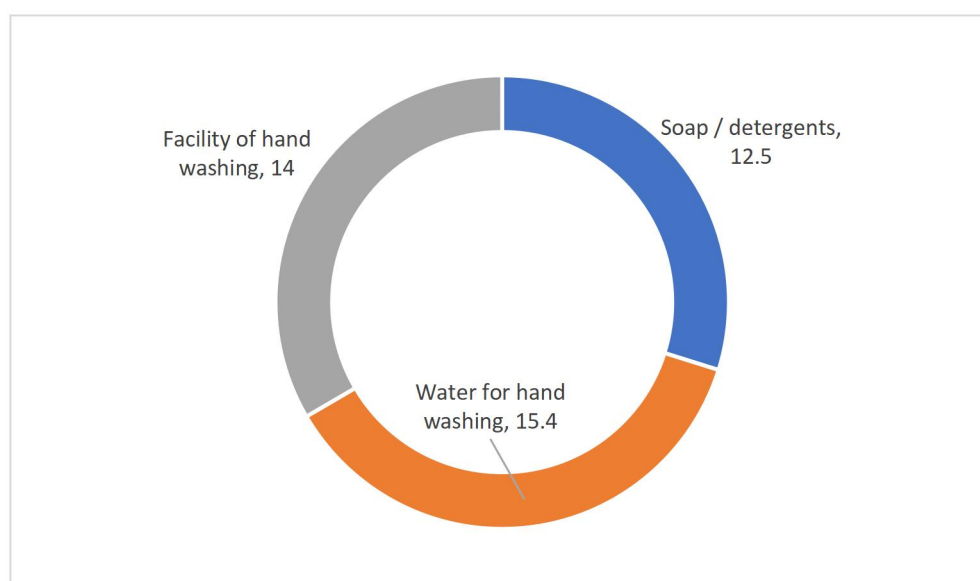
32% reported that they disposed of waste (grey) water on the street surface 14% pour the waste (grey) water inside the latrines.

**4.3.6 Personal Hygiene**

**1. Hand washing facilities and materials**

(19.1%) of the households in Misifuni Settlement area had dedicated places/facilities for handwashing within their homestead. It was observed that for those households with a dedicated facility of handwashing, (96%) of them had a bar of soap or liquid detergents for washing hands and 12% of the facilities had a bar of soap or a liquid detergent.

Figure 10: Hand washing facilities



Source: Misifuni Informal Settlements survey data, 2024.

## 2. Knowledge and handwashing behavior of infant children in Misifuni Settlement:

In households where there were infants (less than 5 year olds), (30.3%) correctly identified all the four periods when an infant should have their hands washed. (68.7%) were able to identify at least 1 session for infants' hand washing times. 1% had no knowledge.

### 4.3.7 Sanitation situation

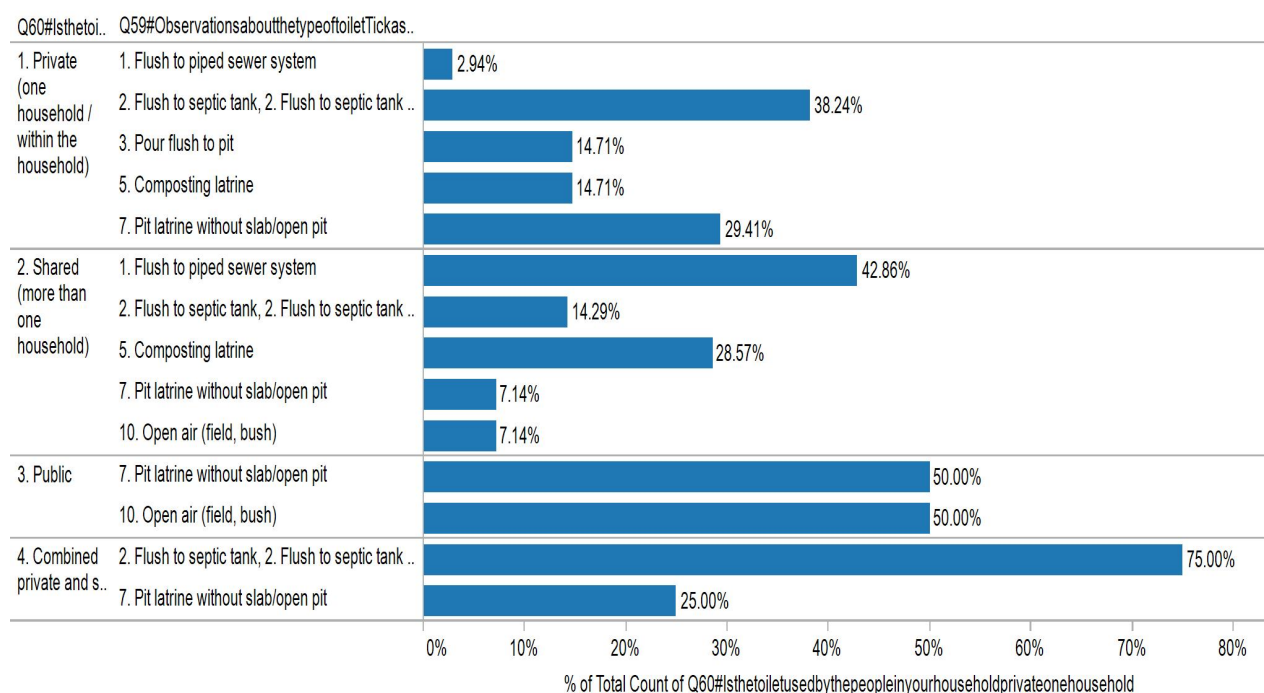
#### 1. Types of toilets:

68% of the households had a toilet facility within the household, 6.67% reported using a communal toilet or nearby grounds. The survey established the presence of flushing toilets in Misifuni Settlement area.

#### 2. Sharing of toilets

80% of the respondents reported that they shared toilets facilities with members of the households.

Figure 11: Sharing of toilets



Source: Misifuni Informal Settlements survey data, 2024.

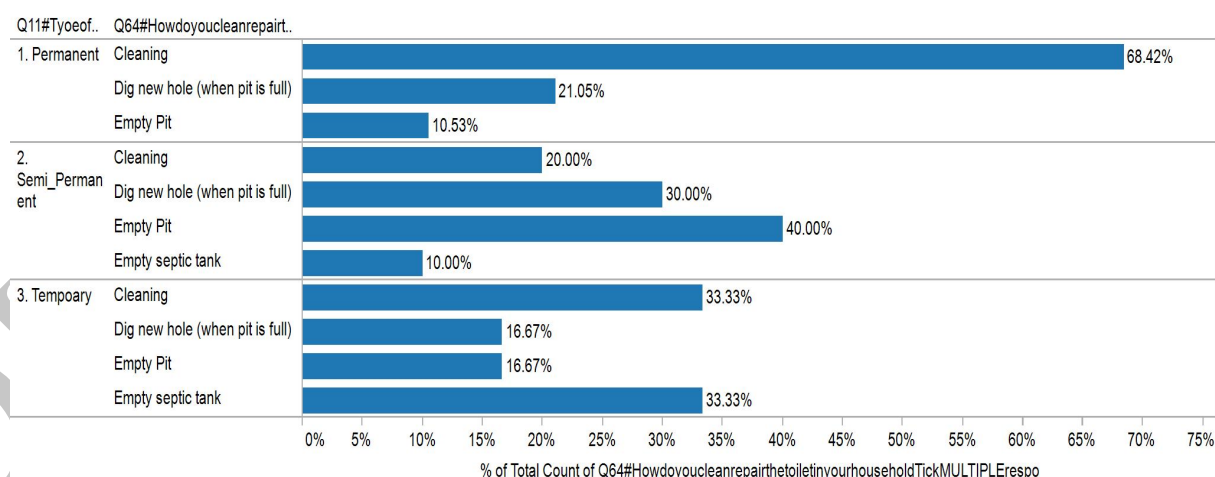
### 3. Hygiene conditions of the toilets:

80% of the flush toilets, which were located in the houses were clean.

### 4. Access to the sanitation facilities:

90% of the paths leading to various sanitation facilities were clear of debris and undergrowth plants.

Figure 12: Access to sanitation facilities



Source: Misifuni Informal Settlements survey data, 2024.

### 5. Toilet cleaning methods and maintenance:

80% of the respondents reported that they cleaned their toilets regularly using water. Other methods include digging new pits when full (44.4%), and emptying septic tanks (24%).

**6. Functionality of the various types of toilet:**

60% of the toilets were in good operation conditions (i.e. there were no leakages or overflows) except for those facilities that are pour to flush and pit latrines. 50% were in a convenient to use state, clean and smelt good.

**4.3.8 Safety and security in the settlement**

Safety in Misifuni Settlement: In Misifuni settlements, drug and substance abuse among other unethical behavior contribute to insecurity in the settlement. The area mostly affected by stealing of property are the Kitui area.

The leaders in the settlement were involved in the mapping of crime hotspots in the settlement. It was revealed that Gangs of youth's attack and rob people at night in Kitui area. Therefore, the contractor will need to be informed of these occurrences. The fact that gangs exist means crime rates will increase especially with the coming in of construction labour force.

## 5 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

### 5.1 National Laws and Regulations

Table 15: National Laws

Law/Regulation	Objective	Application
<b>The Environmental Management and Co-ordination Act, (EMCA) 1999 and amended in 2015 and subsequent Regulations.</b>	Supervision and coordination of all matters relating to the environment	Guidelines for mitigating adverse environmental impacts
<b>The Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2003 amended 2019.</b>	Assessing the potential environmental and social consequences/impacts brought about by a project.	Its administration ensures sustainable development and minimizes adverse environmental impacts associated with development projects.
<b>Environmental Management and Coordination, (Water Quality) Regulations 2006</b>	Its objective is to address various aspects of water quality management in order to protect public health and the environment	These Regulations shall apply to drinking water, water used for industrial purposes, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife, and water used for any other purposes.
<b>Environmental Management and Co-ordination (Waste Management) Regulations, 2006</b>	Its aim is at addressing the challenges of waste management and promoting environmental sustainability.	This policy applies to all categories of waste including hazardous waste and industrial waste. From its generation; collection; transportation; disposal and treatment.
<b>Environmental Management and Co-ordination (Air Quality) Regulations, 2022</b>	Public health protection, preservation of the environment, management of Green House Gases, pollution control etc.	Address various aspects related to air pollution and quality management.
<b>Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009</b>	The primary objective of the regulations is to conserve and protect critical ecosystems, recognizing their ecological importance and the services they provide.	Applies to all wetlands, riverbanks, lake shores and sea shores in Kenya regards either private or publicly owned.
<b>Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009</b>	The primary objective is to safeguard the health and well-being of the public, wildlife and the entire ecosystem; by regulating and minimizing exposure to excessive noise and vibration levels.	It states that; no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.
<b>The Kenya Roads Act, 2007</b>	Provided powers and functions of the relevant authorities that manage, develop, rehabilitate and maintain all road projects	Any road upgrade project falls under the purview of this legislation.
<b>Public Roads and Roads of Access Act 1972 revised 2010 Cap 399</b>	Safeguards the right of the public use public roads	The project entails public road upgrades of the informal sentences



Law/Regulation	Objective	Application
	constructed.	
<b>The Traffic Act Cap 403 of 2013</b>	Spells out conditions for use of roads by motorists, among others.	Essential to ensure that traffic flow is maintained during construction.
<b>Occupational Health and Safety Act 2007 CAP 514</b>	Makes provision for the health, safety and welfare of persons employed	The contractor will have to follow this law as he is expected to have employees during the project period.
<b>The Public Health Act 1986 revised 2012 (Cap 242)</b>	Principle instrument for ensuring the health and safety of the people.	Measures need to be placed to ensure the health and safety of the community during the project period.
<b>The Physical and Land Use Planning Act, (PLUPA) 2019</b>	Provides for the preparation and implementation of physical and land use development plans	The legislation provides mechanisms for spatial planning and land use management and addresses the management land resources.
<b>County Government Act No.17 of 2012</b>	The Act empowers the county government to be in charge of function described in Article 186 of the constitution, (county roads, water and Sanitation, Health), Part XI of the Act vest the responsibility of planning and development facilitation to the county government with collaboration with national government	The proponent will work in liaison with Mombasa County Government
<b>Urban Areas and Cities (Amendment) Act, 2017.</b>	Denotes the creation of integrated development plan for every county	The proposed project should be integrated in the County Integrated Development plan
<b>National Construction Authority ACT No. 41 of 2011</b>	Encourages the standardization and improvement of construction techniques	The project involves construction activities
<b>Sustainable Waste Management Act 2021</b>	Provide guidelines on solid waste management on project cycle	Mitigate potential solid waste productions during construction stages and the entire proposal on waste management systems
<b>Children Act (2001), revised 2016</b>	Children are being protected from child labour and all forms of violence	Construction camps are likely to interact with children it is mandatory the follow the law to avoid child exploitation. This act also prevents SE
<b>Employment Act, 2007</b>	Aims to regulate the relationship between employers and employees, ensuring fair labor practices and protecting the rights of workers.	This Act shall apply to all employees employed by any employer under a contract of service and shall not apply to; (a) the armed forces; the National Youth Service; and an employer and the employer's dependents where the dependents are the only

Law/Regulation	Objective	Application
		employees in a family undertaking.
<b>Sexual Offences Act (2006)</b>	Protection of all persons from harm from unlawful sexual acts, and for connected purposes.	Sexual vices are expected to impact the society and as such a law will regulate such Incidences from occurring
<b>The Constitution of Kenya, 2010</b>	The Constitution of Kenya, promulgated in 2010, outlines the fundamental principles and objectives of governance in the country.	Overall, the Constitution of Kenya 2010 has a broad application across various sectors and aspects of governance, providing a foundation for building a just, democratic, and inclusive society.

## 5.2 County Laws and Regulation

Table 16: County Laws

Law	Objective	Application
<b>Mombasa County Climate Change Act 2022</b>	The Act puts in place the framework and mechanisms for mobilization and facilitation of communities and other stakeholders in the county to respond effectively to climate change and for connected purposes.	The project aligns with this act reason it involves construction of storm drains that will be used to control flooding. Flooding is as a result of excessive rainfall caused by climate change

## 5.3 National Policy Framework

Table 17: National Policies

Policy	Objective	Application
<b>Kenya Vision 2030</b>	Transform Kenya into a middle-income country.	Contribute to the realization of the goals of Vision 2030
<b>The National Environmental Action Plan (NEAP) 1994</b>	Integrate environmental considerations into the country's economic and social development initiatives/plans.	Help in minimizing environmental impacts of project activities.
<b>Policy Paper on Environment and Development 2014</b>	To ensure projects take environmental considerations into account projects take environmental considerations into account	Potential impacts on the environment and involvement of the public in project planning
<b>The National Water Resources Management Policy (1999)</b>	It, calls development of appropriate sanitation systems to protect people's health and water resource from any source of pollution.	Provides measures to minimize the disruption of natural drainage patterns
<b>HIV and AIDS Policy 2009</b>	Setting Minimum Internal Requirements (MIR) for managing HIV and AIDS	The Contractor will in cooperate in tender document and implement HIV awareness initiatives during implementation of the project.

<b>Policy</b>	<b>Objective</b>	<b>Application</b>
<b>Gender Policy 2011</b>	Mainstream gender concerns	This policy will be referred to during Project implementation especially during hiring of staff to be involved in the project
<b>National Housing policy 2016</b>	Encompasses, rural housing, slum upgrading and vulnerable groups ensuring a long lifespan	The project is dealing with upgrading of informal settlements
<b>Sessional Paper No. 7 of 2005 on National Employment Policy and Strategies for Kenya</b>	Guarantee safe and peaceful working environment	During construction and demolition phase of the project there will be employment.

#### 5.4 County Policy Framework

Table 18: County Policies

<b>Instrument</b>	<b>Objective</b>	<b>Application</b>
<b>Mombasa County integrated development goals 2023-2027</b>	Obligates a county to develop an integrated plan, designate planning unit at all County administrative units and promote public participation and engagement by nonstate actors in the planning units.	The project would contribute to the realization of the CIDP's vision for a well-connected and efficient transportation system, thereby supporting broader socioeconomic development goals outlined in the plan.

## 5.5 Sustainable Development Goals

Table 19: Sustainable Development Goals

Instrument	Objective	Application
<b>SDG Goal 1</b>	No poverty	Through the development of the informal settlement it enhances economic opportunities, improving living conditions, and empowering communities.
<b>SDG Goal 2</b>	Zero Hunger	Road Upgrade improves and other project developments improve access to food, resilience to climate change, environmental sustainability, and social inclusion.
<b>SDG Goal 3</b>	Good health & well Being	The project contributes to the improved health and productivity through the provision of a safe and clean environment.
<b>SDG Goal 4</b>	Quality education	Not Applicable
<b>SDG Goal 5</b>	Gender equality	By considering the specific needs and priorities of women and girls in these communities during the project phases
<b>SDG Goal 6</b>	clean water and sanitation	infrastructure improvement within the settlement can contribute to advancing the broader objectives of sustainable water management, sanitation access.
<b>SDG Goal 7</b>	Affordable and clean energy	The project entails the sustainable usage of energy to power the high mass lights and other operations of the project.
<b>SDG Goal 8</b>	Decent work and economic growth	Employment creation that will contribute to reducing the proportion of youth not in employment.
<b>SDG Goal 9</b>	Industry, Innovation and infrastructure	Through infrastructure development of the settlement it promotes resilience, inclusivity, sustainable development, and innovation within the community.
<b>SDG Goal 10</b>	Reduced inequalities	Services provided by each project infrastructure is intended to be accessible to all for example the roads constructed.
<b>SDG Goal 11</b>	Sustainable cities and communities	The proposed project plans to improve/develop informal settlements of Misufini Mombasa county.
<b>SDG Goal 12</b>	Responsible consumption and production	Its indirectly applicable through considerations such as waste management, pollution prevention, and Use of resources sustainably impacts on coastal communities.
<b>SDG Goal 13</b>	Climate action	Integrating climate action principles into the informal settlement upgrade project aligns with

Instrument	Objective	Application
		SDG Goal 13's objectives by mitigating climate change.
<b>SDG Goal 14</b>	Life below water	The drainage of the storm water puts into consideration the aquatic life.
<b>SDG Goal 15</b>	Life on land	Implementing Sustainable development and environmental conservation into the design and implementation of infrastructure projects in informal settlements helps achieve SDG 15.
<b>SDG Goal 16</b>	Peace justice and strong institutions	Through the development of the informal settlement it enhances economic opportunities, improving living conditions, and empowering communities.
<b>SDG Goal 17</b>	Partnerships for the goals	Road Upgrade improves and other project developments improve access to food, resilience to climate change, environmental sustainability, and social inclusion.

## 5.6 Multilateral Environmental Agreements

Kenya is signatory to several international conventions and treaties that would need to be adhered to in implementing this project and are geared towards environmental protection and conservation. Some of these include;

- ILO Conventions ratified by Government of Kenya
- Safety and Health in Construction Recommendation, 1988
- United Nations Framework Convention on Climate Change
- United Nations Convention on Biological Diversity (UNCBD)

### United Nations Framework for Convention on Climate Change (UNFCCC)

The convention addresses the principles of common but differentiated responsibility and precautionary action. Its main objective is to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with climate systems and within a specific timeframe which will allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Kenya signed the Kyoto protocol to the UNFCCC in 1997 which provided limitations and reduction commitments for developed countries and those in transition. Kyoto Protocol to the United Nations Framework Convention on Climate Change aim is to reduce or limit the emission of gases contributing to the "greenhouse effect" and causing climate change in the industrialized countries. United Nations Framework Convention on Climate Change (UNFCCC) aim is to achieve stabilization of greenhouse gas concentrations. The Paris climate change agreement goal is to limit global warming to well below 2, preferably to 1.5 degree Celsius, compared to preindustrial levels.

### Vienna Convention for the Protection of Ozone Layer

Inter-governmental negotiations for an international agreement to phase out ozone depleting substances concluded in March 1985 with the adoption of this convention to encourage intergovernmental co-operation on research, systematic observation of the ozone layer, monitoring of CFC production and the exchange of

information. Therefore, both the proponent and the contractor are obliged to minimize or phase out the generation of CFCs into the atmosphere during the project cycle.

### **Convention on Biological Diversity (1992)**

The convention promotes the protection of ecosystems and natural habitats, respects the traditional lifestyles of indigenous communities, and promotes the sustainable use of resources. The project activities especially during construction will impact negatively to the flora and fauna of the respective construction areas. As such both the proponent and the contractor must ensure that the activities of the proposed project do not affect the immediate ecosystems negatively and that the livelihoods of the local people are not negatively affected but rather enhanced.

### **African Union- Agenda 2063**

“A prosperous Africa based on inclusive growth and sustainable development” requires that Africa makes significant investments in education with the aim of developing human and social capital through an education and skills revolution emphasizing innovation, science and technology.

### **African Charter on the Rights and Welfare of the Child.**

It calls for protection against abuse and bad treatment, negative social and cultural practices, and all forms of exploitation. Article 2(5) & (6) of the Constitution ratifies international treaties and conventions to form part of Kenyan law.

### **Montreal Protocol on Substances that Deplete the Ozone Layer (1987)**

The Montreal Protocol on Substances that Deplete the Ozone Layer, adopted in 1987 and enforced in 1989, stands as a testament to the global commitment to safeguard Earth's delicate ozone layer. This monumental international agreement signifies a decisive move to tackle the urgent issue of ozone layer depletion by recognizing the imperative need to regulate and control the production and emission of ozone-depleting substances (ODS). The primary objective of the Montreal Protocol is to protect the ozone layer by implementing precautionary measures to mitigate global emissions of ODS. This objective entails a comprehensive strategy to address ozone depletion, acknowledging the pivotal role of the ozone layer in shielding life on Earth from the harmful effects of ultraviolet (UV) radiation originating from the sun.

