REPUBLIC OF KENYA

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT SECOND KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT (KISIP 2)

CONSULTING SERVICES FOR INFRASTRUCTURE UPGRADING PLANS, DETAILED ENGINEERING DESIGNS AND PREPARATION OF PROCUREMENT DOCUMENTS AND CONSTRUCTION SUPERVISION OF INFRASTRUCTURE IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTIES OF NYERI, WAJIR, THARAKA-NITHI, AND MERU. (ONE CONTRACT).

ENVIRONMENTAL AND SOCIAL COMPREHNSIVE PROJECT REPORT FOR THE PROPOSED IMPROVEMENT WORKS IN BARWAQO INFORMAL SETTLEMENTS IN WAJIR COUNTY

CONSULTANT

gath CONSULTING ENGINEERS

In jv with

Losai Management Limited

APRIL, 2024

DOCUMENT CONTROL

PROPOSED IMPROVEMENT WORKS IN BARWAQO INFORMAL SETTLEMENTS IN WAJIR COUNTY

COMPREHENSIVE PROJECT REPORT-DRAFT

CLIENT

Chief Officer, Department for Lands, Housing, Physical Planning, Public Works and Urban Development (CO-LHPP&UP)

CONSULTANT

gath CONSULTING ENGINEERS	**In jv with**	Losai Management Limited

DOCUMENT TITLE:

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT COMPREHENSIVE PROJECT REPORT FOR THE PROPOSED INFRASTRUCTURE IMPROVEMENT WORKS IN BARWAQO INFORMAL SETTLEMENT WAJIR COUNTY

RECORDS FOR REVISION

VER.:	DATE:	DESCRIPTION:	PREPARED BY:	CHECKED BY:	APPROVED BY:
01	April, 2024	ESIA CPR Report	Losai Management/ Gath Consulting Engineers	Dr. S.C.	

SUBMISSION DETAILS

Certificate of Declaration and Document Authentication

This document has been prepared in accordance with the Environmental Management and Coordination Act (1999) and Environmental Management and Coordination (Amendment) Act 2015, Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019, KISIP 2 Environment and Social Management Framework (ESMF) and World Bank Operation Policies.

This project report is prepared for and on behalf of:

LEAD EXPERT/FIRM OF EXPERT-11481	PROPONENT
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DISCLAIMER:

This Environmental impact assessment comprehensive project report is based on literature review, consultations and findings from field assessment. It is however, subject to conditions in the Environmental Management and Coordination Act 2015, Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 and World Bank Operation Policies.

FACT SHEET

Program Name	Kenya Informal Settlement Improvement Project II (KISIP II)
Assignment Name	Consulting services for infrastructure upgrading plans, detailed engineering designs and preparation of procurement documents and construction supervision of infrastructure improvement works in selected informal settlements in the counties of Nyeri, Wajir, Tharaka-Nithi, and Meru (one contract).
Report Name	Environmental & social impact assessment comprehensive project report for the proposed improvement works in Barwaqo informal settlements in Wajir County
Lead Implementing Agency	County Government of Wajir
Financier	World Bank
Project Components	i. Street lights ii. 1.9 km of bitumen standards road
Project Cost	KES 112,311,749.05
Project Location	Barwaqo
Project Beneficiaries	Residents of Barwaqo informal settlement and surrounding environment
Lead Expert	Dr. Stephen Chege Wairuri Reg. No. 1580
Associate Expert	Lydiah Mbogo-Reg. Nr. 6007 Sarah Karanja

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ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AFD	French Agency for Development
BoQ	Bill of Quantities
BP	Bank Procedures
CIDP	County Integrated Development Plan
CBD	Convention on Biological Diversity
CCA	Climate Change Act
CLO	Community Liaison Officer
COC	Code of Conduct
CPR	Comprehensive Project Report
EA	Environmental Audit
EIA	Environmental Impact Assessment
EMCA	Environment Management and Coordination Act
ESIA	Environment and Social Impact Assessment
ESMMP	Environment Social Management and Monitoring Plan
ESMF	Environment and Social Management Framework
GIS	Geographic Information System
GBV	Gender Based Violence
GHG	Greenhouse Gases
GoK	Government of Kenya
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Services
HIV	Human Immunodeficiency Virus
HSE	Health Safety and Environment
IDA	International Development Association
IP	Indigenous People
KISIP	Kenya Informal Settlement Improvement Project
MEA	Multilateral Environmental Agreement
MLPWHUD	Ministry of Lands, Public Works, Housing and Urban Development
MSDS	Material Safety Data Sheets
NDCs	Nationally Determined Contributions
NEAP	National Environment Action Plan
NEMA	National Environment Management Authority
NGEC	National Gender and Equality Commission

NP	Pression Nominal
PVC	Polyvinyl Chloride
OHS	Occupational Health and Safety
OP	Operation Policies
OSHA	Occupational Safety and Health Act
PPE	Personal Protective Equipment
PLWD	Person Living With Disabilities
RAP	Resettlement Action Plan
SDGs	Sustainable Development Goals
SEAH	Sexual Exploitation Abuse and Harassment
SGBV	Sexual Gender Based Violence
SOPs	Standard Operation Procedures
STD	Sexually Transmitted Diseases
UNESCO	United Nations Educational, Scientific and Cultural Organization.
UNFCCC	United Nations Framework Convention on Climate Change
VMGP	Vulnerable Marginalized Groups Plan
WAJWASCO	Wajir Water and Sanitation Company
WHO	World Health Organisation
WIBA	Work Injury Benefit Act
WRA	Water Resource Authority

EXECUTIVE SUMMARY

E.1 Project Background

The Government of Kenya received credit facility from the World Bank through International Development Association (IDA) and Agence Française de Développement (AFD) towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP II) whose primary goal is to improve living conditions in informal settlements in selected towns in Kenya. The objective of the assignment is to prepare infrastructure upgrading plans, detailed engineering designs, procurement documents, resettlement action plan (RAP) and environmental and social impact assessment (ESIA) reports; and supervision of infrastructure construction works in selected informal settlements in Nyeri, Tharaka Nithi, Meru and Wajir Counties.

The Principal Secretary, State Department of Housing and Urban Development, Ministry of Lands, Public Works, Housing and Urban Development Second Kenya Informal Settlements Improvement Project (KISIP 2) has appointed Losai Management Limited in JV with Gath Consulting Engineers Ltd to provide Consultancy services for Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents and Construction Supervision of Infrastructure Improvement Works in Selected Informal Settlements in Nyeri, Wajir, Tharaka-Nithi and Meru Counties

The Environmental Management and Coordination (Impact Assessment and Audit) Regulations, 2019 stipulates that either Comprehensive or Summary Environmental and social Impact Assessment (ESIA) Project Reports should be prepared for low and medium risk projects listed in the Second Schedule. The proposed project interventions in Barwaqo Informal settlement falls in the Category 2 of Medium Risk Projects under the Environmental Management and Coordination Act (Amendment), 2019. In addition, as a World Bank funded project, OP 4.01 was considered where the project falls under Category B (Impacts are less adverse than Category A). In view of this, a Comprehensive Project Report for the proposed improvement of Barwaqo Informal Settlement has been prepared.

World Bank's OP 4.11 (Physical and Cultural Resources) and OP 4.12 (Involuntary Resettlement were also considered. These fed into the screening of the project. Although the project will not threaten cultural or historic heritage, a Chance Finds Procedure has been prepared just in case a unique artefact is discovered during excavations. The project will be implemented on public land and way leaves, thus, no resettlement.

E.2 Scope of the prioritized works

The scope of construction works proposed for Barwaqo informal settlement involves construction of:

Table E2.1: Proposed Works

SN	INTERVENTION	COMPONENTS
1.	Road	

	Barwaqo Road 1	i. 460 meters. ii. 6.0m wide road with. iii. 1.5m footpath. iv. 1.5m for storm water drainage v. The road is on slightly flat terrain with an elevation drop of less than 1m
	Barwaqo Road 2	i. 1500 meters ii. 6.0m carriage way iii. A 1.5m foot path that's over a concrete lined drainage channel. iv. The road is on slightly flat terrain with an elevation drop of less than 1m
2	Streetlights	I. Streets Light will be provided at intervals of 40m

E.3 Project Cost

The total cost for the proposed upgrading works is **KES 112,311,749.05.**

Table E3.1: Project cost

Item	Cost in KES
Roads and drainage	103,823,182
PNG	4,476,900.89
Environmental and Social Aspects	4,011,666
Total	**112,311,749.05**

E.4 Project Components

The proposed project will comprise the following four components.

Component 1 (Integrated Settlement Upgrading): Two main interventions have been identified under this component: (i) tenure regularization; and (ii) infrastructure upgrading.

Component 2 (Socio-Economic Inclusion Planning): This component will support the development of community-level socio-economic plans. The plans intend to identify together with the communities their socio-economic needs and then address how best the needs can be met.

Component 3 (Institutional Capacity Development for Slum Upgrading): The Project will support institutional and policy development at national and county levels.

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

E.5 Rationale for Environmental and Social Impact Assessment

The Environmental and Social Impact Assessment (ESIA) study was carried out to identify both negative and positive impacts of the proposed improvement project for Barwaqo informal settlement and formulate an Environmental and Social Management Plan (ESMP). This would guide the decision and policy makers on appropriate ways to handle the pertinent environmental and social issues that emerge during the project lifecycle.

The main objective of the ESIA study was to predict, assess, and analyse the possible positive and significant negative environmental and social impacts that are expected during the design, construction, operation, and decommissioning phases of the project. This was done with the aim of proposing mitigation measures for the significant negative impacts. This is in line with ensuring that the development does not impact negatively on the environment in terms of the social, health, economic and physical state of the project area.

The specific objectives were to:

- Identify all potential significant adverse environmental and social impacts of the proposed development and recommend mitigation measures.
- Ensure compliance with the environmental regulations and industry standards.
- Collect baseline data for monitoring and evaluation of the success of the mitigation measures implemented during the project life cycle.
- Recommend cost-effective measures to be implemented to mitigate against the expectedadverse impacts.
- Provide guidelines to stakeholders participating in the mitigation of adverse social impacts of the project.
- Prepare an Environmental Impact Assessment Study report compliant with the regulations and detailing findings and recommendations.

E.6 Terms of Reference

In accordance with the Terms of Reference, the following scope has been defined for this ESIA.

i. Clear description of the physical location and linkages of the project including the baseline conditions of the project area.
ii. A description of the project characteristics including project objectives, project design, activities, technology, procedures and processes, materials to be used, Products, by-products and waste generated, during the project construction, operation and de-commissioning phases.
iii. A description of the national environmental legislative and regulatory framework, baseline information and any other relevant information related to the project.
iv. The potential environmental effect of the project, including the social and cultural effects and the direct, indirect, cumulative, irreversible, short-term, and long-term effects anticipated.
v. Project alternative analysis including locations, technologies, or process available, analysis of alternatives, and reasons for preferring the proposed option.

vi. An environmental management and monitoring plan outlaying the activities, associated impacts, mitigation measures, monitoring indicators, implementation timeframes, responsibilities, and cost; Environmental Impact Assessment (ESIA)
vii. An Action Plan for the prevention and management of foreseeable accidents and hazardous activities in the cause of carrying out activities.
viii. Measures to prevent health hazards and to ensure security in the working environment for the employees and for the management of emergencies.
ix. Conclusions, recommendations and identification of gaps and uncertainties which were encountered in compiling the report.

E.7 Policy, Legal and Administrative Framework

The main legislation that governs environmental management in Kenya is the Environmental Management & Coordination (Amended) Act of 2015 typically referred to as EMCA. EMCA calls for environmental impact assessment (EIA) (under Section 58) to guide the implementation of environmentally sound decisions and empowers stakeholders to participate in sustainable management of the natural resources. Part V from Sections 42 – 57 deals with Protection and Conservation of the Environment while Part VI deals with Integrated Environmental Impact Assessment. Projects likely to cause environmental impacts require that an environmental and social impact assessment study to be carried out. It is under this provision that the current study has been undertaken because Legal Notice No, 32 and 34 of April 19, 2019 places the proposed interventions under the Medium-Risk Category requiring the preparation of a comprehensive project report.

The other relevant legislation applied during this assessment are the regulations borne of EMCA Cap 387 namely the Environmental Impact Assessment and Audit Regulations (Amendment)2019, the Environmental Management and Co-ordination (Water Quality) Regulations 2006, the Environmental Management Co-ordination Act (Wetlands, River Banks, Lake Shore and Sea Shoe Management) Regulations 2009; the Environmental Management Coordination (Noise and Excessive Vibration Pollution Control) Regulations 2009; and the Environmental Management and Co-ordination (Conservation of Biological Diversity Resource Access to Genetic Resource and Benefit Sharing l) Regulations2006, (Legal Notice 61), Air quality Regulations 2013 among others.

The other sectorial policies applicable to this project includes the, Kenya Vision 2030, the National Environment Action Policy (NEAP) 2013, National Land Policy, National Climate Change Response Strategy, 2010, The National Poverty Eradication Plan, Water Act, 2016, Penal Code CAP 63, County Government Act No. 17 of 2012, Occupational Health and Safety Act (OSHA 2007), The Kenya Roads Act 2007, Traffic Act, Chapter 403, Public Road and Road of Access Act Cap 399, Forest Act ,2016, Land Act 2012, The Kenya Road Act 2007, the Physical and Land Use Planning act 2019, The Public Health Act (CAP.242), Climate Change Act 2016, Employment Act, 2007, HIV and AIDS Prevention and Control Act 2011, Sexual and Gender Based Violence (SGBV) of 2017, The National Museum and Heritage Act 2006, The Education Gender Policy, National Gender and Equality Act , Environmental and Land Court Act 2011

Child Rights Act (Amendment Bill) 2014, Work Injury Benefits Act (WIBA), Labor Relations Act 2012, National Gender and Equality Commission Act 2011 amongst others.

In addition to the legislation, the World Bank Operational Safeguards policies that applicable to the project include: OP/BP 4.01 Environmental Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.10 Indigenous People, OP/BP 4.11 Physical Cultural Resources, OP/BP 4.12 Involuntary Resettlement, World Bank Policy on Access to Information 2015, World Bank Group Environmental, Health and Safety (EHS) General Guideline.

E.8 Highlights of Stakeholder Consultations

Environmental Impact Assessment/Audit Regulations 2019 requires a project proponent to seek the views of persons/communities that may be affected by the project to be consulted, at least explain project potential impacts, and obtain oral/written comments, which shall be included in the Environmental Social Impact Assessment (ESIA) for implementation by the proponent.

Key stakeholder meeting and a public baraza was held in October 2023 at Barwaqo Market, to sensitize the members of the public about the proposed project, explain anticipated impacts and mitigation measures as well as get their views regarding the proposed interventions. Key Informants were also interviewed to elicit technical information due to the vast expertise they possess. The outcomes and responses are captured in the following section.

A consultation meeting was held on October 11, 2023, at Barwaqo Market where the following stakeholders were present.

- Area chief Area residents and
- villager elders
- Ward administrator
- Landowner's representatives
- KISIP 2 National team
- KISIP 2 County team
- Businessmen/women
- Window/widower
- Landlords/land ladies
- People living with disabilities
- Tenants' representatives

Table E8.1: List of Participants

Meeting Date- October 11,2023	
List of participants	**Number**
Male	24
Female	4
Total participants	28

Gathering the residents to the meeting venue was undertaken through the close coordination of the KISIP county coordinator together with the local administrator (chief and ward administrator). Communication on the date, venue and purpose of the meeting was done a week prior to the actual date of the meeting.

The discussion including project information was discussed in Kiswahili and Boran/Somali languages to ensure the community understood the project scope, objectives and anticipated impacts in all project phases

Outcomes of the meeting

- Project information was disclosed to the communities by the KISIP project coordination and County teams;
- The project team was introduced to the community;
- The Settlement Executive Committee (SEC) and Grievance Redress Committee (GRC) were selected; and
- Priority projects for the informal settlement were selected.

In addition, a structured questionnaire was also administered to the members of public on January 16, 2023 to solicit views regarding the project as well as its design. The questionnaire initially gave introduction and created awareness to the respondents regarding the project. Afterwards, questionnaire enquired on acceptance of the project, rating of the current infrastructures, anticipated project impacts, suggested mitigation measures as well as any suggestions and recommendations. A summary of concerns and suggestions raised by the community are presented in the table E8.2 below.

Table E8.2: Stakeholder comments and responses

Comment		Response
Status of Infrastructure	Majority of the residents highlighted the water, sanitation, security lighting, solid waste management road infrastructures were in poor conditions.	The main aim of the proposed project is to improve access to basic services for residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya.
Road challenges	The residents highlighted the following road challenges: • The roads are bushy • The roads are dusty • The reads have poor drainages • The roads are full of potholes • The roads lack road signs • The roads are narrow	The project will involve upgrading of the roads and the challenges highlighted will be considered during the design phase.

Comment		Response
Positive impacts.	The positive impacts that will be associated with the project as highlighted by the residents will include but not limited to • The Project will improve roads and security lighting infrastructures. • The Project will improve security. • Improve accessibility. • The project will create employment and lead to improved standards of living. • Lead to improved road drainages • Improved roads will result in easier transportation of goods and services	The project will ensure the community positively benefits from the project positive benefits
Anticipated Negative impacts.	The negative impacts that will be associated with the project as highlighted by the residents included: • Project will lead to air and noise pollution • The project may result in land degradation • Poor drainages from construction waste • Open trenches may result in breeding sites for mosquitoes as a result of stagnant water • Destruction of property • Pollution of water bodies • Traffic congestion • Waste generation • Inaccessibility of shops and home entrances	Mitigation measures will be developed to minimize the negative impacts while ensuring the positive impacts benefits both the community and the environment.

Comment		Response
Mitigation measures for the negative impacts	The residents highlighted some of the suggestions and recommendations to mitigate the impacts as highlighted below: • The residents recommended the carrying out of Environmental Social Impact Assessment to develop mitigation measures • The project should consider using sustainable and durable materials • The project team should ensure proper drainage by ensuring proper disposal of waste • The Contractor should ensure they carry out the construction works at the marked sites to prevent destruction of property • Proper traffic management on all sites • Noise levels at the construction site boundary should be kept within acceptable limits of 60 dB(A) during the day and 35 dB(A) during the night as stipulated within the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009; • Dust suppression should be carried out to prevent air pollution • Machinery and vehicles should be well serviced and maintained to control emission of fumes.	The mitigation measures highlighted will be implemented during project implementation period. An ESMMP highlighting project impacts and mitigation measures will be developed. These mitigation measures aim to address the specific concerns identified and create a more positive and effective environment for the implementation of the Project.

Comment		Response
	• Provision of access bridges at home and shop entrances during the construction period	
Project Support and Awareness	Majority of the respondent acknowledged their awareness of the project and expressed their commitment to supporting the project throughout its implementation phase. They emphasized the need to ensure continuous community engagement through all project phases	
Suggestions and recommendations	The residents highlighted some of the recommendations for **the** project as highlighted below: • The team should ensure the roads are constructed with the right specification and standards • The project team should provide clear and well labelled road signs • The local community should be given first priority on the Job opportunities • Continuous community engagement throughout all stages of the project	The project team will take into consideration the suggestions and recommendations. The community will be engaged in all project phases.

The main key informants targeted in the consultations were both Government and private institutions operating within the project area. Listening to stakeholder concerns and feedback is a valuable source of information that can improve project design and outcomes and help in identifying any impacts.

A structured questionnaire was administered to the key stakeholders in January 18, 2024 to solicit views regarding the project as well as its design. The interview was conducted face to face with the key stakeholders and in their respective offices

Table E8.3-List of KII consulted

Name	Designation
Mohammed Bashey	Environmental Officer

Name	Designation
Ibrahim Ahmed Osman	Deputy sub-county Admin
Edward Mucheru	Assistant Director physical planning
Emmanuel Ngwene	Assistant County Commissioner

The questionnaire initially gave introduction and created awareness to the respondents regarding the project. Afterwards, questionnaire enquired on acceptance of the project and rating of the current status of the roads and anticipated negative impacts and suggested mitigation measures as well as any suggestions and recommendations. The summary of the output from the stakeholder's questionnaires is discussed below:

Table E8.4: Summary of the Key Stakeholder Interviews and engagement

Name	Designation	Comments	Response
Mohammed Bashey	Environmental Officer	The project is likely to cause loss of biodiversity	• A screening exercise was conducted and minimal loss of vegetation is expected. • The project will also not affect any wildlife during project construction
		There is concern the project will result in the displacement of people affect historical or cultural heritage within the settlement	• A screening exercise had been carried out and it was noted the project will not result in the physical displacement of people within the project area • The works will be carried out along the existing road reserves.
		There is concern the project will result in the destruction of property and deforestation	• A screening exercise had been carried out and it was noted the project will not result in the destruction of property. The works will be carried out along the existing road reserves. • The Project team will ensure the project routes are clearly marked to minimize and prevent loss of vegetation
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's

Name	Designation	Comments	Response
			office and other stakeholders identified in the settlement.
		The Contractor should ensure dust suppression is carried out on site	• The Contractor shall ensure carry out dust suppression by sprinkling water especially the dry and windy seasons • The Contractor shall also ensure minimal clearing of vegetation within the proposed sites
		Concern the project may affect hydrogeological/ surface water	• The Contractor will develop a waste management plan to ensure project site waste is disposed off at designated sites. • Measures will be put in place to prevent pollution of surface and underground water.
		The Contractor should adhere to the conditions laid out in the ESIA reports	• The Consultant will supervise works to ensure the Contractor complies with the laid out conditions.
		The project should be implemented in central businesses district which has a higher population and economic mass	• The proposed sites are viable since they will benefit a large number of people within the settlement • There will be other project Lots to ensure a larger population benefits from the project.
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility and transportation within the settlement due to good roads • Improved security • Creation of employment	

Name	Designation	Comments	Response
Ibrahim Ahmed Osman	Deputy sub-county Admin	There is concern over people who have encroached along the road reserves and may lead to project delay	• A screening exercise had been carried out and it was noted the project will not result in the destruction of property. The works will be carried out along the existing road reserves.
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's office and other stakeholders identified in the settlement.
		Enough drainages and culverts should be considered to avoid water retention and flooding in the settlement	• The project scope involves construction of drainages within the settlement
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility to the markets, hospitals, schools and emergency services • The community members will be able to engage in longer working hours due to availability of security lights • Improved security • Creation of employment	
Edward Mucheru	Assistant Director physical planning	The project will result in negative impacts such as: • Noise pollution • Environmental degradation • Oil spillage	• Measure will be put in place to mitigate the impacts • A CESMP will be developed to serve as a tool for monitoring and mitigating the impacts
		The project is likely to pollute shallow wells through over exploitation of water resources	• Sustainable use of water will be adhered to and the Contractor

Name	Designation	Comments	Response
			will comply with relevant laws and regulations
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility • Improved security • Creation of employment • Reduced flooding due to improved drainages	
Emmanuel Ngwene	Assistant County Commissioner	The project may affect land use in the area. The project team should align the project activities with the areas cultural norms and believes	• The project team will align the project activities with the areas cultural norms and believes
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's office and other stakeholders identified in the settlement.
		Job opportunities should be given to the local people	There will be recruitment of both skilled and non-skilled labour during the project construction period. The project team will ensure first priority especially on the non-skilled labour is given to the local people
		The proposed project is a good initiative that will lead to: • Improved infrastructure • Creation of employment • Improved economy of the area • Reduced respiratory diseases due to improved roads	

E.9 Project Impacts

Assessment of project impacts was based on analysis of the proposed project components and existing environmental conditions. The impacts arising during each of the phases of the proposed development namely construction, operation and decommissioning, can be categorized into:

- Impacts on biophysical environment;
- Health and safety impacts; and
- Social-economic impacts

Sections E-9.1 to E-9.5 below provide a summary of the project impacts both positive and negative discussed in this report.

E-.9.1 Positive Impacts

The project is envisaged to have positive impacts after completion of the civil works and commissioning. A summary of anticipated positive impacts of the Project include:

- **Employment opportunities**: Construction activities for this project road will have employment opportunities for workers at the national and the local community levels. The contractor will require skilled, semi-skilled and unskilled labour force to undertake various activities. Skilled labour will be required especially in the final design interpretation and supervision of construction works. Manual work will be required during enabling works (clearing the right-of-way, material loading and delivery, moulding works among others). Some of the equipment likely to be deployed on site include excavators, wheel loaders, graders, rollers, tippers, and water bowsers. Truck drivers, machine operators, site agent, foreman, security personnel among others form part of the skilled manpower that may be hired.
- **Business opportunities for local suppliers and services:** The road construction activities involve a capital expenditure that requires a range of inputs comprising of machinery/plant and spares for plant and machinery, tires for plant and machinery, gabions, concrete additives, reinforcement bars, posts and other consumables (wood formwork, bricks, cement, sand, aggregate, oils and lubricants) among others.
- **Knowledge and skill transfer**: Majority of rural residents in the project area will be witnessing construction of bitumen road for the first time in the region. Through staff interaction, the locals employed in the project will have an opportunity to learn from some of the specialized skilled and semi-skilled personnel that will be involved during the project construction. This may enhance their knowledge in construction of Bitumen standard roads and associated facilities and their ability to access similar opportunities in future even beyond the counties
- **Increased local income**: The local community may get extra income from the sale of construction materials from their firms and also renting spaces for camp sites

- **Economic growth**: Through the use of locally available materials during the construction phase for example cement and others; the project shall contribute towards growth of the country's economy by contributing to the gross domestic product. The consumption of these materials, oil, fuel and others shall attract taxes
- **Injection of money into the local economy:** A large sum of the project money shall be released into the local economy due to the construction activities. It is envisaged that during construction a large number of activities shall take place.
- **Improved transport and economy of the people:** The road will facilitate easy transportation within the project area as well as increasing communication among the communities within the settlement;
- **Reduced vehicle operation cost:** The reduced vehicle operating and maintenance costs due to improvement of the riding quality and surface of the road compared to the current road situation greatly enhances accessibility to basic facilities, for the local communities
- **Security**: There will be enhanced security in the Barwaqo informal settlement arising from well-lit social, commercial and individual premises. With the implementation of the project, the level of security will increase across Barwaqo informal settlement. This is as a result of the installation of the high mast flood light which helps keep off opportunistic crimes and gender based violence.
- **Improved road connectivity within** Barwaqo will not only open this settlement but it will also elevate and improve the livelihoods of the resident communities living in the settlement.
- **Improvement in gender parity:** It is envisaged that the upgrading of the road will improve availability and accessibility to social amenities, such as schools. Thus, women will have access to improved education facilities thereby enabling women to compete on an equal footing with men. The improved road will enhance service delivery including improved health services where the women will benefit greatly.
- **Economic and social value addition to the project's local area of influence**- There exists a close relationship between transport infrastructure and primary production (agriculture, animal husbandry, fishing, forestry and mining). Without transport access, much of primary production is not feasible. Availability of transport infrastructure attracts not only traders and transporters, but also agricultural, animal husbandry and other extension services. Equally important, improved access also impacts on education, health and other social services, which are essential for social and economic development.
- **Improved response to emergencies and humanitarian aid**- The improved road is expected to aid in rapid response to emergencies which will in turn save human lives and livestock. It will be possible to quickly deploy security officers to attend to any emergency.
- **Site Area Infrastructure**: The project is going to enhance development of project area infrastructure that is going to improve livelihood of the project area residents
- **Reduced travel time and cost**: The development of the project road will reduce travel time and cost associated with the current poor road conditions. Paving the project road will improve travel

experience by reducing the travel time for users. The cost of travel is deemed to decline with reduced wear and tear due to the paved conditions. This will trickle down to reduced cost of living (access to social and economic services) within the project area

- **Improved health benefits**: The health benefits associated with the proposed road at operation phase include: Improved access to health facilities and health services especially for pregnant women during labour, improved traveling experience especially for the aged who previously suffered joint, back and head injuries when traveling on the rough roads amongst others.

E-9.2 Negative Impacts during the Pre-construction Phase and proposed Mitigation measures

Potential Impacts	Management Actions
Vegetation Cover destruction	• Reinstatement of the project sites to their original after completion of civil and road works • All hedges damaged during construction to be reinstated after completion of the Works • The contractor to adhere to the delineated construction work area. Planting of grass along the way leave and Pipeline friendly tree to be grown after construction
Generation of Solid waste	• Maximum reuse of excavated material. • Implementation of Soil erosion management in the spoil locations • Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to appropriately Contractor's Camps and Construction Sites to have designated waste collection points,
Removal of vegetation	• The contractor to adhere to the proposed soil conservation practices. • Proper and compacted back filling. • The contractor to stick to clear delineation of the construction to avoid vegetation loss. • Planting of vegetation cover along the pipeline way leave • Split compacted area to reduce runoff & re-vegetate where necessary. • Vehicles to be kept in designated access roads.

	• Minimize compaction during stockpiling by placing soil in dry state. • Any polluted soil should be handled with care for proper disposal. • Excavation materials to be stockpiled at the demarcated location. • Rehabilitation of the site after construction
Anxiety among residents	• Sensitization that the project will be implemented on public land and way leaves. • Representation of all stakeholders in Settlement Executive Committee and Grievance Redress Committee. • Maintaining an open-door policy by the proponent such that any query is addressed without undue delay. • Giving complete timelines for the project activities.

E-9.3 Negative Impacts during construction phase and Recommended Mitigation Measures

Potential Impacts	Management Actions
Environmental Impacts	
• Noise and excessive vibrations	• Contractor shall comply with provisions of Environmental Management Coordination Act (EMCA) (Noise and Excessive Vibrations) Regulations of 2009. • The Contractor shall keep noise level within acceptable limits (60dBA for sensitive locations (residential, educational, health institutions etc.) and 75 dBA for other areas during the day 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 and residential shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity; • Undertake Noise and Vibration Assessments;
• Air pollution and dust generation	• The contractor to comply the provisions of Environmental Management Coordination Act EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer; • Workers shall be trained on management of air pollution from vehicles and machinery. • All construction machinery shall be maintained and serviced in accordance with the manufacturers' specifications;

Potential Impacts	Management Actions
	• The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible • The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds; • Vehicles delivering construction materials and vehicles hauling excavated materials shall be covered to reduce spills and windblown dust;
• Vegetation Cover destruction	• Reinstatement of the project sites to their original after completion of civil and road works • All hedges damaged during construction to be reinstated after completion of the Works • The contractor to adhere to the delineated construction work area. • Planting of grass along the way leave after construction
• Generation of Solid waste	• Maximum reuse of excavated material. • Implementation of Soil erosion management in the spoil locations • Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to appropriately • Contractor's Camps and Construction Sites to have designated waste collection points,
• Removal of vegetation	• The contractor to adhere to the proposed soil conservation practices. • Proper and compacted back filling. • The contractor to stick to clear delineation of the construction to avoid vegetation loss. • Planting of vegetation cover along the way leave • Split compacted area to reduce runoff & re-vegetate where necessary • Vehicles to be kept in designated access roads. • Minimize compaction during stockpiling by placing soil in dry state • Any polluted soil should be handled with care for proper disposal. • Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards • Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills. • Excavation materials to be stock piled at the demarcated location. • Rehabilitation of the site after construction
• Impact on soil	• Storing of fuels, oils and chemicals beneath impermeable away from surface drains • The machines to be properly serviced offsite and maintained to avoid spillage of effluents into the water bodies

Potential Impacts	Management Actions
	• Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies. • Prompt action to be taken by the contractor in case of any pollution incident.
• Accidental Oil and fuel Spills and Leaks	• Checking and regular servicing of Equipment. • Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures. • Provision of a 20cm layer of sand and ballast at the machinery storage area and diesel tank section, this layer act as sink to potential oil spills and shall be replaced when saturated. • Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.
• Loss of temporary assets and sources of livelihood	• No anticipated displacement was identified during social screening studies undertaken during the Environmental Social Impact Assessment (ESIA) • Any displacement that may be identified during construction to be dealt with on case by case basis
Social Impacts	
• Disruption of public utilities	• Contractor to carry out piloting to locate services such as pipes and cables along the Route before commencing excavation works. • Length of excavation to be restricted to sections that can be reinstated within the shortest period possible to minimize time of disruption of services. • Consultation and liaison with the various service providers shall be undertaken throughout the project life.
• Increased Transmission of HIV/AIDS	• Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS and sexual health and rights through staff training, awareness campaigns, multimedia and workshops or during community Barazas. • Use existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members • Ensure safety of women and girls in provision of VCT services.
• Human Rights Principles and Gender Inclusivity	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Comply to provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender inclusivity
• Increased crime and insecurity	• Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.

Potential Impacts	Management Actions
	• Contractor to provide 24 hours' security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices
• Increased GBV	• The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse • The contractor shall implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: - effective and on-going community engagement and consultation, particularly with women and girls; - Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc. • Ensure clear human resources policy against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee Code Of Conduct (COC) • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc. • The contractor shall ensure adequate referral mechanisms are in place if a case of Gender Based Violence (GBV) at the community level
• Sexual Exploitation and Abuse by project workers against community members	• Develop and implement a Sexual Exploitation and Abuse (SEA) action plan with an Accountability and Response Framework as part of the C-ESMP. The Sexual Exploitation and Abuse (SEA) action plan shall follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). • The Sexual Exploitation and Abuse (SEA) action plan shall include how the project shall ensure necessary steps are in place for: - Prevention of Sexual Exploitation and Abuse (SEA): including Code of Conduct (COCs) and ongoing sensitization of staff on responsibilities related to the Code of Conduct (COCs) and consequences of non-compliance; project-level IEC materials; - Response to Sexual Exploitation and Abuse (SEA): including survivor-cantered coordinated multi-sectoral referral and assistance to complainants

Potential Impacts	Management Actions
	according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; - Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard Grievance Redress Mechanism (GRM); mainstreaming of Prevention of Sexual Exploitation and Abuse (PSEA) awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their Prevention of Sexual Exploitation and Abuse (PSEA) -related rights; • Management and Coordination: including integration of Sexual Exploitation and Abuse (SEA) in job descriptions, employment contracts, performance appraisal systems, etc.; development of contract policies related to Sexual Exploitation and Abuse (SEA), including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated Prevention of Sexual Exploitation and Abuse (PSEA) focal points in the project and trained community liaison officers.
• Labour influx and sexual offences to minors	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour • Fair treatment, non-discrimination, and equal opportunity of workers.
• Child labour and protection	• The contractor shall develop and implement a Children Protection Strategy that shall ensures minors are protected against negative impacts associated by the Project including Sexual Exploitation and Abuse (SEA). • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour • Children under the age of 18 years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014 • Wherever possible, ensure that another adult is present when working in the proximity of children. • Not invite unaccompanied children to worker's home, unless they are at immediate risk of injury or in physical danger. • Refrain from physical punishment or discipline of children
Health and Safety Impacts	

Potential Impacts	Management Actions
• Risk of accidents at work site	• Construction Workers and the Supervising Team to be provided with Personal Protective Equipment including gloves, gumboots, overalls and helmets. Use of Personal Protective Equipment (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 for access by the local communities during the construction for their safety and health • Camps and Work Sites to be fenced off and Security Guards provided to restrict access to members of the public. • Strict use of warning signage and tapes where the trenches are open and at other active construction sites
• Traffic congestion • Traffic related accidents	• The contractor shall develop a traffic management plan; • The Contractor should provide temporary road signs or notices to indicate ongoing works; • The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods;

E-9.4 Negative Impacts during operation phase and Recommended Mitigation Measures

Potential Impacts	Management Actions
Social Impacts	
Risk of vandalism of the street lights	• This shall require constant inspection by County Government Officials • Conduct public sensitization programs on importance not interfering with the street lights
Risk of encroachment and construction of structures on the reserve way leave	• Arrest and prosecution of encroachers as required by Wajir County • County Bylaws on Way Leaves and Road Reserves • County Government to undertake awareness campaigns aimed at preventing encroachment
Environmental Impacts	
Pollution of water and soils	• Blockages should be detected and promptly replaced; • Provide high risk areas with appropriate drainage for effective channelling of storm water

Potential Impacts	Management Actions
Visual and landscape impact management	• Elaborate landscaping and maintenance of these sites can limit the viewpoints to the facilities and thus reduce their visual impact.
Health and Safety Impacts	
Health and Safety Risks	• Activate a community watch group for information sharing on the status of the street lights • Provide PPES during inspections of the roads

E-9.5 Negative Impacts during decommissioning phase and Recommended Mitigation Measures

Potential Impacts	Management Actions
Environmental Impacts	
Solid Waste Generation	• All removed materials that shall not be used for other purposes must be removed and recycled/reused as far as possible;
	• Where recycling/reuse of the removed materials and other demolition waste is not possible; the materials should be taken to a licensed waste disposal site or arrangements made with the County Government;
	• Donate reusable demolition waste to charitable organizations, individuals and institutions;
Noise pollution	• Prepare a decommissioning plan to guide activities;
	• Monitor noise levels as per the NEMA Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007;
	• The noise emission characteristics should be considered during selection and mobilization of decommissioning equipment; and • Sensitize staff to switch off machinery and vehicles when not in use;
Health and Safety Impacts	
Occupational Health and Safety	• Provide the correct PPE for the workers when conducting the demolition activities; • Conduct training on health and safety procedures to the workers prior to commencement of demolition; • Proper plans should be made prior to demolition so as to contain the raw sewage and other waste water that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.