## **5.7 World Bank Operational Safeguards**

*Table 20: World Bank Safeguard Policies*

<b>Instrument</b>	<b>Objective</b>	<b>Application</b>
<b>Operational Policy (OP)/Bank Procedure (BP) 4.01, 2001</b>	Environmental Assessment	The project was identified as a Category B
<b>World Bank Safeguard Policy BP 17.50, 2001</b>	Public Disclosure	The proposed project incorporated public participation and stakeholder consultation
<b>World Bank's Operational Policy (OP) 4.12 on Involuntary Resettlement</b>	Assessment of displacement of individuals where a project is being implemented.	The World Bank's Operational Policy (OP) 4.12 on Involuntary Resettlement outlines guidelines for projects that may result in the displacement of people or the loss of assets.
<b>World Bank's Operational Policy</b>	Identification and assessment of	Outlines the institution's

Instrument	Objective	Application
<b>(OP) 4.11 on Physical and Cultural Resources</b>	potential impacts on physical and cultural resources during project preparation	commitment to promoting sustainable development while safeguarding physical and cultural resources affected by Bank-financed projects.
<b>World Bank's Access to Information, 2015 (Amended)</b>	To enhance transparency, accountability, and stakeholder engagement in Bank-financed projects.	Applied to all WB projects.
<b>World Bank's Environmental Health and Safety Standards</b>	Ensures that the projects it finances are environmentally and socially sustainable, and that they adhere to high standards of safety and health.	Applied to all WB projects.

## 5.8 KISIP 2 Instruments

Table 21: KISIP Instruments

Instrument	Objective	Application
<b>Environmental and Social Management Framework</b>	Ensure that any adverse environmental and social impacts are avoided or appropriately mitigated and compensated for where necessary.	The project has anticipated impacts to the environment thus there is need to implement this framework to control these impacts.
<b>Resettlement Policy Framework, 2023</b>	RPF be prepared for all projects that anticipate both physical and livelihood displacement.	An ARAP is to be subjected to the project if the project affected people are less than 200. If the PAPS are more than 200 a There were displaced persons though they were less than 200
<b>Stakeholder engagement framework 2023</b>	Describe the applicable regulatory and/or other requirements for disclosure, consultation and engagement with the Project's stakeholders;	Public consultations were conducted as per the framework.

## **6 PUBLIC PARTICIPATION**

### **6.1 Legal and Policy Provisions for Stakeholder Consultations**

EMCA 1999 amended in (2015) through the Legal Notice No. 101: The Environmental (Impact, Audit and Strategic Assessment) Regulations, 2003, amended 2019.

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

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

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

### **6.2 Objectives of the Consultation and Public Participation (CPP)**

The objective of the consultation and public participation was to:

1. Disseminate and inform the stakeholders about the project with special reference to its key components and location.
2. Gather comments, suggestions and concerns of the interested and affected parties.
3. Incorporate the information collected in the ESIA study.
4. To sensitize the community on the project.

### **6.3 Methodology Used in The CPP**

The Consultation and Public Participation (CPP) process is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated by EMCA 1999 section 58, on EIA for the purpose of achieving the fundamental principles of sustainable development. The exercise was conducted in different ways, namely;

- 1) Consultative forums with key informants.
- 2) Field surveys and observations,
- 3) Administering of questionnaires.



## 6.4 Notification of the Marginalized

The marginalized were notified through the Mombasa County Officer from the respective ministry. The county officer communicates with the SEC Committee chairperson, who then informs the rest of his/her members. The SEC/GRC committees then inform the marginalized.

## 6.5 Schedule of Stakeholder Consultations

The assessment involved consultations with relevant stakeholders in target Project area. 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 key informant interviews, with questionnaires, which were filled and signed as shown in *Appendix 3*.

Public consultation meeting was held at under a tree – within Misufini where participants from diverse backgrounds attended including: youth (5), women (7), Elders (3) and the business community (9) among others. carried out in the entire project areas to elicit concerns and compliments from the area residents/beneficiaries. These meetings were organized in collaboration with local Community Leaders. A wide range of public was consulted on the proposed project using the various methodologies discussed above. These people gave a candid view of the proposed project.

The issues were then analyzed and presented to design team for finalization of Project designs and planning on how best to implement the Project. The main meeting was held within the month of January 2024; attendance of the meetings was from diverse sectors of the society as summarized below

*Table 22: Schedule of Public Consultation Meetings*

Date	Meeting Venue	Stakeholder Consulted	Number of Meeting Attendance	Gender
13 <sup>th</sup> March 2024	Misufini	GRC members, SEC members, youth (5), women (7), Elders (3) and the business community (9) PAPS and ESIA experts.	24	Male: 17 Female: 7

*Table 23: Summary of issues raised in consultations during the assessment*

	Issue	Response
1.	The Valuation of KISIP 1 was not satisfactory since The money compensated is less than the value of the property affected.	They were informed that the reason for the meeting is to acquire their grievances and look for ways to improve the project thus issues of Valuation will be captured and ways of improvement sort after.
2.	There was no proper communication to the PAPS concerning compensation. Thus most of them received money though where not aware it was for what purpose.	They were informed that the reason for the meeting is to acquire their grievances and look for ways to improve the project thus lack of communication will be captured and ways of improvement sort after.
3.	There was interest that the SEC and GRC committees get to know the exact list of PAPS paid and those that were not from the office of the county.	They were informed that due to sensitivity of the information. Some information may not be disclosed to them.

4.	The attendees of the meeting wanted to know how the valuation is done and how normally PAPs are compensated.	The ESIA expert informed them that there is usually a RAP process initiated where a valuer is the one who does the valuation and a budget is drawn and the community are to be involved fully in the process that why we were there.
----	--	--



Figure 13: public participation with Misufini community

The Misufini community are willing for the project to be rolled out and implemented immediately with less impacts to the community.

## 6.6 Public Disclosure of ESIA, RAP, CPR and Annual Monitoring Reports

In accordance with EMCA 1999 and amendment 2015 and World Bank OP 4.01, the Project Proponent in this case PROJECT OPERATOR will ensure that the Results of Public Consultations including ESIA area disclosed on WSP website.

The Reports will also be made available at Chiefs' Offices in the affected Locations for ease of access by the project interested parties at location level and Project site office, the local Chiefs offices.

This disclosure will be done early before commencement of Project Works, 60 days before Contractor's mobilization on site. In addition, PROJECT OPERATOR will ensure that the ESIA Reports are available throughout the project area. During the disclosure period, interested and affected parties will submit their final comments and concerns about the Reports.

The Reports and information will also be disclosed at the ESIA Stage by NEMA and during Project Implementation Stage by PROJECT OPERATOR. NEMA will require PROJECT OPERATOR to undertake a closeout audit after completion of the project and also undertake an initial Environment Audit (EA) immediately after commissioning of the project in the 1<sup>st</sup> year, these audits are essential in determining the performance of the

project in addressing issues related to environment and social safeguards, gaps identified are corrected through implementation of recommendation of the Environment and Social Audit Action Plan (ESAAP).

#### **6.7 Construction, Operation and Decommissioning Phase Consultations**

Stakeholder groups that may be affected by and/or interested in the implementation of the Project, as well as proposed communication methods and media for each group, have been identified and are presented in the **table** below.

Table 24: Stakeholder Consultations during Project Construction and Operation Phase

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

Casual workers and temporary staff	Notice boards, email, Grievance Redress Mechanism, meetings	Contractor	Throughout project implementation phase
------------------------------------	---	------------	---

## **6.8 Community Relations in Construction Phase**

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

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

The objectives of the Community Relations Programme will be to:

- Provide local residents with regular information on the progress of work.
- Inform the project/contractor of any community related issues that may impact construction.
- Monitor implementation of mitigation measures and the impact of construction via direct monitoring and feedback from Project area.
- Identify any significant new issues that may arise during the construction period; and
- Manage any complaints against the project/contractors and local residents (i.e., provide a grievance mechanism).

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

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

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

## **6.10 Community Relations in Operational Phase**

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

- Maintain constructive relationships between local residents and the water operators, to assist in the operation of the facilities;
- Maintain awareness of safety issues among local residents in the project areas;
- Ensure compliance with land use constraints among land owners in the project areas;
- Monitor community attitudes to the water infrastructure and to the operator, PROJECT OPERATOR

## **6.11 Decommissioning**

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

## 7 IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

### Environmental and Social Impact Identification and Analysis/Rating

The identification and assessment of environmental and social impacts is a multi-faceted process, using a combination of quantitative and qualitative descriptions and evaluations. It involves applying scientific measurements and professional judgement to determine the significance of environmental impacts associated with a proposed project. Other potentially significant impacts or those of stakeholder concern, the impact identification and evaluation process.

The identified Impacts were categorized as negative and positive. Further, negative impacts were analyzed based on impacts consequence and impacts likelihood as shown on Table 7 and Table 8 below. Similarly, impacts rating was determined based on impacts consequence and impacts likelihood as shown in Table 9 and Table 10. Impacts prediction was made during the construction and the operation phases of the proposed projects. Mitigation measures were thereafter proposed with the hierarchy of avoidance, minimization, mitigation and offsetting the impacts.

Table 25: Impacts Consequences

Severity / Magnitude of Impact	Rating	Spatial Scope / Geographic Extent of Impact	Rating	Duration of Impact	Rating
Insignificant / non-harmful	1	Activity specific	1	One day to one month	1
Small / potentially harmful	2	Area Specific	2	One month to one year	2
Significant /slightly harmful	3	Whole Site	3	One year to ten years	3
Great / harmful	4	Regional/Neighboring areas	4	Life of operation	4
Disastrous / Extremely harmful	5	National	5	Post closure / permanent	5

#### Note:

Total Rating of Impact Consequence = Rating of Severity/Magnitude + Rating of Spatial Scope of Impact + Rating of Impact Duration

Table 26: Impacts Likelihood

Frequency / duration of activity	Rating	Frequency of impact	Rating
Annually or less	1	Almost never / Impossible	1
6 monthly / temporary	2	Very seldom / highly unlikely	2
Monthly / infrequent	3	Infrequent / unlikely / seldom	3
Weekly / life of operation	4	Often / regularly / likely / possible	4

Post closure	5	Daily / highly likely / definitely	5
--------------	---	------------------------------------	---

Total Rating of Impact Likelihood = Rating of Frequency/Duration of Activity + Rating of Impact Frequency

The definitions used in the impact assessment are given below:

- **Frequency of activity** refers to how often the proposed activity will take place.
- **Frequency of impact** refers to the frequency with which a stressor (aspect) will impact on the receptor.
- **Severity** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.
- **Spatial scope** refers to the geographical scale of the impact.
- **Duration** refers to the length of time over which the stressor will cause a change in the resource or receptor.

Table 27: Significance Rating Matrix

Consequence (Magnitude+ Geographic extent + Duration of the Impact)						
Likelihood (Frequency of Activity + Frequency of Impact)	1	2	3	4	5	6
	2	4	6	8	10	12
	3	6	9	12	15	18
	4	8	12	16	20	24
	5	10	15	20	25	30
	6	12	18	24	30	36

**Note:**

Rating of Impact Significance = Rating of Likelihood X Rating of Consequence

Table 28: Negative Impacts ratings and associated colour codes

Significance rating	Value	Colour Code	Negative Impact Management Recommendation
Very high	30 and above		Propose mitigation measures
High	25-29		Propose mitigation measures
Medium high	19-24		Propose mitigation measures
Low medium	12-18		Maintain current management
Low	8-11		Maintain current management
Very low	4-7		Maintain current management

## 7.1 Anticipated project positive impacts During Pre-construction Phase

### 7.1.1 Roads & Drainage

Inclusivity in decision making



Diversity and inclusion practices may be of massive impact on project performance. Having a decision making system that is not bias and is largely transparent to the stakeholders and the community at large may lead to project acceptance.

#### ***Enhancement***

This impact could be enhanced by ensuring all members of the community are well represented and consulted through all the phases of the project.

#### **Employment for surveys especially enumerators**

The project is predicted to create employment for the locals in the community as there will be people who would be employed as enumerators for the project during the preconstruction stage of the project.

#### ***Enhancement***

As a positive impact, it can be enhanced through ensuring equity in the hiring criteria, considerations given to the 2/3 gender rule. The other vulnerable people like the disabled should also be considered during this project.

### **7.1.2 Street lighting**

#### **Inclusivity in decision making**

Diversity and inclusion practices may be of massive impact on project performance. Having a decision making system that is not bias and is largely transparent to the stakeholders and the community at large may lead to project acceptance.

#### ***Enhancement***

This impact could be enhanced by ensuring all members of the community are well represented and consulted through all the phases of the project.

#### **Employment for surveys especially enumerators**

The project is predicted to create employment for the locals in the community as there will be people who would be employed as enumerators for the project during the preconstruction stage of the project.

#### ***Enhancement***

As a positive impact, it can be enhanced through ensuring equity in the hiring criteria, considerations given to the 2/3 gender rule. The other vulnerable people like the disabled should also be considered during this project.

## **7.2 Anticipated Positive Impacts During Construction Phase**

### **7.2.1 Roads & Drainage**

#### **Creation of employment**

The project is predicted to create employment for the skilled and semiskilled locals such as socioeconomics, trainers, casual laborers for road construction and cooks and cleaners at the construction camps and casual workers

### **Enhancement**

- Prioritizing the hire of locals for all unskilled labour.
- Implementing 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.
- Adhering to labour laws, and labour management practices (timely remuneration, equitable compensation for both genders for equal work etc.)
- Creating awareness to workers and the community on worker and project grievance redress mechanisms.

### **Increased business opportunities**

The project may lead to flourishing of businesses mainly business centers located along the road due to increased demand of basic commodities and services such as food, accommodation and construction materials.

### **Enhancement**

This can be enhanced by ensuring the contractor sources materials that can be acquired locally from available suppliers within the settlement.

Food being used at the camp can also be sourced from local women who are in the business of selling food. This can be further enhanced by creating mechanisms of purchasing items locally to also prohibit workers purchasing from local children who might be under age.

### **Increased Property Values**

Improved infrastructure and amenities can enhance the attractiveness of an area, leading to increased property values and potential economic benefits for residents and businesses.

Increased demand of land due to the visible infrastructure development also contribute to increased property values.

### **Community Engagement**

Construction projects often involve community consultation and participation, allowing residents to provide input on design aspects and priorities. This fosters a sense of ownership and pride in the local infrastructure.

### **Environmental Protection**

Modern construction practices often incorporate sustainable methods and materials, which help to minimize environmental impacts and promote biodiversity.

### **Skills Development**

Construction projects provide opportunities for skill development and training for local workers. These skills can be valuable for future employment opportunities beyond the project's duration. Only those who get employment opportunities are the one to benefit so significance of the benefit will be moderate.

### *Enhancement*

As a way to magnify this positive benefit to the youth a CSR can be done after accomplishing construction to take the participated youth to technical colleges.

## **7.2.2 Street lighting**

### **Creation of employment**

The project is predicted to create employment for the skilled and semiskilled locals such as socioeconomics, trainers, casual laborers for road construction and cooks and cleaners at the construction camps and casual workers

### **Enhancement**

- Prioritizing the hire of locals for all unskilled labour.
- Implementing 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.
- Adhering to labour laws, and labour management practices (timely remuneration, equitable compensation for both genders for equal work etc.)
- Creating awareness to workers and the community on worker and project grievance redress mechanisms.

### **Increased Property Values**

Improved infrastructure and amenities can enhance the attractiveness of an area, leading to increased property values and potential economic benefits for residents and businesses.

Increased demand of land due to the visible infrastructure development also contribute to increased property values.

### **Skills Development**

Construction projects provide opportunities for skill development and training for local workers. These skills can be valuable for future employment opportunities beyond the project's duration. Only those who get employment opportunities are the one to benefit so significance of the benefit will be moderate.

### *Enhancement*

As a way to magnify this positive benefit to the youth a CSR can be done after accomplishing construction to take the participated youth to technical colleges.

## **7.3 Antisipated positive impacts during Operation Phase**

### **7.3.1 Roads and Drainage**

The road may also open up the area to tourists since the road traverses within the municipality which is a well-known destination for tourism.

### **Improved transport**

Creation of faster means of transport for passengers and bulk cargo within the municipality and Kwale County as a whole. There is also reduced cost of public transportation that is expected from the proposed project.

### **Enhancement**

This should be enhanced by ensuring the roads are well maintained to improve their efficiency.

- Reduced risk of accidents on the roads
- Increased property value
- Improvement of quality of life
- Reduction in Flooding
- Prevention of Soil Erosion
- Prevention of Waterlogging
- Enhanced Traffic Management

### **7.3.2 Street lighting**

- Protection of Infrastructure
- Aesthetic Improvement of Urban Areas
- Mitigation of Health Risks
- Increased Property Values
- Contribution of revenue to the municipality, county, national and regional governments.
- Reduced Crime Rates
- Enhanced Visibility
- Improved Safety
- Increased Security
- Support for Night-time Activities
- Boosted Economic Activity
- Improved Quality of Life

## **7.4 Anticipated Positive impacts During Decommissioning Phase**

### **7.4.1 Roads & Drainage**

#### **Adaptation to Changing Needs**

Decommissioning allows for the removal of infrastructure that no longer meets the needs of the community, facilitating the reallocation of resources towards more pressing priorities such as sustainable transportation options or climate resilience measures.

#### **Improved Public Safety**

Removing outdated or damaged infrastructure during decommissioning can enhance public safety by eliminating potential hazards such as deteriorating roadways, corroded drainage systems, or malfunctioning lighting fixtures.

#### **Environmental Restoration**

Decommissioning allows for the restoration of natural habitats and ecosystems that were disrupted during the construction phase. This can include re-vegetation of areas, removal of impervious surfaces, and restoration of waterways.

## 7.4.2 Street lighting

### Cost Savings

Decommissioning outdated or underutilized infrastructure can result in long-term cost savings by reducing maintenance and operational expenses associated with maintaining and repairing aging infrastructure.

## 7.5 Anticipated Negative impacts during pre-construction phase

### 7.5.1 Roads and footpaths

#### Approval delays from NEMA and other Agencies (*Medium High*)

There is a possibility of having delays that may lead to the project taking a longer period of time than the expected. This may lead to delay of the project's kickoff period, thus delay in implementation.

Table 12: Approval delays impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Medium High	24

This can be mitigated by ensuring all the aspects of the reports are handled keenly and well addressed, with less or no comments at all to allow swift movement of the project activities as with the schedule.

#### Clearing of project corridor (*Very High*)

This impact can be mitigated by preparation of a Resettlement Plan Framework, which should be done effectively to manage the land-related impacts.

Table 13: Clearing of project corridor impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3

<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Very High</b>	<b>42</b>
--	------------------	-----------

Facilitating all affected persons and address all grievances prior to commencing works should also be done as a mitigation measure.

#### **Risk of excluding some beneficiaries due to unfriendly infrastructure designs (High)**

Unfriendly infrastructure designs may inadvertently exclude certain groups within the informal settlements, such as people with disabilities, the elderly, or those with limited mobility. This exclusion can lead to social segregation and exacerbate existing inequalities. If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities.

*Table 14: Risk of excluding some beneficiaries impacts rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
<b>Likelihood</b>	Frequency/duration of activity	3
	Frequency of impact	3
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>High</b>	<b>30</b>

*Mitigation measures;*

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

#### **Divided opinion on project implementations(High)**

Divided opinions can lead to prolonged debates and conflicts, delaying the implementation of the project. This delay may result in missed opportunities, increased costs, and frustration among stakeholders who are eager to see tangible improvements in their communities. Persistent disagreements may erode trust between stakeholders and project implementers, undermining the legitimacy and credibility of the initiative. Without trust, collaboration and cooperation become more challenging, hindering the project's overall effectiveness.

Table 15: *Divided opinion impacts rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)	High	30

#### Mitigation measures

- To address these impacts, it's essential for project implementers to adopt inclusive and participatory approaches that facilitate constructive dialogue, consensus-building, and conflict resolution.
- Engaging stakeholders early and regularly throughout the project lifecycle.
- Conduct extensive public participation and consultation with key stakeholders

### 7.5.2 Drainages

#### Approval delays from NEMA and other Agencies (*Medium High*)

There is a possibility of having delays that may lead to the project taking a longer period of time than the expected. This may lead to delay of the project's kickoff period, thus delay in implementation.

Table 16: *Approval delays impacts rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Medium High	24

This can be mitigated by ensuring all the aspects of the reports are handled keenly and well addressed, with less or no comments at all to allow swift movement of the project activities as with the schedule.

#### Risk of excluding some beneficiaries due to unfriendly infrastructure designs (*High*)

Unfriendly infrastructure designs may inadvertently exclude certain groups within the informal settlements, such as people with disabilities, the elderly, or those with limited mobility. This exclusion can lead to social segregation and exacerbate existing inequalities. If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities.

Table 17: *Risk of excluding some beneficiaries impacts rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)		High 30

Mitigation measures;

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

#### Divided opinion on project implementations(High)

Divided opinions can lead to prolonged debates and conflicts, delaying the implementation of the project. This delay may result in missed opportunities, increased costs, and frustration among stakeholders who are eager to see tangible improvements in their communities. Persistent disagreements may erode trust between stakeholders and project implementers, undermining the legitimacy and credibility of the initiative. Without trust, collaboration and cooperation become more challenging, hindering the project's overall effectiveness.

Table 18: *Divided opinion impacts rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)		High 30

Mitigation measures

- To address these impacts, it's essential for project implementers to adopt inclusive and participatory approaches that facilitate constructive dialogue, consensus-building, and conflict resolution.
- Engaging stakeholders early and regularly throughout the project lifecycle.
- Conduct extensive public participation and consultation with key stakeholders

#### 7.5.3 Street Lighting

##### Approval delays from NEMA and other Agencies (Medium High)

There is a possibility of having delays that may lead to the project taking a longer period of time than the expected. This may lead to delay of the project's kickoff period, thus delay in implementation.



Table 19: Approval delays impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Medium High	24

This can be mitigated by ensuring all the aspects of the reports are handled keenly and well addressed, with less or no comments at all to allow swift movement of the project activities as with the schedule.

#### Risk of excluding some beneficiaries due to unfriendly infrastructure designs (*High*)

Unfriendly infrastructure designs may inadvertently exclude certain groups within the informal settlements, such as people with disabilities, the elderly, or those with limited mobility. This exclusion can lead to social segregation and exacerbate existing inequalities. If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities.

Table 20: Risk of excluding some beneficiaries impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)	High	30

Mitigation measures;

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

#### Divided opinion on project implementations(*High*)

Divided opinions can lead to prolonged debates and conflicts, delaying the implementation of the project. This delay may result in missed opportunities, increased costs, and frustration among stakeholders who are eager to see tangible improvements in their communities. Persistent disagreements may erode trust between stakeholders and project implementers, undermining the legitimacy and credibility of the initiative. Without trust, collaboration and cooperation become more challenging, hindering the project's overall effectiveness.

Table 21: Divided opinion impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	3
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>High</b>	<b>30</b>

#### Mitigation measures

- To address these impacts, it's essential for project implementers to adopt inclusive and participatory approaches that facilitate constructive dialogue, consensus-building, and conflict resolution.
- Engaging stakeholders early and regularly throughout the project lifecycle.
- Conduct extensive public participation and consultation with key stakeholders

### 7.6 Anticipated Negative Impacts during Construction

#### 7.6.1 Roads and footpaths

##### Soil and Water Pollution (Low)

Use of construction chemicals, adhesives, sealants, additives and other construction-related chemicals could introduce contaminants into the soil, affecting its composition and quality. Additionally, accidental spills or leaks of construction chemicals, fuels, and lubricants. Dumping or improper disposal of construction debris, concrete waste, and hazardous materials on the other hand can lead to soil pollution. Improper disposal of concrete washout water which contains alkaline substances and may be contaminated with cementitious materials, can harm aquatic environments like rivers present at the project areas.

Table 24: Surface and ground water pollution Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Low</b>	<b>6</b>

#### Proposed Mitigation measures

1. Store construction chemicals in designated areas with proper containment measures;
2. Develop a spill prevention and response plan to address accidental releases of hazardous materials;
3. Conduct soil and water sampling and testing before, during, and after construction to monitor soil quality especially at the operating sites;
4. Conduct educational programs for construction crews on proper soil management practices and the importance of preventing soil pollution;

5. Use designated areas for concrete washout, and provide proper containment and disposal methods. Consider using environmentally friendly concrete additives.

The following measures can be implemented to mitigate soil compaction

1. Split compacted area to reduce runoff & revegetate where necessary.
2. Vehicles to be kept in designated access roads.
3. Minimize compaction during stockpiling by working the soil in dry state.

The following measures can be implemented to mitigate soil pollution

1. Any polluted soil should be handled with care for proper disposal.
2. Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards.
3. Maintenance of vehicles to be done strictly at a designated place/Drip tray to be used to avoid oil spills.
4. Excavation materials to be stock piled at the demarcated location.

### **Air Pollution (*Very High*)**

Dust, emissions from construction vehicles and machinery, and material processing activities contribute to air pollution, affecting air quality in the vicinity of the construction site.

Earth moving activities will result to dust generation during clearance and construction at the identified locations. This is in addition to various concrete mixing and painting activities. This will affect the construction workforce, the neighboring households and community in general, flora and fauna in the area.

Table 25: Air Pollution Impacts Rating

Criteria			Rating
Consequences	Severity/Magnitude of Impact		2
	Spatial Scope/Geographic Extent of Impact		1
	Duration of Impact		1
Likelihood	Frequency/duration of activity		4
	Frequency of impact		5
Impact Significance Rating (Consequence × likelihood)	Very High		36

### **Proposed Mitigation measures**

1. Dust Control Measures; Implement dust control measures such as watering down construction sites, covering loose materials, and using dust suppressants to minimize airborne dust particles.
2. Vegetation and Greenery; Incorporate green infrastructure elements such as vegetative barriers and green roofs into construction projects to help absorb pollutants and improve air quality in the surrounding area.
3. Regulatory Compliance; Ensure compliance with relevant environmental regulations and permits governing air quality standards and emissions limits for construction activities.

### **Increased Crime and Insecurity (*Very High*)**

Influx of persons to the project area may lead to increased insecurity and incidences of crime. This impact applies to all the project areas under this assessment.

Table 26: Increased Crime and Insecurity impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	
Likelihood	Frequency/duration of activity	4
	Frequency of impact	4
Impact      Significance      Rating (Consequence × likelihood)	Very High	32

#### Mitigation measures

1. Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.
2. Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices

#### Occupational Health and Safety Risks (Low Medium)

These are work related risks during construction they include all accidents and incidents, that maybe caused by fatigue, drug abuse, ignorance etc.

Table 27: Occupational Health and Safety Risks Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	2
Impact      Significance      Rating (Consequence × likelihood)	Low Medium	15

#### Mitigation measures

- Contractor to provide a Health and Safety Plan prior to the commencement of worksto be approved by the Supervising Engineer.
- Construction Workers and the Supervising Team to be provided with Personal Protective Equipment including gloves, gum boots, overalls and helmets. Use of PPE to be enforced by the Supervising Engineer.
- Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles
- Isolate the site from access by the local communities during the construction for their safety and health

- Contractor to provide clean water for drinking and healthy food to all the workers
- Contractor to adhere to maximum eight hour working rule
- Contractor to ensure only qualified personnel operate machineries.

### **Sexual Exploitation and Abuse (*Low Medium*)**

Defined as acts penetrated by aid workers or people associated with aid organization for this case contractors for example against the people the settlement residents during construction period. The proposed development will lead to potential for employment opportunities and access to new services, which will draw people to the area more, specifically the project site.

This factor will further lead to a temporary increase in economic activities and employment of skills for the development. This will lead to population influx which might lead to changes in or unwanted behaviors in the area. This unwanted or change in behavior may be in the form of loose morality, an increase in school drop-out due to cheap Labor, child Labor, drug use and abuse, theft/robbery and increased incidences of HIV/AIDS and related infections/diseases and other communicable diseases.

*Table 28: Sexual Exploitation and Abuse Impacts Rating*

Criteria			Rating
Consequences	Severity/Magnitude of Impact		2
	Spatial Scope/Geographic Extent of Impact		2
	Duration of Impact		1
Likelihood	Frequency/duration of activity		1
	Frequency of impact		2
Impact	Significance	Rating (Consequence × likelihood)	15

### **Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups (*Medium high*)**

When disadvantaged and vulnerable groups are excluded from the decision-making process, their voices, needs, and priorities are often overlooked. This can result in infrastructure projects that fail to address the unique challenges faced by these communities, perpetuating inequality and marginalization.

Exclusion from stakeholder engagement can erode trust between communities and project implementers, leading to resentment, frustration, and social tension. Without meaningful participation and inclusion, stakeholders may become disillusioned with the project and its objectives, hindering cooperation and collaboration.

*Table 29: Inadequate stakeholder Engagement Impacts Rating*

Criteria			Rating
Consequences	Severity/Magnitude of Impact		3
	Spatial Scope/Geographic Extent of Impact		2
	Duration of Impact		1
Likelihood	Frequency/duration of activity		1
	Frequency of impact		3

<b>Impact Significance Rating</b> <b>(Consequence × likelihood)</b>	Medium high	24
--	-------------	----

*Mitigation measures;*

- Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
- 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.

### **Ineffective Grievance Management (Very High)**

When grievances are not addressed in a timely and satisfactory manner, they can escalate into larger conflicts or ongoing sources of dissatisfaction within the community. This can lead to resentment, distrust, and a breakdown of relationships between project implementers and stakeholders. Ineffective grievance management can erode trust between the project implementers and the community. If community members feel that their concerns are being ignored or dismissed, they may become disillusioned with the project and its objectives, leading to decreased cooperation and participation.

Unresolved grievances can fuel resistance to the project, potentially leading to protests, delays, or even project shutdowns. This not only undermines the project's progress but can also result in reputational damage and increased costs. Grievances that remain unaddressed can hinder the successful implementation of the project. For example, if community members are dissatisfied with certain aspects of the project design or implementation, they may be less likely to engage with or support the project, reducing its effectiveness and impact.

*Table 30: Ineffective Grievance Management Impacts Rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	3
	Frequency of impact	4
<b>Impact Significance Rating</b> <b>(Consequence × likelihood)</b>	Very High	42

*Mitigation measures;*

- Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms.
- Implement a workers' grievances mechanism.
- Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.

- Log, date, process, resolve, and close-out all reported grievances in a timely manner.
- Ensure proportionate representation of disadvantaged persons in the local grievances committee.
- Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.

#### **Child labour and Abuse Risk (*Medium high*)**

In impoverished communities, families may resort to child labor out of economic necessity. This can lead to children being pulled out of school to work in informal sectors such as street vending, domestic work, or agriculture, depriving them of their right to education and exposing them to exploitation and abuse. Children engaged in labor may be subjected to exploitative working conditions, including long hours, low wages, and hazardous environments. They may be forced to undertake tasks that are physically or mentally harmful, risking their health, well-being, and development.

Table 31: Child labour and Abuse Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	2
Impact Significance Rating (Consequence × likelihood)	Medium high	24

#### Mitigation measures

- 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.
- Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.
- Employ workers who are 18 years and above, and with a valid national ID at the time of hire.
- Implement and monitor the employment register regularly.
- Comply with the national labour laws and labour management practices.
- Put visible signage on site "No Jobs for children."

#### Disruption to Public Services or destruction of public utilities (*Low medium*)

There is high potential for construction to affect powered systems especially underground lines such as water lines and even electricity etc.

Table 32: Disruption to Public Services Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	16

#### Waste generation (*Very High*)

A range of solid waste, both hazardous and non-hazardous, are likely to be generated during road project implementation. Wastes emanating from construction phase will mainly come from:

- Site clearance (vegetation) and excavation works (cut-to-spoil);
- Construction support activities and machinery maintenance and repair works such as used lubricant cans, packaging wrapper, worn-out tyres, and replaced equipment parts;
- Consumables (such as wood formwork, metal cuttings);



- Material testing and trial laboratories such as lab material rejects, test specimens for disposal, excess lab sample materials and grounded equipment or spares;
- Discarded material from handling losses;
- Residential camp sites waste such as leftovers/food scraps, bottles, cans, clothing, food packaging, newspapers and magazines.

Table 33: Solid waste Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	5
Impact      Significance      Rating (Consequence × likelihood)	Very High	54

#### Mitigation measures

- Waste shall be managed as per Environmental Management and Coordination (Waste Management) Regulations 2006, e.g. No waste shall be buried underground or burned on open air.
- Contractor to develop a waste management plan.
- Manage and control waste generation at the various project sites and stations through standard operating procedures (SOPs) and Solid Waste Management Plan.
- Reduce generation of solid waste at the source through proper planning and procurement of construction materials.
- Segregation of solid wastes and provision of suitable and well labelled waste receptacles within the camp and at other active construction sites.
- Reuse excavated top soil for landscaping of the site as far as practical.
- No waste at the campsite shall be buried or burnt; all waste to be segregated and reused, composted, or collected by licensed waste handler for disposal.
- Prioritize options of waste reduction, reuse and recycling, particularly papers, polyethene, plastics, wrappers and containers as well as other materials that can possibly be recycled.

#### Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (Low Medium)

GBV, SEA, and SH can result in severe physical injuries, emotional trauma, and mental health issues for survivors. This can have long-lasting effects on their well-being, confidence, and ability to participate fully in community life. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.

Table 34: GBV Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact      Significance      Rating (Consequence × likelihood)	Low Medium	16

*Mitigation measures*

- Develop and implement a plan to manage the risk of SEA/SH.
- Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
- Ensure the GRM is SEA/SH-responsive.

**Noise and Excessive Vibrations. (Very High)**

Noise and Excessive Vibrations are caused by operation of construction plant and equipment and activities such as excavation and rock breaking. This impact poses a health and safety risk to both the communities living in the project area and construction workers.

Noise pollution will mainly result from construction vehicles movement as well as from various machinery operations used in construction including metal grinding and welding works, excavations, blasting among other machinery operations. Excessive noise will impact on the community residing within near and along the project areas, as well as the construction workforce.

Vibrations on the other hand would be caused by grading activities, drilling as well as blasting activities. Excessive vibration has the potential to affect the existing infrastructure (people's homes, roads, bridges), destabilize the area geological formation and structural integrity of community houses.

Table 35: Noise Pollution Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	4
Impact      Significance      Rating (Consequence × likelihood)	Very High	40

*Proposed mitigation measures*

1. Contractor will comply with provisions of EMCA 1999 and amendments 2015 (Noise and Excessive Vibrations Regulations of 2009)

2. The Contractor shall keep noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas.
3. Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity.
4. Undertake Noise and Excessive Vibration Assessments.
5. Effective use of appropriate PPE by exposed workers and Proper maintenance of machines.
6. Any complaints received by the Contractor regarding noise will be recorded and communicated to the Supervising Engineer for appropriate action.

### **Risk of excluding some beneficiaries due to unfriendly infrastructure designs (High)**

If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities. Unfriendly designs may compromise the safety of residents, especially in disaster-prone areas. For example, inadequate drainage systems can lead to flooding during heavy rains, putting lives and property at risk. Exclusionary infrastructure may impact the economic opportunities available to residents. For instance, poorly planned roads and transportation systems can hinder businesses from operating effectively and limit employment opportunities.

*Table 36: Risk of excluding some beneficiaries Impacts Rating*

Criteria			Rating
Consequences	Severity/Magnitude of Impact		2
	Spatial Scope/Geographic Extent of Impact		1
	Duration of Impact		2
Likelihood	Frequency/duration of activity		3
	Frequency of impact		2
Impact    Significance    Rating (Consequence × likelihood)	High		25

*Mitigation measures;*

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

### **7.6.2 Drainages**

#### **Soil and Water Pollution (Low)**

Use of construction chemicals, adhesives, sealants, additives and other construction-related chemicals could introduce contaminants into the soil, affecting its composition and quality. Additionally, accidental spills or leaks of construction chemicals, fuels, and lubricants. Dumping or improper disposal of construction debris, concrete waste, and hazardous materials on the other hand can lead to soil pollution. Improper disposal of concrete washout water which contains alkaline substances and may be contaminated with cementitious materials, can harm aquatic environments like rivers present at the project areas.

*Table 37: Surface and ground water pollution Impacts Rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low	6

#### Proposed Mitigation measures

6. Store construction chemicals in designated areas with proper containment measures;
7. Develop a spill prevention and response plan to address accidental releases of hazardous materials;
8. Conduct soil and water sampling and testing before, during, and after construction to monitor soil quality especially at the operating sites;
9. Conduct educational programs for construction crews on proper soil management practices and the importance of preventing soil pollution;
10. Use designated areas for concrete washout, and provide proper containment and disposal methods. Consider using environmentally friendly concrete additives.

The following measures can be implemented to mitigate soil compaction

4. Split compacted area to reduce runoff & revegetate where necessary.
5. Vehicles to be kept in designated access roads.
6. Minimize compaction during stockpiling by working the soil in dry state.

The following measures can be implemented to mitigate soil pollution

5. Any polluted soil should be handled with care for proper disposal.
6. Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards.
7. Maintenance of vehicles to be done strictly at a designated place/Drip tray to be used to avoid oil spills.
8. Excavation materials to be stock piled at the demarcated location.

#### Air Pollution (Very High)

Dust, emissions from construction vehicles and machinery, and material processing activities contribute to air pollution, affecting air quality in the vicinity of the construction site.

Earth moving activities will result to dust generation during clearance and construction at the identified locations. This is in addition to various concrete mixing and painting activities. This will affect the construction workforce, the neighboring households and community in general, flora and fauna in the area.

Table 38: Air Pollution Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1

<b>Likelihood</b>	Frequency/duration of activity	4
	Frequency of impact	5
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Very High</b>	<b>36</b>

#### ***Proposed Mitigation measures***

4. Dust Control Measures; Implement dust control measures such as watering down construction sites, covering loose materials, and using dust suppressants to minimize airborne dust particles.
5. Vegetation and Greenery; Incorporate green infrastructure elements such as vegetative barriers and green roofs into construction projects to help absorb pollutants and improve air quality in the surrounding area.
6. Regulatory Compliance; Ensure compliance with relevant environmental regulations and permits governing air quality standards and emissions limits for construction activities.

#### **Increased Crime and Insecurity (Very High)**

Influx of persons to the project area may lead to increased insecurity and incidences of crime. This impact applies to all the project areas under this assessment.

*Table 39: Increased Crime and Insecurity impacts rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	
<b>Likelihood</b>	Frequency/duration of activity	4
	Frequency of impact	4
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Very High</b>	<b>32</b>

#### ***Mitigation measures***

3. Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.
4. Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices

#### **Occupational Health and Safety Risks (Low Medium)**

These are work related risks during construction they include all accidents and incidents, that maybe caused by fatigue, drug abuse, ignorance etc.

*Table 40: Occupational Health and Safety Risks Impacts Rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	2

<b>Likelihood</b>	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
	Frequency/duration of activity	1
	Frequency of impact	2
<b>Impact    Significance    Rating</b> <b>(Consequence × likelihood)</b>	Low Medium	15

### **Mitigation measures**

- Contractor to provide a Health and Safety Plan prior to the commencement of work to be approved by the Supervising Engineer.
- Construction Workers and the Supervising Team to be provided with Personal Protective Equipment including gloves, gum boots, overalls and helmets. Use of PPE to be enforced by the Supervising Engineer.
- Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles
- Isolate the site from access by the local communities during the construction for their safety and health
- Contractor to provide clean water for drinking and healthy food to all the workers
- Contractor to adhere to maximum eight hour working rule
- Contractor to ensure only qualified personnel operate machineries.

### **Sexual Exploitation and Abuse (Low Medium)**

Defined as acts perpetrated by aid workers or people associated with aid organization for this case contractors for example against the people the settlement residents during construction period. The proposed development will lead to potential for employment opportunities and access to new services, which will draw people to the area more, specifically the project site.

This factor will further lead to a temporary increase in economic activities and employment of skills for the development. This will lead to population influx which might lead to changes in or unwanted behaviors in the area. This unwanted or change in behavior may be in the form of loose morality, an increase in school drop-out due to cheap Labor, child Labor, drug use and abuse, theft/robbery and increased incidences of HIV/AIDS and related infections/diseases and other communicable diseases.

*Table 41: Sexual Exploitation and Abuse Impacts Rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	2
<b>Impact    Significance    Rating</b> <b>(Consequence × likelihood)</b>	Low Medium	15

### **Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups (Medium high)**

When disadvantaged and vulnerable groups are excluded from the decision-making process, their voices, needs, and priorities are often overlooked. This can result in infrastructure projects that fail to address the unique challenges faced by these communities, perpetuating inequality and marginalization.

Exclusion from stakeholder engagement can erode trust between communities and project implementers, leading to resentment, frustration, and social tension. Without meaningful participation and inclusion, stakeholders may become disillusioned with the project and its objectives, hindering cooperation and collaboration.

Table 42: Inadequate stakeholder Engagement Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	3
Impact    Significance    Rating (Consequence × likelihood)	Medium high	24

Mitigation measures;

- Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
- 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.

### Child labour and Abuse Risk (Medium high)

In impoverished communities, families may resort to child labor out of economic necessity. This can lead to children being pulled out of school to work in informal sectors such as street vending, domestic work, or agriculture, depriving them of their right to education and exposing them to exploitation and abuse. Children engaged in labor may be subjected to exploitative working conditions, including long hours, low wages, and hazardous environments. They may be forced to undertake tasks that are physically or mentally harmful, risking their health, well-being, and development.

Table 43: Child labour and Abuse Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	2



<b>Impact Significance Rating</b> (Consequence × likelihood)	Medium high	24
---	-------------	----

#### Mitigation measures

- 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.
- Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.
- Employ workers who are 18 years and above, and with a valid national ID at the time of hire.
- Implement and monitor the employment register regularly.
- Comply with the national labour laws and labour management practices.
- Put visible signage on site "No Jobs for children."

#### Disruption to Public Services or destruction of public utilities (Low medium)

There is high potential for construction to affect powered systems especially underground lines such as water lines and even electricity etc.

Table 45: Disruption to Public Services Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
<b>Impact Significance Rating</b> (Consequence × likelihood)	Low Medium	16

#### Waste generation (Very High)

A range of solid waste, both hazardous and non-hazardous, are likely to be generated during road project implementation. Wastes emanating from construction phase will mainly come from:

- Site clearance (vegetation) and excavation works (cut-to-spoil);
- Construction support activities and machinery maintenance and repair works such as used lubricant cans, packaging wrapper, worn-out tyres, and replaced equipment parts;
- Consumables (such as wood formwork, metal cuttings);
- Material testing and trial laboratories such as lab material rejects, test specimens for disposal, excess lab sample materials and grounded equipment or spares;
- Discarded material from handling losses;
- Residential camp sites waste such as leftovers/food scraps, bottles, cans, clothing, food packaging, newspapers and magazines.

Table 46: Solid waste Impacts Rating



Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	5
Impact      Significance      Rating (Consequence × likelihood)	Very High	54

#### Mitigation measures

- Waste shall be managed as per Environmental Management and Coordination (Waste Management) Regulations 2006, e.g. No waste shall be buried underground or burned on open air.
- Contractor to develop a waste management plan.
- Manage and control waste generation at the various project sites and stations through standard operating procedures (SOPs) and Solid Waste Management Plan.
- Reduce generation of solid waste at the source through proper planning and procurement of construction materials.
- Segregation of solid wastes and provision of suitable and well labelled waste receptacles within the camp and at other active construction sites.
- Reuse excavated top soil for landscaping of the site as far as practical.
- No waste at the campsite shall be buried or burnt; all waste to be segregated and reused, composted, or collected by licensed waste handler for disposal.
- Prioritize options of waste reduction, reuse and recycling, particularly papers, polyethylene, plastics, wrappers and containers as well as other materials that can possibly be recycled.

#### Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (Low Medium)

GBV, SEA, and SH can result in severe physical injuries, emotional trauma, and mental health issues for survivors. This can have long-lasting effects on their well-being, confidence, and ability to participate fully in community life. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.

Table 47: GBV Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact      Significance      Rating (Consequence × likelihood)	Low Medium	16

#### Mitigation measures

- Develop and implement a plan to manage the risk of SEA/SH.
- Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
- Ensure the GRM is SEA/SH-responsive.