E.10 Environmental and social management and monitoring plan

An ESMP has been developed whose pursuit can greatly improve the overall net effect of the project. This Report observes that the bulk of adverse impacts will manifest at the Construction stage in which case, the core effort in mitigation will be concentrated in the contract for construction. The contract for construction should bear clauses binding the contractor to implement impact mitigation as part of the civil works.

E.11 Findings

The following are the finding of the Environmental and Social Impact Assessment;

- The major positive impacts of this project will include improved health, air quality, employment opportunities, economic growth, technology and knowledge transfer, as well as mitigating related adverse impacts.
- The project activities are likely to cause, albeit on a small scale, interruptions with traffic, risk of accidents, emission of dust, waste generation and increase in noise and vibration.
- The study has proposed several measures to reduce negative impacts including amelioration of social negative impacts, noise abatement, waste management, reduction of soil erosion, and prevention of accidents and health hazards.
- Monitoring has been identified as an important process in the protection of the environment of the project area since it will reveal changes and trends brought about mainly by construction activities.

E.12 Conclusion

The proposed project is environmentally, legally and socially acceptable. The potential significant environmental impacts can be adequately mitigated by the proposed measures and it is the responsibility of the proponent and all other actors to see to it that the measures are implemented. This way, the environmental threats will be downscaled to acceptable levels.
It is on the basis of the above, that it is recommended that the project be issued with the necessary clearance for the project to commence implementation.

E.13 Recommendations

The Environmental Social Impact Assessment team recommends the following:

i. All mitigation measures need to be specified in tender and contract documents and must be included in the engineering drawings, specifications, and bills of quantities.
ii. The Contractor will be required to prepare a Construction Environment & Social Management Plan (CESMP) which shall be approved by the proponent before the beginning of works. Within the C-ESMP suite, the following instruments should be prepared:

   - ❖ Health and Safety Management Plan.
   - ❖ Traffic Management Plan.

- ❖ Labour, Influx and Local Recruitment Management Plan.
- ❖ Spoil Management Plan.
- ❖ Stakeholder management Plan.
- ❖ Emergency Response Plan.
- ❖ A Gender Responsive Grievance Redress Management Plan for Internal and external grievances.
- ❖ Child Protection Strategy.
- ❖ Waste Management Plan.

iii. Diligence on the part of the contractor and proper supervision by the project engineer during construction and the initial operation phase is crucial for mitigating impacts.

iv. Contractor shall be required to commit to implementing the Environment, Social Health, and Safety (ESHS) Provisions by developing site-specific (ESHS) plans.

v. At project implementation stage, the Contractor to report to the project management team comprising of the Consultant and the project proponent monthly on how Environment, Social Health, and Safety (ESHS) provision detailed in this Environmental Social Impact Assessment are addressed.

vi. The proponent should be given all the available support to implement the project.

vii. Necessary permits should be issued by the licensing authority so that the work can commence such and National Environment Management Authority (NEMA) license, Directorate of Occupational Safety and Health Services (DOSHS) permit, Business permit and any other relevant that may be required.

viii. Periodic environmental and social monitoring is required by KISIP 2 team to ensure that mitigation measures have been implemented to prevent or avert any negative impacts of the project.

ix. On completion of the road and Civil Works, KISIP 2, the proponent to commission an independent Consultant to undertake an initial Environment, Social, Health and Safety Audit as required by Environmental (Impact Assessment and Audit) Regulations 2003 with 2019 amendments.

x. The audit shall identify nonconformities which the Contractor together with the Client shall address through the defect's liability period of the Project. This audit shall also form basis of annual Project self-audits by the Client.

xi. To reduce GHG emissions, the contractor should ensure plant and equipment are properly serviced and use fuel which is free from impurities.

xii. Contractor to involve a community liaison person

xiii. Project workers should have a transparent, open, available and anonymous GRMs

CHAPTER 1: INTRODUCTION

1.1. Project Background

The Government of Kenya received credit facility from the World Bank through International Development Association (IDA) and AFD towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP II) whose primary goal is to improve living conditions in informal settlements in selected towns in Kenya. The objective of the assignment is to prepare infrastructure upgrading plans, detailed engineering designs, procurement documents, resettlement action plan (RAP) and environmental and social impact assessment (ESIA) reports; and supervision of infrastructure construction works in selected informal settlements in Nyeri, Tharaka Nithi, Meru and Wajir Counties as shown in figure 1-1.

A new approach is to support tenure regularization and infrastructure upgrading in the same communities through one integrated planning approach, aimed at saving both money and time and ensuring better coordination between the two interventions. In addition, the project will include activities to link vulnerable people (elderly, orphans, disabled, and others) of informal settlements to government programs aimed at reducing poverty and vulnerability, and to link at risk youth to programs focused on building skills and creating opportunities for employment and self-employment. KISIP II will include activities to prevent crime and violence.

The proposed project will comprise the following four components.

Component 1(Integrated Settlement Upgrading): KISIP II has built on the lessons learned from KISIP I and has combined tenure regularization and infrastructure into one integrated upgrading approach to save both money and time, ensuring better coordination between the two interventions in a settlement and deepening the project's overall impact on the participating communities by supporting tenure regularization and infrastructure upgrading in the same communities. Thus, two main interventions have been identified under this component: (i) tenure regularization; and (ii) infrastructure upgrading. Settlements will benefit from one or both interventions depending on the initial condition of the settlement. Under tenure regularization, KISIP II will support the chain of activities required to regularize tenure for people living on uncontested public lands. Based on experiences of KISIPII, the project will minimize displacement of residents in planning using 'adoptive' planning approach to minimize displacement of residents in informal settlements. Under infrastructure upgrading, KISIPII will support the same types of investments: roads, bicycle paths, pedestrian walkways, street and security lighting, vending platforms, solid waste collection and settlement sorting, storm water drainage, water and sanitation systems, public parks, and green spaces. The menu will also include investments related to prevention

Figure 1-1: KISIP II Project Areas Locations

of crime and violence, including but not limited to community centres. Most of the infrastructure will contribute to climate resilience and the project will have substantial climate change adaptation and mitigation co-benefits.

Component 2 (Socio-Economic Inclusion Planning): This component will support the development of community-level socio-economic plans. The plans intend to identify together with the communities their socio-economic needs and then address how best the needs can be met.

Component 3 (Institutional Capacity Development for Slum Upgrading): The Project will support institutional and policy development at national and county levels. Activities will include supporting the review of the 2005-2020 National Slum Upgrading and Prevention Strategy, the development of county-specific slum upgrading and prevention strategies, developing financing mechanisms for slum upgrading at county level, and developing strategies to plan for urban growth, prevent crime and violence and to ensure adoptive planning in informal settlements.

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

The Principal Secretary, State Department of Housing and Urban Development, Ministry of Lands, Public Works, Housing and Urban Development Second Kenya Informal Settlements Improvement Project (KISIP 2) has appointed Losai Management Limited in JV with Gath Consulting Engineers Ltd to provide Consultancy services for Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents and Construction Supervision of Infrastructure Improvement Works in Selected Informal Settlements in Nyeri, Wajir, Tharaka-Nithi and Meru Counties.

The Environmental Management and Coordination (Impact Assessment and Audit) Regulations, 2019 stipulates that either Comprehensive or Summary Environmental and social Impact Assessment (ESIA) Project Reports should be prepared for low and medium risk projects listed in the Second Schedule. The proposed project interventions in Barwaqo Informal settlement falls in the category of medium risk projects under the Environmental Management and Coordination Act (amendment), 2019, thus a Comprehensive ESIA Project report is required. It is in response to this provision, that this report has been prepared

This is an Environmental and Social Impact Assessment (ESIA) Comprehensive Project Report (CPR) for the interventions proposed in Barwaqo Informal settlement in Wajir County.

The scope of construction works proposed for Barwaqo informal settlement involves construction of:

- 1No. High mast flood light
- 1.9km of bitumen standards road

1.2. Project Justification and Benefit

The primary reason for upgrading the road in Barwaqo informal settlement is to improve mobility and access within the settlement. The current state of the road (narrow) has continued to pose a great challenge to residents and other road users resulting in high production cost in terms of high vehicle

operation cost and longer travel times. Upgrading of the road therefore would bring about improved economic benefit to the residents in this settlement and so to the Wajir town. In addition, the road will be an economic pillar for realization of the Kenya's Vision 2030 by enhancing efficient transportation and movement of people and goods. Moreover, the high mast will help in lighting the area hence improve security and reduce crime.

1.3. Objectives of the ESIA

1.3.1 General Objective

The Principal Secretary, State Department of Housing and Urban Development, Ministry of Lands, Public Works, Housing and Urban Development Second Kenya Informal Settlements Improvement Project (KISIP II) is proposing to improve road works, and security lighting in Barwaqo informal settlements in Wajir County.

The main legislation that governs environmental management in Kenya is the Environmental Management & Coordination (Amended) Act of 2015 typically referred to as EMCA. EMCA calls for Environmental Impact Assessment (EIA) (under Section 58) to guide the implementation of environmentally sound decisions and empowers stakeholders to participate in the sustainable management of natural resources. Part V from Sections 42 – 57 deals with Protection and Conservation of the Environment while Part VI deals with Integrated Environmental Impact Assessment. Projects likely to cause environmental impacts require an environmental and social impact assessment study to be carried out.

The proposed interventions require preparation of a comprehensive environmental and social impact assessment report because it belongs to the activities listed in Schedule 11 (2, a) construction and rehabilitation of roads including collectors and access roads. The key purpose of the ESIA report is to ensure that the key environmental and social issues associated with the project are identified early enough so that the necessary mitigation measures are noted and integrated in the final project design. This ESIA CPR is part of the NEMA requirement and is expected to assist NEMA in decision making concerning the project licensing.

1.3.2 Specific Objectives of ESIA Investigations

This Environmental & Social Impact Assessment (ESIA) is expected to achieve the following objectives:

i. To present existing environmental, social and cultural setting of the target project area
ii. To identify potential environmental and social impacts (direct and indirect), including opportunities for enhancement; this includes the cumulative impact of the proposed project and other developments which are anticipated;
iii. To generate feasible alternative investments, sites, technologies, and designs,
iv. To provide preventive, mitigating, and compensatory measures
v. To provide detailed results of the public consultation and
vi. To prepare an Environmental and Social Management and monitoring Plan to mitigate the identified impacts so as to ensure sustainability of the proposed projects.
vii. To recommend cost effective measures to be implemented to mitigate against the expected impacts

1.4. Project Study Scope and Objectives

1.4.1 Project Objectives

The main objective of this proposed project is to improve access to basic services and infrastructure for residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya. This will be achieved by investing in infrastructure based on plans developed in consultation with the community, by supporting planning, surveying and issuance of land documents for residents of informal settlements, and by strengthening capacity of county administrations to deliver on their mandates.

1.4.2 Scope

The scope of services is limited to selected informal settlements in the four (4) counties. The assignment will be undertaken in two stages, and the scope of each stage is as outlined below:

Stage 1: Preparation of the Settlement Upgrading Plan, Engineering Designs, and Procurement Documents:

Stage 1.1: Preparation of Draft Settlement Upgrading Plans, Engineering Designs and Procurement Documents

This part of stage 1 includes:

i. Community sensitisation and consultation on the assignment;
ii. Draft settlement upgrading plan, including feasibility studies and preliminary designs for the proposed infrastructure investments, including screening for potential environmental and social impacts, involuntary resettlement, and impacts on vulnerable and marginalized groups (indigenous persons) as per the screening checklists and guidance provided in the project's Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF), and Vulnerable and Marginalized Groups Framework (VMGF);
iii. Environmental and Social Impact Assessment (ESIA);
iv. Environmental Management Plans (ESMPs);
v. Preliminary cost estimates;
vi. Economic analysis of proposed investments;
vii. Resettlement Action Plan (RAP) for the settlements; and Vulnerable and Marginalized Groups Plans, where applicable;
viii. Draft procurement documents for each of the designed infrastructure, incorporating at minimum appropriate qualification requirements (technical and financial qualifications, personnel, financial resources, and equipment}), bills of quantities/scope of works, specifications, environmental and social requirements, drawings, conditions of contract, and draft construction works programme.

Stage 1.2: Preparation of Final Settlement Upgrading Plans, Engineering Designs and Procurement Documents

This stage will involve:

i. Detailed engineering design;

ii. Phasing plan for each county;
iii. Operations and maintenance manuals for the proposed infrastructure;
iv. Estimates of the proposed investments and operating costs, and
v. Final procurement documents for the designed infrastructure incorporating at minimum appropriate qualification requirements {technical and financial qualifications, personnel, financial resources, and equipment}, bills of quantities/scope of works, specification, environmental and social requirements, drawings, conditions of contract and draft construction works programme. These procurement documents to be prepared shall be based on applicable World Bank's standard procurements and procurement regulations.

Stage 2: Construction Supervision:

This stage includes activities for quality control/assurance, time control, cost control and safety control.

1.5. ESIA Approach and Methodology

The ESIA was carried out in line with the provisions of the Environmental Management and Coordination 2015 and the Environmental (Impact Assessment and Audit) Regulations 2003 amended in 2019. The ESIA was also guided by the provisions of the World Bank Operational Safeguard Policies; World Bank OP 4.01 on environmental assessment, OP 4.12 on involuntary resettlement and OP 4.11 on physical cultural resources. An Environmental and Social Management Plan comprising of an impact mitigation plan and modalities for monitoring and evaluation was then developed to guide environmental management during all phases of project development. The assessment involved the following:

1.5.1 Literature Review

The Consultant reviewed literature related to the proposed project and the project area. These included project drawings, and other studies on physiography, geology, hydrogeology, water resources, and socio-economics of the project area. Legislation, policies, and procedures including Constitution of Kenya, World Bank Operation safeguards, County Integrated Development Plan, Kenya National Bureau of Statistics (KNBS), KISIP 2 social and environmental management documents were also reviewed.

1.5.2 Environmental and Social Screening

Screening process was undertaken to decide whether the proposed interventions in Barwaqo informal settlements needed to be subjected to an ESIA study or not. The Environmental Management and Coordination Act (EMCA) 2015 specifies the projects for which should be subjected to an Environmental and Impact Assessment (EIA) before commencement of project activities. In this this schedule construction and rehabilitation of roads including collectors and access roads are classified under medium risk projects requiring preparation of ESIA Comprehensive Report consisting of the likely environmental effects before implementation.

1.5.3 Environmental and Social Scoping

Scoping process involved the identification of significant environmental and social issues associated with the proposed works. The impacts of the proposed project were assessed through project site visits and the following;

- Evaluation of the location and the current land use of the affected area.
- Evaluation of the design and proposed construction activities, materials and methodology
- One on one interviews with key stakeholders and proposed project beneficiaries were applied in the determining location of available way leaves especially in areas where there are no settlements and general opinions of the people.
- Discussion with the area residents on the potential impacts related to project implementation activities and corresponding mitigation measures.

1.5.4 Baseline Data Collection

Baseline data were collected on the proposed project site and the area residents. The data collected was on aspects such as topography, local flora and fauna, soils and geology, socioeconomics, existing and past activities including human settlements, local surface and groundwater resources, ambient air quality and noise levels (qualitative), waste management practices, and natural resources and cultural heritage aspects of the project areas.

1.5.5 Identification, Prediction and Determination of Environmental Impacts

A systematic approach was used to rank identified impacts according to their significance determined by consideration of project activity **event magnitude** and **receptor sensitivity**. The expected significance of environmental impacts was assessed considering:

- **Extent**: An area of influence covered by the impact. In this sense, if the action produces a much-localized effect within the space, it is considered that the impact is low (1). If, however, the effect does not support a precise location within the project environment, having a pervasive influence beyond the project footprint, the impact shall be at location level (3) or could be County (5).
- **Timing:** Refers to the moment of occurrence, the time lag between the onset of action and effect on the appearance of the corresponding factor. We consider five categories according to this time period is zero, up to 1 year (short term), or more than two years, which are called respectively medium term (3), long-term (4), and permanent (5).
- **Intensity:** refers to the degree of impact on the factor, in the specific area in which it operates, ranked from low (1) to high (5).
- **Probability:** Refers to the likelihood of the impact occurring during the project implementation, this is also ranked as Probable (1) to highly probable.

Receptor Sensitivity determined by:

- **Presence** – whether biological species present are unique, threatened, protected or not vulnerable and are present during a period of high sensitivity (e.g. breeding, spawning or nesting). For human receptors, whether they are permanently present to uncommon in the area of impact and for physical features whether those present are highly valued or of limited

or no value. For physical receptors/features, whether they are national or international value (e.g. state protected monument), local or regional value and is sensitive to disturbance or none of the above; and

- **Resilience** – how vulnerable people and/or species and/or features are to the change or disturbance associated with the environmental interaction with reference to existing baseline conditions and trends (such as trends in ecological abundance/diversity/status, ambient air quality etc.) and their capacity to absorb or adapt to the change. For physical receptors/features, highly vulnerable, undergoes moderate but sustainable change which stabilizes under constant presence of impact source or unaffected or marginally affected.

1.5.6 Stakeholder Consultations

Stakeholder consultations were carried out to: inform project stakeholders of the proposed project; to explain the likely impacts (positive/negative) of implementing the project; and to obtain views, concerns, comments and suggestions from interested and affected parties regarding the proposed project.

Key informants' interviews, administration of structured questionnaires and public meeting was held (Minutes and filled questionnaires are in Annex 2 and Annex 4). Detailed outcome of consultation including stakeholders interviewed is discussed in Chapter 6 of this report.

Table 1-1: List of KII consulted

Name	Designation
Mohammed Bashey	Environmental Officer
Ibrahim Ahmed Osman	Deputy sub-county Admin
Edward Mucheru	Assistant Director physical planning
Emmanuel Ngwene	Assistant County Commissioner

Table 1-2: List of Participants

Meeting Date- September 28,2023	
List of participants	**Number**
Male	24
Female	4
Total participants	28

CHAPTER 2: PROJECT DESCRIPTION AND DESIGN

2.1 Introduction

The proposed projects intend to cover six informal settlements in Wajir County namely Jogoo, Halane, Wagberi, Shalletey, Hodhan and Barwaqo. The Consultant conducted topographical survey and conditional assessment of the each of the proposed informal settlement in the month of October 2023.

This section presents the project alternatives in roads and lighting projects, which are the proposed projects being considered for intervention in Barwaqo Informal Settlement Wajir County.

2.2 Existing Road Infrastructure

Existing roads in the settlement are earth roads with widths of 6-9meters. The roads serve residential houses, schools (Barwaqo Secondary School, Senior Chief Adano girls' secondary school), shops, the livestock market and a mosque. The settlement plan indicates main roads are approximately 3.2 kilometres with corridor widths of 20 meters, 18meters, 12 meters and minor roads of road reserve widths of 9 meters, 8 meters and 6 meters. The alignments are mostly straights with few curves and traverse a flat terrain. A significant presence of power poles was observed; hence, relocation is required during construction. Solid waste dumping along the road reserve was observed in all the roads in the settlement. The resident proposed provision of storm water drainage in the proposed roads.

Existing earth road 6m wide showing power poles

Road section along Barwaqo Road 2

Figure 2-1: Road conditions

2.2.1 Road Alignment

The condition of the existing roads is earth roads with some section of deteriorated gravelling resulting to rough riding experience. The settlement plan indicates the road reserve width of the proposed roads ranges between 12m to 16m; however, there are some minimum encroachment by temporary fences and power poles. The horizontal alignment is straight with few gentle curves traversing through a flat terrain.

2.2.2 Challenges of the Existing Road Infrastructure

- A significant presence of power poles was observed; hence, relocation is required during construction.
- Solid waste dumping along the road reserve was observed in all the roads in the settlement.

2.3 Existing High Mast Flood Lights and Security Lights

Barwaqo Informal Settlement has a few solar streetlights poles that have been vandalised.

2.3.1 Challenges of the Existing High Mast Flood Lights

- A significant presence of power poles was observed; hence, relocation is required during construction.
- Solid waste dumping along the road reserve was observed in all the roads in the settlement.

2.4 Proposed Road Works Interventions

The works will constitute upgrading to bitumen standards of 1.9Km long road. The alignments are mostly straights with few curves and traverse a flat terrain. The major works to be executed under the Contract comprise mainly of but are not limited to the following:

i. Site clearance
ii. Earthworks to formation level
iii. Regular maintenance of passage of traffic during construction including diversion works as necessary to meet regulatory requirements.
iv. Pavement Construction as follows:
    a. Fill with suitable material to formation level
    b. Construction of a 300mm improved Subgrade layer to 100% MDD
    c. Provide and process 250mm thick layer of neat gravel sub-base layer
    d. Provide, spread and Compact 150mm of cement stabilized base layer
    e. Provide, spread and Compact 50mm thick Asphalt Concrete Type 1(0/14mm) as wearing course
v. Footpath
    a. Provide, spread and Compact 150mm thick neat gravel base to walkways (where applicable)
    b. Provide, spread and Compact 50mm quarry dust
    c. Provide 60mm paving blocks
vi. Construction of drainage and protection Works
vii. Road furniture
viii. Identification and relocation of services
ix. Maintenance of passage of traffic through the work
x. Any other activity not listed above but may be deemed necessary and instructed by the Engineer

The proposed roads have a length of 2.8Km located in Northern part of Wajir town traversing westly. The selected links form a loop starting at Isiolo- Mandera Highway (Near Orahey Market) to Saada Integrated Academy then closing back to Orahey Market. The roads are earth roads with straight horizontal alignment traversing in a flat terrain. The road reserve width of the selected roads ranges between 12 to 18m with minimal encroachment of power poles. The road provide access to Orahey Market, Residential houses and schools.

The work will be conducted within the road reserve and any other designated places as specified in the Construction Contract. Topographical survey was done using a real time kinematic (RTK) survey tool. This enabled recording of pertinent details within the existing road corridor according to their Northings, Eastings and Elevations. These pertinent details included the existing road and surrounding terrain, the survey positioned buildings, culverts, fences, hedges, ditches, drains, junctions, electric poles and any other permanent objects, which may influence or may be affected by the design.

The primary beneficiaries of these roads are residential houses, schools, mosques, markets, and small shopping centres. Figure 2-2 below shows the proposed road network and alignment.

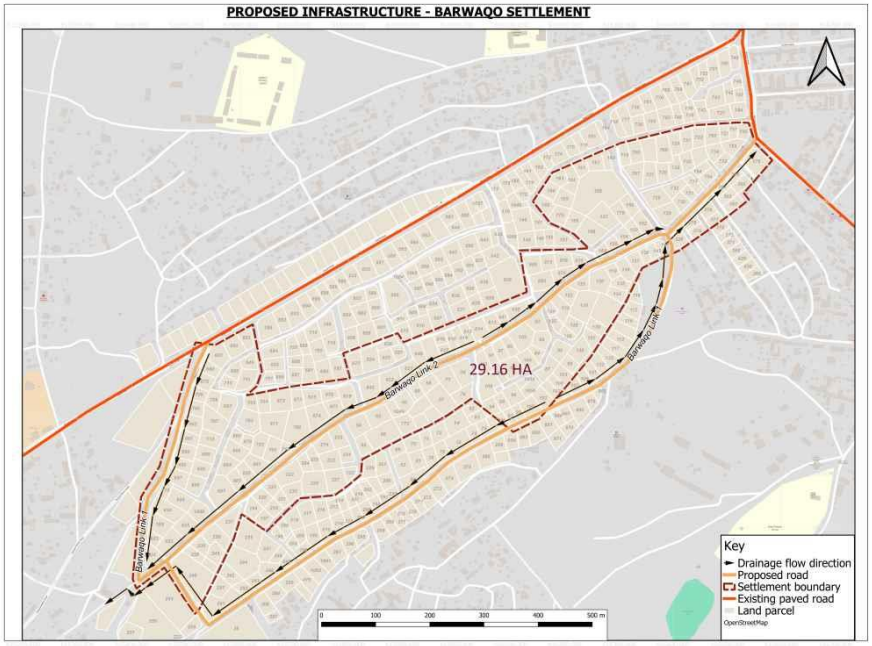


Figure 2-2: Proposed road network and alignment
Source: Consultant design reports.

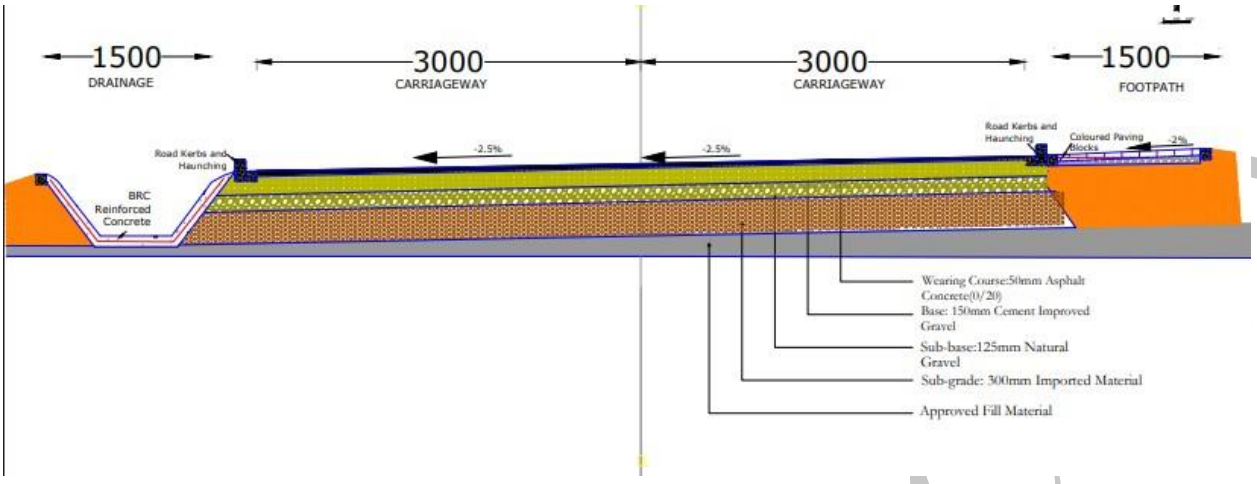


Figure 2-3: Typical Road Cross-section

Figure 2-4: Design Plan View

2.5 Proposed Street Lights

Barwaqo Informal Settlement has a few solar streetlights poles that have been vandalised. Streets Light will be provided at intervals of 40m. The works will involve installation of high mast lightings and street lights taking into consideration Wattage and light levels: type of lighting, lamps used, street illumination level, spacing between poles- for multiple lighting poles, lighting luminaire calculations, cable sizing, power requirement estimation; energy cost calculations; pole arrangements- for multiple lighting poles lighting bills of quantities; wind design considerations

The overall aim is to achieve, in sustainable way, good road lighting and prevent crashes by serving the motorists and at the same time assisting to protect otherwise unprotected cyclists and pedestrians.

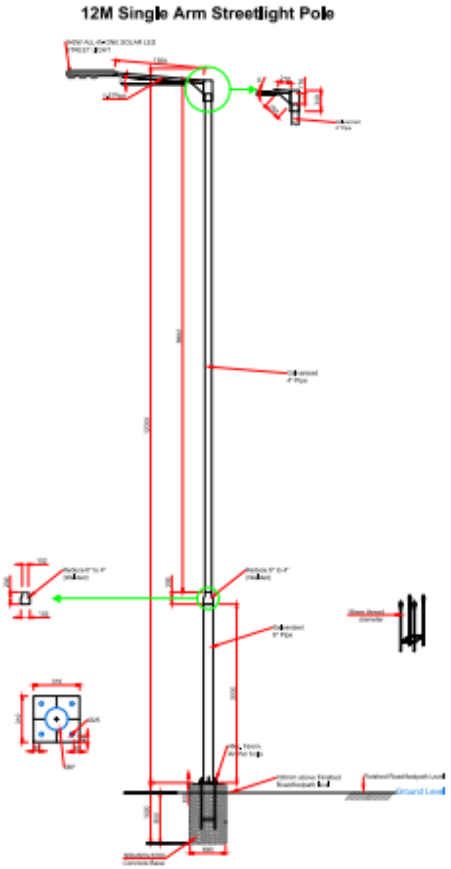


Figure 2-5: Proposed Streetlight Design

Source: (Consultant Settlement Upgrading Plans)

2.6 Proposed Project Activities

2.6.1 Project Mobilization & Construction Phase

The mobilization and construction phase will take place subsequently to the issuing of Environmental Impact Assessment Certificate, building/construction permits and once a construction contract with a suitable contractor is signed. The mobilization and construction phase will involve different activities as summarized below:

- Site clearance, earthworks, and construction of ablution block and elevated
- Installation of temporary security fence at the ablution block and elevated tank
- Acquisition of materials from a reliable source and storage.
- Testing of the construction materials.
- Acquisition of other permits such as water use permits.
- Confirmation of data and accuracy of topographical survey.
- Mobilization of labour force, equipment and plant for construction works.
- Transportation of equipment, workers, materials, and storage.
- Abstraction and transportation of water to the construction site.
- Collection, storage, transportation, and disposal of waste
- Actual construction works, Trenching, walling, plastering, roofing, painting.
- Movement of heavy equipment and machines
- Occupational health and safety management.

2.6.2 Campsite and Mobilization of workers

The Contractors' campsite will be temporary in nature (for the duration of the construction phase) and will include site offices, laboratory, and other temporary facility for the contractor. It will be located within project site area. Once the location of the campsite is determined, the contractor will have to comply with ESMF requirements including developing site specific environmental and social management plan (ESMP) for prevention, minimizing, and mitigating likely impacts including gender-based violence. The campsite area will thereafter be rehabilitated (i.e. returned to its preconstruction condition) at the end of the construction phase. All efforts will be made to ensure that all construction work will be undertaken in compliance with local and national legislation, local and international best practice, as well as the Environmental and Social Management Plan (ESMP), which is included in this ESIA Report. During the construction phase, both skilled and unskilled temporary employment opportunities will be created. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however approximately over 100 direct and indirect employment opportunities are expected to be created during the construction phase at each site. It should however be noted that employment during the construction phase will be temporary, whilst being long-term during the operational phase.

2.6.3 Equipment and machinery requirements

Use of heavy construction equipment is expected for this project. At construction phase the project will employ various types of construction equipment and machineries for successful implantation of project activities.

2.6.4 Delivery of equipment and machineries

All construction equipment and machineries will be delivered by specialized trucks. They will use the existing Road network providing access to Barwaqo Settlement. It will be the responsibility of the contractor to take necessary measures to ensure safety for the community and workers this includes proper scheduling delivery and obtain appropriate transportation and safety permits.

2.6.5 Storage at Campsites

Sites will have specific storage area for materials that are sensitive to weather. The Contractor shall have a material data sheet to show all the records of material on or leaving the site. Materials such as cement and oil will be stored in the campsite. Other materials, such as sand, stones, aggregates etc., will be stockpiled at the site. Hazardous materials such as explosive and inflammable will not be stored at the campsite unless special measures are taken, and permit issued by the authority. Refuelling for some equipment such as compactors and generators will be done on site whereas for vehicles and trucks will be done either on site or on nearby fuel stations.

2.7 Mainstreaming Climate Resilience

A. Roads

Mainstreaming climate change resilience for road projects in settlements like Barwaqo in Wajir Town requires a comprehensive approach that considers the unique climate challenges of the region. Here are some key strategies to achieve this:

1. Climate-Informed Design: Incorporate climate data and projections into the design of road projects. This includes considering factors like increased temperatures, erratic rainfall, and flooding risks in the design process. The adopted road width of 5.5m to 6.0m is designed to cater for local traffic demands while minimizing land use and disturbance to the natural environment. This careful balance ensures that the roads are sufficient for community needs without excessive deforestation or land degradation.
2. Proper Drainage: Trapezoidal Open Drains are designed to manage storm water effectively by providing storage capacity during heavy rains and reducing maintenance costs. Their design makes it easy to remove solid waste and silt. Additionally, the drains are connected by culverts to ensure that storm water is directed to the designated Storm water Outfalls.

   The Drainage are lined with concrete reinforced by BRC wire to prevent water seepage to the underlying pavement layers hence increasing the durability of the road.