### **Noise and Excessive Vibrations. (Very High)**

Noise and Excessive Vibrations are caused by operation of construction plant and equipment and activities such as excavation and rock breaking. This impact poses a health and safety risk to both the communities living in the project area and construction workers.

Noise pollution will mainly result from construction vehicles movement as well as from various machinery operations used in construction including metal grinding and welding works, excavations, blasting among other machinery operations. Excessive noise will impact on the community residing within near and along the project areas, as well as the construction workforce.

Vibrations on the other hand would be caused by grading activities, drilling as well as blasting activities. Excessive vibration has the potential to affect the existing infrastructure (people's homes, roads, bridges), destabilize the area geological formation and structural integrity of community houses.

*Table 48: Noise Pollution Impacts Rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	4
Impact Significance Rating (Consequence × likelihood)	Very High	40

### **Proposed mitigation measures**

- Contractor will comply with provisions of EMCA 1999 and amendments 2015 (Noise and Excessive Vibrations Regulations of 2009)
- The Contractor shall keep noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas.
- Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity.
- Undertake Noise and Excessive Vibration Assessments.
- Effective use of appropriate PPE by exposed workers and Proper maintenance of machines.
- Any complaints received by the Contractor regarding noise will be recorded and communicated to the Supervising Engineer for appropriate action.

### **Risk of excluding some beneficiaries due to unfriendly infrastructure designs (High)**

If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities.

Unfriendly designs may compromise the safety of residents, especially in disaster-prone areas. For example, inadequate drainage systems can lead to flooding during heavy rains, putting lives and property at risk. Exclusionary infrastructure may impact the economic opportunities available to residents. For instance, poorly planned roads and transportation systems can hinder businesses from operating effectively and limit employment opportunities.

Table 49: Risk of excluding some beneficiaries Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	2
Impact    Significance    Rating (Consequence × likelihood)	High	25

Mitigation measures;

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

### 7.6.3 Street Lighting

#### Occupational Health and Safety Risks (*Low Medium*)

These are work related risks during construction they include all accidents and incidents, that maybe caused by fatigue, drug abuse, ignorance etc.

Table 40: Occupational Health and Safety Risks Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	2
Impact    Significance    Rating (Consequence × likelihood)	Low Medium	15

Mitigation measures

- Contractor to provide a Health and Safety Plan prior to the commencement of work to be approved by the Supervising Engineer.
- Construction Workers and the Supervising Team to be provided with Personal Protective Equipment including gloves, gum boots, overalls and helmets. Use of PPE to be enforced by the Supervising Engineer.
- Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles

- Isolate the site from access by the local communities during the construction for their safety and health
- Contractor to provide clean water for drinking and healthy food to all the workers
- Contractor to adhere to maximum eight hour working rule
- Contractor to ensure only qualified personnel operate machineries.

### **Sexual Exploitation and Abuse (*Low Medium*)**

Defined as acts penetrated by aid workers or people associated with aid organization for this case contractors for example against the people the settlement residents during construction period. The proposed development will lead to potential for employment opportunities and access to new services, which will draw people to the area more, specifically the project site.

This factor will further lead to a temporary increase in economic activities and employment of skills for the development. This will lead to population influx which might lead to changes in or unwanted behaviors in the area. This unwanted or change in behavior may be in the form of loose morality, an increase in school drop-out due to cheap Labor, child Labor, drug use and abuse, theft/robbery and increased incidences of HIV/AIDS and related infections/diseases and other communicable diseases.

*Table 41: Sexual Exploitation and Abuse Impacts Rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	2
Impact    Significance    Rating (Consequence × likelihood)	Low Medium	15

### **Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups (*Medium high*)**

When disadvantaged and vulnerable groups are excluded from the decision-making process, their voices, needs, and priorities are often overlooked. This can result in infrastructure projects that fail to address the unique challenges faced by these communities, perpetuating inequality and marginalization.

Exclusion from stakeholder engagement can erode trust between communities and project implementers, leading to resentment, frustration, and social tension. Without meaningful participation and inclusion, stakeholders may become disillusioned with the project and its objectives, hindering cooperation and collaboration.

*Table 42: Inadequate stakeholder Engagement Impacts Rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1

<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	3
<b>Impact      Significance      Rating</b> <b>(Consequence × likelihood)</b>	Medium high	24

*Mitigation measures;*

- Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
- 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.

#### **Child labour and Abuse Risk (*Medium high*)**

In impoverished communities, families may resort to child labor out of economic necessity. This can lead to children being pulled out of school to work in informal sectors such as street vending, domestic work, or agriculture, depriving them of their right to education and exposing them to exploitation and abuse. Children engaged in labor may be subjected to exploitative working conditions, including long hours, low wages, and hazardous environments. They may be forced to undertake tasks that are physically or mentally harmful, risking their health, well-being, and development.

*Table 43: Child labour and Abuse Impacts Rating*

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	4
	Frequency of impact	2
<b>Impact      Significance      Rating</b> <b>(Consequence × likelihood)</b>	Medium high	24

*Mitigation measures*

- 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.
- Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.
- Employ workers who are 18 years and above, and with a valid national ID at the time of hire.
- Implement and monitor the employment register regularly.
- Comply with the national labour laws and labour management practices.
- Put visible signage on site "No Jobs for children."

#### **Disruption to Public Services or destruction of public utilities (*Low medium*)**

There is high potential for construction to affect powered systems especially underground lines such as water lines and even electricity etc.

Table 45: Disruption to Public Services Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact      Significance      Rating (Consequence × likelihood)	Low Medium	16

### Waste generation (Very High)

A range of solid waste, both hazardous and non-hazardous, are likely to be generated during road project implementation. Wastes emanating from construction phase will mainly come from:

- Site clearance (vegetation) and excavation works (cut-to-spoil);
- Construction support activities and machinery maintenance and repair works such as used lubricant cans, packaging wrapper, worn-out tyres, and replaced equipment parts;
- Consumables (such as wood formwork, metal cuttings);
- Material testing and trial laboratories such as lab material rejects, test specimens for disposal, excess lab sample materials and grounded equipment or spares;
- Discarded material from handling losses;
- Residential camp sites waste such as leftovers/food scraps, bottles, cans, clothing, food packaging, newspapers and magazines.

Table 46: Solid waste Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	5
Impact      Significance      Rating (Consequence × likelihood)	Very High	54

### Mitigation measures

- Waste shall be managed as per Environmental Management and Coordination (Waste Management) Regulations 2006, e.g. No waste shall be buried underground or burned on open air.
- Contractor to develop a waste management plan.

- Manage and control waste generation at the various project sites and stations through standard operating procedures (SOPs) and Solid Waste Management Plan.
- Reduce generation of solid waste at the source through proper planning and procurement of construction materials.
- Segregation of solid wastes and provision of suitable and well labelled waste receptacles within the camp and at other active construction sites.
- Reuse excavated top soil for landscaping of the site as far as practical.
- No waste at the campsite shall be buried or burnt; all waste to be segregated and reused, composted, or collected by licensed waste handler for disposal.
- Prioritize options of waste reduction, reuse and recycling, particularly papers, polyethene, plastics, wrappers and containers as well as other materials that can possibly be recycled.

### **Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (Low Medium)**

GBV, SEA, and SH can result in severe physical injuries, emotional trauma, and mental health issues for survivors. This can have long-lasting effects on their well-being, confidence, and ability to participate fully in community life. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.

Table 47: GBV Impacts Rating

Criteria			Rating
Consequences	Severity/Magnitude of Impact		1
	Spatial Scope/Geographic Extent of Impact		1
	Duration of Impact		2
Likelihood	Frequency/duration of activity		3
	Frequency of impact		1
Impact	Significance	Rating	
(Consequence × likelihood)			16

#### *Mitigation measures*

- Develop and implement a plan to manage the risk of SEA/SH.
- Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
- Ensure the GRM is SEA/SH-responsive.

### **Risk of excluding some beneficiaries due to unfriendly infrastructure designs (High)**

If infrastructure designs are not inclusive, it may hinder residents' access to essential services like water, sanitation, healthcare, and education. This lack of access can perpetuate poverty and marginalization within these communities. Unfriendly designs may compromise the safety of residents, especially in disaster-prone areas. For example, inadequate drainage systems can lead to flooding during heavy rains, putting lives and property at risk. Exclusionary infrastructure may impact the economic opportunities available to residents. For instance, poorly planned roads and transportation systems can hinder businesses from operating effectively and limit employment opportunities.

Table 49: Risk of excluding some beneficiaries Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	2
Likelihood	Frequency/duration of activity	3
	Frequency of impact	2
Impact      Significance      Rating (Consequence × likelihood)	High	25

Mitigation measures;

- The implementation of the infrastructure assumed universal design.
- Disseminate this information to the beneficiaries through public participation forums

## 7.7 Anticipated Negative Impacts during Operation stage

### 7.7.1 Roads and footpaths

#### Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (*Medium high*)

This is likely to be caused by influx of people in the project area. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.



Table 50: Gender based violence Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	4
Likelihood	Frequency/duration of activity	2
	Frequency of impact	2
Impact Significance Rating (Consequence × likelihood)	Medium High	24

*Mitigation measures*

1. Develop and implement a plan to manage the risk of SEA/SH.
2. Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
3. Ensure the GRM is SEA/SH-responsive.

**Ineffective Grievance Management (Very High)**

When grievances are not addressed promptly or adequately, they can escalate into conflicts between stakeholders such as local communities, project developers, contractors, and regulatory agencies.

Table 51: Ineffective Grievance Management Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	3
	Frequency of impact	4
Impact Significance Rating (Consequence × likelihood)	Very High	42

*Mitigation measures;*

1. Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms.
2. Implement a workers' grievances mechanism.
3. Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.
4. Log, date, process, resolve, and close-out all reported grievances in a timely manner.
5. Ensure proportionate representation of disadvantaged persons in the local grievances committee.
6. Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.

**Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups**

*(Medium high)*

Excluding disadvantaged and vulnerable groups from stakeholder engagement processes can bring social injustice, Loss of Trust and Credibility and increase the likelihood of misunderstandings, conflicts, and resistance to the project.

DISCLOSURE COPY

Table 52: Inadequate stakeholder Engagement Impacts Rating b

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)	Medium high	24

Mitigation measures;

1. Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
2. Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.
3. Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.
4. Develop and implementation of a stakeholder engagement plan.
5. Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.

### Energy Consumption (Low Medium)

High mast lights, especially if inefficient or not equipped with energy-saving technologies, can contribute to high energy consumption, leading to increased carbon emissions and operational costs.

Table 53: Energy Consumption Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	3
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	16

Mitigation measures:

1. A programmable timer shall control exterior lights.
2. Generator should be provided as a full backup energy source throughout the development.
3. Install and routine maintenance of energy efficient appliances e.g. LED bulbs etc.
4. Monitor energy use during construction and set reasonable limit.
5. Put off all lights immediately when not in use or are not needed.
6. The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.
7. Turn off machinery and equipment when not in use.
8. Use of solar energy as an alternative source of energy at contractor's camp sites.

### Light and Visual discomfort (*Medium high*)

High mast lights can contribute to light pollution when inappropriately placed or excessively bright high mast lights causing glare and visual discomfort for nearby residents, affecting the natural darkness of the night sky and impacting the visibility of celestial bodies.

Table 54: Light and Visual Discomfort Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	4
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Medium high	20

#### Mitigation measures

1. Properly design and angle light fixtures to minimize glare.
2. Consider installing light shields or diffusers to control light direction.
3. Seek aviation lighting design principles
4. Use shielded fixtures and directional lighting to minimize light spillage.
5. Implement curfew times for non-essential lighting.
6. Educate the community on responsible lighting practices.

### Water Pollution/Contamination (*Very Low*)

Improper construction and management of storm water drains can lead to water contamination, affecting local water quality.

Contaminated water sources can lead to a range of health problems, including waterborne diseases such as cholera, typhoid, and diarrhea. These diseases can be especially dangerous for children, the elderly, and people with weakened immune systems, leading to illness, hospitalization, and even death.

Pollution from sources such as untreated sewage, industrial waste, and agricultural runoff can degrade water quality and harm aquatic ecosystems. This can lead to the loss of biodiversity, disruption of natural habitats, and decline in water availability for drinking, irrigation, and sanitation purposes.

Table 55: Water pollution impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Very Low	6

To mitigate the impacts of water pollution and contamination, the project should prioritize integrated water management approaches that address both the root causes and symptoms of pollution. This includes investing in infrastructure for safe drinking water supply, wastewater treatment, and solid waste management, promoting sustainable agricultural practices to reduce runoff and pollution, strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members. By taking proactive measures to protect water resources, the project can contribute to the health, prosperity, and resilience of Misufini informal settlement and its residents.

#### Alteration of Natural Drainage Patterns (*Very Low*)

The construction of storm water drains can alter natural drainage patterns, potentially causing unintended consequences for the local environment.

Table 56: Alteration of natural drainage patterns impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Very Low	6

#### Mitigation measures

1. Conduct detailed hydrological studies to understand natural drainage patterns.
2. Design drainage systems that mimic natural flow to reduce environmental impact

#### Disturbance to Nocturnal Wildlife (*Very Low*)

Excessive artificial lighting can disrupt the behavior and habitats of nocturnal wildlife in the area.

Table 57: Disturbance to nocturnal wildlife impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Very Low	6

#### Mitigation measures

1. Install motion sensors or timers to reduce lighting intensity during periods of low activity.
2. Choose warm-coloured lights that are less disruptive to wildlife.

## 7.7.2 Drainages

### Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (*Medium high*)

This is likely to be caused by influx of people in the project area. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.

Table 50: Gender based violence Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	4
Likelihood	Frequency/duration of activity	2
	Frequency of impact	2
Impact Significance Rating (Consequence × likelihood)	Medium High	24

#### Mitigation measures

1. Develop and implement a plan to manage the risk of SEA/SH.
2. Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
3. Ensure the GRM is SEA/SH-responsive.

### Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups

#### (*Medium high*)

Excluding disadvantaged and vulnerable groups from stakeholder engagement processes can bring social injustice, Loss of Trust and Credibility and increase the likelihood of misunderstandings, conflicts, and resistance to the project.

Table 52: Inadequate stakeholder Engagement Impacts Rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	3
Impact Significance Rating (Consequence × likelihood)	Medium high	24

#### Mitigation measures;

1. Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
2. Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.

3. Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.
4. Develop and implementation of a stakeholder engagement plan.
5. Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.

### Water Pollution/Contamination (Very Low)

Improper construction and management of storm water drains can lead to water contamination, affecting local water quality.

Contaminated water sources can lead to a range of health problems, including waterborne diseases such as cholera, typhoid, and diarrhea. These diseases can be especially dangerous for children, the elderly, and people with weakened immune systems, leading to illness, hospitalization, and even death.

Pollution from sources such as untreated sewage, industrial waste, and agricultural runoff can degrade water quality and harm aquatic ecosystems. This can lead to the loss of biodiversity, disruption of natural habitats, and decline in water availability for drinking, irrigation, and sanitation purposes.

Table 55: Water pollution impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Very Low	6

To mitigate the impacts of water pollution and contamination, the project should prioritize integrated water management approaches that address both the root causes and symptoms of pollution. This includes investing in infrastructure for safe drinking water supply, wastewater treatment, and solid waste management, promoting sustainable agricultural practices to reduce runoff and pollution, strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members. By taking proactive measures to protect water resources, the project can contribute to the health, prosperity, and resilience of Misufini informal settlement and its residents.

### Alteration of Natural Drainage Patterns (Very Low)

The construction of storm water drains can alter natural drainage patterns, potentially causing unintended consequences for the local environment.

Table 56: Alteration of natural drainage patterns impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1

<b>Impact Significance Rating</b> (Consequence × likelihood)	<b>Very Low</b>	<b>6</b>
---	-----------------	----------

#### Mitigation measures

1. Conduct detailed hydrological studies to understand natural drainage patterns.
2. Design drainage systems that mimic natural flow to reduce environmental impact

### 7.7.3 Street Lighting

#### Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) (Medium high)

This is likely to be caused by influx of people in the project area. Incidents of GBV, SEA, and SH create an environment of fear and insecurity within the community, particularly for women and girls. They may feel unsafe in public spaces, at home, or even within their own families, leading to restrictions on their mobility and freedom.

Table 50: Gender based violence Impacts Rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	4
<b>Likelihood</b>	Frequency/duration of activity	2
	Frequency of impact	2
<b>Impact Significance Rating</b> (Consequence × likelihood)	<b>Medium High</b>	<b>24</b>

#### Mitigation measures

4. Develop and implement a plan to manage the risk of SEA/SH.
5. Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.
6. Ensure the GRM is SEA/SH-responsive.

#### Ineffective Grievance Management (Very High)

When grievances are not addressed promptly or adequately, they can escalate into conflicts between stakeholders such as local communities, project developers, contractors, and regulatory agencies.

Table 51: Ineffective Grievance Management Impacts Rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	3
	Frequency of impact	4
<b>Impact Significance Rating</b> (Consequence × likelihood)	<b>Very High</b>	<b>42</b>

#### Mitigation measures;



1. Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms.
2. Implement a workers' grievances mechanism.
3. Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.
4. Log, date, process, resolve, and close-out all reported grievances in a timely manner.
5. Ensure proportionate representation of disadvantaged persons in the local grievances committee.
6. Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.

### **Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups**

**(Medium high)**

Excluding disadvantaged and vulnerable groups from stakeholder engagement processes can bring social injustice, Loss of Trust and Credibility and increase the likelihood of misunderstandings, conflicts, and resistance to the project.

*Table 52: Inadequate stakeholder Engagement Impacts Rating b*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	3
<b>Impact Significance Rating (Consequence × likelihood)</b>	Medium high	24

*Mitigation measures;*

1. Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.
2. Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.
3. Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.
4. Develop and implementation of a stakeholder engagement plan.
5. Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.

### **Energy Consumption (Low Medium)**

High mast lights, especially if inefficient or not equipped with energy-saving technologies, can contribute to high energy consumption, leading to increased carbon emissions and operational costs.

*Table 53: Energy Consumption Impacts Rating*

Criteria		Rating
Consequences	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2

	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	3
	Frequency of impact	1
<b>Impact Significance Rating</b> (Consequence × likelihood)	Low Medium	16

Mitigation measures:

1. A programmable timer shall control exterior lights.
2. Generator should be provided as a full backup energy source throughout the development.
3. Install and routine maintenance of energy efficient appliances e.g. LED bulbs etc.
4. Monitor energy use during construction and set reasonable limit.
5. Put off all lights immediately when not in use or are not needed.
6. The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.
7. Turn off machinery and equipment when not in use.
8. Use of solar energy as an alternative source of energy at contractor's camp sites.

#### Light and Visual discomfort (Medium high)

High mast lights can contribute to light pollution when inappropriately placed or excessively bright high mast lights causing glare and visual discomfort for nearby residents, affecting the natural darkness of the night sky and impacting the visibility of celestial bodies.

Table 54: Light and Visual Discomfort Impacts Rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	4
	Frequency of impact	1
<b>Impact Significance Rating</b> (Consequence × likelihood)	Medium high	20

Mitigation measures

1. Properly design and angle light fixtures to minimize glare.
2. Consider installing light shields or diffusers to control light direction.
3. Seek aviation lighting design principles
4. Use shielded fixtures and directional lighting to minimize light spillage.
5. Implement curfew times for non-essential lighting.
6. Educate the community on responsible lighting practices.

#### Disturbance to Nocturnal Wildlife (Very Low)

Excessive artificial lighting can disrupt the behavior and habitats of nocturnal wildlife in the area.

Table 57: Disturbance to nocturnal wildlife impacts rating

Criteria	Rating
----------	--------

<b>Consequences</b>	Severity/Magnitude of Impact	1
	Spatial Scope/Geographic Extent of Impact	1
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Very Low</b>	<b>6</b>

#### Mitigation measures

1. Install motion sensors or timers to reduce lighting intensity during periods of low activity.
2. Choose warm-coloured lights that are less disruptive to wildlife.

## 7.8 Anticipated Negative Impacts During Decommissioning Phase

### 7.8.1 Roads and Foot paths

#### Disruption of Services (*Low Medium*)

Decommissioning may disrupt regular services like traffic flow, water drainage, and lighting, causing inconvenience to residents and commuters.

Table 58: Disruption of services impacts rating

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	4
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Low Medium</b>	<b>16</b>

#### Mitigation measures

1. Implement phased decommissioning to minimize disruption to services.
2. Provide alternative routes or transportation options for affected commuters.
3. Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.

#### Environmental Disturbance (*Low Medium*)

Decommissioning activities can disturb natural habitats, soil, and waterways. The removal of infrastructure might also disrupt ecosystems that have adapted to their presence.

Table 59: Environmental disturbance impacts rating

<b>Criteria</b>		<b>Rating</b>
<b>Consequences</b>	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
<b>Likelihood</b>	Frequency/duration of activity	1

	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Low Medium</b>	<b>14</b>

#### Mitigation measures

1. Conduct thorough environmental impact assessments prior to decommissioning.
2. Implement erosion and sediment control measures to prevent soil erosion and water pollution.
3. Replant native vegetation and restore habitats affected by decommissioning activities.

#### Waste Generation (Low Medium)

Decommissioning generates waste materials such as concrete, asphalt, and electrical components, which may end up in landfills if not properly managed.

Table 60: Waste generation impacts rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Low Medium</b>	<b>12</b>

#### Mitigation measures

1. Implement recycling and reuse programs for materials like concrete and asphalt.
2. Properly dispose of hazardous materials in accordance with regulations.
3. Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.

#### Economic Loss (Low Medium)

Businesses and communities reliant on the infrastructure being decommissioned may suffer economic losses due to decreased accessibility or functionality.

Table 61: Economic loss impacts rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	3
	Duration of Impact	2
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating (Consequence × likelihood)</b>	<b>Low Medium</b>	<b>14</b>

#### Mitigation measures

1. Provide support and incentives for local businesses affected by decommissioning.
2. Offer compensation or assistance programs to mitigate financial losses.
3. Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.

### Health and Safety Concerns(Medium)

Decommissioning activities can pose health and safety risks to workers and nearby residents due to noise pollution, air pollution from construction vehicles, and potential accidents.