To further ensure the durability and resilience of road infrastructure in response to climate variability, 900mm standard pipe culverts are incorporated into the design. These culverts are essential for facilitating the swift and effective passage of storm water, particularly crucial during heavy rainfall events, which are expected to increase in frequency and intensity due to climate change. The culverts prevent road surface erosion and reduce the risk of flooding, both of which can cause significant damage to the road infrastructure and surrounding ecosystems

3. Vegetation along the road: Site Clearance will be done along the road corridor hence trees and vegetation outside the road corridor will not be interfered. In addition, the project has provisions to plant trees along the corridor which will not only beautify the urban landscape but also play a crucial role in improving air quality, providing shade, and fostering biodiversity. By integrating nature-based solutions into our infrastructure design, we have not only enhanced flood resilience but also created more sustainable and liveable environments for the communities we serve.
4. Concrete Kerbs and Channels: Utilizing locally sourced concrete not only reduces transportation emissions but also supports the local economy. The inclusion of concrete Kerbs and drainage channels contributes to effective water management, preventing erosion and reducing the need for frequent road repairs, which in turn lowers the overall carbon footprint associated with road maintenance.
5. Locally Sourced Materials: The commitment to using materials sourced from the local area reduces carbon emissions related to transport while supporting local industries. This approach also ensures that the materials are suitable for the local environment, improving the longevity and sustainability of the road infrastructure. Gravel for subgrade is readily available within the project area, Subbase and Subgrade gravel will be excavated at El dow, Anole and Kamoshire borrow pits which are just outside of Wajir Town hence no just and noise disturbance to the residents
6. Pavement Structure: The multi-layer pavement structure, consisting of asphalt concrete, cement-improved gravel, neat gravel, and a solid subgrade, is designed for durability and to minimize the need for frequent repairs. This reduces the ongoing environmental impact associated with road maintenance activities.
7. Community Engagement: Involve local communities in the planning and implementation of road projects. This can help ensure that projects meet the needs of the community and are resilient to climate change.
8. Monitoring and Evaluation: Establish monitoring and evaluation mechanisms to track the effectiveness of climate change resilience measures in road projects. This can help identify areas for improvement and ensure that projects are meeting their resilience objectives.
9. Provision for Non-Motorised Transport Facility: The road cross-section includes a 1.5m footpath/cycle lane for Non-Motorised Transport, this will encourage walking and cycling, which are zero-emission modes of transport. By reducing the reliance on motor vehicles, NMT helps decrease greenhouse gas emissions and mitigate climate change. In addition, it can help reduce noise pollution in the settlements, contributing to a more peaceful and pleasant environment

B. Street Lighting

Lighting will be provided in line with the Street Design Manual for Urban Areas in Kenya and the Kenyan Building Code. The spacing between two light poles should be approximately three times the height of the fixture. Seismic, wind and flood components have been incorporated in the design.

a. **Proper Selection and Installation of Poles:** Steel poles will preferably be used, and adequate foundation depths provided to mitigate against wind and flood effects.
    - Stainless steel and rust resistant paint will be used to prevent corrosion of the light pole.
b. **Power Source**: Given the prolonged dry periods in the area, the street lighting has been designed to utilize the renewable solar energy with adequate battery capacity having a positive impact on greenhouse gas emissions. An allowance for connection to mains back up has been provided incorporated in the design for use during the rainy days considering 3-7 cloudy/rainy days.
c. **Adaptive Lighting Controls:** Adaptive lighting controls including motion sensors, light control and time control have been incorporated in the design to ensure optimal energy usage. This will enhance energy efficiency by adjusting light levels based on ambient light conditions and pedestrian or vehicular traffic patterns.
d. **Energy Efficient Technologies:** Energy efficient technologies including Light Emitting Diodes (*LED: 240w with Bridgelux/CREE/Philipsled chips 3030, 160-170LM/W, 6000K ~6500K (customized 2700k-6500k)*) have been incorporated in the design to enhance energy consumption and reduce greenhouse gas emissions.

2.8 Project cost

The total cost for the proposed upgrading works is **KES 112,311,749.05.** The cost estimates for the works proposed have been derived using the current prices from manufacturers, construction cost handbook and priced bills of quantities of recently contracted works of similar nature.

Table 2-1: Project Cost

Item	Cost in KES
Roads and drainage	103,823,182
PNG	4,476,900.89
Environmental and Social Aspects	4,011,666
Total	**112,311,749.05**

Source: Project BoQ

CHAPTER 3: ANALYSIS OF PROJECT ALTERNATIVES

3.1 Overview

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study / Project Report after which, subsection (i) requires an analysis of alternatives. Analysis of Project Alternatives requires comparison of feasible alternatives for the proposed Project in terms of: Project site, Project technology, Potential Environmental and Social Impacts, capital and recurrent costs, suitability under local conditions, and acceptability by neighbouring land users.

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

3.2 Road project

The design team has ensured as much as possible that the project shall be constructed within available public land and existing public way leaves. This shall eliminate cases of resettlement and reduce project costs that are usually related to compensation.

3.2.1 Analysis of Alternative project site

According to the field surveys and stakeholder consultations it was noted that no alternative route is preferred to the existing proposed route. The reason being that the road is existing in the settlement and what is required is upgrading to make it better. An alternative route/site would mean denying the residents their right to development.

3.2.2 Alternative Project Design

Barwaqo Road 1

This road has a designed length of 1740-meter of which 460 is considered in Lot 1. The proposed width is 6.0m for the carriage way, 1.5m for the footpath and 1.5m for the storm water drainage. The road was proposed due to its importance and effective service area. The road is free from encroachment by developers or business stalls. The roads connects Buru Stage (Near Barwaqo Market) to Ama Primary school. The corridor is available to accommodate the proposed typical cross-section. The terrain is flat with elevation deference of less than 1m.

Barwaqo Road 2

This Road has a design length of 1500-meters, traversing eastly from Barwaqo Market. The proposed width is 6.0m for the carriage way, 1.5m for the footpath and 1.5m for the storm water drainage. This link connects Road 1 to Hadado Road and provide access to residents nearby, Masjid Al-Rahim, Barwaqo Market and traffic heading to the stadium.

Improving these roads, which run through the heart of the settlement, from earth to bitumen standards will greatly enhance residents' lives by improving access to vital social amenities like schools, hospitals, and markets. This upgrade will boost economic growth, enhance travel safety, and reduce pollution, resulting in improved health outcomes and a more united community. Moreover, it will raise property values and draw in investment, ultimately enriching the area's overall quality of life.

3.2.3 Alternative Technology

The proposed project shall be constructed using modern, locally, and internationally accepted materials to achieve public health, safety, security, and environmental aesthetic requirements. Equipment that saves energy and water shall be given priority without compromising on cost or availability factors. The use of local stones, cement, sand (washed and clean), metal bars, pipes and fittings that meet the Kenya Bureau of Standards requirements is recommended.

3.2.4 No Project Alternative

This alternative means that the status quo remains. This alternative describes a situation where the proposed projects shall not be put up. It is advantageous in that there shall be no negative impacts to biophysical the environment. The ''No project action alternative'' shall however mean that all the potential benefits will be forgone. Thus the "No project Alternative" is not tenable.

3.3 Street Lighting

3.3.1 Analysis of Alternative project site

According to the field surveys and stakeholder consultations it was noted that no alternative site is preferred to the existing proposed site. The reason being that the existing road has adequate road reserves and the street lighting will be installed following the sites where the existing street lighting has been installed. An alternative route/site would mean denying the residents their right to development

3.3.2 Alternative Project Design

The following design will be considered

I. Solar Street lighting Design Proposal –separate solar panels

For the solar street lighting, electric power supply is from the multi-crystalline silicon PV modules with operating temperature from -15°C to 85°C mounted on top of the lighting pole and whose size shall be determined during the detailed design.

The generated power is stored in sealed maintenance free rechargeable lead-lead dioxide technology batteries with provision for pressure release mechanism in the event of overcharge whose size and location shall be determined during the detailed design.

This power shall be distributed to the street lighting poles through electric cables drawn in the street lighting pole for each individual pole.

Individual control MCB/Fuses with Pole junction box shall be provided on each pole. The terminal box shall be weather proof, having gasketed cover.

The street light poles shall be earthed individually with pipe electrode type earth station as will be detailed in the design drawing using 25 mm diameter galvanized iron pipe 2.5 m long.

The street lighting will be automatically be switched ON/OFF using a quality make automatic timer, type TSQ-T (Day dial – 1 x 24 hour) or a photocell switch and will be provided in each the street light pole.

II. All in one solar lighting

In this arrangement the solar panel is arranged such that in the luminaire it is on the topside and the batter, timing circuitry and charge controllers and related item are all enclosed in one package, which is fixed to the street lighting pole

The luminaire sizing and the battery sizing are dependent on the light output required. This type of arrangement is better in containing issues of vandalism, which are quite common on public lighting installations.

III. Conventional Street lighting Design Proposal

For the conventional type street lighting, electric power supply from the utility Kenya Power at 415/240 volt, three /single phase, 50 Hz to be terminated to the street lighting Feeder Pillar. The streetlights will then be powered from the feeder pillar.

This power shall be distributed to the street lighting poles through electric cables laid below ground or through PVC sleeve embedded into concrete and shall be distributed equally on three phase/single phase of the electric power supply system.

Individual control MCB/Fuses with Pole junction box shall be provided on each pole. The terminal box shall be weather proof, having gasketed cover.

The street light poles shall be earthed individually with pipe electrode type earth station as will be detailed in the design drawing using 25 mm diameter galvanized iron pipe 2.5 m long.

Electric cable required for the street lighting installation shall be 1100 Volt grade, PVC insulated and sheathed, armoured cable having stranded Aluminium conductor of rating as mentioned in the detailed design drawing.

The street lighting will be automatically be switched ON/OFF using a quality make automatic timer, or a photocell switch and will be provided in the street light feeder pillar.

All streetlights shall be controlled from the outdoor type street light control pillars the locations of which are shown on the detailed design drawings.

3.3.3 Alternative Technology

The designs shall incorporate climate resilience through use of;

- Renewable solar energy with adequate battery capacity having a positive impact on greenhouse gas emissions,
- Adaptive lighting controls to save on energy and optimal energy use,
- Energy efficient technologies to enhance energy consumption and reduce greenhouse gas emissions

The proposed project shall be constructed using modern, locally, and internationally accepted materials to achieve public health, safety, security, and environmental aesthetic requirements. Equipment that saves energy and water shall be given priority without compromising on cost or availability factors. The use of solar powered and energy saving street lighting, stainless steel and rust resistant paint that meet the Kenya Bureau of Standards requirements is recommended and will be considered.

3.3.4 No Project Alternative

This alternative means that the status quo remains. This alternative describes a situation where the proposed projects shall not be put up. It is advantageous in that there shall be no negative impacts to biophysical the environment. The ''No project action alternative'' shall however mean that all the potential benefits will be forgone. Thus the "No project Alternative" is not tenable.

CHAPTER 4: ENVIRONMENTAL AND SOCIAL BASELINE CONDITION

4.1 Introduction

Baseline conditions entail the sum-total of all biophysical and geo-physical condition of the project area. Gathering of baseline data is necessary to meet the following objectives:

- To understand key social, cultural, economic, and political conditions in areas potentially affected by the proposed project;
- To provide data to predict, explain and substantiate possible impacts;
- To understand the expectations and concerns of a range of stakeholders on the proposed development;
- To inform the development of mitigation measures; and
- To benchmark future socio-economic changes/impacts and assess the effectiveness of mitigation measures.

4.2 Environmental Characteristic of the Project Area

4.2.1 Overview of Wajir County

Wajir County is located in the North Eastern Region of Kenya. The county lies on a latitude 1.7488° N and Longitude 40.0586° E and covers an area of 56,773.1 Km^2. It borders Somalia to the East, Ethiopia to the North, Mandera County to the North East, Isiolo County to the West, Marsabit County to the North West and Garissa County to the South; and can be accessed via Isiolo-Mandera road which divides it into two portions. Figure 4-1 shows the location of Wajir County in the map of Kenya and Wajir map with its sub counties.

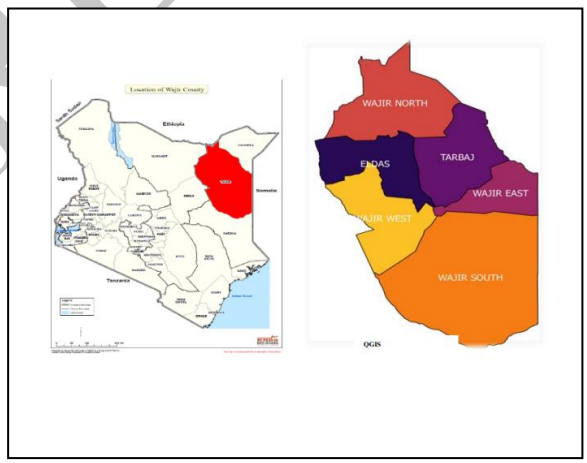


Figure 4-1: Location of the County in Kenya

Source: Wajir CIDP 2023-2027

4.2.2 Project Area

Barwaqo informal settlement is in Barwaqo sub-location, Barwaqo ward, Wajir East Sub-County in Wajir County. It covers an area of 30 hectares and has a population of approximately 2,500 persons. The settlement plan contains 262 plots, 26No mosques, 6No schools and 4No markets. **Error! Reference source not found.** below shows the project area Barwaqo Informal Settlement.

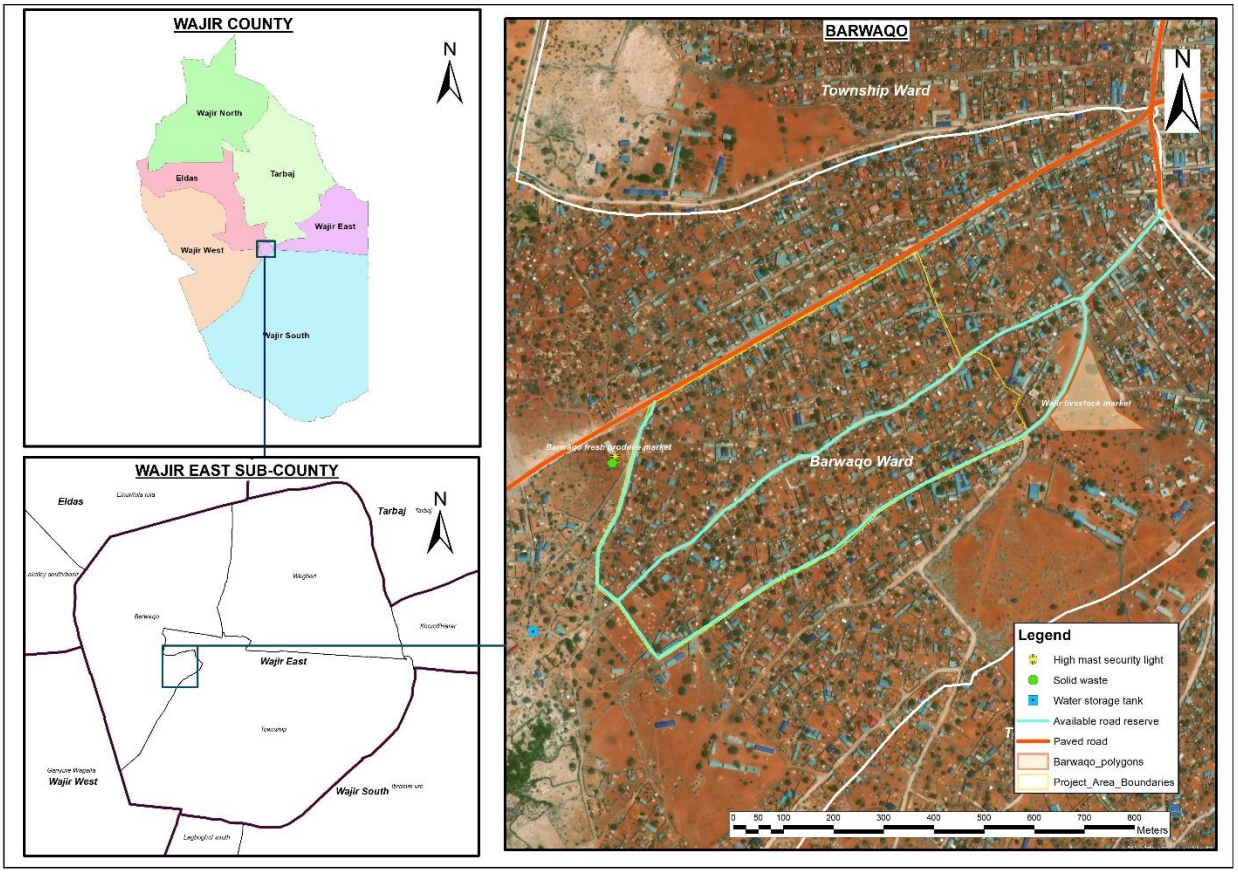


Figure 4-2: Map showing Barwaqo informal settlement

Source: Design report

4.2.3 Topography

The project area is a featureless plain and lies between 150 meters and 460 meters above sea level and along latitude 1°45'N and longitude 40°4'E. Its Altitude is 244 m (801 ft.). The plain rises gently from the south and east towards the north rising to 200 meters at Buna and 460 meters at Bute and Gurar at the foothills of Ethiopian highlands. The project area is prone to seasonal flooding during the rainy seasons which makes roads impassable affecting accessibility to vital services. The prevalence of floods within the project area is low as shown in figure 4-3 below.

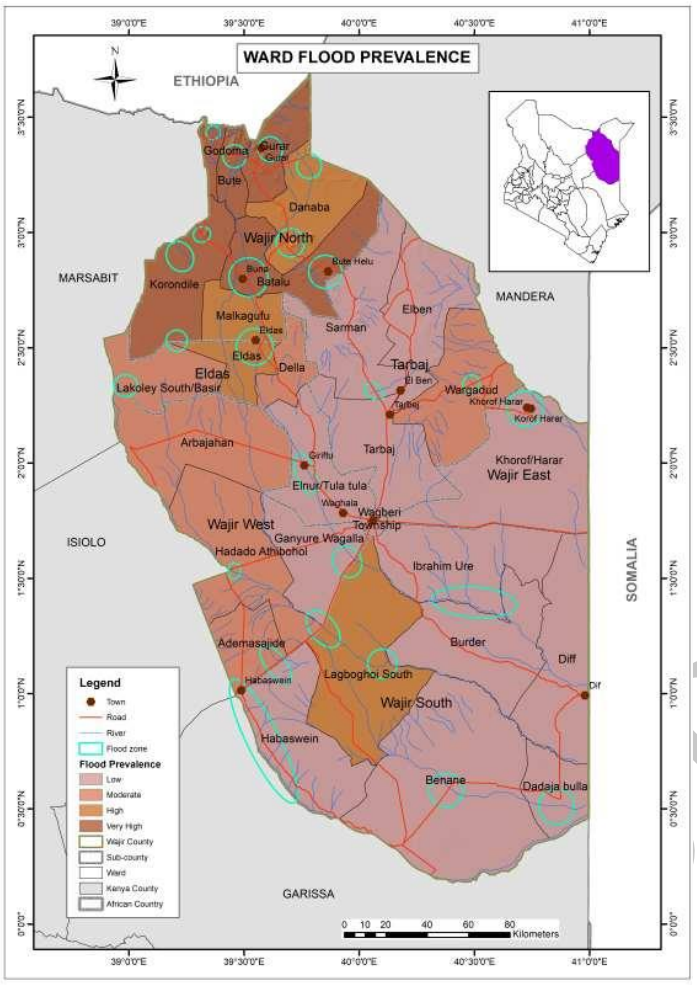


Figure 4-3: Prevalence of Flooding

4.2.4 Soil and Geology

The project area has considerable deposits of Limestone and sand which are used in the local building industry.

Figure 4-4: Barwaqo Quarry

Source: Taken by consultant during site visit

4.2.5 Climate

The project area receives an average of 240 mm of rainfall per year which is erratic and short making it unfavourable for vegetation growth and rain fed agriculture. There are two rainy seasons' i.e. short and long rains. The short rains are expected between October to December and the long rains from March to May each year.

4.2.5.1 Climate change profile

Wajir County is a featureless plain and lies between 150 metres and 460 metres above sea level and along latitude 1°45'N and longitude 40°4'E with an altitude of 244 m (801 ft.). The plain rises gently from the south and east towards the north rising to 200 metres at Buna and 460 metres at Bute and Gurar at the foothills of Ethiopian highlands. The county experiences annual average relative humidity of 61.8%, which ranges from 56% in February to 68% in June. The average annual precipitation is 24mm or 20mm each month. June is the driest month with an average of 1mm of rain while April is the wettest month with an average of 68mm of rain. The higher areas of Bute and Gurar receive higher rainfall of between 500mm and 700mm. The average temperature is 27.9°C and the range of average monthly temperatures is 3.5°C. The warmest months are February and March with an average of 36°C while the coolest months are June, July, August and September with an average low of 21°C. It experiences frequent drought episodes especially from June to September, which impact negatively on livestock, crop farming, education, nutrition, access to water and pasture. On the other hand, it also experiences flash floods, which damage infrastructure, and kills the shoats (goats and sheep). The frequency and intensity of the extreme climatic events has been increasing in the recent past disrupting the livelihood of the communities as per the County Integrated Development Plan, 2018-2022.

Analysis of temperature trends in the county over 25 years (1981 to 2005), indicate a moderate increase in temperature of 0.5°C in the first season and 0.2°C in the second season. Analysis of rainfall over a 35-year period (1981-2015) showed that average first season rainfall had reduced by approximately 50mm, although average second season rainfall had increased slightly. These changes have resulted in a moderate increase in the number of heat stress days in the first season and a low increase in the number of heat stress days in the second season. Throughout the years, droughts have become more common with studies indicating a higher frequency and intensity of droughts in recent years (Wanjuhi, 2016). Looking at the trends in the different seasons, the first season has had a marked increase in extreme weather events (both droughts and floods) although the second season has experienced no change in the occurrence of extremes. The longest drought period is considered to have occurred between 1999 and 2001 and 2004 and 2008 for the March- May (MAM) season and 1971-1976, 1983-1988, 1998-2001, 2004-2007 for the October-December (OND) season.

(Source: https://cgspace.cgiar.org/bitstream/handle/10568/96286/Wajir_Climate_Risk_Profile_Final.pdf- Climate Risk Profile Wajir County)

4.2.6 Transport

Existing roads in the settlement are earth roads with widths of 6-9meters. The roads serve residential houses, schools (Barwaqo Secondary School, Senior Chief Adano girls' secondary school), shops, the livestock market, and a mosque. The settlement plan indicates main roads are approximately 3.2 kilometres with corridor widths of 20 meters, 18meters, 12 meters and minor roads of road reserve widths of 9 meters, 8 meters and 6 meters. The alignments are mostly straights with few curves and traverse a flat terrain. A significant presence of power poles was observed; hence, relocation is required during construction. Solid waste dumping along the road reserve was observed in all the roads in the settlement.

The existing roads did not have adequate drainage systems.

Figure 4-5: Barwaqo road.

4.2.7 Water and sanitation services

4.2.7.1 Water

Barwaqo settlement sources its water from the WAJWASCO, wells and boreholes within the settlement. There is no existing water distribution system in the settlement. The main source of water is shallow wells which are abandoned once they run dry. Water is extracted from the shallow well either manually or by pumping (use of a windmill, diesel powered, solar and electricity).

Most of the shallow wells have a raised wellhead to prevent siltation and entry of flood water. Almost 50% of the household have an individual shallow well on their compound.

Water tracking using carts pulled by donkeys and water bowsers is common in the project area.

Figure 4-6: Water tracking using carts

Figure 4-7: Solar powered borehole

4.2.7.2 Sanitation

The main source of litter noted in the project area during field survey was solid waste from household consumption and commercial activities. Though the County Government provides the services of waste management, there was evidence of inadequacy in waste management. Haphazard littering and wind dispersal of waste in the environment were observed. The residents cope with the inadequate waste collection challenge through burning in compounds or along the streets.

The informal settlement faces crippling challenges in sanitation services due to lack of proper waste management system and inadequate water supply coupled with high e-coli levels. Use of buckets as a mode of human waste disposal was noted during the field study.

Figure 4-8: Vandalized sanitation facility in Barwaqo Market

4.2.8 Biological Environment

The area is comprised of woody trees and shrubs used for grazing camels, goats, and cattle. The dominant species include acacia trees, gum myrrh, gum Arabica. The project area has typical predominant natural vegetation that includes short grasses with small leaved thorny trees and bushes. The proposed project will not affect sensitive or protected flora within the settlement.

There is no protected wildlife in Barwaqo Informal Settlement that will be affected during project implementation.

4.2.9 Physical and Cultural sites

There are no physical and cultural sites identified in the project sites that will be affected by the proposed project. A chance find procedure will be developed in case physical and cultural sites are discovered during project implementation.

4.2.10 Land Use and Tenure

Land tenure and land use in the settlement and its surroundings are complex and multifaceted, reflecting the region's unique socio-economic and environmental context. Customary land tenure coexists with formal land tenure systems, and efforts are being made to improve land governance and resolve land-related disputes to support sustainable development in the area. Residential land tenure varies, with some residents owning their homes and others living on land under customary or communal tenure systems. The proposed project will be implemented within public land.

4.2.11 Sources of Energy

The project area has electricity connection in the trading centres, learning institutions, health facilities, government institutions as well as individual homes. 1No. high mast floodlight was observed within Barwaqo market. The floodlight is non-functional.

The project has planned to increase installation of street lights and high mast flood lights to ensure increased hours of doing business as well as improve the security of citizens within the settlement.

Figure 4-9: Non-functional high mast

4.2.12 Ecological Environment, Flora and Fauna

There is no wildlife, bird sanctuaries or conservation wetlands within the project site. There are no rare, endangered, or endemic species recorded. The ecology of the project area is not substantially rich in diversity or high in endemism.

4.2.13 Noise pollution Levels

The project will ensure it adheres to the noise permissible levels in accordance with the provisions of EMCA (Noise and Excessive Vibrations) Regulations of 2009 as presented in Tables 4-1 and 4-2.

Table 4-1: Maximum permissible noise levels

Zone		**Sound Level Limits dB(A) (Leq,14 h)**		**Noise Rating Level (NR) (Leq,14 h)**	
		Day	**Night**	**Day**	**Night**
A.	Silent Zone	40	35	30	25
B	Places of worship	40	35	30	25
C.	Residential : Indoor	45	35	35	25
	Outdoor	50	35	40	25
D.	Mixed residential (with some commercial and places of entertainment)	55	35	50	25
E.	Commercial	60	35	55	25

Time Frame

- Day: 6.01 a.m. - 8.00 p.m.
- Night: 8.01 p.m. - 6.00 a.m. (Leq, 10h)

Table 4-2: Maximum permissible noise levels for construction sites

Facility		***Maximum Noise Level Permitted (Leq) in dB(A)***	
		Day	**Night**
(i)	Health facilities, educational institutions, homes for disabled etc.	60	35
(ii)	Residential	60	35
(iii)	Areas other than those prescribed in (i) and (ii)	75	65

Source: EMCA (Noise and Excessive Vibrations) Regulations of 2009

4.2.14 Air quality Tolerance Levels

According to EMCA (Air Quality Regulations) 2014, the air tolerance levels that will be adhered to by the Contractor are presented in Table 4-3:

Table 4-3: Air quality Tolerance Limits

11 (r 5,6, 7,10,11, 20,33,38)

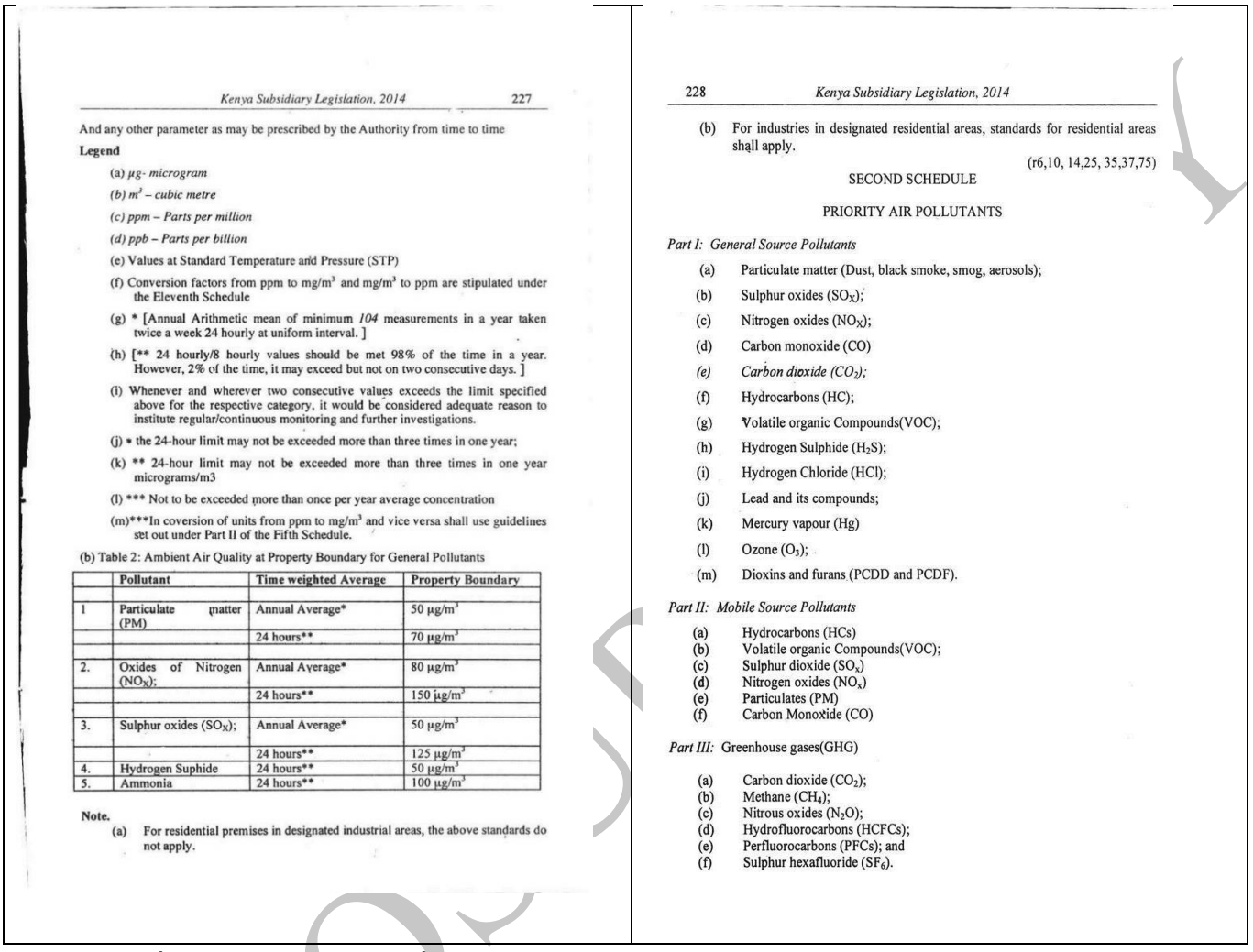
FIRST SCHEDULE

AMBIENT AIR QUALITY TOLERANCE LIMITS

Table 1: Ambient Air Quality Tolerance Limits

	Pollutant	Time weighted Average	Industrial area	Residential, Rural & Other area	Controlled areas***
1.	Sulphur oxides (SO_X);	Annual Average*	80 µg/m³	60 µg/m³	15 µg/m³
		24 hours**	125 µg/m³	80 µg/m³	30 µg/m³
		Annual Average		0.019 ppm/50µg/m³	
		Month Average			
		24 Hours		0.048ppm /125µg/m³	
		One Hour			
		Instant Peak		500 µg/m³	
		Instant Peak (10 min)		0.191 ppm	
2.	Oxides of Nitrogen (NO_X);	Annual Average*	80 µg/m³	60 µg/m³	15 µg/m³
		24 hours**	150 µg/m³	80 µg/m³	30 µg/m³
		8 hours			
		Annual Average		0.2 ppm	
		Month Average		0.3 ppm	
		24 Hours		0.4 ppm	
		One Hour		0.8 ppm	
		Instant Peak		1.4 ppm	
3.	Nitrogen Dioxide	Annual Average	150 µg/m³	0.05 ppm	
		Month Average		0.08 ppm	
		24 Hours	100 µg/m³	0.1 ppm	
		One Hour		0.2 ppm	
		Instant Peak		0.5 ppm	
4.	Suspended Particulate matter (SPM)	Annual Average*	360 µg/m³	140 µg/m³	70 µg/m³

	Pollutant	Time weighted Average			
		24 hours**	500 µg/m³	200 µg/m³	100 µg/m³
			Industrial area	Residential, Rural & Other area	Controlled areas***
		mg/Kg			
		Annual Average****		100 µg/m³	
		24 hours***		180 µg/m³	
5.	Respirable Particulate Matter (<10µm) (RPM)	Annual Average*	70 µg/m³	50 µg/m³	50 µg/m³
		24 hours**	150 µg/Nm³	100 µg/Nm³	75 µg/Nm³
6.	$PM_{2.5}$	Annual Average	35 µg/m³		
		24 hours	75 µg/m³		
7.	Lead (Pb)	Annual Average*	1.0 µg/Nm³	0.75 µg/Nm³	0.50 µg/m³
		24 hours**	1.5 µg/m³	1.00 µg/m³	0.75 µg/m³
		Month Average		2.5	
8.	Carbon monoxide (CO)/ carbon dioxide (CO_2)	8 hours**	5.0 mg/m³	2.0 mg/m³	1.0 mg/m³
		1 hour	10.0 mg/m³	4.0 mg/m³	2.0 mg/m³
		mg/Kg			
		24 hours**			
9.	Hydrogen Sulphide	24 hours**	150µg/m³		
10.	Non-methane hydrocarbons				
		instant Peak	700ppb		
11.	Total VOC	24 hours**	600 µg/m³		
12.	Ozone	1-Hour	200 µg/m³	0.12 ppm	
		8 hour (instant Peak)	120 µg/m³	1.25 ppm	



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And any other parameter as may be prescribed by the Authority from time to time

Legend

(a) *µg- microgram*

(b) *m^3 – cubic metre*

(c) *ppm – Parts per million*

(d) *ppb – Parts per billion*

(e) Values at Standard Temperature and Pressure (STP)

(f) Conversion factors from ppm to mg/m^3 and mg/m^3 to ppm are stipulated under the Eleventh Schedule

(g) * [Annual Arithmetic mean of minimum *104* measurements in a year taken twice a week 24 hourly at uniform interval.]

(h) [** 24 hourly/8 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed but not on two consecutive days.]

(i) Whenever and wherever two consecutive values exceeds the limit specified above for the respective category, it would be considered adequate reason to institute regular/continuous monitoring and further investigations.

(j) * the 24-hour limit may not be exceeded more than three times in one year;

(k) ** 24-hour limit may not be exceeded more than three times in one year micrograms/m3

(l) *** Not to be exceeded more than once per year average concentration

(m)***In coversion of units from ppm to mg/m^3 and vice versa shall use guidelines set out under Part II of the Fifth Schedule.

(b) Table 2: Ambient Air Quality at Property Boundary for General Pollutants

	Pollutant	Time weighted Average	Property Boundary
1	Particulate matter (PM)	Annual Average*	50 µg/m^3
		24 hours**	70 µg/m^3
2.	Oxides of Nitrogen (NO_X);	Annual Average*	80 µg/m^3
		24 hours**	150 µg/m^3
3.	Sulphur oxides (SO_X);	Annual Average*	50 µg/m^3
		24 hours**	125 µg/m^3
4.	Hydrogen Suphide	24 hours**	50 µg/m^3
5.	Ammonia	24 hours**	100 µg/m^3

Note.

(a) For residential premises in designated industrial areas, the above standards do not apply.

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(b) For industries in designated residential areas, standards for residential areas shall apply.

(r6,10, 14,25, 35,37,75)

SECOND SCHEDULE

PRIORITY AIR POLLUTANTS

Part I: General Source Pollutants

(a) Particulate matter (Dust, black smoke, smog, aerosols);
(b) Sulphur oxides (SO_X);
(c) Nitrogen oxides (NO_X);
(d) Carbon monoxide (CO)
(e) *Carbon dioxide (CO_2);*
(f) Hydrocarbons (HC);
(g) Volatile organic Compounds(VOC);
(h) Hydrogen Sulphide (H_2S);
(i) Hydrogen Chloride (HCl);
(j) Lead and its compounds;
(k) Mercury vapour (Hg)
(l) Ozone (O_3);
(m) Dioxins and furans (PCDD and PCDF).

Part II: Mobile Source Pollutants

(a) Hydrocarbons (HCs)
(b) Volatile organic Compounds(VOC);
(c) Sulphur dioxide (SO_x)
(d) Nitrogen oxides (NO_x)
(e) Particulates (PM)
(f) Carbon Monoxide (CO)

Part III: Greenhouse gases(GHG)

(a) Carbon dioxide (CO_2);
(b) Methane (CH_4);
(c) Nitrous oxides (N_2O);
(d) Hydrofluorocarbons (HCFCs);
(e) Perfluorocarbons (PFCs); and
(f) Sulphur hexafluoride (SF_6).