Table 62: Health and safety concerns impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	2
	Frequency of impact	2
Impact Significance Rating	Medium High	24
Criteria		Rating
(Consequence × likelihood)		

#### Mitigation measures

1. Enforce strict safety regulations and provide adequate training for workers.
2. Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.
3. Communicate potential risks to the public and provide guidance on safety precautions.

### 7.8.2 Drainages

#### Disruption of Services (Low Medium)

Decommissioning may disrupt regular services like traffic flow, water drainage, and lighting, causing inconvenience to residents and commuters.

Table 58: Disruption of services impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	4
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	16

#### Mitigation measures

4. Implement phased decommissioning to minimize disruption to services.
5. Provide alternative routes or transportation options for affected commuters.
6. Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.

### Environmental Disturbance (*Low Medium*)

Decommissioning activities can disturb natural habitats, soil, and waterways. The removal of infrastructure might also disrupt ecosystems that have adapted to their presence.

Table 59: Environmental disturbance impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	14

#### Mitigation measures

4. Conduct thorough environmental impact assessments prior to decommissioning.
5. Implement erosion and sediment control measures to prevent soil erosion and water pollution.
6. Replant native vegetation and restore habitats affected by decommissioning activities.

### Waste Generation (*Low Medium*)

Decommissioning generates waste materials such as concrete, asphalt, and electrical components, which may end up in landfills if not properly managed.

Table 60: Waste generation impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	12

#### Mitigation measures

4. Implement recycling and reuse programs for materials like concrete and asphalt.
5. Properly dispose of hazardous materials in accordance with regulations.
6. Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.

### Economic Loss (*Low Medium*)

Businesses and communities reliant on the infrastructure being decommissioned may suffer economic losses due to decreased accessibility or functionality.

Table 61: Economic loss impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	3
	Duration of Impact	2
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	14

#### Mitigation measures

4. Provide support and incentives for local businesses affected by decommissioning.
5. Offer compensation or assistance programs to mitigate financial losses.
6. Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.

#### Health and Safety Concerns(Medium)

Decommissioning activities can pose health and safety risks to workers and nearby residents due to noise pollution, air pollution from construction vehicles, and potential accidents.

Table 62: Health and safety concerns impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	2
	Frequency of impact	2
Impact Significance Rating	Medium High	24
Criteria		Rating
(Consequence × likelihood)		

#### Mitigation measures

4. Enforce strict safety regulations and provide adequate training for workers.
5. Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.
6. Communicate potential risks to the public and provide guidance on safety precautions.

### 7.8.3 Street Lighting

#### Disruption of Services (Low Medium)

Decommissioning may disrupt regular services like traffic flow, water drainage, and lighting, causing inconvenience to residents and commuters.

Table 58: Disruption of services impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	4
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	16

#### Mitigation measures

7. Implement phased decommissioning to minimize disruption to services.
8. Provide alternative routes or transportation options for affected commuters.
9. Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.

#### Environmental Disturbance (Low Medium)

Decommissioning activities can disturb natural habitats, soil, and waterways. The removal of infrastructure might also disrupt ecosystems that have adapted to their presence.

Table 59: Environmental disturbance impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	2
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1
Impact Significance Rating (Consequence × likelihood)	Low Medium	14

#### Mitigation measures

1. Conduct thorough environmental impact assessments prior to decommissioning.
2. Implement erosion and sediment control measures to prevent soil erosion and water pollution.
3. Replant native vegetation and restore habitats affected by decommissioning activities.

#### Waste Generation (Low Medium)

Decommissioning generates waste materials such as concrete, asphalt, and electrical components, which may end up in landfills if not properly managed.

Table 60: Waste generation impacts rating

Criteria		Rating
Consequences	Severity/Magnitude of Impact	3
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
Likelihood	Frequency/duration of activity	1
	Frequency of impact	1



<b>Impact Significance Rating</b> (Consequence × likelihood)	Low Medium	12
---	------------	----

#### Mitigation measures

1. Implement recycling and reuse programs for materials like concrete and asphalt.
2. Properly dispose of hazardous materials in accordance with regulations.
3. Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.

#### Economic Loss (Low Medium)

Businesses and communities reliant on the infrastructure being decommissioned may suffer economic losses due to decreased accessibility or functionality.

Table 61: Economic loss impacts rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	3
	Duration of Impact	2
<b>Likelihood</b>	Frequency/duration of activity	1
	Frequency of impact	1
<b>Impact Significance Rating</b> (Consequence × likelihood)	Low Medium	14

#### Mitigation measures

1. Provide support and incentives for local businesses affected by decommissioning.
2. Offer compensation or assistance programs to mitigate financial losses.
3. Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.

#### Health and Safety Concerns(Medium)

Decommissioning activities can pose health and safety risks to workers and nearby residents due to noise pollution, air pollution from construction vehicles, and potential accidents.

Table 62: Health and safety concerns impacts rating

Criteria		Rating
<b>Consequences</b>	Severity/Magnitude of Impact	2
	Spatial Scope/Geographic Extent of Impact	2
	Duration of Impact	1
<b>Likelihood</b>	Frequency/duration of activity	2
	Frequency of impact	2
<b>Impact Significance Rating</b>	<b>Medium High</b>	24
<b>Criteria</b>		<b>Rating</b>
<b>(Consequence × likelihood)</b>		

#### Mitigation measures

1. Enforce strict safety regulations and provide adequate training for workers.
2. Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.
3. Communicate potential risks to the public and provide guidance on safety precautions.

## **8 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMP)**

### **8.1 Introduction**

Environmental monitoring is an essential component of project implementation. An Environmental Management and Monitoring Plan (ESMMP) provides mechanism of monitoring environmental impacts of a project during its execution in order to reduce their negative effects and to introduce standards of good practice to be adopted for all project works. The ESMP facilitates and ensures the follow-up of the implementation of the proposed mitigation measures proposed in the ESMMP. The parameters of the proposed upgrade of roads, construction of storm water drainage, and installation of high-mast lights projects that were identified for monitoring include: water quality, air quality, solid waste generation, Occupational Health and Safety risks, human accidents, HIV/AIDS incidences, soil erosion, storm water drainage, livelihood and environmental risks. This is represented in the table below.

### **8.2 Purpose and Objectives of ESMMP**

The ESMMP describes the range of environmental and social issues associated with the project and outlines corresponding management strategies that will be employed to mitigate potential adverse environmental impacts. The ESMMP conveys the Project's environmental and social constraints. The project will comply with all local laws and regulations, which seek to ensure that the road construction and operation does not adversely affect the environment and social community resources.

The project supervision may periodically revise the ESMMP in consultation with the Contractor, and subject to the approval from National Environment Management Authority (NEMA). The revisions may be made to accommodate changes in work, weather, and general conditions. The ESMMP should be made available to all the project staffs.

The objectives of the ESMMP are:

- To serve as a commitment and reference for the project planners and implementers including conditions of approval from NEMA;
- To serve as a guiding document for the environmental and social monitoring activities for future studies, on requisite progress reports;
- To provide detailed specifications for the management and mitigation of activities that have the potential to impact negatively on the environment;
- To provide instructions to relevant project personnel regarding procedures for protecting the environment and minimizing environmental and social effects, thereby supporting the project goal of minimal or zero incidents;
- To document environmental and social concerns and appropriate protection measures; while ensuring that corrective actions are completed in a timely manner; and
- To address capacity building requirements within the project team, if necessary.

### **8.3 Auditing of the ESMMP**

KISIP and the contractor shall conduct regular audits – quarterly and annual, to the ESMP to ensure that the system for implementation of the ESMMP is operating effectively. The audit shall check that a procedure is in place to ensure that:

- Environmental, Social, Health and Safety Systems are in place and operational during the project implementation, and identify any gaps for improvement;
- The ESMMP being used is the up-to-date version;
- Variations to the ESMP and non-compliance and corrective action are documented;
- Appropriate Environmental, Social, Occupational Health and Safety trainings of personnel is undertaken;
- Emergency and safety procedures are in place and effectively communicated to personnel;
- A register of major incidents is in place and other documentation related to the ESMMP; and
- Ensure that appropriate corrective and preventive action is taken by the Contractor once instructions have been issued.

#### **8.4 Responsibilities for the Implementation of the ESMMP**

In order to ensure the sound development and effective implementation of the ESMMP, it will be necessary to identify and define the responsibilities and authority of the various persons and organisations that will be involved in the project. The following entities will be involved in the implementation of the ESMMP:

- Kenya Informal Settlement Improvement Project (KISIP)
- National Environment Management Authority;
- Supervising Consultant;
- Contractor(s);
- Directorate of Safety and Health Services (DOSHS);
- Mombasa County

##### **8.4.1 Kenya Informal Settlement Improvement Project (KISIP)**

KISIP will be responsible for:

- Overseeing or appointing qualified and competent team to oversee environmental, social, health and safety (EHS) during the Project cycle;
- Review and approve Contractor's Environmental and Social Management Plan (CESMP);
- Carry out targeted NCL (ESHS) training to the Supervision Consultant and contractor's teams;
- Regular monitoring (monthly) and supervision of Implementation of the ESMP;
- Carry out regular compliance ESHS audits including developing corrective action plans;
- Ensuring that during construction and operations, the NEMA license conditions are adhered to since it's the principal holder of NEMA license.

##### **8.4.2 National Environment Management Authority (NEMA)**

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

##### **8.4.3 The Contractor(s)**

The Contractor will be responsible for:

- Preparing a Contractor's Environmental and Social Management Plan (CESMP) that will comply with the requirements of the ESIA/ESMMP and the Standard Specifications for road

works in Kenya, which include specifications for environmental and social protection and waste disposal, borrow pit and quarry acquisition and exploitation, landscaping and grassing among others;

- Carry out environmental and social assessment for the project auxiliary sites;
- Operationalize, monitor and report on the implementation of the CESMP on monthly and quarterly basis (or as required by the Supervision consultant and KPA);
- Employ competent and qualified separate environmental and social experts on fulltime basis to manage and monitor implementation of CESMP;
- Employ fulltime personnel to manage Occupational Health and Safety issues for the entire duration of the project; and
- Report any environmental, social, health and safety incidents to the Supervision Consultant.
- Prepare the following document: Code of Conduct, Emergency Preparedness and Response Plan, Healthy and Safety Plan, Grievance Redress Mechanism, Gender based violence Sexual Exploitation and Response Plan, Waste Management Plan, Biodiversity Monitoring Plan, stakeholder engagement Plan and Traffic Management Plan.

#### **8.4.4 Supervising Consultant**

The Supervising Consultant will be responsible for:

- Oversee the construction programme and construction activities performed by the Contractor, in compliance with the ESMMP;
- Employ qualified full time Environmental and Social Specialists in its team to coordinate all aspects of the environment and social during project implementation;
- Review and approve the CESMP and other associated plans (e.g., rehabilitation/decommissioning plans);
- Daily and regular monitoring, reviewing and verifying the implementation of the project's ESMMP by the contractor;
- Proposing additional appropriate mitigation measures that may be required during the project's implementation;
- Keep track of project compliance regarding permits and approvals necessary from the relevant authorities;
- Conducting and coordinating training to the contractor's team on issues relating to environmental and social issues; and
- Report on monthly and quarterly reports (or as required) on the ESMMP aspects throughout the project implementation duration.

#### **8.4.5 Directorate of Safety and Health Services (DOSHS)**

DOSH will be responsible for:

- Registering and permitting of work place for all the work sites and camp sites for the project;
- Inspection and auditing of workplaces to ensure they are adhering to OSHA 2007; and
- Receiving and investigating any severe incidents reported on worksites.

#### **8.4.6 Mombasa County Government**

The County Governments are created in Chapter Eleven of the Constitution with powers, functions and responsibilities to deliver services provided for in the County Governments Act, 2012. The National and county governments will collaborate in the implementation of KISIP through the respective PCTs. The relevant departmental offices in the County Government shall be called upon to facilitate the project implementation to

provide the necessary permits and advisory services to the project implementers. Moreover, the maintenance of the proposed infrastructure will largely lie within the mandate of the County Governments.

#### **8.5 Mitigation of Design Stage Impacts**

The Impact Mitigation Plan summarised below reflects respective action at the design, construction and operation phases of the Project. The field works were undertaken by sober and serious minded survey teams were selected and sensitized on the need to observe safety requirements during enumeration and site surveys and this has greatly mitigated incidence of accidents.

## 8.6 ESMMP

### 8.6.1 ESMMP for Preconstruction Stage

#### 8.6.1.1 ESMMP for Roads, footpaths

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							
Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses Degree of completion of set of required approvals/ permits issued	County Government of Mombasa Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	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.	Displacements Number of facilitated PAPs	County Government of Mombasa Consultant KISIP	Visibly marked of road reserve	During designing time and construction	242,000.00
Social impacts							
Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC SEC KISIP	-Total project support by all	Throughout all stages from onset	200,000.00

Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation held.	KISIP Contactor  Consultant  GRC  EC	SEC/GRC meetings	During designing Stage	250,000.00
---	-----	--	--------------------------------------	---	------------------	------------------------	------------

#### 8.6.1.2 ESMMP for Drainages

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							
Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses  Degree of completion of set of required approvals/ issued permits	County Government of Mombasa  Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	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.	Displacements  Number of facilitated PAPs	County Government of Mombasa  Consultant  KISIP	Visibly marked of road reserve	During designing time and construction	242,000.00
Social impacts							

Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC SEC KISIP	-Total project support by all	Throughout all stages from onset	200,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation forums held.	KISIP Contractor Consultant GRC EC	SEC/GRC meetings	During designing Stage	250,000.00

#### 8.6.1.3 ESMMP for Streetlights

Environmental impact	Impact level	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Performance	Frequency	Estimated Cost
Environmental							
Approval from NEMA and other Agencies for ESIA report	Medium	The Proponent shall ensure that all pertinent permits, certificates, and licenses have been obtained prior to any activities commencing on-site and are strictly adhered to.	Environment licenses  Degree of completion of set of required approvals/ permits issued	County Government of Mombasa  Contractor	EIA/ Number of EIA Permits obtained	Project Cycle	250,000.00
Clearance of Corridors	Medium	In line with the provisions of the RPF, prepare and effectively implement a plan for managing the land-related impacts.	Displacements  Number of facilitated PAPs	County Government of Mombasa	Visibly marked of road reserve	During designing time and construction	242,000.00



		Facilitate all affected persons and address all grievances prior to commencing works.		Consultant KISIP			
Social impacts							
Divided opinion on project implementations	Medium	Conduct extensive public participation and consultation with key stakeholders	Public opinion, Satisfaction to the relevant authority	Consultant GRC SEC KISIP	-Total project support by all	Throughout all stages from onset	200,000.00
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	Low	The implementation of the infrastructure assumed universal design.  Disseminate this information to the beneficiaries through public participation forums.	Number of public participation forums held.	KISIP Contactor Consultant GRC EC	SEC/GRC meetings	During designing Stage	250,000.00

## 8.6.2 ESMMP for Construction Phase

### 8.6.2.1 ESMMP for Roads and footpaths

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						
Noise pollution and Excessive Vibrations	Moderate	<p>Enforce EMCA 1999, Revised 2015 (Noise and Excessive Vibrations Regulations of 2009)</p> <p>Maintain noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas</p> <p>Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity</p> <p>Undertake Noise and Excessive Vibration Assessments</p> <p>Effective use of appropriate PPE (earmuffs) for exposed workers.</p> <p>Proper maintenance of machines.</p> <p>Record and communicated to the Supervising Engineer all noise and excess vibration</p>	<p>Reported complaints from neighbour community and institutions</p> <p>Records of machine and vehicle maintenance</p> <p>Availability and use of Ear Muffs</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	400,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		complains for appropriate action.				
Air pollution	Moderate	<p>Maintain a speed limit of 20km/h within the site during construction phase to reduce dust particles emission.</p> <p>Use of environmentally friendly fuels such as Low Sulphur diesel.</p> <p>Regular maintenance and service of construction machinery and equipment in accordance to manufacturer specifications to minimize the generation of hazardous gases.</p> <p>Providing PPEs such as nose masks to the workers in dusty areas on the site.</p> <p>Maintain regular training of all personnel on methods for minimizing air quality impacts during construction.</p> <p>Ensure a strict schedule plan for all equipment to avoid unnecessary trips and minimize idling of engines.</p> <p>Enforce of EMCA 2015 (Air Quality Regulations 2014)</p> <p>Avoid carrying out dust generating activities especially during strong winds</p>	<p>Cases of respiratory complication at nearby health centre.</p> <p>Records of machine and vehicle maintenance</p> <p>Low dust generation during construction</p> <p>Availability and use of Nose Masks</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Use of covered trucks for material delivery to avoid spills and windblown dust</p> <p>Communicate air quality monitoring results to the public and address concerns proactively.</p> <p>Monitor air quality in the construction area and surrounding neighborhood.</p> <p>Spraying of all earthwork's areas within 200 meters of human settlement to reduce dust.</p>				
Water Pollution	Low	<p>Implement best management practices for construction activities to prevent runoff contamination.</p> <p>Ensure all machineries are serviced at a dedicated service bay to avoid spillages of oil and other fluids</p> <p>Implement erosion control measures to prevent soil runoff into water bodies.</p> <p>Regularly monitor water quality in nearby water bodies during construction and implementing corrective measures.</p> <p>Collaborate with local water authorities to ensure compliance with water quality standards</p>	<p>Water Quality Reports</p> <p>Records of machine and vehicle</p>	<p>Environmental Management Team</p> <p>Water Quality Experts</p>	Throughout Project	500,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Soil pollution / Erosion	Low	<p>Implement soil erosion control measures to prevent the release of contaminants during construction.</p> <p>Regularly monitor soil quality in construction areas and implement corrective measures.</p> <p>Collaborate with environmental agencies to ensure compliance with soil quality standards.</p>	Ground cover in Constructed areas	<p>Environmental Management Team/consultant</p> <p>Contractor</p>	Monthly	400,000.00
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management plan.</p> <p>Practice waste recycling, re use and reduction of waste generation</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management</p> <p>Contractor</p>	Throughout Project	500,000.00
Social Risks						
Sexual Exploitation and Abuse	Low Medium	<p>Implement an awareness and prevention program for project workers and the local community.</p> <p>Provide access to HIV testing and counselling services, ensuring confidentiality and non-discrimination.</p>	<p>HIV/AIDS awareness trainings</p> <p>Availability of VCT facilities</p>	<p>Sociologists</p> <p>Environmental and Safety Management Manager</p>	Throughout Project	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing stigma.</p> <p>Alias with local security administration for insecurity management</p>	Social awareness and trainings	Contractor		
Occupational Safety and Health issues	Moderate	<p>Enforce strict safety protocols and provide regular training for all construction personnel.</p> <p>Conduct routine safety inspections and audits to identify and address potential hazards.</p> <p>Establish an emergency response plan to handle accidents promptly and efficiently.</p> <p>Provide all workers with appropriate full protective gear. These include working boots, overalls, helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p> <p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard</p>	<p>Accidents occurrence incidences recorded in the Incidence Book</p> <p>Workers have Safety Gear(PPEs)</p> <p>Emergency contacts for Hospital and Police available</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p> <p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	<p>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.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register regularly.</p> <p>Comply with the national labor laws and labour management practices.</p>	List of workers that does not contain underage persons	<p>SEC</p> <p>GRC</p> <p>Contractor</p>	Daily	200,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		Put visible signage on site "No Jobs for children."				
Increased Crime and Insecurity	Very High	<p>Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.</p> <p>Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices</p>	<p>Availability of security officers</p> <p>Number of security concerns reported.</p>	<p>Environmental and Safety Management Manager</p> <p>Mombasa County Traffic Department Officials</p>	Daily	900,000.00
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder</p>	<p>Number of stakeholders involved and proof of their support.</p>	<p>Contractor</p> <p>SEC and GRC</p> <p>County Government officials, Department of Traffic management</p> <p>Environmental And Safety Management Manager</p>	Throughout Project	250,000.00



Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		engagement plan.				
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>SEC</p> <p>GRC</p> <p>Contractor</p> <p>Mombasa County Government Officials</p>	Throughout Project	150,000.00
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County</p>	Throughout Project	100,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
				coordinator		
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	Number of beneficiaries engaged during the public participation meetings	<p>KISIP</p> <p>Contactor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

#### 8.6.2.2 ESMMP for Drainages

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						
Noise pollution and Excessive Vibrations	Moderate	<p>Enforce EMCA 1999, Revised 2015 (Noise and Excessive Vibrations Regulations of 2009)</p> <p>Maintain noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas</p> <p>Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5</p>	<p>Reported complaints from neighbour community and institutions</p> <p>Records of machine and vehicle maintenance</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	400,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>days before construction is due to commence in their vicinity</p> <p>Undertake Noise and Excessive Vibration Assessments</p> <p>Effective use of appropriate PPE ( earmuffs) for exposed workers.</p> <p>Proper maintenance of machines.</p> <p>Record and communicated to the Supervising Engineer all noise and excess vibration complains for appropriate action.</p>	<p>Availability and use of</p> <p>Ear Muffs</p>			
Air pollution	Moderate	<p>Maintain a speed limit of 20km/h within the site during construction phase to reduce dust particles emission.</p> <p>Use of environmentally friendly fuels such as Low Sulphur diesel.</p> <p>Regular maintenance and service of construction machinery and equipment in accordance to manufacturer specifications to minimize the generation of hazardous gases.</p> <p>Providing PPEs such as nose masks to the workers in dusty areas on the site.</p> <p>Maintain regular training of all personnel on methods</p>	<p>Cases of respiratory complication at nearby health centre.</p> <p>Records of machine and vehicle maintenance</p> <p>Low dust generation during construction</p> <p>Availability and use of Nose</p>	<p>Environmental Consultants</p> <p>Contractor</p>	Continuous	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>for minimizing air quality impacts during construction.</p> <p>Ensure a strict schedule plan for all equipment to avoid unnecessary trips and minimize idling of engines.</p> <p>Enforce of EMCA 2015 (Air Quality Regulations 2014)</p> <p>Avoid carrying out dust generating activities especially during strong winds</p> <p>Use of covered trucks for material delivery to avoid spills and windblown dust</p> <p>Communicate air quality monitoring results to the public and address concerns proactively.</p> <p>Monitor air quality in the construction area and surrounding neighborhood.</p> <p>Spraying of all earthwork's areas within 200 meters of human settlement to reduce dust.</p>	Masks			
Water Pollution	Low	<p>Implement best management practices for construction activities to prevent runoff contamination.</p> <p>Ensure all machineries are serviced at a dedicated service bay to avoid spillages of oil and other fluids</p> <p>Implement erosion control measures to prevent soil</p>	<p>Water Quality Reports</p> <p>Records of machine and vehicle</p>	<p>Environmental Management Team</p> <p>Water Quality Experts</p>	Throughout Project	500,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>runoff into water bodies.</p> <p>Regularly monitor water quality in nearby water bodies during construction and implementing corrective measures.</p> <p>Collaborate with local water authorities to ensure compliance with water quality standards</p>				
Soil pollution / Erosion	Low	<p>Implement soil erosion control measures to prevent the release of contaminants during construction.</p> <p>Regularly monitor soil quality in construction areas and implement corrective measures.</p> <p>Collaborate with environmental agencies to ensure compliance with soil quality standards.</p>	Ground cover in Constructed areas	<p>Environmental Management Team/consultant</p> <p>Contractor</p>	Monthly	400,000.00
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management plan.</p> <p>Practice waste recycling, re use and reduction of waste generation</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management</p> <p>Contractor</p>	Throughout Project	500,000.00
Social Risks						
Sexual Exploitation and	Low Medium	Implement an awareness and prevention program for	HIV/AIDS awareness trainings	Sociologists	Throughout Project	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Abuse		<p>project workers and the local community.</p> <p>Provide access to HIV testing and counselling services, ensuring confidentiality and non-discrimination.</p> <p>Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing stigma.</p> <p>Alias with local security administration for insecurity management</p>	<p>Availability of VCT facilities</p> <p>Social awareness and trainings</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>		
Occupational Safety and Health issues	Moderate	<p>Enforce strict safety protocols and provide regular training for all construction personnel.</p> <p>Conduct routine safety inspections and audits to identify and address potential hazards.</p> <p>Establish an emergency response plan to handle accidents promptly and efficiently.</p> <p>Provide all workers with appropriate full protective gear. These include working boots, overalls, helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p>	<p>Accidents occurrence incidences recorded in the Incidence Book</p> <p>Workers have Safety</p> <p>Gear(PPEs)</p> <p>Emergency contacts</p> <p>for Hospital and Police available</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p>	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p> <p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	<p>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.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register</p>	List of workers that does not contain underage persons	SEC GRC Contractor	Daily	200,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		regularly.  Comply with the national labor laws and labour management practices.  Put visible signage on site "No Jobs for children."				
Increased Crime and Insecurity	Very High	Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.  Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices	Availability of security officers on site	Environmental and Safety Management Manager  Mombasa County Traffic Department Officials	Daily	900,000.00
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.  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	Number of stakeholders involved and proof of their support.	Contractor  SEC and GRC  County Government officials, Department of Traffic management  Environmental And Safety Management Manager	Throughout Project	250,000.00



Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		as guided by the approved stakeholder engagement plan.				
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>SEC</p> <p>GRC</p> <p>Contractor</p> <p>Mombasa County Government Officials</p>	Throughout Project	150,000.00
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County</p>	Throughout Project	100,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
				coordinator		
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	Number of beneficiaries engaged during the public participation meetings	<p>KISIP</p> <p>Contractor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

#### 8.6.2.3 ESMMP for Streetlights

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
<b>Environmental</b>						
Waste Generation	Moderate	<p>Implement a waste management plan, including proper disposal and recycling of construction waste.</p> <p>Educate construction workers on responsible waste disposal practices.</p> <p>Monitor waste generation and disposal practices to ensure compliance with the waste management</p>	<p>Clean, Organized, Neat Site</p> <p>Presence of waste collection receptacle</p> <p>Contract with NEMA Registered Waste Disposal Firm</p>	<p>Environmental Management</p> <p>Contractor</p>	Throughout Project	500,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		plan.  Practice waste recycling, re use and reduction of waste generation				
<b>Social Risks</b>						
Sexual Exploitation and Abuse	Low Medium	Implement an awareness and prevention program for project workers and the local community.  Provide access to HIV testing and counselling services, ensuring confidentiality and non-discrimination.  Establish a support system for individuals living with HIV/AIDS, promoting inclusivity and reducing stigma.  Alias with local security administration for insecurity management	HIV/AIDS awareness trainings  Availability of VCT facilities  Social awareness and trainings	Sociologists  Environmental and Safety Management Manager  Contractor	Throughout Project	300,000.00
Occupational Safety and Health issues	Moderate	Enforce strict safety protocols and provide regular training for all construction personnel.  Conduct routine safety inspections and audits to identify and address potential hazards.  Establish an emergency response plan to handle accidents promptly and efficiently.  Provide all workers with appropriate full protective gear. These include working boots, overalls,	Accidents occurrence incidences recorded in the Incidence Book  Workers have Safety Gear(PPEs)  Emergency contacts  for Hospital and Police available	Environmental and Safety Management Manager  Contractor	Weekly	300,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>helmets, earmuffs, masks, and gloves.</p> <p>Make available a fully equipped First aid kit that is manageable by a trained qualified first aider.</p> <p>Use of signage's at work construction site for communication to non-workers and other road users</p> <p>Conduct regular training</p> <p>Document all near misses, incidents and accidents.</p> <p>Conduct risk assessments for all general, standard and high risk jobs</p> <p>Engage only qualified personnel on operating or conducting high risk jobs</p> <p>Issue work permits after risk assessment is successfully and all workers verified to be fit for work</p> <p>Conduct physical fitness test regularly for all worker</p> <p>Report all work related injuries and health concerns for action to be taken</p>				
Child Exploitation and Abuse	Medium	Ensure each employee signs a code of conduct that covers child protection ensuring no children are employed on site in accordance with national	List of workers that does not contain underage persons	SEC	Daily	200,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>labour laws.</p> <p>Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police.</p> <p>Employ workers who are 18 years and above, and with a valid national ID at the time of hire.</p> <p>Implement and monitor the employment register regularly.</p> <p>Comply with the national labor laws and labour management practices.</p> <p>Put visible signage on site "No Jobs for children."</p>		<p>GRC</p> <p>Contractor</p>		
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p>	Number of stakeholders involved and proof of their support.	<p>Contractor</p> <p>SEC and GRC</p> <p>County Government officials, Department of Traffic management</p> <p>Environmental And Safety Management Manager</p>	Throughout Project	250,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.				
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Low Medium	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>SEC</p> <p>GRC</p> <p>Contractor</p> <p>Mombasa County Government Officials</p>	Throughout Project	150,000.00
Disruption to Public Services	Low Medium	<p>Coordinate with relevant public service providers to adapt services during construction.</p> <p>Communicate service disruptions in advance to minimize inconvenience for residents.</p> <p>Establish a hotline or platform for residents to report service disruptions and address concerns.</p>	<p>Number of complaints from community due to lack of certain services</p>	<p>Environmental and Safety Management Manager</p> <p>Contractor</p> <p>Relevant County Government department with help of KISIP County</p>	Throughout Project	100,000.00

Possible Impact	Impact Rating level	Management Actions	Monitoring Indicators	Target Areas and Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
				coordinator		
Risk of excluding some beneficiaries due to unfriendly infrastructure designs	High	<p>The implementation of the infrastructure assumed universal design.</p> <p>Disseminate this information to the beneficiaries through public participation forums</p>	Number of beneficiaries engaged during the public participation meetings	<p>KISIP</p> <p>Contactor</p> <p>Consultant</p>	Initial and Ongoing	200,000.00

### 8.6.3 ESMMP for Operational Phase

#### 8.6.3.1 ESMMP for Roads and footpaths

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive.</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>County Government of Mombasa; Department of Traffic management, KISIP</p>	Throughout Project	No additional cost
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</p> <p>Enable the GRM to provide for</p>	<p>Awareness trainings conducted</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	<p>County Government of Mombasa, KISIP, Contractor</p>	Throughout Project	No additional cost



Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.				
Water Pollution/Contamination	Very Low	<p>Prioritize integrated water management approaches that address both the root causes and symptoms of pollution.</p> <p>Investing in infrastructure for safe drinking water supply, wastewater treatment, and solid waste management</p> <p>Promoting sustainable agricultural practices to reduce runoff and pollution</p> <p>Strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members.</p> <p>Taking proactive measures to protect water resources</p>	Water quality standards and tests	SEC, GRC, KISIP	Ongoing	No additional cost
Inadequate stakeholder Engagement and Exclusion of disadvantaged and	Medium high	Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
vulnerable groups		<p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				

#### 8.6.3.2 ESMMP for Drainages

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive.</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	County Government of Mombasa; Department of Traffic management, KISIP	Throughout Project	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</p> <p>Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</p>	<p>Awareness trainings conducted</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	County Government of Mombasa, KISIP, Contractor	Throughout Project	No additional cost
Water Pollution/Contamination	Very Low	<p>Prioritize integrated water management approaches that address both the root causes and symptoms of pollution.</p> <p>Investing in infrastructure for safe drinking water supply, wastewater</p>	Water quality standards and tests	SEC, GRC, KISIP	Ongoing	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>treatment, and solid waste management</p> <p>Promoting sustainable agricultural practices to reduce runoff and pollution</p> <p>Strengthening regulatory frameworks and enforcement mechanisms to prevent industrial pollution, and raising awareness about the importance of water conservation and pollution prevention among community members.</p> <p>Taking proactive measures to protect water resources</p>				
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged groups.</p> <p>Develop and implementation of a</p>	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				
Alteration of Natural Drainage Patterns	Very Low	<p>Conduct detailed hydrological studies to understand natural drainage patterns.</p> <p>Design drainage systems that mimic natural flow to reduce environmental impact</p>		SEC, GRC, KISIP	Quarterly	200,000.00

#### 8.6.3.3 ESMMP for Streetlights

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Gender-Based Violence and Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)	Medium high	<p>Develop and implement a plan to manage the risk of SEA/SH.</p> <p>Map the GBV referral pathways and create awareness among women and men on the risk of SEA/SH.</p> <p>Ensure the GRM is SEA/SH-responsive.</p>	<p>Number of GBV cases reported and solved.</p> <p>GBV Awareness trainings</p>	<p>County Government of Mombasa;</p> <p>Department of Traffic management, KISIP</p>	Throughout Project	No additional cost

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
Ineffective Grievance Management	Very High	<p>Constitute a Local Grievances Committee in consultation with all community segments and incorporate the existing local dispute resolution mechanisms. Implement a workers' grievances mechanism.</p> <p>Create awareness on the culturally appropriate and accessible GRM to all community segments including vulnerable individuals and households and CSOs.</p> <p>Log, date, process, resolve, and close-out all reported grievances in a timely manner.</p> <p>Ensure proportionate representation of disadvantaged persons in the local grievances committee.</p> <p>Enable the GRM to provide for confidential reporting of particularly sensitive social aspects such as GBV, as well as anonymity.</p>	<p>Awareness trainings conducted</p> <p>Grievance complaints documentation</p> <p>Availability of a GRM and SEC committee</p>	County Government of Mombasa, KISIP, Contractor	Throughout Project	No additional cost
Energy Consumption	Low Medium	<p>A programmable timer shall control exterior lights.</p> <p>Generator should be provided as a full backup energy source throughout the development.</p> <p>Install and routine maintenance of energy</p>	Reduced and conservative use of energy	County Government of Mombasa, KISIP, Contractor	Throughout Project	300,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>efficient appliances e.g. LED bulbs etc.</p> <p>Monitor energy use during construction and set reasonable limit.</p> <p>Put off all lights immediately when not in use or are not needed.</p> <p>The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.</p> <p>Turn off machinery and equipment when not in use.</p> <p>Use of solar energy as an alternative source of energy at contractor's camp sites.</p>				
Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups	Medium high	<p>Share project information widely and in a timely manner through diverse, feasible and accessible channels of communication e.g., public forums.</p> <p>Introduce measures for affirmative action that would ensure especially persons with disability, the elderly and women have access to job opportunities.</p> <p>Undertake recruitment transparently, while ensuring the inclusion of disadvantaged</p>	Number of stakeholders involved and proof of their support.	SEC, GRC, KISIP	Monthly	200,000.00

Possible Impact,	Impact Rating Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget(KShs)
		<p>groups.</p> <p>Develop and implementation of a stakeholder engagement plan.</p> <p>Engage stakeholders throughout the project phase as guided by the approved stakeholder engagement plan.</p>				
Light and Visual discomfort	Medium High	<p>Properly design and angle light fixtures to minimize glare.</p> <p>Consider installing light shields or diffusers to control light direction.</p> <p>Seek aviation lighting design principles</p> <p>Use shielded fixtures and directional lighting to minimize light spillage.</p> <p>Implement curfew times for non-essential lighting.</p> <p>Educate the community on responsible lighting practices.</p>		SEC, GRC, KISIP	Throughout Project	No additional cost
Disturbance to Nocturnal Wildlife	Very Low	<p>Install motion sensors or timers to reduce lighting intensity during periods of low activity.</p> <p>Choose warm-coloured lights that are less disruptive to wildlife.</p>		SEC, GRC, KISIP	Throughout Project	No additional cost



## 8.6.4 ESMMP for Decommissioning Phase

### 8.6.4.1 ESMMP for Roads and footpaths

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Compliance with environmental regulations and permits.</p> <p>Inspection frequency and compliance with erosion control practices</p> <p>Survival rates of replanted native vegetation</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	To be established
Waste Generation	Low Medium	<p>Implement recycling and reuse programs for materials like concrete and asphalt.</p> <p>Properly dispose of hazardous materials</p>	Adoption rate of recycled materials in new construction projects	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		<p>in accordance with regulations.</p> <p>Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.</p>	<p>Compliance with hazardous waste disposal regulations</p> <p>Implementation of practices to reduce packaging waste, excess materials, and unnecessary disposal.</p>			
Economic Loss	Low Medium	<p>Provide support and incentives for local businesses affected by decommissioning.</p> <p>Offer compensation or assistance programs to mitigate financial losses.</p> <p>Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.</p>	<p>Service disruption metrics and traffic flow management.</p> <p>Compliance with environmental regulations and effectiveness of restoration efforts.</p> <p>Quantity of recycled materials, hazardous waste disposal compliance, and waste reduction.</p> <p>Number of businesses supported, financial assistance effectiveness, and economic diversification progress.</p>	KISIP,SEC,GRC	Throughout Decommissioning	100,000.00
Health and Safety Concerns	Medium	<p>Enforce strict safety regulations and provide adequate training for workers.</p> <p>Implement dust and noise control measures to minimize pollution and</p>	<p>Adherence to safety regulations and incident rates.</p> <p>Monitoring dust and noise levels, and compliance with</p>	KISIP,SEC,GRC	Throughout Decommissioning	200,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		disturbance to nearby residents.  Communicate potential risks to the public and provide guidance on safety precautions.	pollution limits.  Public awareness and feedback on risk communication effectiveness.			
Environmental Disturbance	Low Medium	Conduct thorough environmental impact assessments prior to decommissioning.  Implement erosion and sediment control measures to prevent soil erosion and water pollution.  Replant native vegetation and restore habitats affected by decommissioning activities.	Completion and compliance of environmental impact assessments.  Effectiveness of erosion and sediment control measures.  Success of habitat restoration and native vegetation replanting.  Water quality monitoring results.  Stakeholder feedback on environmental impacts and restoration efforts.  Adherence to environmental regulations and reporting requirements.	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

#### 8.6.4.2 ESMMP for Drainages

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Compliance with environmental regulations and permits.</p> <p>Inspection frequency and compliance with erosion control practices</p> <p>Survival rates of replanted native vegetation</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	To be established
Waste Generation	Low Medium	<p>Implement recycling and reuse programs for materials like concrete and asphalt.</p> <p>Properly dispose of hazardous materials in accordance with regulations.</p>	<p>Adoption rate of recycled materials in new construction projects</p> <p>Compliance with hazardous</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		Encourage contractors to minimize waste generation through efficient construction and decommissioning practices.	waste disposal regulations  Implementation of practices to reduce packaging waste, excess materials, and unnecessary disposal.			
Economic Loss	Low Medium	Provide support and incentives for local businesses affected by decommissioning.  Offer compensation or assistance programs to mitigate financial losses.  Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.	Service disruption metrics and traffic flow management.  Compliance with environmental regulations and effectiveness of restoration efforts.  Quantity of recycled materials, hazardous waste disposal compliance, and waste reduction.  Number of businesses supported, financial assistance effectiveness, and economic diversification progress.	KISIP,SEC,GRC	Throughout Decommissioning	100,000.00
Health and Safety Concerns	Medium	Enforce strict safety regulations and provide adequate training for workers.  Implement dust and noise control measures to minimize pollution and	Adherence to safety regulations and incident rates.  Monitoring dust and noise levels, and compliance with	KISIP,SEC,GRC	Throughout Decommissioning	200,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		disturbance to nearby residents.  Communicate potential risks to the public and provide guidance on safety precautions.	pollution limits.  Public awareness and feedback on risk communication effectiveness.			
Environmental Disturbance	Low Medium	Conduct thorough environmental impact assessments prior to decommissioning.  Implement erosion and sediment control measures to prevent soil erosion and water pollution.  Replant native vegetation and restore habitats affected by decommissioning activities.	Completion and compliance of environmental impact assessments.  Effectiveness of erosion and sediment control measures.  Success of habitat restoration and native vegetation replanting.  Water quality monitoring results.  Stakeholder feedback on environmental impacts and restoration efforts.  Adherence to environmental regulations and reporting requirements.	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

#### 8.6.4.3 ESMMP for Street lighting

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Disruption of Services	Low Medium	<p>Implement phased decommissioning to minimize disruption to services.</p> <p>Provide alternative routes or transportation options for affected commuters.</p> <p>Schedule decommissioning activities during off-peak hours to reduce impact on traffic flow.</p>	<p>Number of services affected</p> <p>Duration of service disruptions.</p> <p>Percentage of planned versus unplanned disruptions.</p>	SEC, GRC, KISIP, County Government of Mombasa	Throughout Decommissioning	No additional cost
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>Compliance with environmental regulations and permits.</p> <p>Inspection frequency and compliance with erosion control practices</p> <p>Survival rates of replanted native vegetation</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	To be established
Waste Generation	Low Medium	<p>Implement recycling and reuse programs for materials like concrete and asphalt.</p> <p>Properly dispose of hazardous materials in accordance with regulations.</p> <p>Encourage contractors to minimize waste generation through efficient construction</p>	<p>Adoption rate of recycled materials in new construction projects</p> <p>Compliance with hazardous waste disposal regulations</p> <p>Implementation of practices to reduce packaging waste,</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	250,000.00

Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
		and decommissioning practices.	excess materials, and unnecessary disposal.			
Economic Loss	Low Medium	<p>Provide support and incentives for local businesses affected by decommissioning.</p> <p>Offer compensation or assistance programs to mitigate financial losses.</p> <p>Develop alternative economic opportunities or infrastructure projects to offset any negative economic impacts.</p>	<p>Service disruption metrics and traffic flow management.</p> <p>Compliance with environmental regulations and effectiveness of restoration efforts.</p> <p>Quantity of recycled materials, hazardous waste disposal compliance, and waste reduction.</p> <p>Number of businesses supported, financial assistance effectiveness, and economic diversification progress.</p>	KISIP,SEC,GRC	Throughout Decommissioning	100,000.00
Health and Safety Concerns	Medium	<p>Enforce strict safety regulations and provide adequate training for workers.</p> <p>Implement dust and noise control measures to minimize pollution and disturbance to nearby residents.</p> <p>Communicate potential risks to the public and provide guidance on safety precautions.</p>	<p>Adherence to safety regulations and incident rates.</p> <p>Monitoring dust and noise levels, and compliance with pollution limits.</p> <p>Public awareness and feedback on risk communication</p>	KISIP,SEC,GRC	Throughout Decommissioning	200,000.00



Possible Impact	Impact Level	Management Actions	Monitoring Indicators	Responsibilities	Monitoring Frequency	Estimated Budget (KShs)
Environmental Disturbance	Low Medium	<p>Conduct thorough environmental impact assessments prior to decommissioning.</p> <p>Implement erosion and sediment control measures to prevent soil erosion and water pollution.</p> <p>Replant native vegetation and restore habitats affected by decommissioning activities.</p>	<p>effectiveness.</p> <p>Completion and compliance of environmental impact assessments.</p> <p>Effectiveness of erosion and sediment control measures.</p> <p>Success of habitat restoration and native vegetation replanting.</p> <p>Water quality monitoring results.</p> <p>Stakeholder feedback on environmental impacts and restoration efforts.</p> <p>Adherence to environmental regulations and reporting requirements.</p>	Environmental Management Team/Consultant, KISIP	Throughout Decommissioning	300,000.00

## **9. GRIEVANCE REDRESS MECHANISM**

### **9.1 Introduction**

This section describes the project's Grievance Redress Mechanism. The overall objective of the GRM is to establish an effective communication channel among project stakeholders for providing a timely and efficient two-way feedback mechanism to address any grievances and complaints against the project from multiple stakeholders and Project Affected. This GRM complies with the Law of Kenya and international best practices. During the proposed implementation of Aseko-Mlekenyi projects, grievances, complaints as well as disputes are expected to arise from several stages of the project including design and implementation phase.

Effective and timely response to community complaints is essential for maintaining good community relations. KISIP is committed to having an effective complaints handling system that reflects the needs, expectations and rights of complainants.

### **9.2 Objectives of the GRM**

The project implementation team will work to prevent grievances through the implementation of proposed mitigation measures as per the ESMP and as identified through the Grievance Redress Mechanism (GRM). Specific objectives of the GRM are:

- To ensure that comments, responses and grievances are handled in a fair and transparent manner in line with KISIP internal mechanisms;
- To structure and manage the handling of comments, responses and grievances, and allow monitoring of effectiveness of the mechanism;
- To provide stakeholders in general with a clear process for providing comment and raising grievances; and
- To provide a platform for stakeholders to raise comments and concerns.