Source: EMCA (Air Quality Regulations) 2014

4.2.15 Water Quality – Standard Effluent Discharge into the Environment

The project will adhere to the standard effluent discharge into the environment stipulated by Environmental Management and Co-ordination (Water Quality) Regulations, 2006 presented in Table 4-4.

Table 4-4: Standard effluent discharge into the environment

Parameter	Max Allowable (Limits)
1,1,1-trichloroethane (mg/l)	3
1,1,2-trichloethane (mg/l)	0.06
1,1-dichloroethylene	0.2
1,2-dichloroethane	0.04
1,3-dichloropropene (mg/l)	0.02

Parameter	Max Allowable (Limits)
Alkyl Mercury compounds	Nd
Ammonia, ammonium compounds, NO_3 compounds and NO_2 compounds (Sum total of ammonia-N times 4 plus nitrate-N and Nitrite-N) (mg/l)	100
Arsenic (mg/l)	0.02
Arsenic and its compounds (mg/l)	0.1
Benzene (mg/l)	0.1
Biochemical Oxygen Demand (BOD 5days at 20 ^oC) (mg/l)	30
Boron (mg/l)	1.0
Boron and its compounds – non marine (mg/l)	10
Boron and its compounds –marine (mg/l)	30
Cadmium (mg/l)	0.01
Cadmium and its compounds (mg/l)	0.1
Carbon tetrachloride	0.02
Chemical Oxygen Demand (COD (mg/l)	50
Chromium VI (mg/l)	0.05
Chloride (mg/l)	250
Chlorine free residue	0.10
Chromium total	2
cis –1,2- dichloro ethylene	0.4
Copper (mg/l)	1.0
Dichloromethane (mg/l)	0.2
Dissolved iron (mg/l)	10
Dissolved Manganese(mg/l)	10
E.coli (Counts / 100 ml)	Nil
Fluoride (mg/l)	1.5
Fluoride and its compounds (marine and non-marine) (mg/l)	8
Lead (mg/l)	0.01
Lead and its compounds (mg/l)	0.1
n-Hexane extracts (animal and vegetable fats) (mg/l)	30
n-Hexane extracts (mineral oil) (mg/l)	5
Oil and grease	Nil
Organo-Phosphorus compounds (parathion, methyl parathion, methyl demeton and Ethyl parantrophenyl phenylphosphorothroate, EPN only) (mg/l)	1.0
Polychlorinated biphenyls, PCBs (mg/l)	0.003
pH (Hydrogen ion activity marine)	5.0-9.0

Parameter	Max Allowable (Limits)
pH (Hydrogen ion activity--non-marine)	6.5-8.5
Phenols (mg/l)	0.001
Selenium (mg/l)	0.01
Selenium and its compounds (mg/l)	0.1
Hexavalent Chromium VI compounds (mg/l)	0.5
Sulphide (mg/l)	0.1
Simazine (mg/l)	0.03
Total Suspended Solids, (mg/l)	30
Tetrachloroethylene (mg/l)	0.1
Thiobencarb (mg/l)	0.1
Temperature (in degrees Celsius) based on ambient temperature	⍰ 3
Thiram (mg/l)	0.06
Total coliforms (counts /100 ml)	30
Total Cyanogen (mg/l)	Nd
Total Nickel (mg/l)	0.3
Total Dissolved solids (mg/l)	1200
Colour in Hazen Units (H.U)	15
Detergents (mg/l)	Nil
Total mercury (mg/l)	0.005
Trichloroethylene (mg/l)	0.3
Zinc (mg/l)	0.5
Whole effluent toxicity	
Total Phosphorus (mg/l)	2 Guideline value
Total Nitrogen	2 Guideline value

Source: EMCA (Water Quality) Regulations, 2006

4.3 Social Characteristics of the Project Area

4.3.1 Demographic Features of Wajir County

4.3.1.1 Population Size, Composition and Distribution

The 2019 Kenya Population and Housing Census indicate that the county had a total population of 781 214 which is projected to reach 848,385, 915,082 and 964,154 in 2022, 2025 and 2027 respectively. Males comprise 50.4 percent of the population and female population accounts for the remaining 49.6 percent. According to the KNBS analytical report and projections, the county is projected to record the following statistics between 2020 and 2025: a net migration of -2,039; 134,111 births; 20,815 deaths; crude birth rate of 31.2/1,000; and crude death rate of 4.8/1,000

4.3.1.2 County Population Structure by Age Structure

Table 4-5 gives population projections by Sub County and sex. In terms of population distribution, the highest population lives in Wajir South which carries 37 percent of the county population while Tarbaj carries the least at 7 percent.

Table 4-5: County Population Structure by Sub County

Sub-County	2019 Male	2019 Female	2019 TOTAL	2022 Male	2022 Female	2022 TOTAL	2025 Male	2025 Female	2025 TOTAL	2027 Male	2027 Female	2027 TOTAL
COUNTY	415,374	365,840	781,214	451,061	397,271	848,385	486,552	428,530	915,082	512,644	451,510	964,154
WAJIR NORTH	58,786	53,297	112,083	63,845	57,879	121,724	68859	62430	131,289	72,552	65,778	138,330
ELDAS	44,743	43,759	88,502	48,590	47,522	96,112	52410	51257	103,668	55,221	54,006	109,227
WAJIR SOUTH	159,560	131,369	290,929	173,280	142,665	315,945	186902	153880	340,782	196,925	162,132	359,057
TARBAJ	27,141	30,086	57,227	29,475	32,673	62,148	31792	35241	67,033	33,497	37,131	70,628
WAJIR EAST	59,359	51,292	110,651	64,463	55,702	120,165	69531	60081	129,612	73,259	63,303	136,563
WAJIR WEST	65,785	56,037	121,822	71,442	60,855	132,297	77058	65639	142,697	81,190	69,159	150,349

Source. Calculated using KNBS projections

The county recorded intercensal population growth rate of 2.7 percent on average annually Vis a Vis the national average rate of 2.2 percent annually. The population growth compares favourably with the total resource growth rate averaging 3.4 percent annually. The equitable share that constitutes the largest proportion of the county revenues grew on average by 3.2 percent annually. In terms of the age structure, Table 5 below reveals that 85 percent of the population is below 35 years.

4.3.1.3 Population Density and Distribution

Wajir has an average density of 15 persons per square kilometer as at 2022, this is projected to grow to 17 persons by 2027. In Table 4-6. In terms of sub-counties, Tarbaj is the least densely populated at 6 people per square kilometer as at 2022, slightly growing to 7 people by 2027. Wajir East is the most densely populated standing at 30 persons per square kilometer in 2022 and growing to 34 by 2027.

Table 4-6: County Population Structure by Sub County

Sub-County	2019 Census	Land Mass	Density	2022 Projections	Density	2025 Projections	Density	2027 Projections	Density
Wajir North	112,083	7,930	14	121,720	15	131,289	17	138,330	17
Eldas	88,502	4,492	20	96,112	21	103,668	23	109,227	24
Wajir South	290,929	21,646	13	315,944	15	340,782	16	359,057	17
Tarbaj	57,227	9,608	6	62,148	6	67,033	7	70,628	7
Wajir East	110,651	4,053	27	120,165	30	129,612	32	136,563	34
Wajir West	121,822	9,044	13	132,297	15	142,697	16	150,349	17
Total	**781,214**	**56,773**	**14**	**848,385**	**15**	**915,082**	**16**	**964,154**	**17**

Source: KNBS projections data

4.3.1.4 County Urban Population

Guided by the Urban Areas and Cities Act No. 13 of 2011 as amended in 2019, the county has six urban areas consisting of Wajir Municipality, Habaswein, Bute, Eldas, Griftu and Tarbaj Towns. The urbanized population stand at 23 percent which is projected to slightly grow to 25 percent by 2027. The urban population is projected using the 4 percent national average urbanization growth per annum. Wajir Municipality carries the highest urbanized population at 51 percent, followed by Habaswein at 28 percent while Bute, Eldas, Griftu and Tarbaj stand at 8 percent, 7 percent, 4 percent and 2 percent respectively. Table 4-7 below tabulates the urban population in the county. Wajir town is the largest urban centre with projected population of over 100,000 residents by 2022. It is also the only municipality in the county

Table 4-7: County Population Structure by Sub County

Town	2019 Census			2022 Projections			2025 projections			2027 Projections		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Wajir	47,940	42,173	**90,116**	53,926	47,439	**101,365**	60,659	53,362	**114,022**	65,609	57,717	**123,326**
Habaswein	27,042	22,541	**49,599**	30,419	25,356	**55,774**	34,217	28,522	**62,738**	37,009	30,849	**67,858**
Bute	7,275	6,832	**14,108**	8,183	7,685	**15,868**	9,205	8,645	**17,850**	9,956	9,350	**19,306**
Eldas	6,636	5,633	**12,270**	7,465	6,336	**13,801**	8,397	7,128	**15,524**	9,082	7,709	**16,791**
Griftu	4,322	3,612	**7,935**	4,862	4,063	**8,925**	5,469	4,570	**10,039**	5,915	4,943	**10,858**
Tarbaj	1,597	1,549	**3,146**	1,796	1,742	**3,539**	2,021	1,960	**3,981**	2,186	2,120	**4,306**

Source: KNBS projections data

4.3.1.5 Population Density and Distribution

Wajir has an average density of 15 persons per square kilometer as at 2022, this is projected to grow to 17 persons by 2027. In Table 4-8 in terms of sub-counties, Tarbaj is the least densely populated at 6 people per square kilometer as at 2022, slightly growing to 7 people by 2027. Wajir East is the most densely populated standing at 30 persons per square kilometer in 2022 and growing to 34 by 2027.

Table 4-8: County Population Structure by Sub County

Sub-County	2019 Census	Land Mass	Density	2022 Projections	Density	2025 Projections	Density	2027 Projections	Density
Wajir North	112,083	7,930	14	121,720	15	131,289	17	138,330	17
Eldas	88,502	4,492	20	96,112	21	103,668	23	109,227	24
Wajir South	290,929	21,646	13	315,944	15	340,782	16	359,057	17
Tarbaj	57,227	9,608	6	62,148	6	67,033	7	70,628	7
Wajir East	110,651	4,053	27	120,165	30	129,612	32	136,563	34
Wajir West	121,822	9,044	13	132,297	15	142,697	16	150,349	17
Total	**781,214**	**56,773**	**14**	**848,385**	**15**	**915,082**	**16**	**964,154**	**17**

Source: KNBS projections data

4.3.1.6 Population of Persons with Disability

Table 4-9 shows the population of persons living with disability in the county by category; there is a population of 6,886 persons that lived with disability at the time of census in 2019.

Table 4-9: County Population Structure by Sub County

Age	Sex	Difficulty in Seeing	Difficulty in Hearing	Mobility	Cognition	Difficulty with Self-care	Difficulty in Communicating	Total	Proportion
Total	Male	447	543	877	664	751	422	3704	54%
	Female	383	462	752	606	641	338	3182	46%
0-14 years	Male	105	153	213	204	226	126	1027	29%
	Female	88	129	211	201	214	108	951	
15-24 years	Male	119	157	244	211	249	140	1120	28%
	Female	93	131	161	154	142	98	779	
25-34 years	Male	50	70	109	84	82	49	444	13%
	Female	39	73	100	95	92	49	448	
35-54 years	Male	57	104	148	104	109	67	589	15%
	Female	47	64	111	80	79	52	433	
55+ years	Male	116	59	163	61	85	40	524	16%
	Female	116	65	169	76	114	31	571	
Proportion		12.1%	14.6%	23.7%	18.4%	20.2%	11.0%	6886	

Source: CSO, Wajir

In terms of category, most of the people with disability have a problem with mobility at 23.7 percent of the population, followed by difficulty with self-care at 20.2 percent and cognition problem at 18.4 percent. The least is difficulty in hearing at 11 percent. Geographically, Wajir South constituency has the highest population of people with disability at 36 percent, followed by Eldas at 29 percent and Tarbaj has the least at 5 percent.

4.3.1.7 Demographic Dividend Potential

A demographic dividend is the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working age population (15 to 64) is larger than the non-working age share of the population.

Our ability as a country to seize the opportunities available for our young population will depend on how we address the key challenges facing Kenya's education, health and vocational training. If Kenya does not act, the demographic dividend risks could become a demographic disaster, since armies of unemployed, frustrated and unemployable youth fall prey to social vices like violent extremism and fanatic groups.

A demographic window of opportunity is a period when the proportion of a County's population aged below 15 years falls below 30 percent of the total while at the same time, the proportion of those aged 65 years and above is still below 15 percent of the total population. For Wajir County, demographers estimate the window to open in the year 2072 and shut around the year 2112. The projections for 2022,

2025 and 2027 indicate that the population of ages 0-14 and 65+ will be around 45 and 1.6 percent, 42 and 1.7 percent, and 41 and 1.7 percent respectively. The dependency ratio is estimated at 87, 79, and 75 for 2022, 2025 and 2027 respectively. Table 4-10 below indicates the demographic dividend potential for Wajir County.

Table 4-10: County Population Structure by Sub County

Category	2019 (Census)	2022	2025	2027
Population Size	781214	848,385	915,138	964,213
Population below 15 (%)	50.26	45.05	42.38	40.96
Population 15 – 64 (%)	48.25	53.37	55.94	57.31
Population 65 and above (%)	1.48	1.61	1.68	1.73
Dependency Ratio	107.3	87.4	78.8	74.5
Fertility Rate	6.7	6.1		

Source: KNBS Analytical Report

The dependency ratio indicator gives insight into the number of people of non-working age compared with the number of those of working age. It is also used to understand the relative economic burden of the workforce and has ramifications for taxation. The dependency ratio is also referred to as the total or youth dependency ratio. The dependency ratios for Wajir show a decreasing dependency in the plan period from a high of 87 in 2022 down to 75 by 2027. However, a time bomb for the county lies in the young people that are out of school who may not have any skills, education or knowledge by the time they are in the productive age category. It is estimated that 64 percent of children eligible for enrolment in basic education institutions are out of school as per the 2022 projections. In order to reap the demographic dividend, the county and national governments working with the partners must take deliberate and strategic steps to ensure children get access to education and skills to enable them to be productive. The crisis of low enrolment in basic education is compounded by the fact that there is even a lower enrolment in Technical and Vocational Training within the county. The VTCs that are operated by the county have only been able to enrol 606 for technical skills training. Only 4200 adults are enrolled for adult education classes.

4.3.2 Economic Activities

Many residents in the project area are pastoralists who engage in the buying, selling, and herding of livestock. There are numerous small businesses, including shops, kiosks, and stalls which cater to the daily needs of the residents and offer various products and services. There is an existing market structure which is structurally sound but not currently in use despite it being complete.

Within the market compound, there are 4 door latrines that are vandalized and open defection was witnessed within the facilities. The market also has a garbage bin which is not utilized.

The residents also carry out small scale mining noted from the presence of quarries in the informal settlement.

Figure 4-10: Pastoralism

4.3.3 Education

The settlement has several private and public schools. Some of the schools within the settlement include Barwaqo Secondary School, Senior Chief Adano girls' secondary school.

4.3.4 Vulnerability and Marginalized Profile

The project area has the presence of pastoralist communities that meets the criteria in OP 4.10 on Indigenous Peoples. The project area is inhabited predominantly by the Somalis who are the marginalized and vulnerable groups by the fact they have been geographically and historically marginalized and underserved. The project will ensure the vulnerable and marginalized groups are positively impacted by the project. Continuous engagement with the communities will be undertaken during all phases of project implementation.

The project area been within Barwaqo sub-location, Barwaqo ward, Wajir East Sub-County the vulnerability to hazards is low and the drought prevalence is high as shown in figure 4-11 and figure 4-12 respectively.

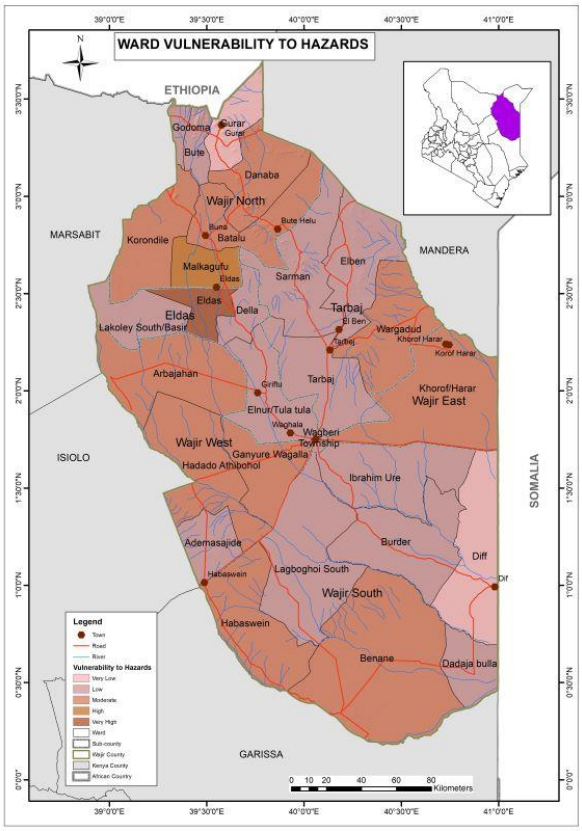


Figure 4-11: Vulnerability to hazards
Source: Wajir County Hazard Atlas

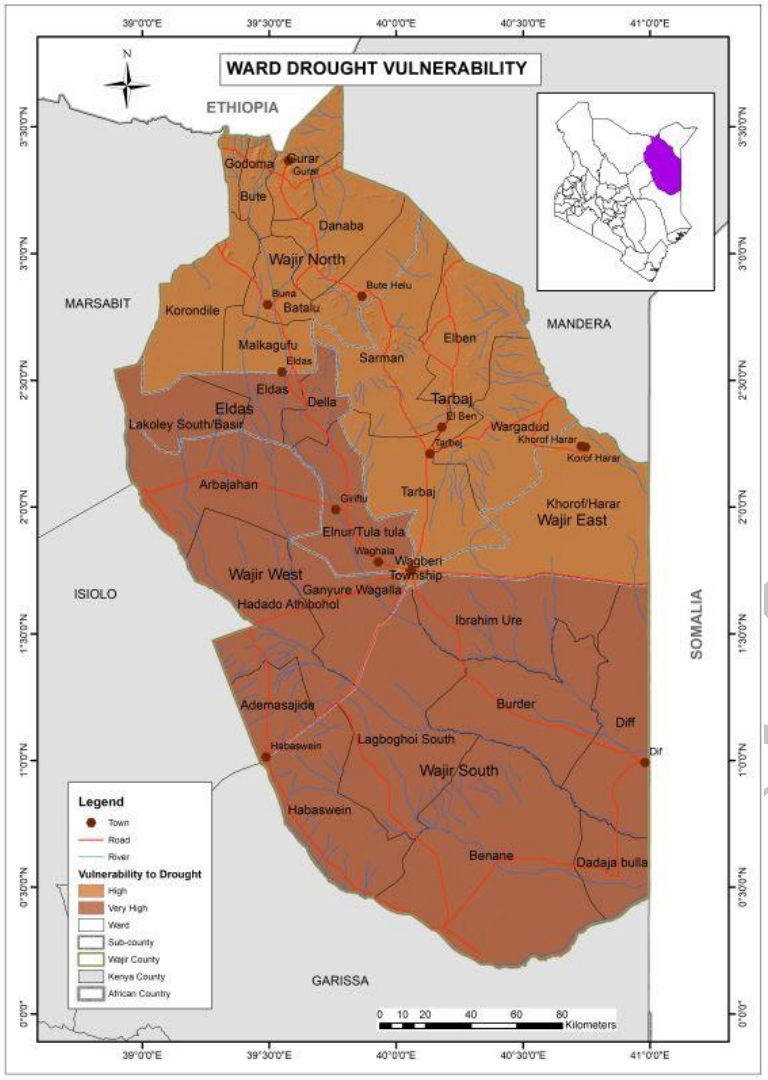


Figure 4-12: Drought vulnerability
Source: Wajir County Hazard Atlas

CHAPTER 5: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

5.1 Introduction

Development of infrastructure projects is dealt with under several laws, By-laws, regulations, and Acts of parliament, as well as policy documents and it is not possible to bring all these statutes under one heading. This chapter therefore outlines the policy, legal, regulatory, and institutional framework for Environmental Management in Kenya which calls for compliance by all development Projects.

5.2 Environmental Policy Framework

5.2.1 The National Environment Action Plan (NEAP)

The National Environmental Action Plan (NEAP) is one of the anchor policies that support environmental protection and is relevant to this project. The NEAP was a deliberate policy effort to integrate environmental considerations into the Country's economic and social development. The integration process was to be achieved through a multi-sectoral approach to develop a comprehensive framework to ensure that environmental Management and conservation of natural resources are an integral part of societal decision-making.

Relevance to the proposed project.

The NEAP has indicated how resources within sections of the country should be managed to ensure their sustainable utilization. The project should be implemented and operated based on these guidelines.

5.2.2 National Land Policy 2009

Chapter 2 of the policy is linked to constitutional reforms; regulation of property rights is vested in the government by the Constitution with powers to regulate how private land is used in order to protect the public interest. The Government exercises these powers through compulsory acquisition and development control. Compulsory acquisition is the power of the State to take over land owned privately for a public purpose. However, the Government must make prompt payment of compensation.

Chapter 4 of the land policy under Environmental Management Principles, the policy provides actions for addressing environmental problems such as the degradation of natural resources, soil erosion, and pollution. For the management of the urban environment, it provides guidelines to prohibit the discharge of untreated waste into water sources by industries and local authorities; it also recommends for appropriate waste management systems and procedures, including waste and waste water treatment, reuse and recycling.

The policy goes further to advocate for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Public participation has been indicated as key in the monitoring and protection of the environment. Chapter 4 further advocates for the Implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause, and encourage industries to use cleaner production technologies.

Relevance

The project proponent shall implement the ESMP to ensure that the environment within project area and adjacent areas is not polluted by the subsequent activities during construction and operational phases.

5.2.3 Kenya Vision 2030

Kenya Vision 2030 is the national development blueprint for period 2008 to 2030 and was developed following on the successful implementation of the Economic Recovery Strategy of Wealth and Employment Creation which saw the country's economy back on the path to rapid growth since 2002. GDP growth rose from 5.3% to 5.4% in 2020 but dropped to 5.1 in 2021 (KNBS 2021). The Kenya Vision 2030 aspires for the country firmly interconnected through a network of roads, railways, ports, airports, water and sanitation facilities and telecommunications. The Kenya Vision 2030 aims at ensuring no area is considered remote and should be able to have access to basic commodities.

This goal is expected to be achieved by developing basic infrastructure services such as roads, streetlights, water and sanitation facilities, storm water drains, footpaths, and others while ensuring that the country has a clean, secure and sustainable environment by 2030 through reduction of pollution and improvement of waste management.

Relevance

The proposed project is in line with the vision 2030 as:

- It will also lead to an improvement of a reliable and efficient road infrastructure facility and provision of faster and efficient mode of transport.
- It will lead to a secure environment through provision of security lights and high mast flood lights that will play a great role in fighting insecurity at the Informal Settlement
- It will lead to creation of employment opportunities for the community

5.2.4 The National Poverty Eradication Plan (NPEP)

The objective of NPEP is to alleviate poverty in rural and urban areas by 50 percent by the year 2015 as well as the capabilities of the poor and vulnerable groups to earn income. It also aims to narrow gender and geographical disparities and a healthy, better educated and more productive population. This plan has been prepared in line with the goals and commitments of the World Summit for the Sustainable Development (WSSD) of 1995.

Relevance to the proposed project.

Since unemployment is among the indicators of poor societies, pursuits to address it build individuals capacity to relieve poverty. The job opportunities anticipated during the project cycle will aid in improving livelihoods for the beneficiaries.

5.2.5 The Kenya Environmental Sanitation and Hygiene Policy 2016-2030

The Kenya Environmental Sanitation and Hygiene Policy 2016-2030 (KESHP) envisions a clean, healthy, and economically prosperous Kenya free from sanitation and hygiene related diseases and seeks to ensure universal access to improved sanitation, clean and healthy environment by 2030.

Relevance

The Contractor shall need to abide by this provision.

5.2.6 Sessional Paper No. 3 of 2016 on National Housing Policy

The Sessional Paper No. 3 of 2016 on National Housing Policy is expected to ensure progressive realization of the right to accessible and adequate housing and reasonable standards of sanitation for every person as per Article 43 of the Constitution. It also intends to arrest the deteriorating housing conditions countrywide and bridge the shortfall in housing stock arising from demand that far surpasses supply particularly for low-income housing in urban areas. This scenario is because of high population growth rate, rapid urbanization, widespread poverty, escalating costs of providing housing and cumbersome approval processes.

The shortage in affordable housing is manifested through overcrowding and proliferation of slums and informal settlements. In the rural areas, the problem manifests itself in poor quality of the housing fabric and lack of basic services such as clean drinking water. The Policy therefore aims at: -

- Enabling the low-income households to access housing, basic services and infrastructure necessary for a healthy living environment especially in urban and peri-urban areas;
- Encouraging integrated, participatory approaches to slum upgrading and improvement, including income generating activities that effectively combat poverty.
- Creating a National Social Housing Development Fund to be financed through budgetary allocations and financial support from development partners and other sources for rental social housing and related infrastructure, and other low-cost housing programmes.
- Establishing a framework that enables the National Social Housing Development Fund to support research and slum upgrading.
- Promoting and funding of collaborative research on the development of low-cost building materials and construction technologies.
- Contributing to the harmonization of existing laws governing urban development factors that interact with housing delivery especially housing infrastructure to facilitate more cost-effective housing development; and
- Facilitating increased investment by the private sector in the production of housing for low and middle-income urban dwellers.

5.2.7 Kenya Affordable Housing Programme Development Framework Guidelines

The purpose of these Development Framework Guidelines (DFGs) is to provide qualitative guidance on the key components of the Affordable Housing Programme. These guidelines provide instruction on how

the vision and policies of the GoK, through the State Department of Housing, Urban Development (SDHUD), will be implemented and how progress will be monitored and reviewed. The aim of the guidelines is to set out the following:

- The rationale, priority needs, and trade-offs to achieve consistency between the assessment, policy formulation, and delivery of affordable housing.
- The affordable housing delivery mechanisms and the means to ensure their financial viability, including the different sources of subsidy.
- Consistent information for key stakeholders on the process of the development and delivery of affordable housing.

5.2.8 The National Policy for Disaster Management.

Regulating urban development to only those areas which are suitable, avoiding ecologically fragile areas; Encouraging sustainable use of resources and ecosystems; Undertaking EIA for all private and public projects increase public awareness on environment.

The proponent has integrated climate change impacts such as extreme flooding into the design of the project. Adequate drainage will be constructed along the proposed access road. Promoting the mainstreaming of disaster management and climate change into development planning and management for sustainability. Providing for well-structured participation of society in disaster management by integrating traditional coping strategies into the disaster management systems and supporting climate change disaster risk reduction initiatives among others.

5.2.9 The National HIV Policy

Ensuring that new development projects encourage preventive and responsible behaviour both for the workers involved in such projects and the local people within which projects are taking place as a goal towards curtailing the spread of the disease.

The proponent is advised to put in place adequate measures to ensure that implementation of the proposed projects does not heighten the spreads of HIV and AIDS

5.2.10 The National Gender and Development Policy, 2011.

Considering the needs and aspirations of all Kenyan men, women, boys, and girls across economic, social, and cultural lines and ensuring the empowerment of women.

Implementation of the proposed project will create employment and business opportunities. Where such opportunities are directly linked to the proponent and the contractor (especially during construction and operation) the proponent is advised to ensure that there is equal opportunity across gender. They are further advised (applying the principles of sustainable development) not to discriminate against people with disabilities.

5.2.11 National Sustainable Waste Management Policy

The National Sustainable Waste Management Policy outlines the benefits of managing waste as a resource in Kenya, including economic, social, and environmental advantages. The policy recognizes that sustainable waste management is critical to delivering on Kenya's constitutional right to a clean and healthy environment, achieving sustainable development goals, and realizing the nation's leadership in the blue economy. The policy aims to establish an enabling regulatory environment that prioritizes waste minimization and contributes to a circular economy. It also supports county governments' mandate to provide sustainable waste management services and provides the framework for coordinated action at the national level. The policy proposes a waste hierarchy that includes reducing waste generation, reusing materials, effective and affordable waste collection, and proper treatment and disposal of residual waste in well-engineered and regulated landfills. The policy also advocates for the creation of green jobs and the formalization of the waste picker sector to improve livelihoods.

5.2.12 National Environment Policy, 2013

Kenya has a National Environment Policy prepared and approved in 2013 by the Ministry of Environment, Water and Natural Resources. Its overall goal is to provide better quality of life in Kenya for present and future generations through sustainable management and use of the environment and natural resources. The policy has nine chapters which provide information on how this goal will be achieved through promoting Environmental Quality Health whereby the most pressing problems include but not limited to water supply and sanitation. The relevant policy statements under this section are three; 1) Improve the management and conservation of water supply sources, 2) Promote technologies for efficient and safe water use, especially in respect to wastewater use and recycling and 3) Provide incentives for private sector investment and development of appropriate water and sanitation technologies and infrastructure for waste management.

Relevance

The Project shall implement the Environmental and Social Management and Monitoring Plan (ESMMP) to mitigate the impacts of the resulting impacts during the construction and operational phases of the Project; this will ensure that the sensitive ecosystems are not destabilized by the subsequent Project activities.

5.2.13 National Water Policy

The overall goal of the policy is to guide the achievement of sustainable management, development, and use of water resources in the country. The overall objective of the policy is to provide a framework that is dynamic, innovative, and effective for re-engineering the water sector.

It builds on the successes, challenges, and lessons learnt from the previous policies of 1999, 2012, and the provisions of the Kenya Vision 2030 on water conservation and management. The water policy proposes to mitigate the challenges and threats facing the water sector by ensuring that coordination and

accelerated partnerships are mainstreamed in the management and provision of water resources. It also sets the goal of enhancing protection of watersheds and other catchment areas in the country.

The specific objectives related to water provision are:

- To accelerate the delivery of water supply services through progressive realization of the human right to water towards universal access,
- To promote the development of water harvesting and storage infrastructure,
- To strengthen sustainable water resource management in the country, and
- To mainstream climate change considerations and disaster risk reduction through the water sector.

5.3 Overview of Relevant Legislation

5.3.1 Constitution of Kenya 2010

Article 42 of Bill of Rights of the Kenyan Constitution provides that every Kenyan has a right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislation and other measures.

Part II of Chapter 5 of the Constitution (Environment and Natural Resources), (I) the State clearly undertakes to carry out the following:

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

Part (II) “Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. Chapter 5 on Land and Environment emphasizes on the following:

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

- County governments shall manage land in the trust of the people according to the constitution.

Further, Article 70 states that if a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed, or threatened, the person may apply to a court for redress. The project should ensure compliance with the Constitution in so far as equitable sharing of the resources between the stakeholders is concerned.

Relevance to the proposed project.

The project should ensure that the sustainability of livelihoods and biological resources within the project areas are protected. Any development proposals should also be cognizant of the increased powers under the Constitution given to communities and individuals to enforce their rights through legal redress.

5.3.2 The Environmental Management and Coordination (Amendment) Act, 2015

The Act provides for the establishment of a legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Just as in the new constitution, Part II of EMCA confers to every person the right to a clean and healthy environment and to its judicial enforcement. The new Constitution and EMCA therefore obligates the project's Executing Agency and Contractor to work in a clean environment and not to contravene the right of any person within its zone of influence, to this entitlement. EMCA has provided for the development of several subsidiary legislations and guidelines which govern environmental management and are relevant to the project implementation. These include:

a) The Environmental (Impact Assessment and Audit) Regulations, 2009 Legal Notice No. 101

The Environmental Impact Assessment and Audit Regulations state in Regulation 3 states that "the Regulations should apply to all policies, plans, programmes, projects and activities specified in Part IV, Part V and the Second Schedule of the Act.

Part III of the Regulations indicates the procedures to be taken during preparation, submission and approval of the environmental project report.

Part 4(1) of the Regulation further states that: "no Proponent shall implement a project"

a) Likely to have a negative environmental impact; or
b) For which an environmental impact assessment is required under the Act or these Regulations, unless an environmental impact assessment has been concluded and approved in accordance with these Regulation.

Relevance

This ESIA CPR report has been compiled to comply with EMCA and the Environmental (Impact Assessment and Audit) Regulations, 2003.

b) The Environmental Management and Coordination (Waste Management) Regulations, 2006 Legal Notice No. 121

These Regulations were published in the Kenya Gazette Supplement No. 69, Legislative Supplement No. 37, and Legal Notice No. 121 of 29th September, 2006. The regulations provide details on management (handling, storage, transportation, treatment and disposal) of various waste streams including:

- Domestic waste;
- Industrial waste;
- Hazardous and toxic waste;
- Pesticides and toxic substances;
- Biomedical wastes; and
- Radioactive waste.

Regulation No. 4 (1) makes it an offence for any person to dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle. Regulation 5 (1) provides categories of cleaner production methods that should be adopted by waste generators in order to minimize the amount of waste generated and they include:

I. Improvement of production process through
   - Conserving raw materials and energy;
   - Eliminating the use of toxic raw materials and wastes;
   - Reducing toxic emissions and wastes.

II. Monitoring the product cycle from beginning to end by
   - Identifying and eliminating potential negative impacts of the product;
   - Enabling the recovery and re-use of the product where possible,
   - Reclamation and recycling and
   - Incorporating environmental concerns in the design and disposal of a product.

Regulation 6 requires waste generators to segregate waste by separating hazardous waste from non-hazardous waste for appropriate disposal. Regulation 15 prohibits any industry from discharging or disposing of any untreated waste in any state into the environment. Regulation 17 (1) makes it an offence for any person to engage in any activity likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by NEMA.

Relevance

The proposed project, during construction phases shall generate wastes which shall need to be disposed of as per the guidelines in the regulations.

c) The Environmental Management and Coordination (Water Quality) Regulations, 2006 Legal Notice No. 120

These Regulations were published in the Kenya Gazette Supplement No. 68, Legislative Supplement No.36, and Legal Notice No. 120 of 29th September, 2006. The Regulations provides for sustainable

management of water resources including prevention of water pollution and protection of water sources (lakes, rivers, streams, springs, wells and other water sources).

It is an offence under Regulation No. 4 (2), for any person to throw or cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution. Regulation No. 11 further makes it an offence for any person to discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit the dumping or discharge of such matter into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards for effluent discharge into the environment.

Relevance

The proponent should ensure that waste is handled, stored, transported and disposed as per this regulation.

d) The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61

These regulations were published as legal Notice No. 61 being a subsidiary legislation to the Environmental Management and Co-ordination Act, 2015. The regulations provide information on the following:

- Prohibition of excessive noise and vibration;
- Provisions relating to noise from certain sources;
- Provisions relating to licensing procedures for certain activities with a potential of emitting excessive noise and/or vibrations and Noise and excessive vibrations mapping.

According to regulation 3 (1), no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Regulation 4 prohibits any person to (a) make or cause to be made excessive vibrations which annoy, disturb, injure or endanger the comfort, repose, health or safety of others and the environment; or (b) cause to be made excessive vibrations which exceed 0.5 centimetres per second beyond any source property boundary or 30 meters from any moving source.

Regulation 5 further makes it an offence for any person to make, continue or cause to be made or continued any noise in excess of the noise levels set in the first schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property.

Regulation 12 (1) makes it an offence for any person to operate a motor vehicle which (a) produces any loud and unusual sound; and (b) exceeds 84 dB(A) when accelerating. According to sub-regulation 2 of this regulation, No person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident. Regulation 13 (1) provides that except for the purposes specified in sub-Regulation (2) there under, no person shall operate construction equipment (including but not limited to any pile driver, steam shovel, pneumatic hammer, derrick or steam or electric

hoist) or perform any outside construction or repair work so as to emit noise in excess of the permissible levels as set out in the Second Schedule to these Regulations.

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

Relevance

The Contractor for road works and civil works shall be required to ensure compliance with the above regulations in order to promote a healthy and safe working environment throughout the construction phase. This shall include regular inspection and maintenance of equipment and prohibition of unnecessary hooting of vehicles.

e) The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160

Part II of Regulations, section 4 states that no person shall engage in any activity that may have adverse impacts on ecosystems, lead to introduction of exotic species or lead to unsustainable use of natural resources without an EIA license. The regulation puts in place measures to control and regulate access and utilization of biological diversity that include among others banning and restricting access to threatened species for regeneration purposes. It also provides for protection of land, sea. Lake or river declared to be a protected natural environmental system in accordance to section 54 of EMCA, 2015

Relevance

It is recommended that landscaping programmes should involve use of certified plant species to prevent them from affecting project area negatively in terms of invading wetlands, vegetation and even farmlands. Erosion prevention techniques used by the contractor should not involve use of untested exotic plant species that might eventually colonize the project area.

Other relevant EMCA 2015 to be considered during construction and operation of the project are;

- Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009.
- Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations, 2006
- The Environmental Management and Coordination (Controlled Substances) Regulations, 2007 Legal Notice No. 73.

Relevance

EMCA 2015 and above listed regulations shall form the main statutory instruments which shall guide the implementation of the project so that any likely adverse impacts that could be caused by the project are promptly mitigated as recommended in this assessment. This report is also in compliance with the requirement of the EIA/EA regulations.

5.3.3 Water Act 2016

Section 73 of the Act allows a person with a license to supply water (licensee) to make regulations for purposes of protecting against degradation of sources of water which he is authorized to take. Under the Act, the licensee could be a local authority, a private Trust or an individual and the law shall apply accordingly under the supervision of the Regulatory Agency.

Section 75 and sub-section 1 allows a licensee for water supply to construct and maintain drains, sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing water belonging to the licensee or which he is authorized to take for supply from being polluted. However, if the proposed works shall affect or is likely to affect any body of water in the catchment, the licensee shall obtain consent from the Water Resources Authority.

Relevance

This Act shall be relevant during the construction phases of the project whereby the Contractor and proponent shall ensure that all relevant water resources are not polluted from both liquid and solid wastes.

5.3.4 The Penal Code CAP 63

Chapter XVII on "Nuisances and offences against health and convenience" contained in the penal code strictly prohibits the release of foul air into the environment which affects the health of the persons. It states "Any person who voluntarily vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying on business in the neighbourhood or passing along a public way is guilty of a misdemeanour" **Relevance to the proposed project.**

Waste disposal and other project related activities shall be carried out in such a manner as to conform to the provisions of the code.

5.3.5 County Government Act No. 17 of 2012

Part II of the Act empowers the county government to be in charge of functions described in Article 186 of the constitution, (county roads, water and Sanitation, Health). Part XI of the Act vests the responsibility of planning and development facilitate the development of a well-balanced system of settlements and ensure productive use of scarce land, water and other resources for economic, social, ecological and other functions across a county. This arrangement has been adopted for interventions in order not to conflict with provisions of the Kenyan Constitution.

Relevance

The Contractor will be expected to carry out implementation of the project in consultation with the Wajir County

5.3.6 Traffic Act, 2012 Chapter 403.

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

Relevance

The proposed project is essentially under the provision of this Act. In compliance, engineering design will include road furniture that will assist motorists in compliance with the Act. The design is based on Kenyan Roads Design Manual

5.3.7 Public Roads and Roads of Access Act (Cap. 399).2010

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

Relevance

Already public meetings were held during public consultations and notifications to effect this.

5.3.8 The Kenya Roads Act – (CAP 399) NO. 2, 2007.

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

Section 8 and 9 of the Act provides for the dedication, conservation or alignment of public travel lines including construction of access roads adjacent to lands from the nearest part of a public road. Section 10 and 11 allows for notices to be served on the adjacent landowners seeking permission to construct the respective roads. Already public meetings were held during public consultations and notifications to this effect issued.

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

Relevance of the Project

By undertaking this project, the project proponent is exercising his mandate and, that include planning, designing, construction and maintenance of Government assets in the field of built environment and infrastructure development

5.3.9 The Physical and Land Use Planning Act, 2019

The Physical and Land Use Planning Act, 2019 is an act of Parliament to make provision for the planning, use, regulation and development of land and for connected purposes. The Act provides a vital link with the Environment Management and Co-ordination Act. For example, Section 36 of the Act states that "In connection with a development application a local authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity shall have injurious impact on the environment, the applicant shall be required to submit together with the application an environmental impact assessment report". This reinforces EIA requirements under EMCA 2015

Relevance

The Act directs, regulates and harmonizes development and use of land over the Country. The large part of the project is designed to utilize public land. This was in an effort to avoid cases of acquisition of private property and resettlement complications.

5.3.10 Occupational Health and Safety Act (OSHA 2007)

This legislation provides for protection of workers during construction and operation phases. It is tailored at implementation of the EHS plan in compliance with the relevant sections of this Act. The EMP prepared under this assessment has provided for specific health and safety aspects to be complied with during implementation of the project.

Subsection 18 - Sanitary conveniences

Sufficient and suitable sanitary conveniences for persons employed in the factory/ work places shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences and where persons of both sexes are, such conveniences shall afford proper separate accommodation for persons of each sex.

Subsection 21 – Prime movers

Every flywheel directly connected to any prime mover and every moving part of any prime mover, shall be securely fenced, whether the flywheel or prime mover is to be situated in an engine –house or not. Head and tailrace of every water wheel and of every water turbine shall be securely fenced. Every part of electric generators, motors and rotary converters and every flywheel directly connected thereto shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises as it would be if securely fenced.

Subsection 22 -Transmission Machinery

(1) Every part of transmission machinery shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises, as it would be if securely fenced.

(2) Efficient devices or appliances shall be provided and maintained in every room or place where work is carried on by which the power can promptly be cut-off from transmission machinery in that room or place.

(3) Every machine intended to be driven by mechanical power shall be provided with an efficient starting and stopping appliance, the control of which shall be in such a position as to be readily and conveniently operated by the person operating the machine.

Subsection 25 - Construction and maintenance of fencing

All fencing or other safeguards provided in pursuance of the foregoing provisions shall be of substantial construction, constantly maintained, and kept in position while the parts required to be fenced or safe guarded are in motion or in use except when any such parts are necessarily exposed for examination and for any lubrication or adjustments shown by such examination to be immediately necessary.

Subsection 13 – Cleanliness

Every factory/work place shall be kept in a clean state and free from effluent arising from any drain, sanitary convenience or nuisance.

Subsection 14 – Overcrowding

A factory/ work place shall not while work is carried on be so overcrowded as to cause risk of injury to the health of the persons employed therein. Standard cubic space allowed for every person in a workroom should not be less than three hundred and fifty cubic feet.

Section 51- Air pollution

Preventive measures shall be put in place during operation of the project to prevent fumes and exhaust gases from entering into the atmosphere.

Relevance to the Project

The Act provides Occupational Health and Safety guidelines which shall be followed by both the contractor and supervising consultant during implementation of the project in order to avoid injuries and even loss of life to workers and neighbouring community.

5.3.11 The Public Health Act 2012 (Cap.242)

Part IX section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 and include nuisances caused by accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or other vermin.

Relevance

The Act provides guidelines to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA 2015 for utmost compliance. The Act also shall be applied to ensure that the food that is provided to the workers during construction of the project meets the safety requirements.

5.3.12 National Construction Authority Act, 2011

This Act establishes the National Construction Authority (NCA), meant to oversee the construction industry and coordinate its development. The authority is meant to promote quality assurance of the construction industry; accredit and register contractors as well as accredit and certify skilled construction workers and construction site supervisors. During project implementation, the appointed contractor and the conduct of construction works will be required to meet registration and approval requirements with NCA

5.3.13 Climate Change Act, 2016

The CCA aims to reduce vulnerability to climate change and improve our country's ability to take advantage of the opportunities that climate change offers. The Act is to be applied for the development, management, implementation, and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya.

The Purpose and Objectives Clause of the Act (Part 1, Section 3) provides that-

(2) Without prejudice to subsection (1), this Act shall be applied to all sectors of the economy by the national and county governments to –

a) Mainstream climate change responses into development planning, decisions making, and implementation.
b) Build resilience and enhance adaptive capacity to the impacts of climate change.
c) Formulate programmes and plans to enhance the resilience and adaptive capacity of humans and ecological systems to the impacts of climate change.
d) Mainstream and reinforce climate change disaster risk reduction into strategies and actions of public and private entities.
e) Mainstream intergenerational and gender equity in all aspects of climate change responses.

Relevance

The development and implementation of the proposed interventions will contribute toward the stated objectives of the climate change act.

5.3.14 Employment Act 2007

This is an Act of parliament that applies to all employees employed by any employer under a contract of service. The Act came in operation in June 2008. Employment of children in the following forms is prohibited in the following sections of the Act:

53. (1) notwithstanding any provision of any written law, no person shall employ a child in any activity that constitutes worst form of child labour.

56. (1) No person shall employ a child who has not attained the age of thirteen years whether gainfully or otherwise in any undertaking.

(2) A child of between thirteen years of age and sixteen years of age may be employed to perform light work which is

(a) Not likely to be harmful to the child's health or development; and

(b) Not such as to prejudice the child's attendance at school, his participation in vocational orientation or training Programs approved by Minister or his capacity to benefit from the instructions received.

Relevance

The proponent and the contractor shall need to understand the requirements of the Act during employment. Equal opportunity should be given to all both men and women so as to ensure equity.

5.3.15 Work Injury Benefits Act (WIBA) 2007

It is an act of Parliament to provide for compensation to workers for injuries suffered in the course of their employment. It outlines the following:

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

Relevance

The Contractor shall need to abide by all the provisions of WIBA.

5.3.16 Sustainable waste Management Act, 2022;

The new Sustainable Waste Management Act (SWMA) ushers a new era in waste management in Kenya whereby a linear model is discarded and a circular model of waste management is embraced. The Act provides for new governance framework in waste management with establishment of Waste Management Council, expanded role of County Governments and Extended Producer Responsibility Schemes. In addition, the Act prescribes the need to establish new infrastructure for waste management such as segregation at source, proper transportation, material recovery facilities, and closure of dumpsites, sanitary landfills, and national waste information system.

Relevance

The Contractor shall need to abide by this provision.

5.3.17 The National Museums and Heritage Act-Cap 216 (2006)

Kenya is rich in its antiquities, monuments, cultural and natural sites which are spread all over the country and the Act aims to preserve this national heritage.

The National Museums of Kenya is the custodian of the country's cultural heritage, its principal mission being to collect, document, preserve and enhance knowledge, appreciation, management and the use of these resources for the benefit of Kenya and the world.

Through the National Museums of Kenya many of these sites are protected by law by having them gazetted under the Act.

- Section 30 of the Act requires all discoveries of buried artefacts to be reported to the NMK/GoK.

Relevance

In case of discoveries of buried artefacts reporting to the NMK/GoK will be carried out.

5.3.18 Environmental and Land Court Act (2011)

The Act gives effect to Article 162(2) (b) of the constitution by establishing the Environment and Land Court that has original and appellate jurisdiction. Per Section 4(2) and (3), it is a court with the status of the High Court. It exercises jurisdiction throughout Kenya and pursuant to section 26, is expected to ensure reasonable and equitable access to its services in every County.

The principal objective of this Act is to enable the Court to facilitate a just, expeditious, proportionate and accessible resolution of disputes governed by the Act.

The Court exercises its jurisdiction under Section 162 (2) (b) of the Constitution and has power to hear and determine dispute relating to: a) Environmental planning and protection, climate issues, land use planning, title, tenure, boundaries, rates, rates, rents, valuations, mining minerals and other natural resources; b) Compulsory acquisition of land ;c) land administration and management ;d) Public private and community land contracts, choses in action or other instrument granting any enforceable interests in land. And e) any other dispute relating to environment and land.

Nothing in the Act Precludes the Court from hearing and determining applications for redress of a denial, violation or infringement of, or threat to, rights or fundamental freedom relating to land and to clean and healthy environment under Section 42, 69 and 70 of the constitution.

Relevance

Grievances encountered during implementation of the project will be resolved using the GRM proposed in section 8.5 and 8.6 of this report. Those not satisfied will be advised to seek justice though the environmental court

5.4 World Bank Operational Safeguard Policies

Like in any project financed by, or with financial participation of, the World Bank, the environmental and social safeguards as defined in the Bank's Operational Procedures (OPs) will be respected for the purposes of this project implementation. Applicability of the safeguard policies to the project is discussed in the following sub sections.

5.4.1 Operational Policy 4.01: Environmental Assessment

The Operational Policy on Environmental Assessment (OP 4.01) is applied by the World Bank to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank lending operations. The purpose of Environmental Assessment is to provide guidance for environmental and social assessment of the WB financed projects, improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The proposed interventions, road upgrading, and security lighting will have significant impacts within and around Barwaqo informal settlement project area in all phases including, change in the landscape not just at the quarry or borrow sites (loss of materials), establishment of secondary businesses , influx of new populations in search of new opportunities, interference with existing ways of life, GBV, increased conflicts, pressure for increased demand on existing resources, increase in traffic during the operation phase leading to an increase of foreign members to the community. This Environmental and Social Impact Assessment (ESIA) and environmental and social management plan (ESMP) has been carried out to fulfil the requirements of this policy. In addition, at least consultations have been carried out with project affected people and other stakeholders (during the design engineer ESIA preparation and the disclosure requirements.

5.4.2 Operational Policy 4.10: Indigenous Peoples

This policy contributes to the World Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous people. The project area has community are indigenous peoples because they have been geographically and historically marginalized and underserved.

The project planning therefore must involve Free, Prior, Information Consultation with the community, all the key stakeholders in ensuring the objectives of this policy are attained by (a) avoiding potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects.

The project should also be designed to ensure that the indigenous people receive social and economic benefits that are culturally appropriate and gender and internationally inclusive. The predominant communities identified along the project area are the Somali communities. A Social Economic Assessment has been planned for the project to determine how the communities will benefit from the project benefits and to obtain Free, Prior, Information Consultation for the project

5.4.3 Operational Policy 4.11-Physical Cultural Resources

This policy guides in preserving physical cultural resources and helps reduce chances of their destruction or damage. The policy considers Physical Cultural Resources (PCR) to be resources of archaeological, paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic or other cultural significance. This policy applies to all projects requiring a Category A or B Environmental Assessment under OP 4.01, projects located in, or in the vicinity of, recognized cultural heritage sites. There is a potential of the project affecting some of these sites, whose exact location is unknown as such a "Chance Find Procedures", has been presented in Annex 4 of this report.

5.4.4 The Bank's Operational Policy 4.12: Involuntary Resettlement

The objective of this policy to avoid where feasible, or minimize, exploring all viable alternative project designs to avoid resettlement. This policy is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts.

The policy advocates for the participation of displaced/affected persons in the resettlement planning and implementation process with the objective of ensuring that the livelihoods of affected persons are restored to levels that are better than or equal to their former living standards

The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to project appraisal of proposed projects. The proposed road project will not affect several people living and conducting businesses along the road, in addition there will be the loss of grazing land along the road corridor for which a Resettlement Action Plan (RAP) was conducted and report prepared.

This Policy is not applicable for this project. This is because there will be no resettlement. Thus, a no RAP is required. However, a Grievance Redress Mechanism (GRM) for this project has been prepared and included in section 8.5 and 8.6 of this report.

5.4.5 World Bank Directive on Vulnerable Groups

The project area is home some Somali communities as identified during social economic survey. They are considered as marginalized and vulnerable. The term "vulnerability" refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or indigenous status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of project benefits

Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so. This will take into account considerations relating to age, including the elderly and minors, and including

in circumstances where they may be separated from their family, the community or other individuals upon whom they depend.

This ESIA Study has taken into account the vulnerable community members along the project area, engage them in various consultations in order to include them and their various vulnerabilities in the ESIA with a means of adequately providing mitigation measures to their various disadvantages for all phases of the project.

5.4.6 World Bank Policy on Access to Information, 2015

The World Bank policy on access to information sets out the policy on public access to information in its possession. This Policy supersedes the World Bank Policy on Disclosure of Information, and took effect on July 1, 2010.

This Policy is based on five principles:

- Maximizing access to information.
- Setting out a clear list of exceptions.
- Safeguarding the deliberative process.
- Providing clear procedures for making information available.
- Recognizing requesters' right to an appeals process.

In disclosing information related to member countries/borrower in the case of documents prepared or commissioned by a member country/borrower (in this instance, safeguards assessments and plans related to environment, resettlement, and indigenous peoples, OP/BP 4.01, Environmental Assessments, OP/BP 4.10 and OP/BP 4.12 Involuntary Resettlement); the bank takes the approach that the country/borrower provides such documents to the Bank with the understanding that the Bank will make them available to the public.

5.5 World Bank GROUP Environmental, Health and Safety (EHS) Guidelines

The Environmental, Health and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are used in addition to the local guidelines in order to provide mitigation measures for the various environmental and social impacts that will be identified in this report. The main EHS guidelines that will be used alongside local policies include:

- Environmental Guidelines
- Occupational Health and Safety Guidelines
- Community Health and Safety Guidelines
- Construction and Decommissioning Guidelines

5.5.1 Environmental Guidelines

These guidelines will govern the Contractor's activities during the construction of the road, street lighting and the construction works impacts on the physical environment.

The guidelines include:

a) **Air Emissions and Ambient Air Quality** – which provide the air quality standards, limits and monitoring requirements for construction works. The guidelines incorporate WHO air quality guidelines on the major air pollutants expected from the Contractor's machinery and equipment.

b) **Wastewater and Ambient Water Quality** – These guidelines will be key particularly in the Contractor's camp and the impacts of wastewater generation and treatment before release into the environment, in order to prevent pollution of the surrounding physical environment. The contractor should ensure they connect the campsite to the existing sewer network have to establish onsite treatment of waste water, proper channelling of storm water to prevent contamination of the physical and social environment. The guidelines call for monitoring of wastewater from the site through testing and inspections for which the Contractor will have to establish a plan for management and monitoring.

c) **Waste Management** – All construction works are expected to produce one or more forms of waste. The construction of the road will be of no exception. Construction wastes and Domestic wastes are expected from the Contractor's site as well as the camp. The Contractor will have to prepare a waste management plan using these guidelines that conform to the local legal framework provided in this chapter.

d) **Noise** – Use of several equipment and plant is bound to generate some level of noise, which are bound to have a negative impact on the surrounding environment and in particular sensitive receptors (human settlements and wildlife). These impacts will be short-lived during the construction phase of the project. The guidelines also provide the maximum noise levels, provided in the Noise and Excessive Vibration Pollution Control Regulations – Schedule 1-3, which the Contractor should strive to adhere to. The guidelines also call for baseline and annual monitoring of noise generation within the Contractor's site to establish compliance to the guidelines and local regulation.

5.5.2 Occupational Health and Safety Guidelines

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

a) **General Facility Design and Operation** – These guidelines will guide the Contractor's workspace. The Contractor will have to provide suitable potable water supply for the staff, suitable lavatories, fire precaution measures (extinguishers and safety drills) and first aid services.

b) **Communication and Training** – This will provide for communication and training of staff and visitors to the site, to govern behaviour within the site. This is necessary to ensure safety while operating within the site. The Contractor will need to employ a health and safety officer fulltime on site who will be in charge of ensuring safety and communication of safety within the site.

c) **Physical Hazards** – These guidelines will govern the exposure of the workers to physical dangers including excavation sites, bridge sites, noise, dust, welding, manual handling, work environment temperatures. The guidelines provide fall protection when working at height and work hour limits (8 hours' maximum).

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

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

5.5.3 Community Health and Safety Guidelines

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

i. Structural Safety of Project Infrastructure – Construction works, works on borrow/quarry sites may pose a risk to the surrounding communities. As such safety measures have to be taken into account. The Contractor will have to provide physical buffers such as cordons to prevent falls into the pits, road signage, establishment of speed limits, water spraying to ensure the safety of the community.

ii. Traffic Safety – The project road will still be under use during construction. As such the Contractor will have to provide a traffic management plan in order to ensure safety of motorists and other road users. The traffic management plan will include alternative diversion routes and a traffic controller to divert traffic and road signage.

iii. Emergency Preparedness and Response – These are designed to deal with events and acts that are unplanned when a project operation loses control, or could lose control, of a situation that

may result in risks to human health, property, or the environment, either within the facility or in the local community. Emergencies do not normally include safe work practices for frequent upsets or events that are covered by occupational health and safety. The Contractor will prepare an emergency preparedness and response plan, including training of staff, drills to gauge responses to preparedness, and communication with the local community in case of rinse.

iv. Disease Prevention – Some workers will be coming in from different parts of the County there is potential that communicable diseases may be spread among the workers and community members. Communicable diseases of most concern during the construction phase due to labour mobility are sexually-transmitted diseases (STDs), such as HIV/AIDS. Contractor is to undertake health awareness and education initiatives. Promoting individual protection, and protecting others from infection, by encouraging condom use.

5.5.4 Construction and Decommissioning Guidelines.

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

5.6 Applicability of World Operational Safeguards

Table 5-1 the applicability of World Operational Safeguards as it applies to this to the proposed improvement works in Barwaqo informal settlement

Table 5-1: Summary of Applicability of World Operational Safeguards

OP	Title	Comments
4.01	Environmental Assessment	Applicable. As a result of environmental and social screening, (Annex 6) the project was identified as a Category B project due potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures and other activities, as described
4.04	Natural Habitats	Not applicable.
4.09	Pest Management	Not applicable.
4.10	Indigenous Peoples	Applicable.
4.11	Physical Cultural Resources	Not applicable. Several site visits conducted have not indicated the presence of any cultural (historical, archaeological) sites in the construction area. However, to manage “chance finds” an appropriate procedure is included in this ESIA (Annex 4). Such procedure to be followed by contractors during the construction phase.
4.12	Involuntary Resettlement	Not applicable
4.36	Forests	Not applicable.

OP	Title	Comments
4.37	Safety of Dams	Not applicable.
7.50	Projects on International Waterways	Not applicable.
7.60	Projects in Disputed Areas	Not applicable.

The relevant International Labour Organization (ILO) Conventions that will be applicable to the Project are listed below:

1. ILO Convention 87 on Freedom of Association and Protection of the Right to Organize
2. ILO Convention 98 on the Right to Organize and Collective Bargaining
3. ILO Convention 29 on Forced Labour
4. ILO Convention 105 on the Abolition of Forced Labour
5. ILO Convention 138 on Minimum Age (of Employment)
6. ILO Convention 182 on the Worst Forms of Child Labour
7. ILO Convention 100 on Equal Remuneration
8. ILO Convention 111 on Discrimination (Employment and Occupation)
9. UN Convention on the Rights of the Child, Article 32.1
10. UN Convention on the Protection of the Rights of all Migrant Workers and Members of their Families

The Project Contractor shall observe the Standard as presented in the ESMMP of the project to be enforced under the Works Contract.

5.7 Sustainable Development Goals

5.7.1 SDG 1 End poverty in all its forms everywhere

By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day 1.2 by 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

Relevance

Clean water will insure households against water borne diseases. Thus, households will incur less in medical bills. The amount saved can be invested in other income generating ventures. Improved rods will also mean access to market and erase of doing business which will raise household incomes.

5.7.2 SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round 2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting

in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

Relevance

Portable water is a human right. Availability of portable water consistently will allow households devote time to food production activities and therefore tackle hunger. This will in turn improve nutrition. Roads improve access to markets for both farmers and other traders who supply food items. This enhances access to food for those who do not engage in farming.

5.7.3 SDG 3: Ensure healthy lives and promote well-being for all at all ages.

By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births 3.2 By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

Relevance

The role of clean potable water in promoting health and wellbeing cannot be overemphasised. This will result for the residents of Barwaqo after the proposed interventions are made.

5.7.4 SDG 5: Achieve gender equality and empower all women and girls.

The goal seeks to:

- End all forms of discrimination against all women and girls everywhere.
- Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation and
- Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.

Relevance

The burden of fetching water in households weigh heavily on women and girls. This burden denies them the opportunity to engage in other productive activities that would enable them to improve their lives. The proposed project will thus enhance the drive towards gender equality and empowerment.

5.7.5 SDG 7: Affordable and Clean Energy

This goal aims at ensuring access to affordable, reliable, sustainable and modern energy for all

Relevance

The project has a component on installation of security lighting. The project will partake in achieving the goal through incorporating solar security lighting within the settlement

5.7.6 SDG 9: Industries, Innovation, and Infrastructure

This goal seeks to build resilient infrastructure, promote sustainable and resilient industrialization and foster innovation to support economic development and human well-being, with a focus on affordable and equitable access for all.

Relevance

The project will incorporate climate resilience in the design and in the infrastructure. The community members employed will gain knowledge and skills during the construction and operation stages of the project.

5.7.7 SDG 10: Reduce inequality within and among countries.

By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average 10.2 By 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

Relevance

The intra-national inequality in Kenya is extreme. Currently, less than 0.1% of the population (8,300 people) own more wealth than the bottom 99.9% (more than 44 million people). The richest 10% of people in Kenya earned on average 23 times more than the poorest 10%. This inequality touches on every aspect of life including access to basic such as clean water and decent sanitation. The proposed project will address this as far as the informal settlement is concerned.

5.7.8 SDG 11: Sustainable Cities and Communities

This goal aims at making cities and human settlements inclusive, safe, resilient, and sustainable.

Relevance

The proposed development of infrastructures such as water, roads, and sanitation, will promote the economic growth of the area and investment. Availability of such infrastructures shall create wealth, improve economy, and ultimately encourage more development infrastructures such as sustainable housing within the area.

5.8 Multilateral Environmental Agreement

5.8.1 Paris Agreement.

The main aim of Paris Agreement is to limit and reduce greenhouse gases (GHG) emissions in accordance with Nationally Determined Contributions (NDCs).

Relevance

The project will adhere to the air emission limits stipulated in EMCA (Air Quality Regulations) 2014 and the treaty.

5.8.2 United Nations Framework Convention on Climate Change (UNFCCC),

The main objective to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.

Relevance

The project will adhere to the air emission limits stipulated in EMCA (Air Quality Regulations) 2014 and the treaty.

5.8.3 World Heritage Convention.

Aims to promote cooperation among nations to protect heritage around the world that is of such outstanding universal value that its conservation is important for current and future generations.

Relevance

The project will not affect cultural, archaeological, or historical heritage within the project site.

5.8.4 The Convention on Biological Diversity.

It is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Relevance

The proposed project will ensure sustainable use of the available resources within the project area. The replacement of trees cut during construction will enhance local biodiversity.

5.8.5 Convention on Discrimination Against women (CEDAW)

The Convention provides the basis for realizing equality between women and men through ensuring women's equal access to, and equal opportunities in, political and public life -- including the right to vote and to stand for election -- as well as education, health, and employment.

Relevance

There will be equal treatment for women and men during recruitment of labour for the proposed project.

5.9 Institutional Structure

There are various national institutions that are important in civil and road project works related to environmental management in Kenya. These are described in the subsection below:

5.9.1 The Ministry of Lands, Public Works, Housing and Urban Development (MLPWHUD)

The MLPWHUD shall support implementation of the proposed interventions through State Department of Housing and Urban Development (SDHUD) and State Department for Public Works (SDPW) whose mandate is to provide policy direction and coordinate all matters related to construction, rehabilitation and maintenance of Public Buildings and Other Public Works.

5.9.2 Ministry of Environment, Climate Change and Forestry

The Ministry of Environment and Natural Resource is mandated to monitor, protect, conserve, and manage the environment and natural resources of the country. The Ministry is required to achieve this monumental task through sustainable exploitation of natural resources for socio-economic development geared towards eradication of poverty, improving living standards and maintaining a clean environment for present and future generations.

5.9.3 National Environment Management Authority (NEMA)

The government established the National Environmental Management Authority (NEMA) as the supreme regulatory and advisory bodies on environmental management in Kenya under EMCA 2015. NEMA is charged with the responsibility of coordinating and supervising the various environmental management activities being undertaken by other statutory organs. NEMA also ensures that environmental management is integrated into development policies, programs, plans, and projects.

5.9.4 Kenya Road Board (KRB)

The main objective of KRB is to oversee the road network in Kenya and thereby coordinate its development, rehabilitation and maintenance and is the principal adviser to the Government on all matters related to development, rehabilitation and maintenance. It ensures prudent Sourcing and Optimal Utilization of Resources for Socio-economic Development.

Relevance

It is necessary that the County Government of Wajir and the Contractor incorporate the principles of integrated national transport policy in the construction and maintenance of the road.

5.9.5 Directorate of Occupational Safety and Health Services (DOSHS)

DOSHS plays a crucial role in promoting and maintaining safe working conditions for employees across various sectors. By enforcing International Labour Standards related to occupational safety and health, DOSHS aims to protect workers from hazards and ensure their well-being on the job. During project implementation the Contractor shall have to engage DOSHS to:

- Provides OSH permits for workplaces of the project including the campsite and
- Conduct inspections to ensure conformance to OSHA.

5.9.6 County Government of Wajir

The County Governments are a creation of the Constitution of Kenya 2010 and successor of the defunct Municipal authorities. They operate under the auspices of the Cities and Urban Areas Act, The Devolved Governments Act and a host of other Acts.

The County Governments are charged, among others, with the responsibility of providing a variety of services to residents within its area of jurisdiction. These include the services that were hitherto provided by the defunct County Council and the ones that have been transferred from the national government.

The former includes Physical Planning, Public Health, Social Services and Housing, Primary Education Infrastructure, Inspectorate Services, Public Works, Environment Management while the latter include Agriculture, Livestock Development and Fisheries, Trade, Industrialization, Corporate Development, Tourism and Wildlife, Public Service Management.

The Fourth Schedule of the Constitution of Kenya 2010 Part 2 (3) provides for devolved environmental functions to be undertaken by the County Governments and includes; control of air pollution, noise pollution, and other public nuisances.

Relevance

The county governments will thus be crucial in issuing trade licenses to the contractor (s), issuing temporary facilities construction plan approvals, monitoring environment protection within the project, and general development control along the road.

5.9.7 The Contractor

The contractor shall be required to establish an environmental office to continuously advise on environmental components of the project implementation. Elements in the environmental and social management plan are expected to be integrated in the project with appropriate consultations with county and National KISIP 2 team through the supervising environmental and social safeguard expert. The environmental and social expert officer of the Contractor is also expected to fully understand the engineering and management aspects of the project for effective coordination of relevant issues.

5.9.8 The Supervisor

The Consultant shall be the Contract supervisor shall ensure effective implementation of the environmental management plan. It is expected that supervisor engages the services of an environmental expert who should in return understand the details of the recommendations on environment management and especially the proposed action plans, timeframes and expected targets of the management plan. The environmental supervisor expert should also be the liaison person between the contractor, the County and KISIP 2 safeguard expert on the implementation of environmental concerns as well as issues of social nature associated with the Project.

CHAPTER 6: STAKEHOLDER CONSULTATION

6.1 Background to public consultation in ESIA

Timely, well-planned and implemented public involvement and consultation is a vital component of a successful ESIA study.

Community consultation and participation ensures that communities and stakeholders are part and parcel of the proposed developments and in so doing assures the sustainable use of resources. It has also demonstrated successfully that projects that go through this process shall acquire high level of acceptance, identify possible conflicts areas early, and accrue benefits to a wider section of the society. Public consultations form a useful component for gathering, understanding and establishing likely impacts of projects determining community and individual preferences and selecting alternatives.

Furthermore, through public participation, it is possible to enhance project designs and ensure sustainability of the projects. The proposed project has incorporated public consultations in order to understand the local impacts, needs and thoughts and eventually incorporate them into the final designs and operations of the project.

6.2 Aims and Objectives of Stakeholders Consultation and Public Participation (CPP)

The aims and objectives of public involvement and consultation include:

- Informing stakeholders and members of public
- Gaining their views, concerns and values
- Taking account of public inputs in decision making
- Influencing project design
- Obtaining local knowledge
- Increasing public confidence
- Improving transparency and accountability in decision making
- Reducing conflict

6.3 Approach of Stakeholders Consultation

The process of stakeholder engagement involved the following:

i. Stakeholder identification;
ii. Stakeholder consultation activities
   - Planning how the engagement will take place;
   - Disclosure of information;
   - Consultation with stakeholders;
   - Addressing and responding to grievances; and

Reporting to stakeholders.

6.3.1 Stakeholder Mapping

The identification of stakeholders for this Project followed the procedures outlined in the Environmental Management and Coordination (Amendment) Act 2015, Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 Guidelines, the Constitution of Kenya 2010, World Bank Operation Policy of Environment Assessment and Land Acquisition and Involuntary Resettlement guidelines. The guidelines require Stakeholder Engagement through consultation with the affected people and/or their community representatives and Non-Governmental Organizations (NGOs).

In order to meet best practice approaches, the following principles were applied for stakeholder engagement:

- **Openness and life-cycle approach:** public consultations for the project were carried out in an open manner, free of external manipulation, interference, coercion or intimidation;
- **Informed participation and feedback:** information was provided to and widely distributed among all stakeholders in an appropriate format; opportunities were provided for communicating stakeholders' feedback, for analysing and addressing comments and concerns;
- **Inclusiveness and sensitivity:** stakeholder identification was undertaken to support better communications and build effective relationships. The participation process for the projects was inclusive. Equal access to information was provided to all stakeholders.
- **Cultural appropriateness**. The format, timing and venue respected local customs and norms.
- **Gender sensitivity.** Consultations was organized to ensure that both women and men had equal access to them.

The key stakeholder groups identified, consulted and informed about the project are presented in **Table 6-1**.

Table 6-1: Stakeholder Inventory

No	Name	Category
1.	Assistant County Commissioner /Deputy County Commissioner	National Government
2.	Physical planning – Urban Planner	County Government
3.	Surveyors	
4.	KISIP SEC and GRC officials	Settlement level
5.	Town administrator	County Government
6.	Chief	National Government Administration
7.	Religious leader	Resident
8.	Residents	Community members

6.3.2 Stakeholder Consultation Activities

Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives, and designing viable and sustainable mitigation and compensation plans.

The consultations will take place throughout the planning phase and continue during the construction and operational phases of the project.

Table 6-2 presents an overview of the stakeholder activities that were /will be undertaken during the stakeholder engagement

Table 6-2: Stakeholder Consultation Activities

Phase	Activities
Phase 1: Stakeholder identification and preliminary consultation/scoping	• Stakeholder identification and categorization during the Project inception exercise • Preliminary consultation: liaison with National, County, and Local Institutions • Identification of key Project constraints
Phase 2: Information distribution and introductory Meetings	• Distribution of specialists and technical Information to the County Government of Wajir, County administration, and other relevant stakeholders • Introductory meetings with local administration, Sub-Counties administrators and ward administrators, and relevant authorities.
Phase 3: Impact Identification and Development of Mitigation Measures	• Meetings with Local Administration in affected locations • Meetings and conducting Key Informant Interviews with members of sub-county and Ward administrators within the settlement • Conducting interviews and household interviews with the community members • Dialogue and meetings with the above-identified stakeholders
Phase 4: Disclosure of the draft EIA	• Submission of ESIA Project Report to National Environment and Management Authority (NEMA) and world bank • Circulation of Project Report by NEMA to relevant Lead Agencies • Review and Incorporation of Lead Agencies' comments and revisions to ESIA • Collection and incorporation of comments and feedback. • Issuance of license
Phase 6: consultation during construction and operation	• Throughout the Project

6.4 Stakeholder Consultation

The main key informants targeted in the consultations were both Government and private institutions operating within the project area. Listening to stakeholder concerns and feedback is a valuable source of information that can improve project design and outcomes and help in identifying any impacts.