### **9.3 The Three Tier of Grievance Redress Mechanism**

The three-tier grievance redressal mechanism refers to a structured approach used by organizations or governments to address and resolve complaints or grievances raised by individuals or groups. These are;

#### **Informal Resolution**

This initial tier involves resolving grievances through informal means, such as direct communication between the aggrieved party and the concerned individual or department. It may include discussions, meetings, or informal mediation to resolve the issue before it escalates further. The goal here is to address the grievance swiftly and amicably without formal procedures.

#### **Formal Resolution**

If the grievance is not resolved at the informal level or if it is of a serious nature, it moves to the formal resolution tier. Formal resolution often involves submitting a written complaint or grievance through designated channels within the organization or institution. This tier may include a structured investigation process, hearings, or meetings with designated grievance redressal authorities. The decision or resolution at this level is typically documented and communicated to the parties involved.

#### **Appellate or Escalation Level**

If the aggrieved party is not satisfied with the resolution provided at the formal level, they may have the option to escalate the matter to a higher authority or an appellate body. This tier involves a review of the previous

decisions or actions taken, and it may include a reconsideration of the grievance based on new evidence or arguments presented. The appellate or escalation level provides a final opportunity for a fair and impartial review of the grievance before a decision is made.

These tiers ensure that grievances are addressed through a systematic process, starting with informal attempts to resolve issues and escalating to formal procedures and higher authorities if necessary. It aims to provide transparency, accountability, and fairness in resolving complaints within organizations or government bodies.

#### **9.4 Proposed Grievance Redress Procedure**

The Chief Grievance Handling Officer will be the Resident Engineer (RE). Everybody else, members of GRC, will act on RE's behalf and reports to him/her. Anyone will be able to submit a grievance to the project, if they believe any practice by the project is having a detrimental impact on the community, the environment, or on their quality of life. They may also submit comments and suggestions on how such issues can be handled or prevented. Stakeholder sensitization on the GRM will be undertaken during stakeholder meetings scheduled under the project's Stakeholder Engagement Plan.

Table 63:GRC Guiding Principles

Guiding Principles	Description
Fairness	The grievance redress system treats complainants with respect and courtesy. The rules of natural justice apply, and all parties involved have the opportunity to respond to raised issues.
Transparency and Accessibility	The complaints handling system is well-known to stakeholders, staff, and contractors. It includes information on the right to complain, the process, locations, and how complaints will be handled. Details are easily accessible, and there is no charge for complainants. The system aims to be easy to understand, use, and presented in plain language. Interpreter services are provided for non-English speakers if possible.
Responsiveness	Complaints are dealt with quickly, courteously, and fairly within established timelines. Complainants are informed of the expected resolution time and kept updated on progress. If additional time is needed, the complainant is notified with reasons for the delay. If unresolved, clear explanations are provided, and alternative actions or review opportunities are offered.
Privacy and Confidentiality	The complaint handling process ensures complainant confidentiality, including cases against staff. Complaint details are limited to those directly concerned.
Accountability	The system is open to public and oversight scrutiny, such as by the Ombudsman. A reporting mechanism on the complaints process is maintained. KISIP maintains a complaints register and conducts regular audits, formulating action plans to address any deficiencies.

The general steps of the grievance process have been summarized in Table 4 below and comprise:

- Registration/receipt/Acknowledgment of Complaints
- Investigate and determine solution to the complaint
- Implementing the Redress Action;
- Verifying the Redress Action;
- Monitoring and Evaluation; and
- Recourse or Alternatives

Table 64: Grievance Redress Mechanism

Step	Process	Description	Timeframe	Responsibility
1	Grievance receipt and registration/ logging	Face to face; phone; letter, recorded during public/community meetings; WhatsApp etc. Significance assessed and grievance recorded or logged using the model complaint form and filed.	1-2 Days	An aggrieved party or PAPs Lodging complaint to the GRC. GRCs- Receive, registering and logging grievances
2	Development and implementation of response	GRC meets or takes a decision on the grievance. Grievance assigned to appropriate party for resolution if necessary. Response development	5- 10 Days	GRC

Step	Process	Description	Timeframe	Responsibility
		with input from relevant stakeholders. Redress response/action approved by GRC and logged. Redress response/update of progress on resolution communicated to the complainant. Start implementing redress action		
3	Verifying the implementation of redress action	Redress action implemented and verified by GRC. GRC satisfied with implementation of redress action. Complainant duly signed the grievance resolution form	10-15 Days	Environmental (Social) Officer/Safeguard Specialist at the County level (CPCT)
4	Close grievance or refer grievance to 2nd tier resolution	Completion of redress action recorded or logged. Confirm with complainant that grievance can be closed or determine what follow up is necessary. Record final sign off of grievance. If grievance cannot be closed, return to step 2 or recommend to the next tier-County, National.	15-25 Days	Environmental (Social) Officer/Safeguard Specialist at the County level (CPCT)/ Grievance Officer
5	Court of law	If 2nd and third level settlement does not address dispute, complainant can resort to court of law	Unknown	Safeguard Specialist under KISIP 2 at the National level (NPCT)
6	Monitoring and evaluation, and reporting	Grievance Redress Mechanism Process is documented and monitored		Safeguard Specialist under KISIP 2 at the National level (NPCT)

### 9.5 Worker Grievance Procedure

Contractor shall commit to enforce KISIP's comprehensive labor and employment policies, including its requirements on workplace discrimination and harassment, across the entire workforce. This policy requires that all contractor workers are to be treated fairly, with dignity and respect, and have equal employment opportunities.

Therefore, contractors shall be required to develop a Labour Management Plan that includes an authorized process for workers to raise grievances and concerns to senior management, covering any issues that are work related, that affect an employee or contractor, or that an employee deems unfair. Such concerns may relate (but are not limited) to the following:

- Management decisions;
- Occupational health and safety concerns;
- The behavior or conduct of another employee, manager, or contractor; and
- The effects of KISIP's contractors' Human Resources policy or procedures.

Contractor shall ensure that all grievances raised by workers are treated impartially, respectfully and confidentially.

### 9.6 GRM Cost Estimate

Table 65: GRM cost

S/No	Description	Monthly Cost in Kshs	Annual cost
1	GRC facilitation fee for 12 members of the committee	12,000	144,000
2	GRC meeting venue	5,000	60,000
3	Others	10,000	120,000
	<b>TOTAL</b>	<b>27,000</b>	<b>324,000</b>

The above GRM estimate cost is the rate per month for Misufini settlement, and is dependent on the total project duration, which is estimated to be 12 months, making the total cost to **Kshs. 324,000.**

## **10 CONCLUSION AND RECOMMENDATIONS**

### **10.1 CONCLUSION**

In conclusion, the Misufini Settlement Improvement Project holds significant potential to enhance living conditions and promote sustainable development in the area. However, careful consideration of environmental and social impacts, along with robust mitigation measures, is crucial for successful project implementation. Therefore, it is recommended that the project undergo a Comprehensive Project Report to further evaluate potential impacts and develop detailed mitigation plans. Also, ARAP is required for 20 PAPs identified. Collaboration with relevant stakeholders, adherence to regulatory standards, and continuous monitoring and evaluation are essential for ensuring the project's success and maximizing positive outcomes for both the community and the environment.

### **10.2 RECOMMENDATION**

To ensure the successful execution of the project and mitigate the identified impacts, the initiation of a Comprehensive Project Report is strongly recommended. This assessment will serve as a vital tool to thoroughly examine the potential effects on the natural and human environment, propose tailored mitigation measures, and develop an effective Environmental and Social Management and Monitoring Plan (ESMMP). This proactive approach aligns with the project's commitment to environmental sustainability and social responsibility.

Furthermore, considering that the proposed projects fall within the Second Schedule of the Environmental Management and Coordination Act (EMCA) and are categorized under both Category B of the World Bank's environmental screening classification, it is crucial to subject the project to a Comprehensive Project Report. This ensures compliance with regulatory standards and international best practices.

This Comprehensive Project Report, accompanied by a robust ESMMP, not only safeguards against potential negative impacts but also fosters a myriad of benefits. Improved infrastructure will enhance local livelihoods, providing better access to education, healthcare, and economic opportunities. Stakeholders, including the local community, stand to gain from upgraded amenities, increased safety, and enhanced connectivity. The transparent and consultative process embedded in the Comprehensive Project Report also ensures that diverse perspectives are considered, promoting a sense of ownership and shared responsibility.

#### **Road Upgrade**

**Traffic Management Plan:** Develop a comprehensive traffic management plan to minimize disruptions and congestion during the construction phase. Clearly communicate alternative routes to the public.

**Community Engagement:** Engage with the local community to gather feedback on the proposed road upgrades. Address concerns and keep residents informed about the project's timeline and potential impacts.

**Environmental Impact Mitigation:** Implement erosion control measures to prevent soil runoff into nearby water bodies. Regularly monitor water quality and collaborate with local water authorities to ensure compliance with standards.

**Aesthetic Considerations:** Adhere to design guidelines to minimize visual disruption. Utilize temporary screens or barriers to shield construction sites from view. Gather regular feedback from residents to address aesthetic concerns.

**Parking Management:** Designate alternative parking areas during construction to minimize inconvenience. Clearly communicate parking options to residents and businesses. Monitor and assess the impact on parking availability regularly.

### **Stormwater Drainage Construction:**

**Environmental Monitoring:** Implement dust control measures during construction to mitigate air quality concerns. Regularly monitor air quality in the construction area and communicate results to the public.

**Community Awareness:** Conduct community sensitization sessions on potential dust and air quality issues. Develop and distribute information, education, and communication (IEC) materials to raise awareness.

**Water Quality Management:** Collaborate with local water authorities to ensure stormwater drainage does not compromise water quality. Implement corrective measures promptly based on regular monitoring.

### **Water Supply**

Ensure all parts of the system comply with local, national, and possibly international standards for drinking water systems. Regularly engage with the community to gather feedback and address concerns related to water quality, supply issues, or service improvements. Choosing a strategic location that utilizes gravity for natural water pressure if possible, reducing the need for pumping.

### **High-Mast Street Lights Installation**

**Lighting Design Guidelines:** Implement design guidelines to ensure high-mast street lights are installed in a way that minimizes aesthetic impact on surrounding properties. Engage with residents for feedback.

**Stakeholder Engagement:** Develop a stakeholder engagement plan specifically for the high-mast lights installation. Communicate project information widely and transparently.

**Impact on Local Employment:** Prioritize hiring locals for unskilled labor during the installation phase. Ensure fair and transparent recruitment processes.

**Safety Measures:** Implement safety measures during the installation of high-mast lights. Engage with the community to raise awareness and address safety concerns.

### **Expert position**

I strongly recommend the project to be implemented after thorough review, the impact can be monitored and reversed with the correct use of the ESMMP prepared.



## References

1. Mombasa third County Integrated Development Plan (2023-2027). Retrieved from <https://repository.kippira.or.ke/bitstream/handle/123456789/4258/Final%20Mombasa%20CIDP%202023-2027.pdf?sequence=1&isAllowed=y>
2. United Nations. (n.d.). Sustainable Development Goals. Retrieved March 1, 2024, from <https://sdgs.un.org/goals>
3. Government of Kenya. (2012). The Land Registration Act. Nairobi: Government Printer.
4. Government of Kenya. (2012). The National Land Commission Act. Nairobi: Government Printer.
5. Government of Kenya. (2013). The Wildlife Conservation and Management Act, 2013. Nairobi, Kenya: Government Printer.
6. Goodland, J.R., Mercier, & Shimwayi M. (Eds.). (1995). Environmental Assessment in Africa: A World Bank commitment. Nairobi, Kenya.
7. Government of Kenya. Kenya Gazette Supplement. Acts public health act (cap. 242). Nairobi: Government Printer.
8. Government of Kenya. Kenya Gazette Supplement, 68. Environmental Management and Coordination (Water Quality) Regulations, 2006. Nairobi: Government Printer.
9. Government of Kenya. Kenya Gazette Supplement, 68. Environmental Management and Coordination (Waste Management) Regulations, 2006. Nairobi: Government Printer.
10. Government of Kenya. Kenya Gazette Supplement, 68. Environmental Management and Coordination (noise and excessive vibration pollution) (control) Regulations, 2009. Nairobi: Government Printer.
11. Kenya National Bureau of Statistics (KNBS). (2019). Economic survey 2019.
12. Law, K. (Ed.). (2010). CONST2010. Retrieved from <http://kenyalaw.org/lex/actview.xql?actid=Const2010> (Accessed: 29 February 2024).
13. Government of Kenya. Noise prevention and control rules 2005, legal noise no. 24. Nairobi: Government Printers.
14. PCC. (2014). Climate Change 2014 Synthesis Report Summary Chapter for Policymakers.
15. Government of Kenya. (2007). The Occupational Safety and Health Act. Nairobi: Government Printer.
16. U.S. Environmental Protection Agency. (n.d.). The Effect of Climate Change on Water Resources and Programs.

## APPENDICES

### Appendix 1: Situation Analysis Report



Situation Analysis  
Report -Misufini.doc

**Appendix 2: Checklist**

## ESMF Checklist

Questions to be considered	Yes/No.  Briefly Describe	Is this likely to result in a significant effect?  Yes/No/? -why
<b>Brief Project Description</b>		
<p>The Misufini Settlement infrastructure upgrade project, part of the Kenya Informal Settlements Improvement Project II (KISIP 2), is a pivotal initiative aimed at enhancing living conditions in Jomvu Sub-County, Mombasa County. This comprehensive project focuses on improving key aspects such as 1442m of (road infrastructure, and stormwater drainage systems), 3No high-mast street lighting, and water supply networks within the settlement. The endeavor aligns with broader regional development goals, aiming to foster community development, connectivity, and safety. However, recognizing potential environmental and social impacts, a thorough screening process has been initiated to assess the project's nature, magnitude, and compatibility with existing regulations. Stakeholder engagement and adherence to environmental safeguards form integral components of this screening, ensuring a holistic approach to sustainable development.</p>		
<b>A: Triggers to EMCA</b>		
1. Does the project fall under the second schedule of EMCA Cap. 387	Yes, Follows in the second Schedule of EMCA	Yes, The projects are listed as high and medium risk projects in Legal Notice 31&32 of NEMA
<b>B. Triggers to World Bank Safeguard Policies</b>		
2. Does the project trigger one or more of the World Bank Safeguard policies	Yes, Follows in Category B of World Bank OP	Yes, affect the community livelihood
<b>C. GoK Policies and Laws applicable</b>		
3. Does the project fall under/trigger any other GoK Policies and Laws?	Yes, it triggers some Government Acts and Policies like the Kenya Road Board Act 1999 and land act 2012	Yes, these policies need to form the literature review for the Comprehensive Project Report
<b>D. Project Location</b>		
<p>4. Is the proposed site a protected or reserved site (Provide proximity in kms)</p> <ul style="list-style-type: none"> <li>• Biosphere Reserve</li> <li>• National park</li> <li>• Wildlife / Bird Sanctuary</li> <li>• Wetland</li> <li>• Important Bird Areas</li> <li>• Coastal area with corals</li> <li>• Mangrove areas (or Estuary with, mangroves)</li> <li>• Natural lakes</li> <li>• Habitat of migratory birds (outside protected areas)</li> <li>• Migratory Route of Wild Animals Birds</li> <li>• Area with threatened/rare/endangered fauna (outside protected areas)</li> <li>• Area with threatened/rare/endangered flora (outside protected areas)</li> </ul>	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>Yes, there is a small wetland to the east</p> <p>No</p> <p>No</p> <p>No</p>	No

<ul style="list-style-type: none"> <li>Reserved/Protected Forest</li> <li>Zoological Park /Botanical Garden</li> </ul>	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>	
<p>5. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project?</p>	<p>No</p>	<p>No</p>
<p>6. Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses, coastal zone, mountains, mangroves, forests or woodlands, migratory routes, which could be affected by the project?</p>	<p>Yes, there is a wetland near the project site where surface runoff water drains to</p>	<p>Yes, protection of wetland from possible pollution</p>
<p>7. Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?</p>	<p>Yes, the project aims at improving the only existing infrastructures within the settlement. This will affect their accessibility</p>	<p>Yes, the project will affect the residents activities including their movement and businesses</p>

8. Is the project in a location where it is likely to be highly visible to many people?	Yes, the project will be visible to everyone in the settlement	Yes, houses are aligned to the existing and proposed infrastructures for improvements
9. Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?	No	No
10. Is the project located in a previously undeveloped area where there will be loss of greenfield land?	No, the area is fully developed although poorly planned	No
11. Are there existing land uses on or around the location e.g. homes, gardens, private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining, or quarrying which could be affected by the project?	Yes, the project is located in a densely populated area with very many formal and informal settlements	Yes, some houses were demolished for the development but RAP is still ongoing
12. Are there any plans for future land uses on or around the location which could be affected by the project?	Currently, none	No
13. Are there any areas on or around the location which are densely populated or built up, which could be affected by the project?	Yes, the whole project area is densely populated with all areas built up	Yes, the population within the project location is very high
14. Are there any areas on or around the locations which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities which could be affected by the project?	Yes. Churches, Mosques, hospitals, and schools will be affected by the project	Yes, plans need to be developed before the project to ensure flow of services
15. Are there areas on or around the location which are subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?	Yes. Homesteads, places of worship, businesses, schools, and hospitals. There is also a stream and wetland which will be potential for pollution	Yes, plans need to be developed before the project to ensure flow of services
16. Is the site already degraded (low groundwater, poor soil quality)?	No	No
17. Are there steep slopes in the proximity of the investment site?	Yes, the settlement lies on a steep slope which is risky for settlement and development on some sides	Yes, developments in this settlement need to be planned to avoid landslides and

		downstream pollution
18. Do people live on the proposed site?	Yes, It's a human settlement region	Yes, residents will be 100% affected by the project
19. Do indigenous peoples live on or near the site?	Yes, it's a mix of indigenous and foreign people	No
20. Is the site vulnerable to natural hazards (in floodplain, near volcano, on seismic fault, near coastline in hurricane zone)?	Yes. The settlement is vulnerable to landslides	Yes, there is need to have proper planning during project planning and execution
21. Are there land title conflicts?	No, titles have been issued	No
22. Are there known archaeological, historical or other cultural property? Are any of these world heritage/ UNESCO designated etc	No	No
<b>E. Construction Impacts</b>		
23. Will construction, operation or decommissioning of the project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)?	No	No
24. Will the construction or operation of the project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?	Yes, the project will require murram and aggregates which will be sourced externally. Water will be highly used in the operations	Yes, water resource need to be well planned to avoid conflict and shortage
25. Will the project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?	Yes, storage, use, and transportation of construction materials like murram and asphalt may affect the human health	Yes, contractor should prepare ESMP to guide the operations
26. Will the project produce solid wastes during construction or operation or decommissioning?	Yes, there will be high production of solid waste	Yes, waste management plan should be prepared before the operations
27. Will the project release pollutants or any other hazardous, toxic or noxious substances to the air?	Yes, if not controlled fuels from asphalt mix plants and machines to be used on site may pollute the environment	Yes, regular maintenance of equipment recommended





28. Will the project cause noise and vibration or release of light, heat energy or electromagnetic energy?	Yes, the machine operations and movements will cause noise and excessive vibration to residents neighboring construction sites	Yes, baseline survey for noise and excessive vibration should be recommended and regular monitoring.
29. Will the project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, ground water, coastal waters or the sea?	Yes, the settlement drains towards a downstream and wetland which will be vulnerable to pollution	Yes, the surface runoff and waste water disposal need to be planned well
30. Will there be any risks of accidents during the construction or operation of the project which could affect human health and the environment?	Yes, the project will involve machine work and manual works	Yes, occupational health and safety plan recommended
31. Will the project result in social changes, for example, in demography, traditional lifestyles, employment?	Yes, infrastructure and security improvement to the settlement will improve livelihood and demography of the settlement. More employment opportunities will also be created	Yes, there is need for labor influx management plan
<b>F. Water Resource Impacts</b>		
32. Could the investment result in a modification of groundwater levels by altering flows, paving surfaces or increasing water extraction?	No	No
33. Could it affect groundwater quality?	No	No
34. Could it affect quality (through sediment, wastewater, storm discharge or solid waste) of nearby surface waters (lake, rivers, streams)?	Yes, the project is likely to pollute the downstream river and wetland nearby	Yes
35. Will it affect water quantity in nearby water bodies (lake, river, stream)?	No	No
36. Are there nearby potable water sources that need to be protected?	Yes, the nearby stream and wetland	Yes, should be protected from possible pollution
<b>G. Drainage Impacts</b>		
37. Will the investment in storm water drainage affect existing drainage patterns?	Yes, the project will have a new drainage system that will be connected to the existing drainage system that drains to the nearby wetland and stream	Yes, water pollution should be given first priority
38. Will it cause standing water, which could cause public health risks?	No, however it need to be monitored. The settlement lies on a steep land	No
39. Will erosion result in sediment discharge to nearby water bodies?	No	No

40. Will surface drainage patterns be affected in borrow pits and quarries?	No, there is no available lands for borrow pits and quarries in the settlement. Material will be sourced from outside. Contractor should look for external borrow pit	No
41. Will infiltration patterns be affected?	No, the settlement drain all waste to the nearby wetland and river	No
<b>H. Ecosystem Impacts</b>		
42. Could the investment affect natural habitats or areas of high ecological value?	No	No
43. Could it affect natural characteristics of adjacent or nearby sites?	No	No
44. Could it affect wildlife or natural vegetation?	No	No
<b>I. Socio-Economic Impact</b>		
45. Will the project entail resettlement of population?	No	No
46. Will the project affect People's property or livelihoods/income?	Yes, some properties will be affected. The RAP is ongoing	Yes, RAP should be monitored
47. Will the project affect indigenous peoples?	Yes, the indigenous population will interact with foreign population more often due to the project which may lead to knowledge transfer.	No, no significant impact since the area is a cosmopolitan already
48. Will it limit access to natural resources to local populations?	No	No
49. Will it have an impact on land use?	No	No
50. Will it induce further encroachment of nearby areas?	No	No
51. Will it cause any health impacts?	No	No
52. Will it disturb nearby communities during construction?	Yes, materials will be transported through the nearby settlements	Yes, transportation and interactions should be monitored
53. Could cultural resources be affected?	No	No
54. Could it affect nearby properties	Yes, transportation of materials and construction need to be well managed to prevent destruction of nearby roads and houses	Yes, traffic management plan for transportation of materials and construction should be developed
<b>J. Operation Impacts</b>		