A consultation meeting was held in the month of October 2023 at Barwaqo (photographs taken shown in Figure 6-1) where the following stakeholders were present.

- Area chief Area residents and
- villager elders
- Ward administrator
- Landowner's representatives
- KISIP 2 National team
- KISIP 2 County team
- Businessmen/women
- Window/widower
- Landlords/land ladies
- People living with disabilities
- Tenants' representatives

Table 6-3 presents the number of participants present in the meeting.

Table 6-3: List of Participants

Meeting Date- September 28,2023	
List of participants	**Number**
Male	24
Female	4
Total participants	28

Meeting in progress with Administration, KISIP members, Consultant and members of the community.

Figure 6-1: Public Participation at Barwaqo

Gathering the residents to the meeting venue was undertaken through the close coordination of the KISIP county coordinator together with the local administrator (chief and ward administrator). Communication on the date, venue and purpose of the meeting was done a week prior to the actual date of the meeting.

The discussion including project information was discussed in Kiswahili and Boran/Somali languages to ensure the community understood the project scope, objectives and anticipated impacts in all project phases

Outcomes of the meeting

- Project information was disclosed to the communities by the KISIP project coordination and County teams;
- The project team was introduced to the community;
- The Settlement Executive Committee (SEC) and Grievance Redress Committee (GRC) were selected; and
- Priority projects for the informal settlement were selected.

In addition, a structured questionnaire was also administered to the members of public on January 16, 2023 to solicit views regarding the project as well as its design. The questionnaire initially gave introduction and created awareness to the respondents regarding the project. Afterwards, questionnaire enquired on acceptance of the project, rating of the current infrastructures, anticipated project impacts, suggested mitigation measures as well as any suggestions and recommendations. A summary of concerns and suggestions raised by the community are presented in the table 6-4 below.

Table 6-4: Stakeholder comments and responses

Comment		Response
Status of Infrastructure	Majority of the residents highlighted the water, sanitation, security lighting, solid waste management road infrastructures were in poor conditions.	The main aim of the proposed project is to improve access to basic services for residents in participating urban informal settlements and strengthen institutional capacity for slum upgrading in Kenya.
Road challenges	The residents highlighted the following road challenges: • The roads are bushy • The roads are dusty • The reads have poor drainages • The roads are full of potholes	The project will involve upgrading of the roads and the challenges highlighted will be considered during the design phase.

Comment		Response
	• The roads lack road signs • The roads are narrow	
Positive impacts.	The positive impacts that will be associated with the project as highlighted by the residents will include but not limited to • The Project will improve roads and security lighting infrastructures. • The Project will improve security. • Improve accessibility. • The project will create employment and lead to improved standards of living. • Lead to improved road drainages • Improved roads will result in easier transportation of goods and services	The project will ensure the community positively benefits from the project positive benefits
Anticipated Negative impacts.	The negative impacts that will be associated with the project as highlighted by the residents included: • Project will lead to air and noise pollution • The project may result in land degradation • Poor drainages from construction waste • Open trenches may result in breeding sites for mosquitoes as a result of stagnant water • Destruction of property • Pollution of water bodies • Traffic congestion • Waste generation • Inaccessibility of shops and home entrances	Mitigation measures will be developed to minimize the negative impacts while ensuring the positive impacts benefits both the community and the environment.

Comment		Response
Mitigation measures for the negative impacts	The residents highlighted some of the suggestions and recommendations to mitigate the impacts as highlighted below: • The residents recommended the carrying out of Environmental Social Impact Assessment to develop mitigation measures • The project should consider using sustainable and durable materials • The project team should ensure proper drainage by ensuring proper disposal of waste • The Contractor should ensure they carry out the construction works at the marked sites to prevent destruction of property • Proper traffic management on all sites • Noise levels at the construction site boundary should be kept within acceptable limits of 60 dB(A) during the day and 35 dB(A) during the night as stipulated within the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009; • Dust suppression should be carried out to prevent air pollution • Machinery and vehicles should be well serviced and maintained to control emission of fumes.	The mitigation measures highlighted will be implemented during project implementation period. An ESMMP highlighting project impacts and mitigation measures will be developed. These mitigation measures aim to address the specific concerns identified and create a more positive and effective environment for the implementation of the Project.

Comment		Response
	• Provision of access bridges at home and shop entrances during the construction period	
Project Support and Awareness	Majority of the respondent acknowledged their awareness of the project and expressed their commitment to supporting the project throughout its implementation phase. They emphasized the need to ensure continuous community engagement through all project phases	
Suggestions and recommendations	The residents highlighted some of the recommendations for **the** project as highlighted below: • The team should ensure the roads are constructed with the right specification and standards • The project team should provide clear and well labelled road signs • The local community should be given first priority on the Job opportunities • Continuous community engagement throughout all stages of the project	The project team will take into consideration the suggestions and recommendations. The community will be engaged in all project phases.

6.5 Interviews

The main key informants targeted in the consultations were both Government and private institutions operating within the project area. Listening to stakeholder concerns and feedback is a valuable source of information that can improve project design and outcomes and help in identifying any impacts.

A structured questionnaire was administered to the key stakeholders in January 18, 2024 to solicit views regarding the project as well as its design. The interview was conducted face to face with the key stakeholders and in their respective offices

Table 6-5: List of KII consulted

Name	Designation
Mohammed Bashey	Environmental Officer
Ibrahim Ahmed Osman	Deputy sub-county Admin
Edward Mucheru	Assistant Director physical planning
Emmanuel Ngwene	Assistant County Commissioner

The questionnaire initially gave introduction and created awareness to the respondents regarding the project. Afterwards, questionnaire enquired on acceptance of the project and rating of the current status of the roads and anticipated negative impacts and suggested mitigation measures as well as any suggestions and recommendations. The summary of the output from the stakeholder's questionnaires is discussed below:

Table 6-6: Summary of the Key Stakeholder Interviews and engagement

Name	Designation	Comments	Response
Mohammed Bashey	Environmental Officer	The project is likely to cause loss of biodiversity	• A screening exercise was conducted and minimal loss of vegetation is expected. • The project will also not affect any wildlife during project construction
		There is concern the project will result in the displacement of people affect historical or cultural heritage within the settlement	• A screening exercise had been carried out and it was noted the project will not result in the physical displacement of people within the project area • The works will be carried out along the existing road reserves.
		There is concern the project will result in the destruction of property and deforestation	• A screening exercise had been carried out and it was noted the project will not result in the destruction of property. The works will be carried out along the existing road reserves. • The Project team will ensure the project routes are clearly marked to minimize and prevent loss of vegetation

Name	Designation	Comments	Response
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's office and other stakeholders identified in the settlement.
		The Contractor should ensure dust suppression is carried out on site	• The Contractor shall ensure carry out dust suppression by sprinkling water especially the dry and windy seasons • The Contractor shall also ensure minimal clearing of vegetation within the proposed sites
		Concern the project may affect hydrogeological/ surface water	• The Contractor will develop a waste management plan to ensure project site waste is disposed off at designated sites. • Measures will be put in place to prevent pollution of surface and underground water.
		The Contractor should adhere to the conditions laid out in the ESIA reports	• The Consultant will supervise works to ensure the Contractor complies with the laid out conditions.
		The project should be implemented in central businesses district which has a higher population and economic mass	• The proposed sites are viable since they will benefit a large number of people within the settlement • There will be other project Lots to ensure a larger population benefits from the project.
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility and transportation within the	

Name	Designation	Comments	Response
		settlement due to good roads • Improved security • Creation of employment	
Ibrahim Ahmed Osman	Deputy sub-county Admin	There is concern over people who have encroached along the road reserves and may lead to project delay	• A screening exercise had been carried out and it was noted the project will not result in the destruction of property. The works will be carried out along the existing road reserves.
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's office and other stakeholders identified in the settlement.
		Enough drainages and culverts should be considered to avoid water retention and flooding in the settlement	• The project scope involves construction of drainages within the settlement
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility to the markets, hospitals, schools and emergency services • The community members will be able to engage in longer working hours due to availability of security lights • Improved security • Creation of employment	
Edward Mucheru	Assistant Director physical planning	The project will result in negative impacts such as: • Noise pollution • Environmental degradation	• Measure will be put in place to mitigate the impacts

Name	Designation	Comments	Response
		• Oil spillage	• A CESMP will be developed to serve as a tool for monitoring and mitigating the impacts
		The project is likely to pollute shallow wells through over exploitation of water resources	• Sustainable use of water will be adhered to and the Contractor will comply with relevant laws and regulations
		The proposed project is a good initiative that will lead to: • Improved lightings • Improved accessibility • Improved security • Creation of employment • Reduced flooding due to improved drainages	
Emmanuel Ngwene	Assistant County Commissioner	The project may affect land use in the area. The project team should align the project activities with the areas cultural norms and believes	• The project team will align the project activities with the areas cultural norms and believes
		Communications and engagements should be done at every stage of the project	• All engagements and communications will be made through the administration's office and other stakeholders identified in the settlement.
		Job opportunities should be given to the local people	There will be recruitment of both skilled and non-skilled labour during the project construction period. The project team will ensure first priority especially on the non-skilled labour is given to the local people
		The proposed project is a good initiative that will lead to: • Improved infrastructure • Creation of employment	

Name	Designation	Comments	Response
		• Improved economy of the area • Reduced respiratory diseases due to improved roads	

CHAPTER 7: ASSESSMENT OF IMPACTS AND MITIGATION MEASURES

7.1 Introduction

This ESIA assessment has been systematically conducted to determine whether the proposed Project shall have a diverse impact on the environment. The Environmental Management and Co- Ordination Act (EMCA) No 8 of 2015 provide the legal and statutory guideline for the Environment and Social Impact Assessment process in Kenya.

The impacts in this Chapter have been generated based on the analysis of the proposed environment in relation to the proposed project. The impacts have been segregated in three main phases: Pre-Construction Phase, Construction Phase, Operation Phase and Decommissioning Phase. Impacts can be categorized into:

- Impacts on biophysical environment;
- Health and safety impacts
- Social-economic impacts

7.2 Definition and Classification of Environment Impact

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

- Positive (beneficial) or negative (adverse);
- Direct or indirect, long-term or short-term in duration, and wide-spread or local in the extent of their effect.

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

7.2.1 Impact Assessment and Scoring

The impact analysis was done using the Leopold matrix which is a grid that is used to identify the interaction between project activities, which are displayed along one axis, and environmental characteristics, which are displayed along the other axis. For the identification of impacts, a breakdown of the environment into elements or factors that may be affected and a breakdown of the various actions or activities of the project under study were done.

Precautionary principle was used to establish the significance of impacts and their management and mitigation i.e., information, the environmentalist erred on the side of caution.

Table 7-1: Impact Rating Criteria for Environment and Social Risks

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

Definition of Terms

- **Extent:** An area of influence covered by the impact. In this sense, if the action produces a much localized effect within the space, it is considered that the impact is low (1). If, however, the effect does not support a precise location within the project environment, having a pervasive influence beyond the project footprint, the impact will be at location level (3) or could be County (5)
- **Timing:** Refers to the moment of occurrence, the time lag between the onset of action and effect on the appearance of the corresponding factor. We consider five categories according to this time period is zero, up to 1 year (short term), or more than two years, which are called respectively medium term (3), long-term (4), and permanent (5).

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

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

7.3 Pre-construction phase Positive Impacts Roads

7.3.1 Documentation and publicity

The project area shall benefit significantly in terms of the intensive information gathering during the pre-project feasibility study and the pre-project ESIA which shall generate useful reports that shall create important reference points for the area both for scientific research and planning activities.

7.3.2 Employment

Employment opportunities shall be created in the construction of camp sites by the Contractor as well as employment of enumerators during data collection before construction works.

7.4 Construction Phase Positive Impacts

The following are the positive impacts during the construction phase of the proposed project:

7.4.1 Employment opportunities

Construction activities for this project road will have employment opportunities for workers at the national and the local community levels. The contractor will require skilled, semi-skilled and unskilled labour force to undertake various activities. Skilled labour will be required especially in the final design interpretation and supervision of construction works. Manual work will be required during enabling works (clearing the right-of-way, material loading and delivery, moulding works among others). Some of the equipment likely to be deployed on site include excavators, wheel loaders, graders, rollers, tippers, and water bowsers. Truck drivers, machine operators, site agent, foreman, security personnel among others form part of the skilled manpower that may be hired. During the public meetings, the community members requested that all the community members who are qualified, willing and able be considered for the available job opportunities and that they should not be discriminated against on the basis of their age or gender. These include jobs as night guards, casual Labourers, cleaners, sweepers, etc. The women requested to be considered for cleaning, sweeping, cooking, etc. from the barazas. The Contractor shall be highly encouraged to hire staff locally during the construction period. Site clearance, traffic management and diversions, earthworks, concrete works as well as road furniture installation and marking will require both skilled and semi-skilled labour.

Enhancement Measures

- Require the contractor have an employment policy that covers local communities as an affirmative action that ensures marginalized communities, disability groups and gender sensitive groups are not

side-lined. The policy should also have security screening measures to confirm originality and conduct of potential employees during recruitment;

- Mixed communication strategies and instruments should be used to effectively relay information on employment opportunities to the community such as local public administration officers' desks, public notice boards as well as public address platforms and gatherings in churches and mosques;
- Furnish relevant authorities (police and other security organs) with details and number individuals working and living at the camp especially immigrant workers if any; and
- As part of induction, immigrant workers should be encouraged to adhere to the code of conduct, as well as respecting traditions and managing relations with host communities.

7.4.2 Business Opportunities for Local Suppliers and Services

The road construction activities involve a capital expenditure that requires a range of inputs comprising of machinery/plant and spares for plant and machinery, tires for plant and machinery, gabions, concrete additives, reinforcement bars, posts and other consumables (wood formwork, bricks, cement, sand, aggregate, oils and lubricants) among others. The contractor will have to procure locally or regionally from credible suppliers creating business opportunities for dealers. Most of the potential borrow and quarry materials have been identified in close proximity of the project road. Some transport services may also be leased from local service providers.

Enhancement Measures

- Local sources of supplies and services should be prioritized, as far as feasible, as a way of boosting local economy and building capacity of local businesses.

7.4.3 Knowledge and skill transfer

Majority of rural residents in the project area will be witnessing construction of bitumen road for the first time in the region. Through staff interaction, the locals employed in the project will have an opportunity to learn from some of the specialized skilled and semi-skilled personnel that will be involved during the project construction. This may enhance their knowledge in construction of bitumen standard roads and associated facilities and their ability to access similar opportunities in future even beyond the counties. The works will also invoke interest in youngsters to participate in such project in future and their career goals.

Enhancement Measures

- KISIP 2 project team should make deliberate requirements on both appointed contractors and construction supervising consultants to employ and accommodate local people during construction works
- Training of local people (including women and persons with disability) should be designed as part of the project for technology and knowledge/skills transfer. Local institutions such as

TVETs and Polytechnics located within Wajir should be used for training local workers to be integrated into the project activities.

7.4.4 Increased local incomes

The local community may get extra income from the sale of construction materials from their firms and also renting spaces for camp sites

Enhancement Measures

- Local employment to be encouraged

7.4.5 Economic growth

Through the use of locally available materials during the construction phase for example cement and others; the project shall contribute towards growth of the country's economy by contributing to the gross domestic product. The consumption of these materials, oil, fuel and others shall attract taxes

Enhancement Measures

- Encourage use of locally available materials
- Tax exemption to be considered for local materials

7.4.6 Injection of money into the local economy

A large sum of the project money shall be released into the local economy due to the construction activities. It is envisaged that during construction a large number of activities shall take place including but not limited to the following listed below;

- Payments for skilled and unskilled labour;
- Purchases of construction materials; and
- Payments for local provisions including fuel, foods and accommodation

7.5 Operation phases Positive Impacts Roads

7.5.1 Improved transport and economy of the people

The road will facilitate easy transportation within the project area as well as increasing communication among the communities within the settlement.

7.5.2 Reduced Vehicle Operation Cost

The reduced vehicle operating and maintenance costs due to improvement of the riding quality and surface of the road compared to the current road situation greatly enhances accessibility to basic facilities, for the local communities.

7.5.3 Improved connectivity

The road will not only open this Barwaqo informal settlement but it will also elevate and improve the livelihoods of the resident communities living in the settlement.

7.5.4 Improved gender parity

It is envisaged that the upgrading of the road will improve availability and accessibility to social amenities, such as schools. Thus, women will have access to improved education facilities thereby enabling women to compete on an equal footing with men. The improved road will enhance service delivery including improved health services where the women will benefit greatly

7.5.5 Economic and social value addition to the project's local area of influence

There exists a close relationship between transport infrastructure and primary production (agriculture, animal husbandry, fishing, forestry and mining). Without transport access, much of primary production is not feasible. Availability of transport infrastructure attracts not only traders and transporters, but also agricultural, animal husbandry and other extension services. Equally important, improved access also impacts on education, health and other social services, which are essential for social and economic development.

7.5.6 Improved response to emergencies and humanitarian aid

The improved road is expected to aid in rapid response to emergencies which will in turn save human lives and livestock. It will be possible to quickly deploy security officers to attend to any emergency.

7.5.7 Site Area Infrastructure

The project is going to enhance development of project area infrastructure that is going to improve livelihood of the project area residents

7.5.8 Reduced travel time and cost

The development of the project road will reduce travel time and cost associated with the current poor road conditions. Paving the project road will improve travel experience by reducing the travel time for users. The cost of travel is deemed to decline with reduced wear and tear due to the paved conditions. This will trickle down to reduced cost of living (access to social and economic services) within the project area.

7.5.9 Improved health benefits

The health benefits associated with the proposed road at operation phase include:

- Improved access to health facilities and health services especially for pregnant women during labour.

- Improved traveling experience especially for the aged who previously suffered joint, back and head injuries when traveling on the rough roads;
- Improved access by health specialists who are willing to give service but are currently hindered by the poor road network. The challenges they currently face include time wastage on the road, the stress of traveling, loss of productive time and inconsistent transport.

7.6 Decommissioning Phase Positive impact Roads

While the project road is not anticipated to be decommissioned in the near future but periodically maintained for extended service, temporary contractor's facilities will be decommissioned by the end of road construction works' defects liability period.

The contractor is expected to prepare a detailed decommissioning plan for all his temporary facilities including camps, borrow sites and quarries. The plans detailing environmental restoration measures and associated safety and health protection should be submitted to NEMA for approval at least three months before the actual decommission works begin. The following presents anticipated decommission impacts of the contractor's facilities.

7.6.1 Employment opportunities

Temporary employment opportunities shall be created for the demolition the campsite during the decommissioning works.

7.6.2 Environmental rehabilitation

Rehabilitation of site to ensure the site is left as natural as possible close or better than before.

7.7 Construction Phase Positive Impacts Security Lighting

The following are the positive impacts during the construction phase of the proposed project:

7.7.1 Employment opportunities

Construction activities for this project road will have employment opportunities for workers at the national and the local community levels. The contractor will require skilled, semi-skilled and unskilled labour force to undertake various activities. Skilled labour will be required especially in the final design interpretation and supervision of construction works. Manual work will be required during enabling works (clearing the right-of-way, material loading and delivery, moulding works among others). Some of the equipment likely to be deployed on site include excavators, wheel loaders, graders, rollers, tippers, and water bowsers. Truck drivers, machine operators, site agent, foreman, security personnel among others form part of the skilled manpower that may be hired. During the public meetings, the community members requested that all the community members who are qualified, willing and able be considered for the available job opportunities and that they should not be discriminated against on the basis of their age or gender. These include jobs as night guards, casual Labourers, cleaners, sweepers, etc. The women requested to be considered for cleaning, sweeping, cooking, etc. from the barazas. The Contractor shall

be highly encouraged to hire staff locally during the construction period. Site clearance, traffic management and diversions, earthworks, concrete works as well as road furniture installation and marking will require both skilled and semi-skilled labour.

Enhancement Measures

- Require the contractor have an employment policy that covers local communities as an affirmative action that ensures marginalized communities, disability groups and gender sensitive groups are not side-lined. The policy should also have security screening measures to confirm originality and conduct of potential employees during recruitment;
- Mixed communication strategies and instruments should be used to effectively relay information on employment opportunities to the community such as local public administration officers' desks, public notice boards as well as public address platforms and gatherings in churches and mosques;
- Furnish relevant authorities (police and other security organs) with details and number individuals working and living at the camp especially immigrant workers if any; and
- As part of induction, immigrant workers should be encouraged to adhere to the code of conduct, as well as respecting traditions and managing relations with host communities.

7.7.2 Business Opportunities for Local Suppliers and Services

The road construction activities involve a capital expenditure that requires a range of inputs comprising of machinery/plant and spares for plant and machinery, tires for plant and machinery, gabions, concrete additives, reinforcement bars, posts and other consumables (wood formwork, bricks, cement, sand, aggregate, oils and lubricants) among others. The contractor will have to procure locally or regionally from credible suppliers creating business opportunities for dealers. Most of the potential borrow and quarry materials have been identified in close proximity of the project road. Some transport services may also be leased from local service providers.

Enhancement Measures

- Local sources of supplies and services should be prioritized, as far as feasible, as a way of boosting local economy and building capacity of local businesses.

7.7.3 Knowledge and skill transfer

Majority of rural residents in the project area will be witnessing construction of bitumen road for the first time in the region. Through staff interaction, the locals employed in the project will have an opportunity to learn from some of the specialized skilled and semi-skilled personnel that will be involved during the project construction. This may enhance their knowledge in construction of bitumen standard roads and associated facilities and their ability to access similar opportunities in future even beyond the counties. The works will also invoke interest in youngsters to participate in such project in future and their career goals.

Enhancement Measures

- KISIP 2 project team should make deliberate requirements on both appointed contractors and construction supervising consultants to employ and accommodate local people during construction works
- Training of local people (including women and persons with disability) should be designed as part of the project for technology and knowledge/skills transfer. Local institutions such as TVETs and Polytechnics located within Wajir should be used for training local workers to be integrated into the project activities.

7.7.4 Increased local incomes

The local community may get extra income from the sale of construction materials from their firms and also renting spaces for camp sites

Enhancement Measures

- Local employment to be encouraged

7.7.5 Economic growth

Through the use of locally available materials during the construction phase for example cement and others; the project shall contribute towards growth of the country's economy by contributing to the gross domestic product. The consumption of these materials, oil, fuel and others shall attract taxes

Enhancement Measures

- Encourage use of locally available materials
- Tax exemption to be considered for local materials

7.7.6 Injection of money into the local economy

A large sum of the project money shall be released into the local economy due to the construction activities. It is envisaged that during construction a large number of activities shall take place including but not limited to the following listed below;

- Payments for skilled and unskilled labour;
- Purchases of construction materials; and
- Payments for local provisions including fuel, foods and accommodation

7.8 Operation phases Positive Impacts Security Lighting

7.8.1 Increased security

There will be enhanced security in the Barwaqo arising from well-lit social, commercial and individual premises. With the implementation of the project, the level of security will increase across Barwaqo. This is as a result of more security lights which helps keep off opportunistic crimes and gender based violence.

7.8.2 Creation of employment

During operational phase, there shall be employment opportunities especially for those who shall be employed to manage, the road networks. This shall improve their living standards.

7.8.3 Creation of Wealth

The proposed project shall ultimately provide revenues to the beneficiaries and expand the wealth base for the nation as a whole. It shall pump both liquefied and tied up wealth hence making the nation gain. It shall also go a long way in uplifting Wajir County and its neighbourhood as a whole. Once the people shall be empowered in the project area, some shall invest and develop the nearby towns.

7.9 Decommissioning Phase Positive impact Security Lighting

Temporary contractor's facilities will be decommissioned by the end of road construction works' defects liability period.

The contractor is expected to prepare a detailed decommissioning plan for all his temporary facilities including camps, borrow sites and quarries. The plans detailing environmental restoration measures and associated safety and health protection should be submitted to NEMA for approval at least three months before the actual decommission works begin. The following presents anticipated decommission impacts of the contractor's facilities.

7.9.1 Employment opportunities

Temporary employment opportunities shall be created for the demolition the campsite during the decommissioning works.

7.9.2 Environmental rehabilitation

Rehabilitation of site to ensure the site is left as natural as possible close or better than before.

7.10 Potential Negative Impacts

The magnitude of each impact is described in terms of being significant, minor or negligible, temporary or permanent, long term or short term, specific (localized) or widespread and reversible or irreversible. These parameters are indicated in the assessment table below. Generally, low impacts have no obvious long-term consequences and are regarded as being minor. But those with long-term repercussions are classified as major. A summary of the anticipated impacts for the two (2) proposed interventions are as represented in Tables 7-2-7-3 based on perceived environmental impact levels and mitigations.

Table 7-2: Impact analysis Roads Construction

Associated Impacts	Impact Levels &	Management Actions
Pre-construction Phase		
• Temporary land interference	Medium	• Notify community members • Reinstatement to be done after completion of the project • Mark project are to avoid conflicts with other activities
• Labour influx	Medium	• Effective community engagement and strong grievance mechanisms on matters related to labour
Construction Phase		
• Air pollution and dust generation	Medium	• Unnecessary vegetation clearance to be avoided through clear demarcation of construction areas; • Where practicable, re-vegetate disturbed areas to minimize ground exposure; • Sprinkling water (at least twice a day) on the accesses and excavated surfaces during the construction period to suppress dust generation within settled areas; • Limit the speed of construction vehicles (maximum speed limit 40 kph/25 mph) on earth road; • Provision of appropriate protective personal equipment (PPEs) including respirators and dustcoats to exposed workers; • Ensuring the location of material stockpiles are away from human settlements and business premises; • Covering loaded trucks during the transportation of material; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards;

Associated Impacts	Impact Levels &	Management Actions
		• Sensitize workers on best practice on management of air pollution from vehicles and machinery; • All records on dust-related complaints should be submitted to Resident Engineer for appropriate action; • Undertake regular air quality (dust level) monitoring and conduct corrective adjustments where necessary based on the baseline data collected before project commencement • Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer; • Ensure dust suppression by regularly spraying water on the roads and work sites; • Wetting or covering stockpiles; • Haul trucks should be covered to avoid spills. • Ensure proper location of material stockpiles away from habitation, business premises and wetlands; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards; • Workers shall be sensitized on management of air pollution from vehicles and machinery; • Activities generating dust (excavation, handling and transport of soils) to be carried out in calm weather where possible. The resident engineer shall

Associated Impacts	Impact Levels &	Management Actions
		suspend earthworks operations wherever visible dust is affecting properties adjoining the work sites; • Any removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible; • The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer;
• Noise and excessive vibrations	Medium	• Workers shall use ear muffs/plugs when performing operations producing over 85 dB of continuous noisy; • Post appropriate notices to warn drivers against unnecessary hooting of vehicles; • Switch off engines or reduce idling time when not in use; • Keep machinery covers and panels closed and well fitted. Bolts/fasteners done up tightly avoid rattles. • Equipment should be maintained regularly to reduce noise resulting from friction; • Unnecessary hooting should be avoided; • Noise levels at the construction site boundary should be kept within acceptable limits of 60 dB(A) during the day and 35 dB(A) during the night as stipulated within the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009; • Limit idling time of pickup trucks and other small equipment and observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible;

Associated Impacts	Impact Levels &	Management Actions
		• When working closer to noise sensitive areas such as schools and hospitals, the contractor shall notify the concerned party at least 5 days before commencement of construction within their vicinity; • Noisy operation can be scheduled outside learning hours to limit nuisance caused; • Any complaints received by the Contractor regarding noise will be recorded and communicated to the Resident Engineer for further remedial action. • Monitor environmental and occupational noise levels as per the NEMA Environmental Management and Coordination Act (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007 requirements respectively; • The noise emission characteristics should be considered during selection and mobilization of construction equipment; • Where feasible, fit equipment with mufflers, sound insulations, silencers to lower the levels of noise emission; • Sensitize construction workers to switch off machinery and vehicles when not in use; • Staff on active project sites with continuous exposure should be provided and encouraged to fit in their Personal Protective Equipment (PPEs); • Locate noisy operations like batching plant away from the densely settled areas; • Where noisy activities must be undertaken near sensitive receptors, the neighbouring occupants must be informed in advance and works limited to day time only.

Associated Impacts	Impact Levels &	Management Actions
		• ▪Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • Any complaints received by the Contractor regarding noise shall be recorded and communicated to the Supervising Engineer for appropriate action
• Generation of Solid waste	Medium	• Contractor shall provide suitable, segregated and well labelled solid waste containers to proper disposal of the wastes; • Proper segregation of solid waste prior to disposal; • Reduce generation of solid waste at the source through planning; • Separation and reuse of top soil for landscaping of the site; • Empty packaging materials like cartons and cement bags shall be piled in a safe place and sold to waste paper recyclers; • Other solid waste to be disposed at designated sites or collected and transported to approved disposal sites by NEMA registered waste transporters; • Ensure solid waste does not accumulate and further block the existing storm water drains; • Provision of appropriate sanitation facilities for use by workers. The facilities should be established in compliance with OSHA and Public Health requirements
• Disturbance of traffic and difficulty of access	Medium	• The Contractor should provide temporary road signs or notices to indicate ongoing works; • The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods;

Associated Impacts	Impact Levels &	Management Actions
		• Warn road users about traffic diversion by using signs, as well as use of traffic marshals; • Diversion routes should accommodate two-way traffic, and that they should be all weather; • Plan short diversion routes; • Adhere to road reserve if possible; • Obtain permission from inhabitants if diversion routes go beyond the Right of Way; • Reinstate diversion routes (and old tracks) to original condition; • Institute a traffic management plan • Trained traffic marshals on site
• Accidental Oil and fuel Spills and Leaks	Medium	• Checking and regular servicing of Equipment. • Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures. • Provision of a 20cm layer of sand and ballast at the machinery storage area and diesel tank section, this layer act as sink to potential oil spills and shall be replaced when saturated. • Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.
Contamination of soil by bitumen, oil and other hydrocarbons	medium	• Line the soil surface at sites where oils are likely to be spilled; • Use biological dispersants to break down used oil and bitumen; • Bitumen drums should be stored in designated locations and not scattered along the road, and away from fire or ignition sources; • Bitumen should not be applied during strong winds, or heavy rains; • Storage areas must be away from streams and rivers;

Associated Impacts	Impact Levels &	Management Actions
		• Construction of oil interceptors or sumps in maintenance workshops, and vehicle and equipment washing bays; • In case of spillage on water bodies or soil, the contractor should have an emergency response plan to manage the spillage incident
Impacts from construction Materials Harvesting (Borrow Pits and Quarry) and Batching Plants Impacts from material sites harvesting:	Medium	• Appropriate authorization i.e. from NEMA (approval sought through borrow pit EIA), Department of Mines and Geology, to use the borrow pits should be obtained before commencement of construction activities; • Inspection of each of the sites soil stability should be carried out before excavation; • All borrow pits sites should be clearly indicated on a plan and approved by the Resident Engineer; • The Resident Engineer to supervise agreements between the land owners of borrow pits and the contractor to ensure adequate rehabilitation measures are implemented; • Borrow pits and quarries shall be located more than 20 meters from surface water course ways to prevent storm water from causing their siltation; • Prepare health and safety plan before any work on the quarries is commenced;

Associated Impacts	Impact Levels &	Management Actions
• Disruption of public utilities	Medium	• Contractor to undertake inventory of existing utilities in the project area before beginning construction • Liaise with relevant service providers to identify and map affected sections of alignment of the services and provide cost to cover the relocation of the existing infrastructure; • Relocation plans shall include adequate notification of affected customers and residents whose access foot paths might get disrupted
• Vegetation Cover destruction	Medium	• The Contractor will avoid cutting trees as much as possible and replant grass in the affected areas after completion of works on site with vegetation • The Contractor will avoid cutting trees as much as possible and replant grass in the affected areas after completion of works on site with vegetation • Re-vegetation should be done in tandem with construction activities to avoid exposure of bare ground to agents of erosion; • Enforce landscaping and restoration of the construction site prior to decommissioning of the construction site. • As part of enhancing environmental protection in the region, the contractor should start a tree planting campaign for reforestation by incubating a tree nursery programs along the road. The types of trees to plant shall be through the guidance of the local KFS or through involvement of the Ministry of Agriculture
• Impacts on public health	Medium	• The contractor will be required to keep records of all HIV/AIDS trainings conducted in the camp that will include a list of all trainees in all training sessions throughout the project implementation cycle.

Associated Impacts	Impact Levels &	Management Actions
		• Contractor, including his workers should also attend all trainings as they are working in an HIV/AIDS prevalent area. • Condom dispensers for staff located in public washrooms and offices within the contractor's camp will be maintained full to encourage safe sex practices and prevent the spread of HIV/AIDS and STIs. • Publicity posters on HIV/AIDS placed on buildings and contractor's vehicles will be frequently replaced when they are no longer visible/legible due to tarnishing from environmental or human factors.
• Sexual Exploitation and Abuse	Medium	• Training and awareness should be conducted for all project workers and community at large • All workers should sigh the code of conduct that prohibits against sexual exploitation and violence • Develop and implement a SEA action plan with an accountability and Response Framework as part of the C-ESMP. The SEA action plan shall follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).
• Conflicts between Contractor and community	Medium	• Establishment of a formal grievance and redress mechanism by the supervising consultant/Engineer; • The Contractor shall be required to minimize the possibility of occurrence of grievances with the local community; • The contractor shall maintain a Complaints Register on site detailing all contacts of aggrieved persons, the investigations undertaken and response provided, action taken and by whom, any follow up action taken.