55. Is the project susceptible to earthquakes, subsidence, landslides, erosion, flooding and extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?	Yes, if not monitored well, the project may cause landslides due to the steepness of the land	Yes, the area is vulnerable to landslides
56. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?	No	No
<b>K. Displacement Impacts</b>		
57. Acquisition of private/community land?	Yes, RAP in progress	Yes, RAP should be monitored to completion
58. Alienation of any type of government land including that owned by urban local body?	No	No
59. Clearance of encroachment from government/ urban local body land?	No	No
60. Clearance of squatting from Government/Urban local body?	No	No
61. Number of structures, both authorized and/or unauthorized to be acquired/cleared?	Yes, 22 structures will be displaced	Yes,
62. Number of household to be displaced?	Yes, 22 household will be displaced	Yes,
63. Details of village common properties to be alienated, Pasture land (acres) cremation /burial ground and others specify?	None	None
64. Describe existing land uses on and around the project area( e.g Community facilities, agriculture, tourism, private property)?	The land use is residential	N/A
65. Will the project result in construction workers or other people moving into or having access to the area ( for a long period and in large numbers compared to permanent residents) ?	Yes, though most of the workers will be sourced locally, some will be sourced from other regions	Yes, Labor management plan need to be prepared

66. Are financial/in kind compensation measures expected to be needed?	Yes, ARAP is ongoing	Yes, ARAP need to be monitored to completion
<b>L. Loss of Assets, Crops, fruit, household infrastructure and livelihood</b>		
67. Will the project result in the permanent or temporary loss of Crops?	No	No
68. Fruit trees/coconut palms? Specify with numbers	No	No
69. Household assets/infrastructure? Specify with numbers	No	No
70. Loss of agriculture land? specify with numbers	No	No
<b>M. Public and Occupational health and safety, welfare , employment and gender</b>		
71. Is the project likely to provide local employment opportunities, including employment opportunities for women?	Yes, employees will be sourced locally	Yes, Labor management and influx plan should be prepared
72. Is the project being planned with sufficient attention to local poverty alleviation objectives?	Yes, the project is aimed at improving livelihood to locals	Yes, more public participation and interactions should be planned
73. Is the project being designed with sufficient local participation of women in the planning design and implementation process?	Yes, there are extensive and all-inclusive public participation forums	Yes
74. Will the project affect/lead to traffic and Pedestrian Safety?	Yes, the project aims at improving the only access roads and infrastructures to the settlement	Yes, OHS management plan and ESMP should be prepared
75. Will the project interfere with the normal health and safety of the worker/employee/public?	Yes, health and safety will be a key consideration for employees and locals	Yes, OHS management plan should be prepared
76. Will the project introduce new practices and habits?	No	No
77. Will the project lead to child delinquency (school drop-outs, child abuse, child labour, etc.)?	If not monitored, the project may affect the kids schooling	No, but child labor management plan should be prepared
78. Will the project lead to gender disparity?	No, but need to be a key factor of consideration	No
79. Will the project lead to social evils (drug abuse, excessive alcohol consumption, crime, etc.)?	Yes, money attract social vices	Yes
<b>N. Historical, Archaeological, or cultural Heritage sites</b>		

80. Based on available sources, consultation with local Authorities, local knowledge and/ or observation could the project alter?	None	None
81. Historical heritage site(s) or require excavation near the same?	No	No
82. Archaeological heritage site(s) or require excavation near the same?	No	No
83. Cultural heritage site(s) or require excavation near the same	No	No
84. Graves or sacred locations or require excavation near the same?	No	No
<b>O. Result/Outcome of Environmental/ Social and Resettlement Screening Exercise</b>		
No Environment Impact Assessment Required		
Environment Impact Assessment Required	Yes. The project meets the EMCA schedule two projects and World Bank OP threshold for ESIA	
RAP category required (RAP/ARAP)	Yes	
<b>P: Authorization</b>		
Screening undertaken by: Charity Gathuthi	Signature 	
Designation..... <b>Sociologist</b>	Date: <b>05/02/2024</b>	
Approved by: <b>CHARLES</b>	Signature 	
Designation . <b>EHS COORDINATOR</b> .....	Date: <b>05/02/2024</b>	
PMU Confirmation by:	Signature.....	
.....		
Designation.....	Date.....	

**Summary of features of project and its location indicating the need for EIA**

The project entails improvement through subsequent construction of Road, Drainage, Water supply, and Street lighting infrastructures. The construction will cause resettlement and demolition of some structures, generate high level pollution in terms of noise and air, create discomfort and nuisance to locals, affect day to day business and livelihood activities, and if not well supervised may cause flooding and social vices. The project will also affect the downstream river and wetland where the settlement naturally drains its runoff. The ESIA will be needed for this project in order to propose mitigation measures to the foreseen project impacts and develop ESMP for the project



## Resettlement Policy Framework (RPF) Screening Checklist

Questions to be considered	Yes/No. Briefly Describe	Is this likely to result in a significant effect? Yes/No/? - why
<p>Brief Project Description the Misufini Settlement infrastructure upgrade project, part of the Kenya Informal Settlements Improvement Project II (KISIP 2), is a pivotal initiative aimed at enhancing living conditions in Jomvu Sub-County, Mombasa County. This comprehensive project focuses on improving key aspects such as 1442m of (road infrastructure, and storm water drainage systems), 3No high-mast street lighting, and water supply networks within the settlement. The endeavour aligns with broader regional development goals, aiming to foster community development, connectivity, and safety. However, recognizing potential environmental and social impacts, a thorough screening process has been initiated to assess the project's nature, magnitude, and compatibility with existing regulations. Stakeholder engagement and adherence to environmental safeguards form integral components of this screening, ensuring a holistic approach to sustainable development.</p>		
<b>A. Triggers to WB Safeguard Policies</b>		
1. Does the project trigger one or more of the WB Safeguard policies? Op 1.12	Yes, Falls in Category B of World Bank OP	Yes
<b>B. GoK Policies and Laws applicable</b>		
2. Does the project fall under/trigger any GoK Policies and Laws?	Yes, it triggers some Government Acts and Policies like Constitution of Kenya 2012, Labor Relation Act of 2012 among others	Yes
<b>C. Project Location</b>		
3. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project?	No	No
4. Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?	Yes, the project aims at improving the only existing infrastructures within the settlement. This will affect their accessibility	Yes, the project will affect the residents activities including their movement and businesses
5. Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?	No	No
6. Are there existing land uses on or around the location e.g. homes, gardens, private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining, or quarrying which could be affected by the project?	Yes, the project is located in a densely populated area with very many formal and informal settlements	Yes, some houses were demolished for the development but RAP is still ongoing

Questions to be considered	Yes/No. Briefly Describe	Is this likely to result in a significant effect? Yes/No/? - why
7. Are there any areas on or around the location which are densely populated or built up, which could be affected by the project?	Yes, the whole project area is densely populated with all areas built up	Yes, the population within the project location is very high
8. Are there any areas on or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities which could be affected by the project?	Yes. Churches, Mosques, hospitals, and schools will be affected by the project	Yes, plans need to developed before the project to ensure flow of services
9. Do people live on the proposed site?	Yes, It's a human settlement region	Yes, residents will be affected by the project
10. Do indigenous peoples live on or near the site?	Yes, it's a mix of indigenous and foreign people	No
11. Are there known archaeological, historical or other cultural property? Are any of these world heritage/ UNESCO designated etc.	No	No
<b>D. Socio-Economic Impact</b>		
12. Will the project entail resettlement of population?	Yes, KISIP 1 had identified the PAPs, most were settled, however, a portion of that population still remains	Yes, there is need for resettlement to allow for project implementation
13. Will the project affect People's property or livelihoods/income?	Yes, properties like houses, varandah and kibandas will be affected	Yes, there is a need to fast track the completion of the implementation of ARAP done
14. Will the project affect indigenous peoples?	Yes, the project will encourage urbanization.	Yes, it will give both positive and negative interactions
15. Will it limit access to natural resources to local populations?	No	No
16. Will it have an impact on land use?	No	No
17. Will it induce further encroachment of nearby areas?	No	No
18. Could cultural resources be affected?	No	No
19. Could it affect nearby properties?	Yes, transportation of materials and construction need to be well managed to prevent destruction of nearby roads and houses	Yes, traffic management plan for transportation of materials and construction should be developed
<b>E. Displacement Impacts</b>		
Will project include?		
20. Acquisition of private/community land?	No	No



Questions to be considered	Yes/No. Briefly Describe	Is this likely to result in a significant effect? Yes/No/? - why
21. Alienation of any type of government land including that owned by urban local body/community?	No	No
22. Clearance of encroachment from government/urban local body land?	No	No
23. Clearance of squatting from Government/Urban local body?	No	No
24. Number of structures, both authorized and/or unauthorized to be acquired/cleared?	Yes, structures will have be cleared	Yes, once the compensation is done, the structure can be cleared.
25. Number of household to be displaced?	Yes, 20 household will be displaced	Yes,
26. Details of village common properties to be alienated, Pasture land (acres) cremation /burial ground and others specify?	No	No
27. Describe existing land uses on and around the project area (e.g. Community facilities, agriculture, tourism, private property)?	Yes. Churches, Mosques, hospitals, and schools will be affected by the project	Yes, plans need to developed before the project to ensure flow of services
28. Are financial/in kind compensation measures expected to be needed?	No	No
<b>F. Loss of Assets, Crops, fruit, household infrastructure and livelihood</b>		
Will the project result in the permanent or temporary loss of		
29. Crops?	No,	No
30. Fruit trees/coconut palms? Specify with numbers	No	No
31. Household assets/infrastructure? Specify with numbers	No	No
32. Loss of agriculture land? specify with numbers	No	No
<b>G. Welfare , employment and gender</b>		
33. Is the project likely to provide local employment opportunities, including employment opportunities for women?	Yes, the project is likely to benefit both gender including the vulnerable groups	Yes
34. Is the project being planned with sufficient attention to local poverty alleviation objectives?	Yes, the project has aimed at recruiting most of the locals into the opportunities available	Yes, sensitization is being done through the local groups to allow them take advantage of the opportunities
35. Is the project being designed with sufficient local participation of women in the planning design and implementation process?	Yes, Women have been part of the project from technical team to the local committees	Yes, more sensitization continues

Questions to be considered	Yes/No. Briefly Describe	Is this likely to result in a significant effect? Yes/No/? - why
<b>H. Historical, Archaeological, or cultural Heritage sites</b>		
Based on available sources, consultation with local Authorities, local knowledge and/ or observation could the project alter?	No	No
36. Historical heritage site(s) or require excavation near the same?	No	No
37. Archaeological heritage site(s) or require excavation near the same?	No	No
38. Cultural heritage site(s) or require excavation near the same	No	No
39. Graves or sacred locations or require excavation near the same?	No	No
<b>I. Result/Outcome of Environmental/ Social and Resettlement Screening Exercise</b>		
RAP category required (RAP/ARAP)	ARAP	
Any special conditions		
<b>P: Authorization</b>		
<b>P: Authorization</b>		
Screening undertaken by: <b>Charity Gathuthi</b>	Signature: 	
Designation: Sociologist	Date: <b>05/02/2024</b>	
Approved by: Charles Muyembe	Signature: 	
Designation: Lead ESIA Expert	Date: <b>05/02/2024</b>	
PMU Confirmation by:.....	Signature.....	
Designation.....	Date.....	
<b>Summary of features of project and its location indicating the need for RAP</b>		
The proposed projects at Misufini settlement include access roads, associated drainage structures, water supply, and streetlights, security lighting. From, the assessment, the project will <b>require preparation of ARAP</b> , for 20 households who were identified during KISIP 1 but have never been compensated.		

**Appendix 3: Questionnaire**

COMMUNITY

### PUBLIC CONSULTATION AND PARTICIPATION QUESTIONNAIRE

Charles and Barker Ltd on behalf of the proponent, Second Kenya Informal Settlement Improvement Programme (KISIP 2), is undertaking public consultation on the proposed projects. KISIP plans to undertake settlements improvement projects in six settlements in Mombasa County. The Projects includes upgrading of marram roads, constructions of storm water drainage system and installation of high mast lights. Kindly spare time to respond to this questionnaire as part of due diligence for Environmental and Social Impact Assessment for these projects. The information provided shall only be used to prepare the said report for submission to NEMA for project Licensing.

Settlement... MISUFINI INFORMAL SETTLEMENT

#### Part one: Personal Details (Provide the personal details for NEMA authentication)

- a. Name of the Respondent Musabir Lelawa Lelawa  
b. Phone Number 075469 8153 c. ID Number 29675619  
d. Gender Male ☒ Female ☐ e. Occupation PORTER  
e. Highest level of Education

None ☐ Primary ☐ Secondary ☐ Tertiary ☐ University ☒

#### Part two: General Survey

1. Do you have any concerns arising from the proposed projects (road, drainage and high mast lights) construction and operation activities?  
Yes ☐ No ☒  
a. If yes, state the concerns N/A
2. Will the project have positive or negative impacts?  
Only positive impacts ☒ Only negative impacts ☐ Both positive and negative impacts ☐
3. What the positive impacts?  
NO MUD, THEREFORE ITS EASY TO ACCESS HOME
4. What are the negative impacts?  
N/A
5. In your opinion, how can the negative impacts mentioned be mitigated?

N/A

6. What is your preferred mode of transport in the area?

Walking ☐ Motorbike ☐ Vehicle ☒ Donkey ☐ Other (specify).....

7. Do you feel happy with the state of roads, storm water drainage and security lights in the area?

Yes ☒ No ☐

If no,

a. What are the main concerns with roads?

b. How can it be addressed?

c. What are the main concerns with storm water drainages?

d. How can it be addressed?

e. What are the concerns with the security lighting?

f. How can it be addressed?

8. Which road type would you prefer? Tarmac ☒ Marram ☐ Gravel ☐ Cubro ☐

9. Kindly list the types of solid wastes produced in your household/facility/office

USED PLASTIC BOTTLES, DAMAGED GABRAGES, STALE FOODS,

USED SYRINGES, BANDAGES, TABLE PAPER HOLDERS, BOTTLES

10. How do you dispose off the said wastes?

Collected by municipality ☐ Disposed to predefined landfill ☒ Wild disposal areas ☐

Disposed irregularly ☐ Burning ☒ Other (specify).....

11. What type of waste water system do you have in your household/facility/office?  
 Common sewerage system ☐ Septic tank ☐ Discharge directly to the neighborhoods ☒  
 Other (specify).....
12. What type of sanitation facility do you have in your household/facility/office?  
 Flush toilet ☐ Pour flush toilet ☒ Pit latrine ☒ other (specify).....
13. How do you access water?  
 MOWASSCO Piped ☒ Borehole ☐ Dams/Ocean ☐ Others (specify).....
14. What are the challenges faced concerning water supply?  
 PERIODIC WATER SUPPLY AND BURST OF PIPES DURING HOT SEASON
15. In your opinion, in the area safe at nights? Yes ☐ No ☒  
 a. If no, what should be done to enhance security?  
 STREET LIGHTS AND HIGH MAST LIGHTS TO BE CONSTRUCTED
16. Do you think the project will impact the culture heritage of the local population?  
 Yes ☐ No ☒  
 a. If yes, state the impacts  
 N/A
17. What are your expectations before, during and after the project implementation?  
 PUBLIC PARTICIPATION AND CONSULTATION
18. Do you support the projects implementation? Yes ☒ No ☐

Thank You!

Date 17/02/2020 Signature 

***Appendix 4: Attendance list***

**Appendix 5: *Minutes***



# **MINUTES OF THE PUBLIC PARTICIPATION MEETING FOR THE KISIP 2 PROJECT IN MISUFINI HELD ON 22<sup>ND</sup> MAY 2024.**

## **Attendance**

A full list of attendance is herewith attached.

## **Agenda**

- a) Introduction
- b) Overview of the project
- c) Discussions on the possible impacts of the project
- d) Way forward
- e) Adjournment

## **MINUTES**

MIN	DESCRIPTION	ACTION
1.0	<b>Introduction to the meeting</b>	
	<p>The SEC chairperson called the meeting to order at 12 Pm; followed by a word of prayer from a volunteer.</p> <p>The SEC chair proceeded with welcoming all participants to the meeting before formally introducing the consultant to the other participants. The participants were given an opportunity to introduce themselves together with the interests they were representing in the meeting.</p> <p>In his introductory remarks, the SEC chairperson acknowledged that the area is in need of the proposed project. He expressed gratitude to The County Government for helping this locality. Further, he thanked all the attendees for making time to be part of the meeting to discuss infrastructure issues in the area.</p>	
2.0	<b>Overview of the project</b>	
	<p>The consultant through the ESIA expert gave an overview of the project; detailing all the stages involved. He informed the meeting that KISIP 2 project is aimed at upgrading informal settlements, though road constructions, solid waste management, drainage systems and street lighting.</p> <p>The project will involve construction of roads, drainage systems, solid waste management and high mast street lights.</p> <p>He introduced the benefits and negative impacts of the project and left the other attendees to explore more on both positive and negative impacts of the project to them.</p>	
3.0	<b>Discussions on the possible impacts of the project</b>	
	<p>All the participants were already aware of the project. This was expected since the project is an important necessity, and has been anticipated by the locals.</p> <p>The bad road network system has impacted negatively to the residents as they are forced to use the poor roads in the settlement.</p> <p>The EIA team allowed the community to identify some of the possible Positive and negative impacts of the project to both the host community and the environment.</p>	

	<p><b>Positive impacts discussed</b></p> <p>The project has 100% support from the residents as they anticipate numerous benefits from its implementation. Some of the benefits or positive impacts mentioned in the view of the project implementation includes but not limited to;</p> <ul style="list-style-type: none"> <li>▪ Improved Road Infrastructure, Drainage and Solid Waste Collecting and Disposal</li> <li>▪ Public Health and Safety</li> <li>▪ There will be creation of employment across the project cycle,</li> <li>▪ The value of land within the surrounding areas will improve,</li> </ul> <p><b>Negative impacts discussed</b></p> <p>The community identified some of the negative impacts of the project that they perceive will face them. They include the following;</p> <ul style="list-style-type: none"> <li>✓ The construction of works will require machines that generate noise</li> <li>✓ Occupation health concerns will be high in the project area particularly during construction of the project.</li> <li>✓ As a result of influx of workers from outside to work on the project, there will be tendency of increased sexually transmitted diseases.</li> <li>✓ Air Pollution</li> <li>✓ Inadequate stakeholder Engagement and Exclusion of disadvantaged and vulnerable groups</li> </ul> <p><b>Proposed Mitigation measures</b></p> <p>The consultant took time to go through the concerns of the locals and addressing them by providing solutions for the anticipated impacts. Some of the mitigation measures were to;</p> <ul style="list-style-type: none"> <li>✓ Guiding and counselling within the project area;</li> <li>✓ Using locals in project implementation;</li> <li>✓ Ensure safety of the construction workers by putting first aid area and injury reporting mechanism;</li> <li>✓ Establish the appropriate safety measures in the O &amp; M manual for the operation phases;</li> </ul>	
<b>4.0</b>	<b>Way forward</b>	
	<p>The meeting unanimously resolved that the project should proceed to implementation since it is very important not only to them but to the entire sub county. This was however premised on the agreement that a few negative impacts identified will be mitigated upon.</p> <p>The compensation for the PAPS affected should be favourable unlike that facilitated for KISIP I. The locals highlighted that money received was not equivalent to the loss incurred.</p> <p>There should be clear communication once the money is disbursed.</p> <p>The residents demonstrated their approval to the project by lifting their hands.</p>	
<b>5.0</b>	<b>Adjournment</b>	
	There being no further business to be undertaken, the meeting was adjourned at 5PM by the SEC chairperson after a word of prayer from one of the participants.	

Minutes prepared by;

**Name: Saraphina Nasimiyu**

**Signature:**



**Minutes Veified By:**

**Gona Nzala; SEC Chair Misufini.**

***Appendix 5: Expert License***

FORM 5

(r. 14(4))

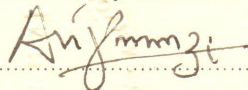
Application Reference No: 733  
Registration No: 1283  
FOR OFFICIAL USE



THE ENVIRONMENTAL MANAGEMENT AND COORDINATION ACT  
CERTIFICATE OF REGISTRATION AS AN ENVIRONMENTAL IMPACT  
ASSESSMENT/AUDIT EXPERT

This is to certify Ms. **MR. CHARLES L. MUYEMBE**  
of **P. O. BOX 18823 - 00100, NAIROBI** (Address)  
has been registered as an Environmental Impact Assessment Expert in accordance with the provisions  
of the Environment Management and Coordination Act and is authorized to practice in the capacity of  
a Lead Expert/Associate Expert/Firm of Experts (Type) **LEAD EXPERT**

Dated this 27<sup>TH</sup> day MARCH of 20. 07

Signature 

(Seal)

Director General  
The National Environmental Management Authority

GPK (L)



Tel: +254 20 6005522/3/7, 6001945  
Wireless: +254 20 210370  
Mobile: 0724 253 398, 0733 600 035  
Email: [dgnema@nema.go.ke](mailto:dgnema@nema.go.ke)

Popo Road, Off Mombasa Road  
P.O Box 67839-00200  
Nairobi, Kenya  
Website: [www.nema.go.ke](http://www.nema.go.ke)

NEMA/EIA/EL/27533

2024-05-23

Charles Muyembe

P.O. BOX 1784 - 00606 NAIROBI.

**RE: ACKNOWLEDGEMENT OF EXPERTS LICENSE APPLICATION.**

The National Environment Management Authority (NEMA) acknowledge receipt of your application for license as **Lead Expert** Environmental (Impact Assessment/Audit) expert.

The application reference is **NEMA/EIA/EL/27533**. The Authority will review and communicate the record of decision in due course through the email address provided in the online system.

**Annastacia Vyalu**

**HEAD OF EXPERT SECTION**

**Appendix 6: Photo Plate**