Associated Impacts	Impact Levels &	Management Actions
		• Copies of received complaints shall be copied to the supervising consultant/Engineer and issues to be addressed accordingly.
• Project Intervention priority conflict	Medium	• Continuous community engagement and participation • Establishment of a formal grievance and redress mechanism • Maintaining a complaints register on site detailing all contacts of aggrieved persons, the investigations undertaken and response provided, action taken and by whom, any follow up action taken.
• Risk of accidents at work site	Medium	• Provision and maintenance of alternative routes in areas where accesses have been disrupted. Such diversion routes should consider road safety in case of flash floods depending on the locations; • Dust suppression measures to enhance visibility at construction sites for oncoming traffic and road users; • Plans for short diversion routes which should be well maintained by regular sprinkling to reduce dust. Adhere to road reserve if possible; • Provision and maintenance of clear traffic signage's of ongoing construction works, regulate speed limits and diversion signage to notify approaching traffic; • Project vehicle should have and only use designated parking areas; • Sensitize workers and area residents on the importance of exercising care in the project area in as far as traffic movement and other safety issues are concerned; • Ensuring that trained traffic marshals are posted around settlement areas and around public institutions

Associated Impacts	Impact Levels &	Management Actions
		• Ensure that all haulage trucks drivers are assigned an assistant (turn boy) and well prepped banks men are posted on all active sections • Reinstatement of diversion routes (and old tracks) to original condition; • adequate temporary signages and flagmen as necessary; • Traffic signs should be largely pictorial and easy to understand as the literacy level in the region is very low; • Strictly ensuring that mobile equipment and vehicles are only operated by duly qualified personnel; • Ensuring vehicles and other mobile equipment allowed on the roads are roadworthy through undertaking regular machinery and equipment inspection; • The supervising consultant should retain a traffic safety engineer to oversee the implementation of traffic management plan. • Maintaining a fleet control and management system to ensure that utilisation of project vehicles is not abused. • Transportation of workers to and from site should be via NTSA approved buses/ minivans and not at the back of dump trucks, pickups or other light/ heavy commercial project vehicles • Provide and maintain serviceable and appropriate fire fighting equipment at the work sites, including fuel storage areas, garages and offices. Workers shall also be drilled on emergency fire response in line with the OSHA 2007 requirements • Maintain incident register and undertake investigations on any major incidents and accidents to inform further preventive actions as necessary

Associated Impacts	Impact Levels &	Management Actions
• Labour influx and sexual offences to minors	Medium	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour • Fair treatment, non-discrimination, and equal opportunity of workers.
• Spread of Communicable diseases	Low	✓ Apply dust suppression measures - sprinkling water on the accesses and excavated surfaces – this shall be determined by the RE depending on the prevailing weather conditions; • Regular maintenance of contractors' equipment • Maintain a grievance register to log any complaints from local community; • Active construction sites should have controlled access and repulse by standers likely to be exposed to emissions; • Hold inductions for staff and people visiting the construction sites on the health and safety aspects; • Provide proper PPEs (dust masks, clothes, etc.) for all staff and visitors to active construction areas; • The Contractor should plan work program's activities and timing to avoid emission impact on sensitive receptors, especially urbanized areas • Install screens and scrubbers on crusher sites to minimize dust emissions; • Locate ancillary facilities away from residential/institutional to minimize dust or other emissions to the residents; • Conduct regular check-ups for workers, and offer local community free monthly medical camps for testing and treatment through cooperation of local medical health facilities and county government.

Associated Impacts	Impact Levels &	Management Actions
• Conflict between construction workers and local communities	Low- Medium	• Contractor to formulate a labour management plan for his workforce; • Establishment of a formal grievance and redress mechanism by the supervising consultant/Engineer; • Contractor will be required to have a transparent external communication plan covering among others, how available opportunities will be advertised; • The Contractor should prioritize employing locals as casuals to reduce the need for labour influx; • ▪Consultations with the settlement executive committee to ensure that available opportunities are fairly distributed across different clan members; • Maintain a grievance register to log any complaints from local community
• Increased Transmission of HIV/AIDS	Medium	• Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS and sexual health and rights through staff training, awareness campaigns, multimedia and workshops or during community Barazas. • Use existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members • Ensure safety of women and girls in provision of VCT services.
• Human Rights Principles and Gender Inclusivity	Low	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Comply to provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender inclusivity

Associated Impacts	Impact Levels &	Management Actions
• Increased crime and insecurity	Medium	• The Contractor and Supervision Consultant should report all activities of a criminal nature on the worksite or by the Contractor's employees (whether on or off the worksite) to the police and undertake the necessary follow-up. • Provision for fencing along the contractor's camp boundary designed to control entry and exit points. • Crime reports should include nature of the offense, location, date, time, and all other pertinent details • Sensitize the construction workers, locals, and security to be on the lookout on suspicious activities near the site • The contractor and Supervision Consultant should register in a log all events of a criminal nature that occur at the worksite or are associated with the civil works activities. • Enforce the crime related clauses in the Code of conduct signed by all workers • Liaise with the administration units (County and sub county governments, Police, DO, chiefs, etc.) to provide regular surveillance and patrols to protect workers and visitors
• Increased GBV	Medium	• The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse • The contractor shall implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: - effective and on-going community engagement and consultation, particularly with women and girls;

Associated Impacts	Impact Levels &	Management Actions
		- Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc. • Ensure clear human resources policy against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee COC • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc. • The contractor shall ensure adequate referral mechanisms are in place if a case of GBV at the community level
• Sexual Exploitation and Abuse by project workers against community members	Medium	• Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan shall follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). • The SEA action plan shall include how the project shall ensure necessary steps are in place for: - Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials; - Response to SEA: including survivor-cantered coordinated multi-sectoral referral and assistance to complainants according to

Associated Impacts	Impact Levels &	Management Actions
		standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; - Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights; • Management and Coordination: including integration of SEA in job descriptions, employment contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.
• Child labour and protection	Low	• The contractor shall develop and implement a Children Protection Strategy that shall ensures minors are protected against negative impacts associated by the Project including SEA. • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour

Associated Impacts	Impact Levels &	Management Actions
		• Children under the age of 18 years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014 • Wherever possible, ensure that another adult is present when working in the proximity of children. • Not invite unaccompanied children to worker's home, unless they are at immediate risk of injury or in physical danger. • Refrain from physical punishment or discipline of children
Operation		
• Risk of encroachment and construction of structures on the road way leave	medium	• Arrest and prosecution of encroachers as required by Wajir County government
• Road maintenance risks	Medium	• Incorporate recycling of road resurfacing waste where possible; • Composting of vegetation waste for reuse as a landscaping fertilizer; • Manage sediment and sludge removed from storm water; • All removed paint materials suspected or confirmed as containing lead as a hazardous waste.
• flooding of homesteads	Low	• County Government authorities should ensure that the storm water drainages installed along the project roads are well maintained and functional to avoid flooding incidences
• Road accidents	Low	• After construction phase is complete, the client in liaison with relevant authorities should sensitise the public on safety measures to observe while using the road; • National Transport and Safety Authority (NTSA) should closely monitor the road usage and impose penalties on those going against the set roads usage rules;

Associated Impacts	Impact Levels &	Management Actions
		• Speed bumps should be erected in areas of high human activity such as the market centres, schools and health centres.
• Spread of HIV/AIDS	Low	• Health officers should undertake public health education campaigns on HIV/AIDS and STIs, by specifically targeting transport operators in the project area.
Decommissioning Phase		
Solid Waste Generation	• Medium	• All removed materials that shall not be used for other purposes must be removed and recycled/reused as far as possible;
		• Where recycling/reuse of the removed materials and other demolition waste is not possible; the materials should be taken to a licensed waste disposal site or arrangements made with the County Government;
		• Donate reusable demolition waste to charitable organizations, individuals and institutions;
Noise pollution	• Medium	• Prepare a decommissioning plan to guide activities;
		• Monitor noise levels as per the NEMA Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007;
		• The noise emission characteristics should be considered during selection and mobilization of decommissioning equipment; and • Sensitize staff to switch off machinery and vehicles when not in use;
Occupational Health and Safety	• Medium	• Provide the correct PPE for the workers when conducting the demolition activities; • Conduct training on health and safety procedures to the workers prior to commencement of demolition;

Associated Impacts	Impact Levels &	Management Actions
		• Proper plans should be made prior to demolition so as to contain the raw sewage and other waste water that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.

Table 7-3: Impact analysis for Security Lighting

Associated Impacts	Impact Levels &	Management Actions
Pre-construction Phase		
• Temporary land interference	Low	• Notify community members • Reinstatement to be done after completion of the project • Mark project are to avoid conflicts with other activities
• Labour influx	Low	• Effective community engagement and strong grievance mechanisms on matters related to labour
Construction Phase		
• Air pollution and dust generation	low	• Unnecessary vegetation clearance to be avoided through clear demarcation of construction areas; • Where practicable, re-vegetate disturbed areas to minimize ground exposure; • Sprinkling water (at least twice a day) on the accesses and excavated surfaces during the construction period to suppress dust generation within settled areas; • Limit the speed of construction vehicles (maximum speed limit 40 kph/25 mph) on earth road; • Provision of appropriate protective personal equipment (PPEs) including respirators and dustcoats to exposed workers; • Ensuring the location of material stockpiles are away from human settlements and business premises; • Covering loaded trucks during the transportation of material; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards; • Sensitize workers on best practice on management of air pollution from vehicles and machinery;

Associated Impacts	Impact Levels &	Management Actions
		• All records on dust-related complaints should be submitted to Resident Engineer for appropriate action; • Undertake regular air quality (dust level) monitoring and conduct corrective adjustments where necessary based on the baseline data collected before project commencement • Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer; • Ensure dust suppression by regularly spraying water on the roads and work sites; • Wetting or covering stockpiles; • Haul trucks should be covered to avoid spills. • Ensure proper location of material stockpiles away from habitation, business premises and wetlands; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards; • Workers shall be sensitized on management of air pollution from vehicles and machinery; • Activities generating dust (excavation, handling and transport of soils) to be carried out in calm weather where possible. The resident engineer shall suspend earthworks operations wherever visible dust is affecting properties adjoining the work sites; • Any removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible;

Associated Impacts	Impact Levels &	Management Actions
		• The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer;
• Noise and excessive vibrations	low	• Workers shall use ear muffs/plugs when performing operations producing over 85 dB of continuous noisy; • Post appropriate notices to warn drivers against unnecessary hooting of vehicles; • Switch off engines or reduce idling time when not in use; • Keep machinery covers and panels closed and well fitted. Bolts/fasteners done up tightly avoid rattles. • Equipment should be maintained regularly to reduce noise resulting from friction; • Unnecessary hooting should be avoided; • Noise levels at the construction site boundary should be kept within acceptable limits of 60 dB(A) during the day and 35 dB(A) during the night as stipulated within the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009; • Limit idling time of pickup trucks and other small equipment and observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible; • When working closer to noise sensitive areas such as schools and hospitals, the contractor shall notify the concerned party at least 5 days before commencement of construction within their vicinity; • Noisy operation can be scheduled outside learning hours to limit nuisance caused; • Any complaints received by the Contractor regarding noise will be recorded and communicated to the Resident Engineer for further remedial action.

Associated Impacts	Impact Levels &	Management Actions
		• Monitor environmental and occupational noise levels as per the NEMA Environmental Management and Coordination Act (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007 requirements respectively; • The noise emission characteristics should be considered during selection and mobilization of construction equipment; • Where feasible, fit equipment with mufflers, sound insulations, silencers to lower the levels of noise emission; • Sensitize construction workers to switch off machinery and vehicles when not in use; • Staff on active project sites with continuous exposure should be provided and encouraged to fit in their Personal Protective Equipment (PPEs); • Locate noisy operations like batching plant away from the densely settled areas; • Where noisy activities must be undertaken near sensitive receptors, the neighbouring occupants must be informed in advance and works limited to day time only. • ▪Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • Any complaints received by the Contractor regarding noise shall be recorded and communicated to the Supervising Engineer for appropriate action
• Generation of Solid waste	Low	• Contractor shall provide suitable, segregated and well labelled solid waste containers to proper disposal of the wastes; • Proper segregation of solid waste prior to disposal; • Reduce generation of solid waste at the source through planning; • Separation and reuse of top soil for landscaping of the site;

Associated Impacts	Impact Levels &	Management Actions
		• Empty packaging materials like cartons and cement bags shall be piled in a safe place and sold to waste paper recyclers; • Other solid waste to be disposed at designated sites or collected and transported to approved disposal sites by NEMA registered waste transporters; • Ensure solid waste does not accumulate and further block the existing storm water drains; • Provision of appropriate sanitation facilities for use by workers. The facilities should be established in compliance with OSHA and Public Health requirements
• Disturbance of traffic and difficulty of access	low	• The Contractor should provide temporary road signs or notices to indicate ongoing works; • The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods; • Warn road users about traffic diversion by using signs, as well as use of traffic marshals; • Diversion routes should accommodate two-way traffic, and that they should be all weather; • Plan short diversion routes; • Adhere to road reserve if possible; • Obtain permission from inhabitants if diversion routes go beyond the Right of Way; • Reinstate diversion routes (and old tracks) to original condition; • Institute a traffic management plan • Trained traffic marshals on site

Associated Impacts	Impact Levels &	Management Actions
• Accidental Oil and fuel Spills and Leaks	Low	• Checking and regular servicing of Equipment. • Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures. • Provision of a 20cm layer of sand and ballast at the machinery storage area and diesel tank section, this layer act as sink to potential oil spills and shall be replaced when saturated. • Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.
• Vegetation Cover destruction	Low	• Restrict vegetation clearing to project sites by clear demarcation of areas to be used; • Thickets and bush shrubs should be preserved wherever possible through selective clearing, especially along the seasonal riverine areas; • Siting of camp sites should be done away from densely vegetated areas; • Consultations with the local people should be done to ensure that trees with historical, cultural or ornamental values, endangered species are preserved. • Beautification using trees that will not damage the infrastructure to maintain the beauty of the trees to be done as part of the project,
• Removal of vegetation	Low	• Excavated material should be properly piled, sprinkled with water and covered (where possible) to prevent possible wash-out into seasonal watercourses. Stock piling areas should have levelled ground and away from sensitive areas like slopes; • Material excavation should be minimized and restricted to designated locations; • The contractor should ensure that construction related impacts like erosion and cut slope destabilization should be addressed through rock pitching; • Re-vegetation should be done in tandem with construction activities to avoid exposure of bare ground to agents of erosion;

Associated Impacts	Impact Levels &	Management Actions
		• Enforce landscaping and restoration of the construction site prior to decommissioning of the construction site. • • As part of enhancing environmental protection in the region, the contractor should start a tree planting campaign for reforestation by incubating a tree nursery programs along the road. The types of trees to plant shall be through the guidance of the local KFS or through involvement of the Ministry of Agriculture • Any polluted soil should be handled with care for proper disposal. • Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards • Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills.
• Servicing of machinery • Removal of vegetation leading to erosion • Utilization of water for construction activities and for domestic purposes	low	• Grey water to be contained and properly channelled. • Onsite treatment of Grey water by the facility approved by the resident engineer. • Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies. • Prompt action to be taken by the Contractor in case of any pollution incident. • Ensure prompt reinstatement of drainage channels following trenching and backfilling and providing for temporary drains. • The contractor will need to develop independent construction water sources, with potential to abstract water from groundwater resources. Drilling of shallow wells is ideal as it will also support the locals after the road construction works are complete; • The Contractor must adhere to the Water Act, 2016 and associated rules and regulations as administered by WRA and NEMA. Relevant water abstraction permits must be obtained from these authorities to minimize competition or conflict with existing water rights/ resource uses;

Associated Impacts	Impact Levels &	Management Actions
		• Contractor shall employ water efficient and conserving technologies to minimize on water usage;
• Loss of temporary assets and sources of livelihood	Low	• The survey and social screening studies undertaken during the ESIA did not encounter likelihood of displacement
• Disruption of public utilities	Low	• Contractor to undertake inventory of existing utilities in the project area before beginning construction • Liaise with relevant service providers to identify and map affected sections of alignment of the services and provide cost to cover the relocation of the existing infrastructure; • Relocation plans shall include adequate notification of affected customers and residents whose access foot paths might get disrupted
• Risk of accidents at work site	low	• Provision and maintenance of alternative routes in areas where accesses have been disrupted. Such diversion routes should consider road safety in case of flash floods depending on the locations; • Dust suppression measures to enhance visibility at construction sites for oncoming traffic and road users; • Plans for short diversion routes which should be well maintained by regular sprinkling to reduce dust. Adhere to road reserve if possible; • Provision and maintenance of clear traffic signage's of ongoing construction works, regulate speed limits and diversion signage to notify approaching traffic; • Project vehicle should have and only use designated parking areas; • Sensitize workers and area residents on the importance of exercising care in the project area in as far as traffic movement and other safety issues are concerned; • Ensuring that trained traffic marshals are posted around settlement areas and around public institutions

Associated Impacts	Impact Levels &	Management Actions
		• Ensure that all haulage trucks drivers are assigned an assistant (turn boy) and well prepped banks men are posted on all active sections • Reinstatement of diversion routes (and old tracks) to original condition; • adequate temporary signages and flagmen as necessary; • Traffic signs should be largely pictorial and easy to understand as the literacy level in the region is very low; • Strictly ensuring that mobile equipment and vehicles are only operated by duly qualified personnel; • Ensuring vehicles and other mobile equipment allowed on the roads are roadworthy through undertaking regular machinery and equipment inspection; • The supervising consultant should retain a traffic safety engineer to oversee the implementation of traffic management plan. • Maintaining a fleet control and management system to ensure that utilisation of project vehicles is not abused. • Transportation of workers to and from site should be via NTSA approved buses/ minivans and not at the back of dump trucks, pickups or other light/ heavy commercial project vehicles • Provide and maintain serviceable and appropriate fire fighting equipment at the work sites, including fuel storage areas, garages and offices. Workers shall also be drilled on emergency fire response in line with the OSHA 2007 requirements • Maintain incident register and undertake investigations on any major incidents and accidents to inform further preventive actions as necessary
• Labour influx and sexual offences to minors	low	• Effective community engagement and strong grievance mechanisms on matters related to labour.

Associated Impacts	Impact Levels &	Management Actions
		• Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour • Fair treatment, non-discrimination, and equal opportunity of workers.
• Spread of Communicable diseases	Low	✓ Apply dust suppression measures - sprinkling water on the accesses and excavated surfaces – this shall be determined by the RE depending on the prevailing weather conditions; • Regular maintenance of contractors' equipment • Maintain a grievance register to log any complaints from local community; • Active construction sites should have controlled access and repulse by standers likely to be exposed to emissions; • Hold inductions for staff and people visiting the construction sites on the health and safety aspects; • Provide proper PPEs (dust masks, clothes, etc.) for all staff and visitors to active construction areas; • The Contractor should plan work program's activities and timing to avoid emission impact on sensitive receptors, especially urbanized areas • Install screens and scrubbers on crusher sites to minimize dust emissions; • Locate ancillary facilities away from residential/institutional to minimize dust or other emissions to the residents; • Conduct regular check-ups for workers, and offer local community free monthly medical camps for testing and treatment through cooperation of local medical health facilities and county government.

Associated Impacts	Impact Levels &	Management Actions
• Workers welfare	low	✓ The contractor shall comply with the required Law of Kenya under DOSHS and Labour requirements ✓ Have stocked clinic with a fulltime nurse on the campsite; ✓ In collaboration with local health facilities, ensure that the workers have access to health facilities in the area; ✓ Contractor to ensure that first aid facilities are available at all times at the work sites, and arrangement to access to ambulance service; \ ✓ The contractor shall provide mobile toilets for the workers at all worksites along the road (for women and men separately); ✓ The contractor has to also ensure that for any accommodation for personnel, suitable arrangements are made for welfare and hygiene requirements and prevention of epidemics, taking into consideration issues like harsh weather conditions in the region, sanitation, etc.
• Conflict between construction workers and local communities	Low	• Contractor to formulate a labour management plan for his workforce; • Establishment of a formal grievance and redress mechanism by the supervising consultant/Engineer; • Contractor will be required to have a transparent external communication plan covering among others, how available opportunities will be advertised; • The Contractor should prioritize employing locals as casuals to reduce the need for labour influx; • ▪Consultations with the settlement executive committee to ensure that available opportunities are fairly distributed across different clan members; • Maintain a grievance register to log any complaints from local community
• Alcohol and drug abuse	low	• The Contractor shall require his employees, sub-Contractors, sub-Consultants, and any personnel thereof engaged in construction works to individually sign and comply the Code of Conduct.

Associated Impacts	Impact Levels &	Management Actions
		• ▪Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment. • Taking all reasonable precautions to prevent unlawful, riotous or disorderly conduct by or amongst the Contractor's personnel, and to preserve peace and protection of persons and property on and near the site. • Prohibiting alcohol, drugs, arms, and ammunition on the worksite among personnel. • Liaise with the administration units (County and sub County governments, Police, ACC, chiefs, etc.) to provide regular surveillance and patrols to protect workers and unacceptable behavioural interaction of local communities and workers
• Increased Transmission of HIV/AIDS	Low	• Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS and sexual health and rights through staff training, awareness campaigns, multimedia and workshops or during community Barazas. • Use existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members • Ensure safety of women and girls in provision of VCT services.
• Human Rights Principles and Gender Inclusivity	Low	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Comply to provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender inclusivity

Associated Impacts	Impact Levels &	Management Actions
• Increase in the price of good and services in the community	Low	• The contractor will develop and implement project labor and influx management plan • The contractor should ensure his workers appropriately mix the use of locally and non-locally procured goods to allow local project benefits to balance the local economy while reducing risk of crowding out of and price hikes for local consumers. • The contractor should source for alternative sources of goods and services that are in high demand to cushion local consumers from price hikes.
• Increased crime and insecurity	Low	• The Contractor and Supervision Consultant should report all activities of a criminal nature on the worksite or by the Contractor's employees (whether on or off the worksite) to the police and undertake the necessary follow-up. • Provision for fencing along the contractor's camp boundary designed to control entry and exit points. • Crime reports should include nature of the offense, location, date, time, and all other pertinent details • Sensitize the construction workers, locals, and security to be on the lookout on suspicious activities near the site • The contractor and Supervision Consultant should register in a log all events of a criminal nature that occur at the worksite or are associated with the civil works activities. • Enforce the crime related clauses in the Code of conduct signed by all workers • Liaise with the administration units (County and sub county governments, Police, DO, chiefs, etc.) to provide regular surveillance and patrols to protect workers and visitors
• Increased GBV	Low	• The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply

Associated Impacts	Impact Levels &	Management Actions
		with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse • The contractor shall implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: - effective and on-going community engagement and consultation, particularly with women and girls; - Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc. • Ensure clear human resources policy against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee COC • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc. • The contractor shall ensure adequate referral mechanisms are in place if a case of GBV at the community level
• Sexual Exploitation and Abuse by project workers against community members	low	• Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan shall follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). • The SEA action plan shall include how the project shall ensure necessary steps are in place for: - Prevention of SEA: including COCs and ongoing sensitization of staff on

Associated Impacts	Impact Levels &	Management Actions
		responsibilities related to the COC and consequences of non-compliance; project-level IEC materials; - Response to SEA: including survivor-cantered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; - Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights; • Management and Coordination: including integration of SEA in job descriptions, employment contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.
• Child labour and protection	Low	• The contractor shall develop and implement a Children Protection Strategy that shall ensures minors are protected against negative impacts associated by the Project including SEA. • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour • Children under the age of 18 years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014

Associated Impacts	Impact Levels &	Management Actions
		• Wherever possible, ensure that another adult is present when working in the proximity of children. • Not invite unaccompanied children to worker's home, unless they are at immediate risk of injury or in physical danger. • Refrain from physical punishment or discipline of children
Operation		
• Risk of vandalism of the street lights	Low	• The count government to ensure regular monitoring of the installed security lights and high mast flood lights • Sensitization of the community against vandalizing the installed infrastructure
Decommissioning Phase		
Solid Waste Generation	• Low	• All removed materials that shall not be used for other purposes must be removed and recycled/reused as far as possible;
		• Where recycling/reuse of the removed materials and other demolition waste is not possible; the materials should be taken to a licensed waste disposal site or arrangements made with the County Government;
		• Donate reusable demolition waste to charitable organizations, individuals and institutions;
Noise pollution	• Low	• Prepare a decommissioning plan to guide activities;
		• Monitor noise levels as per the NEMA Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007;
		• The noise emission characteristics should be considered during selection and mobilization of decommissioning equipment; and • Sensitize staff to switch off machinery and vehicles when not in use;
Occupational Health and Safety	• Low	• Provide the correct PPE for the workers when conducting the demolition activities;

Associated Impacts	Impact Levels &	Management Actions
		• Conduct training on health and safety procedures to the workers prior to commencement of demolition; • Proper plans should be made prior to demolition so as to contain the raw sewage and other waste water that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

8.1 Introduction

An environmental management plan has been developed to assist the Proponent in mitigating and managing environmental impacts associated with the life cycle of the project. The ESMMP has been developed to provide a basis for an Environmental Management System (EMS; ISO 14001 principles) for the project. It is noteworthy that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the ESMMP. As such, the ESMMMP will be subject to a regular regime of periodic review.

The ESMMP identifies management actions that need to be implemented in various phases of the proposed project life cycle as follows:

8.1.1 Planning and design phase

Refers to the stage when the feasibility studies are being undertaken, the project description is being developed and the proposed project is being designed. During this phase, the ESIA is completed and the license is applied for.

8.1.2 Construction phase

This shall commence after the proposed project license has been issued and the Client has taken the decision to implement the project. The construction phase involves the development and construction of the project infrastructure.

8.1.3 Operations

This is the phase during which the proposed project shall be in operation and the targeted beneficiaries; Barwaqo informal settlements shall commence benefiting from the project.

8.1.4 Decommissioning Phase

The decommissioning phase of a project includes restoring the environment to its original form once all the operational activities of the project have ceased.

The de-commissioning of the Project is not envisaged. However, some aspects of the project will require decommissioning including the Contractor's camp. Other project components including the project road will be maintained/rehabilitated over time having served their useful life.

Before decommissioning, the Contractor will prepare a decommissioning plan for the elements that will require decommissioning.

Table 8-1: Decommissioning Flow Chart

	Action	Actor
Step 1	**Initiation**	**Proponent**

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

8.2 Objective of the ESMMP

The objectives of the ESMP include:

- To monitor the implementation of mitigation measures against potential adverse impacts of construction and operation phases of the project to ensure that they conform and comply with relevant environmental and social policies, guidelines and legislation.
- To assess for emerging non-anticipated adverse environmental and social impacts and implement relevant mitigation measures to maintain them within acceptable levels.
- To maintain best practice in environmental, social health and safety during project construction and operation
- To address capacity building needs within KISIP II, Supervision Consultant, Contractor and the Ministry of Transport and Infrastructure, where necessary

8.3 Environmental Social Management and Monitoring Plan

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts for the proposed project in Wajir County is provided below for the; a) construction stage, b) operational stage, and dc) decommissioning stage respectively.

8.3.1 Environmental and Social Management and Monitoring Plan (ESMMP) Roads Component

Table 8-2: Pre-construction Environmental, Social Management Monitoring Plan

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Budget (In KES)
Temporary land interference	• Notify community members. • Reinstatement to be done after completion of the project. • Mark project to avoid conflicts with other activities	Contractor/ County Government	• Number of complaints • Records of reinstated areas	KES 105,239
Labour influx	• Effective community engagement and strong grievance mechanisms on matters related to labour.	Contractor	• Number of grievances • Availability of grievance logs and records of resolved grievances	Contractor to cover in his cost

Table 8-3: Construction Environmental and Social Management and Monitoring Plan

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
Environmental Impact						
• Noise and excessive vibrations	Medium	• Monitor environmental and occupational noise levels as per the NEMA Environmental Management and Coordination Act (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007 requirements respectively; • The noise emission characteristics should be considered during selection and mobilization of construction equipment; • Where feasible, fit equipment with mufflers, sound insulations, silencers to lower the levels of noise emission; • Sensitize construction workers to switch off machinery and vehicles when not in use;	Contractor	• No of complaints received from neighbouring residents	Frequently	KES 10524

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Staff on active project sites with continuous exposure should be provided and encouraged to fit in their Personal Protective Equipment (PPEs); • Locate noisy operations like batching plant away from the densely settled areas; • Where noisy activities must be undertaken near sensitive receptors, the neighbouring occupants must be informed in advance and works limited to day time only. • ▪Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • Any complaints received by the Contractor regarding				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		noise shall be recorded and communicated to the Supervising Engineer for appropriate action				
• Air pollution and dust generation	Medium	• Unnecessary vegetation clearance to be avoided through clear demarcation of construction areas; • Where practicable, re-vegetate disturbed areas to minimize ground exposure; • Sprinkling water (at least twice a day) on the accesses and excavated surfaces during the construction period to suppress dust generation within settled areas; • Limit the speed of construction vehicles (maximum speed limit 40 kph/25 mph) on earth road; • Provision of appropriate protective personal equipment (PPEs) including	Contractor	• Cases of respiratory complication at nearby health centres	Daily	KES 10524

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		respirators and dustcoats to exposed workers; • Ensuring the location of material stockpiles are away from human settlements and business premises; • Covering loaded trucks during the transportation of material; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards; • Sensitize workers on best practice on management of air pollution from vehicles and machinery; • All records on dust-related complaints should be submitted to Resident Engineer for appropriate action; • Undertake regular air quality (dust level) monitoring and conduct corrective				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		adjustments where necessary based on the baseline data collected before project commencement • Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer;				
• Vegetation Cover destruction	Low	• Restrict vegetation clearing to project sites by clear demarcation of areas to be used; • Thickets and bush shrubs should be preserved wherever possible through	Contractor	• Number of tress cut • Site Demarcated	Daily	KES 70159

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		selective clearing, especially along the seasonal riverine areas; • Siting of camp sites should be done away from densely vegetated areas; • Consultations with the local people should be done to ensure that trees with historical, cultural or ornamental values, endangered species are preserved. • Beautification using trees that will not damage the infrastructure to maintain the beauty of the trees to be done as part of the project,				
• Generation of Solid waste	Medium	• 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	• Number of complaints from community not happy with waste management of spoil	• Daily	• KES 52619

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• 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		material		

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		collected by licensed waste handler for disposal; • Prioritize options of waste reduction, reuse and recycling, particularly papers, polyethene plastic wrappers and containers as well as other materials that can possibly be recycled; and • Sensitize resident workers and visitors (especially those operating food catering services) at project sites on proper waste management practices especially hazardous materials and risks of contaminations. • Contractor shall engage a licensed waster transported to regularly transport accumulated wastes for final disposal at an approved dumping site • Environmental Management, Health and Safety Training Programmes				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		to be conducted for Contractor's Staff to create awareness on proper solid wastes management • Tracking of waste to be undertaken to ensure disposal to designated dumping sites.				
• Removal of vegetation	Low	• Excavated material should be properly piled, sprinkled with water and covered (where possible) to prevent possible wash-out into seasonal watercourses. Stock piling areas should have levelled ground and away from sensitive areas like slopes; • Material excavation should be minimized and restricted to designated locations; • The contractor should ensure that construction related impacts like erosion and cut slope destabilization should be addressed through rock pitching;	Contractor	• Number of complaints from community not happy with reinstatement and backfilling	• Daily	• KES 70159

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Re-vegetation should be done in tandem with construction activities to avoid exposure of bare ground to agents of erosion; • Enforce landscaping and restoration of the construction site prior to decommissioning of the construction site. • • As part of enhancing environmental protection in the region, the contractor should start a tree planting campaign for reforestation by incubating a tree nursery programs along the road. The types of trees to plant shall be through the guidance of the local KFS or through involvement of the Ministry of Agriculture • Any polluted soil should be handled with care for proper disposal.				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards • Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills.				
• Impact on water	Low	• Grey water to be contained and properly channelled. • Onsite treatment of Grey water by the facility approved by the resident engineer. • Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies. • Prompt action to be taken by the Contractor in case of any pollution incident. • Ensure prompt reinstatement of drainage channels following trenching	Contractor	• No of complaints received in regard to water pollution and reduced water supply	Daily	Contractor to include these costs in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		and backfilling and providing for temporary drains. • The contractor will need to develop independent construction water sources, with potential to abstract water from groundwater resources. Drilling of shallow wells is ideal as it will also support the locals after the road construction works are complete; • The Contractor must adhere to the Water Act, 2016 and associated rules and regulations as administered by WRA and NEMA. Relevant water abstraction permits must be obtained from these authorities to minimize competition or conflict with existing water rights/ resource uses; • Contractor shall employ water efficient and				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		conserving technologies to minimize on water usage;				
• Accidental Oil and fuel Spills and Leaks	Low	• Checking and regular servicing of Equipment. • Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures. • Provision of a 20cm layer of sand and ballast at the machinery storage area and diesel tank section, this layer act as sink to potential oil spills and shall be replaced when saturated. • Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.	• Contractor	Incidence of reported cases of water related diseases among the workforce and neighbour community	• Daily	• No direct cost associated
Social Impacts						
• Loss of temporary assets and sources of livelihood	Low	• The social screening studies undertaken during the ESIA did not encounter likelihood of displacement	• Contractor	No of complaints received in regards to loss of livelihood	• Daily	• NO RAP

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
• Disruption of public utilities	Medium	• Contractor to undertake inventory of existing utilities in the project area before beginning construction • Liaise with relevant service providers to identify and map affected sections of alignment of the services and provide cost to cover the relocation of the existing infrastructure; • Relocation plans shall include adequate notification of affected customers and residents whose access foot paths might get disrupted	• Contractor	Number of complaints from community due to lack of certain services	• Daily	• KES 105,239.00

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
• Labour influx and sexual offences to minors	Medium	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour • Fair treatment, non-discrimination, and equal opportunity of workers.	• Contractor	• Available grievance mechanisms • No of locals recruited • Record of workers on site	• Daily	• No direct cost associated in his rates
• Conflict between construction workers and local communities	Low	• Contractor to formulate a labour management plan for his workforce; • Contractor will be required to have a transparent external communication plan covering among others, how available opportunities will be advertised; • The Contractor should prioritize employing locals as	Contractor	• Number of social unrest registered Number of Grievances on labour issues	Daily	SEC and GRC KES 21048

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		casuals to reduce the need for labour influx; • Consultations with the settlement executive committee to ensure that available opportunities are fairly distributed across different clan members; • Maintain a grievance register to log any complaints from local community				
• Alcohol and drug abuse	Low	• The Contractor shall require his employees, sub-Contractors, sub-Consultants, and any personnel thereof engaged in construction works to individually sign and comply the Code of Conduct. • Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the	Contractor	• Number of workers reported on drug and alcohol abuse Police reports	Daily	No additional cost incurred

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment. • Taking all reasonable precautions to prevent unlawful, riotous or disorderly conduct by or amongst the Contractor's personnel, and to preserve peace and protection of persons and property on and near the site. • Prohibiting alcohol, drugs, arms, and ammunition on the worksite among personnel. • Liaise with the administration units (County and sub County governments, Police, ACC, chiefs, etc.) to provide regular surveillance and patrols to protect workers and unacceptable				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		behavioural interaction of local communities and workers				
• Increased Transmission of HIV/AIDS	Medium	• Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS and sexual health and rights through staff training, awareness campaigns, multimedia and workshops or during community Barazas. • Use existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members • Ensure safety of women and girls in provision of VCT services.	Contractor	• Number of cases of diseases reported • Rate of absenteeism due to diseases • No of workers trained on HIV/ AIDS • Number of gender-disaggregated toilets constructed	Weekly	~KES 52619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
• Human Rights Principles and Gender Inclusivity	Medium	• Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. • Comply to provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender inclusivity	Contractor	• No of women recruited	Weekly	No direct cost associated
• Increase in the price of good and services in the community	Low	• The contractor will develop and implement project labor and influx management plan • The contractor should ensure his workers appropriately mix the use of locally and non-locally procured goods to allow local project benefits to balance the local economy while reducing risk of crowding out of and price hikes for local consumers. • The contractor should source for alternative sources of goods and services that are in	Contractor	• Increase in cost of living in the area Increase of key commodities in the region	Monthly	No direct cost associated

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		high demand to cushion local consumers from price hikes.				
• Increased crime and insecurity	Medium	• The Contractor and Supervision Consultant should report all activities of a criminal nature on the worksite or by the Contractor's employees (whether on or off the worksite) to the police and undertake the necessary follow-up. • Provision for fencing along the contractor's camp boundary designed to control entry and exit points. • Crime reports should include nature of the offense, location, date, time, and all other pertinent details • Sensitize the construction workers, locals, and security	Contractor	• No of crime related incidences reported in regard to the project	Daily	Contractor to include in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		to be on the lookout on suspicious activities near the site • The contractor and Supervision Consultant should register in a log all events of a criminal nature that occur at the worksite or are associated with the civil works activities. • Enforce the crime related clauses in the Code of conduct signed by all workers • Liaise with the administration units (County and sub county governments, Police, DO, chiefs, etc.) to provide regular surveillance and patrols to protect workers and visitors				
• Increased GBV	Medium	• The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction	Contractor	• Mitigation plan for GBV occurring at the community	Daily	KES 52,619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse • The contractor shall implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: - effective and on-going community engagement and consultation, particularly with women and girls; - Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc.		level as a result of project implementation • Number of GBV cases happening at the community level that receive survivor-centered referral and care		

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Ensure clear human resources policy against sexual harassment that is aligned with national law • Integrate provisions related to sexual harassment in the employee COC • Ensure appointed human resources personnel to manage reports of sexual harassment according to policy • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc. • The contractor shall ensure adequate referral mechanisms are in place if a case of GBV at the community level				
• Sexual Exploitation	Low	• Develop and implement a SEA action plan with an	Contractor	• SEA Action Plan	Daily	Covered under GBV

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
and Abuse by project workers against community members		Accountability and Response Framework as part of the C-ESMP. The SEA action plan shall follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). • The SEA action plan shall include how the project shall ensure necessary steps are in place for: - Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials; - Response to SEA: including survivor-cantered coordinated		• Code of Conduct • Number of staff trainings • SEA FP • Community Liaison trained in PSEA • IEC materials for worker's sites and community • Discrete SEA reporting pathway • Relevant policies, e.g. investigations and discipline and whistle-blower protection • Monthly		

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; - Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all		minutes from SEA coordination meetings		

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights; • Management and Coordination: including integration of SEA in job descriptions, employment contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures;				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		supervision of dedicated PSEA focal points in the project and trained community liaison officers.				
• Child labour and protection	Low	• The contractor shall develop and implement a Children Protection Strategy that shall ensures minors are protected against negative impacts associated by the Project including SEA. • All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour • Children under the age of 18 years should be hired on site as provided by Child Rights Act (Amendment Bill) 2014 • Wherever possible, ensure that another adult is present when working in the proximity of children.	Contractor	• Availability of child protection strategy • Signed CoC	Daily	Covered under GBV

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Not invite unaccompanied children to worker's home, unless they are at immediate risk of injury or in physical danger. • Refrain from physical punishment or discipline of children				
Occupational Safety and Health impacts						
• Risk of accidents at work site	Medium	• Provision and maintenance of alternative routes in areas where accesses have been disrupted. Such diversion routes should consider road safety in case of flash floods depending on the locations; • Dust suppression measures to enhance visibility at construction sites for oncoming traffic and road users; • Plans for short diversion routes which should be well maintained by regular sprinkling to reduce dust.	Contractor	• Availability of incidences Occurrence book on site • No of complains from workers for lacking water or sanitation facilities	Daily	KES 210478

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		Adhere to road reserve if possible; • Provision and maintenance of clear traffic signage's of ongoing construction works, regulate speed limits and diversion signage to notify approaching traffic; • Project vehicle should have and only use designated parking areas; • Sensitize workers and area residents on the importance of exercising care in the project area in as far as traffic movement and other safety issues are concerned; • Ensuring that trained traffic marshals are posted around settlement areas and around public institutions • Ensure that all haulage trucks drivers are assigned an assistant (turn boy) and well prepped banks men are posted on all active sections				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Reinstatement of diversion routes (and old tracks) to original condition; • adequate temporary signages and flagmen as necessary; • Traffic signs should be largely pictorial and easy to understand as the literacy level in the region is very low; • Strictly ensuring that mobile equipment and vehicles are only operated by duly qualified personnel; • Ensuring vehicles and other mobile equipment allowed on the roads are roadworthy through undertaking regular machinery and equipment inspection; • The supervising consultant should retain a traffic safety engineer to oversee the implementation of traffic management plan.				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Maintaining a fleet control and management system to ensure that utilization of project vehicles is not abused. • Transportation of workers to and from site should be via NTSA approved buses/ minivans and not at the back of dump trucks, pickups or other light/ heavy commercial project vehicles • Provide and maintain serviceable and appropriate fire fighting equipment at the work sites, including fuel storage areas, garages and offices. Workers shall also be drilled on emergency fire response in line with the OSHA 2007 requirements • Maintain incident register and undertake investigations on any major incidents and accidents to inform further				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		preventive actions as necessary				
• Traffic congestion	Medium	• The contractor shall develop a traffic management plan; • The Contractor should provide temporary road signs or notices to indicate ongoing works; • The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods;	Contractor	• Erected traffic related signage's • No of complaints raised by road users • Availability of traffic management plan	Frequently	KES 52619.50
• Spread of Communicable diseases	Low	✓ Apply dust suppression measures - sprinkling water on the accesses and excavated surfaces – this shall be determined by the RE depending on the prevailing weather conditions; • Regular maintenance of contractors' equipment	• Contractor	• Number of reported infections; Number of Medical camps held;	• Daily	• Contractor to include these costs in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Maintain a grievance register to log any complaints from local community; • Active construction sites should have controlled access and repulse by standers likely to be exposed to emissions; • Hold inductions for staff and people visiting the construction sites on the health and safety aspects; • Provide proper PPEs (dust masks, clothes, etc.) for all staff and visitors to active construction areas; • The Contractor should plan work program's activities and timing to avoid emission impact on sensitive receptors, especially urbanized areas • Install screens and scrubbers on crusher sites to minimize dust emissions;				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		• Locate ancillary facilities away from residential/institutional to minimize dust or other emissions to the residents; • Conduct regular check-ups for workers, and offer local community free monthly medical camps for testing and treatment through cooperation of local medical health facilities and county government.				
• Workers welfare	Low	• The contractor shall comply with the required Law of Kenya under DOSHS and Labour requirements • Have stocked clinic with a fulltime nurse on the campsite; • In collaboration with local health facilities, ensure that the workers have access to health facilities in the area; • Contractor to ensure that first aid facilities are available	• Contractor	• Availability of contracts • Availability of health and safety officer	Daily	KES 52619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring Frequency	Budget (In KES)
		at all times at the work sites, and arrangement to access to ambulance service; \ • The contractor shall provide mobile toilets for the workers at all worksites along the road (for women and men separately); • The contractor has to also ensure that for any accommodation for personnel, suitable arrangements are made for welfare and hygiene requirements and prevention of epidemics, taking into consideration issues like harsh weather conditions in the region, sanitation, etc.				

Table 8-4: Environment and Social Management Plan Operational Phase

Potential Impacts	Management Actions	Target Areas& Responsibilities	Time frame	Budget
Increased traffic along the project area	• Provision and maintenance of safety signage along the road • Periodical road safety audits to establish any issues with the road and establishment of mitigation measure	All work areas Responsibility County Government of Wajir	Throughout Operation period	To be determined during operation phase
Air Quality	• Policing of roadworthy vehicles to reduce air pollution • Periodical air quality monitoring along the road	All work areas Responsibility County Government of Wajir	Throughout Operation period	
Human Encroachment along the Project Road	• The county governments should enforce development control by not allowing for any development approvals on the road reserve to ward off potential encroachers and to allow for easy implementation of future road maintenance or expansion plans; • Install and maintain road reserve boundary posts at appropriate intervals; • Conduct awareness talks and presentations about the road reserve	All work areas Responsibility County Government of Wajir	Throughout Operation period	
Road Maintenance Impact	• Incorporate recycling of road resurfacing waste where possible; • All vegetation cuttings for road clearance maintenance suspected to be from invasive alien species should be burnt on site and translocated to minimize dispersal;	All work areas Responsibility County	Throughout Operation period	

Potential Impacts	Management Actions	Target Areas& Responsibilities	Time frame	Budget
	• Manage sediment and sludge removed from storm water; • All removed paint materials suspected or confirmed as containing lead should be treated as a hazardous waste. •	Government of Wajir		
Drainage and storm waste management	• Design should ensure efficient drainage structures (culverts, meter drains, scour checks etc.) to take care of the increased drainage; • Proper construction of erosion protection measures such as cascading gabions and distribution channels to protect soil erosion along the road; • Enhance measures that control erosion and land degradation measures such tree planting; • Regular maintenance of structures is required to ensure the drainage structures are functioning properly	All work areas <u>Responsibility</u> County Government of Wajir	Throughout Operation period	

Table 8-5: Environment and Social Management Plan Decommissioning Phase

Potential Impacts	Management Actions	Responsibilities	Time frame	Budget
Solid Waste Generation	• All removed materials that shall not be used for other purposes must be removed and recycled/reused as far as possible;	Contractor	One-off	To be established at decommissioning phase
	• Where recycling/reuse of the removed materials and other demolition waste is not possible; the materials should be taken to a licensed waste disposal site or arrangements made with the County Government;	Contractor	One-off	
	• Donate reusable demolition waste to charitable organizations, individuals and institutions;	Contractor	One-off	
Noise pollution	• Prepare a decommissioning plan to guide activities;	Contractor	One-off	
	• Monitor noise levels as per the NEMA Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007;	Contractor	One-off	
	• The noise emission characteristics should be considered during selection and mobilization of decommissioning equipment; and • Sensitize staff to switch off machinery and vehicles when not in use;	Contractor	One-off	
Occupational Health and Safety	• Provide the correct PPE for the workers when conducting the demolition activities; • Conduct training on health and safety procedures to the workers prior to commencement of demolition; • Proper plans should be made prior to demolition so as to contain the raw sewage and other waste water	Contractor	One-off	

Potential Impacts	Management Actions	Responsibilities	Time frame	Budget
	that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.			

8.3.2 Environmental and Social Management and Monitoring Plan (ESMMP) Security Lighting

Table 8-6: Pre-construction EMMP Security lighting

Associated Impacts	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
Temporary land interference	• Notify community members. • Reinstatement to be done after completion of the project. • Mark project to avoid conflicts with other activities	Contractor/ County Government	• Number of complaints • Records of reinstated areas	• Daily	• KES 105239
Labour influx	• Effective community engagement and strong grievance mechanisms on matters related to labour.	Contractor	• Number of grievances • Availability of grievance logs and records of resolved grievances	• Daily	• Contractor to cover in his rates

Table 8-7: Construction EMMP Security lighting

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
Environmental						
• Noise and excessive vibrations	Medium	• Monitor environmental and occupational noise levels as per the NEMA Environmental Management and Coordination Act (Noise and	Contractor	• No of complaints received from neighbouring	frequently	KES 10524

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007 requirements respectively; • The noise emission characteristics should be considered during selection and mobilization of construction equipment; • Where feasible, fit equipment with mufflers, sound insulations, silencers to lower the levels of noise emission; • Sensitize construction workers to switch off machinery and vehicles when not in use; • Staff on active project sites with continuous exposure should be provided and encouraged to fit in their Personal Protective Equipment (PPEs);		residents		

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Locate noisy operations like batching plant away from the densely settled areas; • Where noisy activities must be undertaken near sensitive receptors, the neighbouring occupants must be informed in advance and works limited to day time only. • ▪Noise quality samples to be used as baseline data will be collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • Any complaints received by the Contractor regarding noise shall be recorded and communicated to the Supervising Engineer for appropriate action				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
• Air pollution and dust generation	low	• Unnecessary vegetation clearance to be avoided through clear demarcation of construction areas; • Where practicable, re-vegetate disturbed areas to minimize ground exposure; • Sprinkling water (at least twice a day) on the accesses and excavated surfaces during the construction period to suppress dust generation within settled areas; • Limit the speed of construction vehicles (maximum speed limit 40 kph/25 mph) on earth road; • Provision of appropriate protective personal equipment (PPEs) including respirators and dustcoats to exposed workers; • Ensuring the location of material stockpiles are away from human settlements and business premises;	Contractor	• Cases of respiratory complication at nearby health centres	Frequently	KES 10524

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Covering loaded trucks during the transportation of material; • Maintenance of vehicles and machinery in accordance with the equipment specifications and manufacturer's standards; • Sensitize workers on best practice on management of air pollution from vehicles and machinery; • All records on dust-related complaints should be submitted to Resident Engineer for appropriate action; • Undertake regular air quality (dust level) monitoring and conduct corrective adjustments where necessary based on the baseline data collected before project commencement • Noise quality samples to be used as baseline data will be				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		collected before commencement of the civil works for regular monitoring during the construction period at various sensitive areas to be agreed upon with the RE. • The contractor to comply the provisions of EMCA (Air Quality Regulations) 2014, to be enforced by the Supervising Engineer;				
• Vegetation Cover destruction	Low	• Restrict vegetation clearing to project sites by clear demarcation of areas to be used; • Thickets and bush shrubs should be preserved wherever possible through selective clearing, especially along the seasonal riverine areas; • Siting of camp sites should be done away from densely vegetated areas; • Consultations with the local people should be done to	Contractor	• Number of tress cut • Site Demarcated	Daily	KES 70159

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		ensure that trees with historical, cultural or ornamental values, endangered species are preserved. • Beautification using trees that will not damage the infrastructure to maintain the beauty of the trees to be done as part of the project,				
• Generation of Solid waste	low	• 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;	Contractor	• Number of complaints from community not happy with waste management of spoil material	• Daily	• KES 52619

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• 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 plastic wrappers and containers as well as other materials that can possibly be recycled; and				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Sensitize resident workers and visitors (especially those operating food catering services) at project sites on proper waste management practices especially hazardous materials and risks of contaminations. • Contractor shall engage a licensed waster transported to regularly transport accumulated wastes for final disposal at an approved dumping site • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management • Tracking of waste to be undertaken to ensure disposal to designated dumping sites.				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
• Removal of vegetation	Low	• Excavated material should be properly piled, sprinkled with water and covered (where possible) to prevent possible wash-out into seasonal watercourses. Stock piling areas should have levelled ground and away from sensitive areas like slopes; • Material excavation should be minimized and restricted to designated locations; • The contractor should ensure that construction related impacts like erosion and cut slope destabilization should be addressed through rock pitching; • Re-vegetation should be done in tandem with construction activities to avoid exposure of bare ground to agents of erosion; • Enforce landscaping and restoration of the construction site prior to	Contractor	• Number of complaints from community not happy with reinstatement and backfilling	• Daily	• KES 70159

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		decommissioning of the construction site. • • As part of enhancing environmental protection in the region, the contractor should start a tree planting campaign for reforestation by incubating a tree nursery programs along the road. The types of trees to plant shall be through the guidance of the local KFS or through involvement of the Ministry of Agriculture • Any polluted soil should be handled with care for proper disposal. • Concrete mixing shall be done on concrete slabs or a large metal sheet or mortar boards • Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills.				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
• Impact on water	Low	• Grey water to be contained and properly channelled. • Onsite treatment of Grey water by the facility approved by the resident engineer. • Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies. • Prompt action to be taken by the Contractor in case of any pollution incident. • Ensure prompt reinstatement of drainage channels following trenching and backfilling and providing for temporary drains. • The contractor will need to develop independent construction water sources, with potential to abstract water from groundwater resources. Drilling of shallow wells is ideal as it will also	Contractor	• No of complaints received in regard to water pollution and reduced water supply	Daily	Contractor to include these costs in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		support the locals after the road construction works are complete; • The Contractor must adhere to the Water Act, 2016 and associated rules and regulations as administered by WRA and NEMA. Relevant water abstraction permits must be obtained from these authorities to minimize competition or conflict with existing water rights/ resource uses; • Contractor shall employ water efficient and conserving technologies to minimize on water usage;				
• Accidental Oil and fuel Spills and Leaks	Low	• Checking and regular servicing of Equipment. • Re-fuelling at safe locations, • Use of spill kits and applications of emergency spill procedures. • Provision of a 20cm layer of sand and ballast at the machinery storage area and	• Contractor	Incidence of reported cases of water related diseases among the workforce and neighbour community	• Daily	• No direct cost associated

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		diesel tank section, this layer act as sink to potential oil spills and shall be replaced when saturated. • Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.				
Social impacts						
• Loss of temporary assets and sources of livelihood	Low	• There will be no displacement of people and destruction of property	• Contractor	No of complaints received in regards to loss of livelihood	• Weekly	• NO RAP
• Labour influx and sexual offences to minors	Low	• Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx • Proper records of labour force on site while avoiding child and forced labour	• Contractor	• Available grievance mechanisms • No of locals recruited • Record of workers on site	• Daily	• No direct cost associated in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Fair treatment, non-discrimination, and equal opportunity of workers.				
• Conflict between construction workers and local communities	Low	• Contractor to formulate a labour management plan for his workforce; • Contractor will be required to have a transparent external communication plan covering among others, how available opportunities will be advertised; • The Contractor should prioritize employing locals as casuals to reduce the need for labour influx; • Consultations with the settlement executive committee to ensure that available opportunities are fairly distributed across different clan members; • Maintain a grievance register to log any	• Contractor	Records of workers on site Number of grievances logged	• Daily	• SEC &GRC facilitation KES 21,048

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		complaints from local community				
• Disruption of public utilities	Low	• Contractor to undertake inventory of existing utilities in the project area before beginning construction • Liaise with relevant service providers to identify and map affected sections of alignment of the services and provide cost to cover the relocation of the existing infrastructure; • Relocation plans shall include adequate notification of affected customers and residents whose access foot paths might get disrupted	• Contractor	Number of complaints from community due to lack of certain services	• frequently	• KES 105,239.00
Occupational Safety and Health Impacts						

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
• Risk of accidents at work site	Low	• Provision and maintenance of alternative routes in areas where accesses have been disrupted. Such diversion routes should consider road safety in case of flash floods depending on the locations; • Dust suppression measures to enhance visibility at construction sites for oncoming traffic and road users; • Plans for short diversion routes which should be well maintained by regular sprinkling to reduce dust. Adhere to road reserve if possible; • Provision and maintenance of clear traffic signage's of ongoing construction works, regulate speed limits and diversion signage to notify approaching traffic; • Project vehicle should have and only use designated parking areas;	Contractor	• Availability of incidences Occurrence book on site • No of complains from workers for lacking water or sanitation facilities	Daily	KES 210478

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Sensitize workers and area residents on the importance of exercising care in the project area in as far as traffic movement and other safety issues are concerned; • Ensuring that trained traffic marshals are posted around settlement areas and around public institutions • Ensure that all haulage trucks drivers are assigned an assistant (turn boy) and well prepped banks men are posted on all active sections • Reinstatement of diversion routes (and old tracks) to original condition; • adequate temporary signages and flagmen as necessary; • Traffic signs should be largely pictorial and easy to understand as the literacy level in the region is very low; • Strictly ensuring that mobile equipment and vehicles are				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		only operated by duly qualified personnel; • Ensuring vehicles and other mobile equipment allowed on the roads are roadworthy through undertaking regular machinery and equipment inspection; • The supervising consultant should retain a traffic safety engineer to oversee the implementation of traffic management plan. • Maintaining a fleet control and management system to ensure that utilization of project vehicles is not abused. • Transportation of workers to and from site should be via NTSA approved buses/ minivans and not at the back of dump trucks, pickups or other light/ heavy commercial project vehicles • Provide and maintain serviceable and appropriate				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		fire fighting equipment at the work sites, including fuel storage areas, garages and offices. Workers shall also be drilled on emergency fire response in line with the OSHA 2007 requirements • Maintain incident register and undertake investigations on any major incidents and accidents to inform further preventive actions as necessary				
• Traffic congestion	Low	• The contractor shall develop a traffic management plan; • The Contractor should provide temporary road signs or notices to indicate ongoing works; • The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods;	Contractor	• Erected traffic related signage's • No of complaints raised by road users • Availability of traffic management plan	Frequently	KES 52619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
• Spread of Communicable diseases	Low	✓ Apply dust suppression measures - sprinkling water on the accesses and excavated surfaces – this shall be determined by the RE depending on the prevailing weather conditions; • Regular maintenance of contractors' equipment • Maintain a grievance register to log any complaints from local community; • Active construction sites should have controlled access and repulse by standers likely to be exposed to emissions; • Hold inductions for staff and people visiting the construction sites on the health and safety aspects; • Provide proper PPEs (dust masks, clothes, etc.) for all staff and visitors to active construction areas;	• Contractor	• Number of reported infections; Number of Medical camps held;	• Daily	• Contractor to include these costs in his rates

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• The Contractor should plan work program's activities and timing to avoid emission impact on sensitive receptors, especially urbanized areas • Install screens and scrubbers on crusher sites to minimize dust emissions; • Locate ancillary facilities away from residential/institutional to minimize dust or other emissions to the residents; • Conduct regular check-ups for workers, and offer local community free monthly medical camps for testing and treatment through cooperation of local medical health facilities and county government.				
• Workers welfare	Low	• The contractor shall comply with the required Law of Kenya under DOSHS and Labour requirements	• Contractor	• Availability of contracts • Availability of health and safety officer	Daily	KES 52619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		• Have stocked clinic with a fulltime nurse on the campsite; • In collaboration with local health facilities, ensure that the workers have access to health facilities in the area; • Contractor to ensure that first aid facilities are available at all times at the work sites, and arrangement to access to ambulance service; \ • The contractor shall provide mobile toilets for the workers at all worksites along the road (for women and men separately); • The contractor has to also ensure that for any accommodation for personnel, suitable arrangements are made for welfare and hygiene requirements and prevention of epidemics, taking into consideration issues like harsh weather				

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
		conditions in the region, sanitation, etc.				
•		•	Contractor	• Number of social unrest registered Number of Grievances on labour issues	Daily	No direct cost incurred
•		•	Contractor	• Number of workers reported on drug and alcohol abuse Police reports	Daily	No additional cost incurred
•		•	Contractor	• Number of cases of diseases reported • Rate of absenteeism due to diseases	Daily	~KES 52619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
				• No of workers trained on HIV/ AIDS • Number of gender-disaggregated toilets constructed		
•		•	Contractor	• No of women recruited	Daily	No direct cost associated
•		•	Contractor	• Increase in cost of living in the area Increase of key commodities in the region	Daily	No direct cost associated
•		•	Contractor	• No of crime related incidences reported in regard to the project	Daily	Contractor to include in his rates
•		•	Contractor	• Mitigation plan for GBV	Daily	KES 52,619.50

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
				occurring at the community level as a result of project implementation • Number of GBV cases happening at the community level that receive survivor-centered referral and care		
•		•	Contractor	• SEA Action Plan • Code of Conduct • Number of staff trainings • SEA FP	Daily	Covered under GBV

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
				• Community Liaison trained in PSEA • IEC materials for worker's sites and community • Discrete SEA reporting pathway • Relevant policies, e.g. investigations and discipline and whistle-blower protection • Monthly minutes from SEA coordination meetings		
•		•	Contractor	• Availability of child protection	Daily	Covered under GBV

Associated Impacts	Impact Levels	Management Actions	Responsibilities	Monitoring Indicator	Monitoring frequency	Budget in KES
				strategy • Signed CoC		

Table 8-8: Environment and Social Management Plan Operational Phase

Potential Impacts	Management Actions	Target Areas& Responsibilities	Monitoring Frequency	Budget
Vandalism of security lighting	• The count government to ensure regular monitoring of the installed security lights and high mast flood lights • Sensitization of the community against vandalizing the installed infrastructure	All work areas Responsibility County Government of Wajir	Throughout Operation period	To be determined during operation phase

Table 8-9: Environment and Social Management Plan Decommissioning Phase

Potential Impacts	Management Actions	Responsibilities	Monitoring Frequency	Budget
Solid Waste Generation	• All removed materials that shall not be used for other purposes must be removed and recycled/reused as far as possible;	Contractor	One-off	To be established at decommissioning phase
	• Where recycling/reuse of the removed materials and other demolition waste is not possible; the materials should be taken to a licensed waste disposal site or arrangements made with the County Government;	Contractor	One-off	
	• Donate reusable demolition waste to charitable organizations, individuals and institutions;	Contractor	One-off	
Noise pollution	• Prepare a decommissioning plan to guide activities;	Contractor	One-off	
	• Monitor noise levels as per the NEMA Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 & OSHA, 2007;	Contractor	One-off	
	• The noise emission characteristics should be considered during selection and mobilization of decommissioning equipment; and • Sensitize staff to switch off machinery and vehicles when not in use;	Contractor	One-off	
Occupational Health and Safety	• Provide the correct PPE for the workers when conducting the demolition activities. • Conduct training on health and safety procedures to the workers prior to commencement of demolition.	Contractor	One-off	

Potential Impacts	Management Actions	Responsibilities	Monitoring Frequency	Budget
	• Proper plans should be made prior to demolition so as to contain the raw sewage and other wastewater that poses as health risk to human beings and the environment, to prevent the workers and surrounding communities from getting into contact with it.			

8.4 Grievance Resolution Mechanism

A grievance is an expression of concern or complaint voiced by any person who feels they have been or will be negatively impacted by someone else's activities.

This ESIA establishes all the project proposed works are likely to encounter several grievances from different stakeholders specifically the community during the construction period. Some of the grievances likely to be encountered in the project include but not limited to:

- Grievances regarding destruction of property
- Gender Based Violence
- Poor working conditions
- Grievances related to payments (delayed and low wages)
- Labour influxes
- Discrimination against workers
- Discrimination against Vulnerable and Marginalized Groups
- Child labour
- Environmental degradation
- Disruption of amenities

This ESIA acknowledges the grievances are likely to occur and have established Grievance Redress Mechanism (GRM). A Grievance Redress Mechanism (GRM) is a locally based, formalized way to accept, assess, and resolve community feedback or complaints. KISIP 2 has already established a community level Grievance Redress Mechanism (GRM) by establishing Settlement Executive Committee (SEC) and Grievance Redress Committee. There is also a customized grievance redress log.

There is also a customized grievance redress log. The Grievance Redress Processes include the following:

a) ***Grievance Reception and Acceptance:*** The GRC officials will receive and register complaints/concerns from all projects affected or interested parties.

b) ***Acknowledgement, Assessment and Record:*** The complainant will receive confirmation from the GRC officials that his/her complaint has been received. The complaint note should contain all relevant and personal information given by the complainant(s). The GRC official should record all grievances, maintain, and update the GRM Log/Register with the following information:

   - Dates when the complaints are registered,
   - Dates when the grievances are uploaded onto the project database,
   - Information on proposed corrective actions/resolutions sent to complainant,
   - Dates when complaints are closed out, and
   - Dates when responses are sent to complainant(s).

c) ***Investigation:*** Appropriate investigation will be decided at the assessment stage. If deemed necessary, the investigation can include a risk assessment. The investigation may include follow-up meetings between

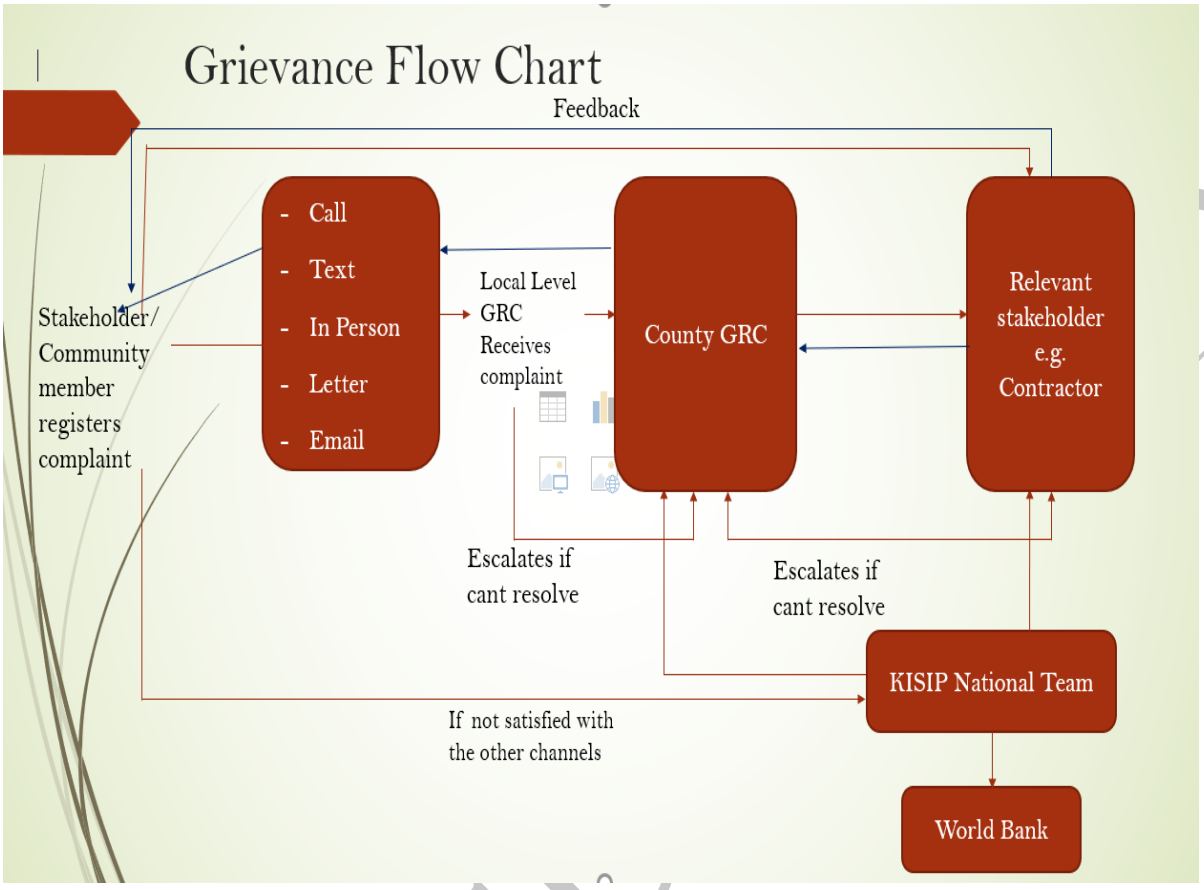
stakeholders and the contractor, where an impartial party is present, Minutes are recorded and added to the grievance database.

d) ***Resolution:*** Depending on the findings and their severity, a resolution will be decided within the time frames provided (See protocols 4.3). The NPCT will monitor the timelines of each resolution and ensure resolutions are made within 3 months of filing.

e) ***Complaint Satisfaction:*** **Yes:** The process concludes with a written agreement signed by the complainant(s) and management. **No:** The issue is shared with senior management. If unresolved at the settlement level, the GRC will escalate to the County. If the County is not able to resolve, the County will escalate it to the National PCT. Escalation must be done through letter or email. If it remains unresolved, or in parallel to project-level resolution, legal action may be taken. The CPCTs must inform the NPCT as soon as any court cases related to KISIP2 activities are filed, and the NPCT is responsible for informing the World Bank.

f) ***Documentation Management:*** Throughout the grievance redress process, it is important for the complaints and grievance logs to be stored in ways in which they can be easily analysed and presented. Filling of grievance forms will be done by the GRCs including resolutions and escalations. A summary grievance log will be documented in a black book or in any other manner that provides a summary of the number of grievances received, date received, the type and nature of grievances and if resolved, and or escalated. These summaries shall be collated monthly and submitted to the County GRM focal point who in turn will compile all grievance logs from within the county and submit to the National GRM focal point. A standard format for grievance logs filing and submission will be agreed and revised as necessary. This can be achieved through the use of a simple GRM database managed by the National GRM focal point with access by all the County GRM focal points.

Grievance Flow Chart



8.5 GBV GRM Protocol

KISIP 2 Project has a substantial GBV risk profile due to its location in the informal settlements, thus a separate avenue for GBV related GRM will be constituted to receive GBV related complaints that is tailored to be responsive to the sensitivities of reporting GBV and for vulnerable population.

The GBV GRM will have special procedures for responding to allegations of sexual exploitation and abuse (SEA) and sexual harassment (SH) that are made against a project actor. However, for any complaint that is reported to the GRM (including complaints involving other forms of GBV that are not related to the project), the GRM will also have procedures in place to refer the individual to GBV service providers.

For the purposes of the GRM, these terms are defined as follows:

- Gender-based violence. Gender-based violence, or GBV, is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed (i.e. gender) differences between males and females. It includes acts that inflict physical, sexual, or mental harm or suffering, threats of such acts, coercion, and other deprivations of liberty. These acts

can occur in public or in private. Across the globe, gender-based violence disproportionately affects women and girls. SEA/SH (defined below) is a subset of GBV.

- Sexual exploitation. Any actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another.
- Sexual Abuse. Actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.
- Sexual harassment. Any unwelcome sexual advance, request for sexual favours, verbal or physical conduct or gesture of a sexual nature, or any other behaviour of a sexual nature that might be reasonably expected or perceived to cause offense or humiliation to another, when such conduct interferes with work; is made a condition of employment; or creates an intimidating, hostile, or offensive work environment.
- Intimate partner violence (IPV). As defined by the World Health Organization (WHO), IPV refers to any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship. Examples of types of behaviour include:
    - ✓ Acts of physical violence, such as slapping, hitting, kicking, and beating.
    - ✓ Sexual violence, including forced sexual intercourse and other forms of sexual coercion.
    - ✓ Emotional (psychological) abuse, such as insults, belittling, constant humiliation, intimidation (e.g. destroying things), threats of harm, threats to take away children.
    - ✓ Controlling behaviours, including isolating a person from family and friends; monitoring their movements; and restricting access to financial resources, employment, education, or medical care.

To fulfil the role of addressing GBV, all staff and volunteers at all levels of KISIP 2 Project should be trained (and/or have previous knowledge and experience) on the GBV Guiding Principles and the specialized procedures for receiving and referring GBV-related complaints. This set of skills will help GRM staff and volunteers to support the quality of the complaint mechanism, while at the same time ensuring the adherence to these Guiding Principles and a survivor-centres approach, including right to safety, respect, and confidentiality, of the complaint intake and management. Hotline operators should receive training in the handling of GBV related complaints in line with the principles of confidentiality and the specialized procedures.

When receiving a grievance/during the intake process, the person receiving the complaint shall respect the wishes, choices, rights, and dignity of the complainant. For the survivor/complainant to make informed decisions about whether to seek services and whether to file a complaint with the project (where the complaint involves SEA or SH), she/he needs to be provided with clear and simple information on the functioning of the system, on the possible outcomes, likely timelines, and the types of support that can be provided. The survivor/complainant must also give their consent for the sharing of basic, anonymous, non-identifiable monitoring data about the incident with the National/County KISIP 2 coordinating team and with the World Bank. If a complainant chooses not to be referred to GBV service providers or has the project take further action, then the case will be closed. The officer or volunteer must seek the survivor/complainant's consent to share basic monitoring data, and if no consent is given, no data will be recorded. For GBV cases, it is important to ensure that access to the

complaints processes is as easy and as safe as possible for the complainant/survivor and that they clearly understand the referral process.

8.6 Avenues of Channelling GBV-GRM Related Cases

The avenues of channelling GBV-GRM related cases that may occur during construction phase of the project is presented in Table 8-10.

Table 8-10: Avenues of Channelling GBV-GRM Related Cases

GBV-GRM	The 1st level GRC at the project site/community level will designate 2 qualified persons within the committee who are most qualified to handle GBV-GRM matters (the Guidance Counsellor and the school principal/GBV focal person)
Communication	The County Coordinator to make dedicated toll-free contact numbers for the GBV focal persons at the project site for stakeholders' access - via posters, community consultations and awareness creation
GBV Officer	The GBV officers at the Project and County level is the focal point for the accountability, response aspects and monitoring the accountability process (e.g., determining if project-related, making sure employer, which might be the project Consultant or Contractor, is taking GBV Officer appropriate disciplinary action and investigating, etc.
GBV Service Provider	Each Project Consultant will identify existing GBV service providers in the communities and at County level to maintain a Memorandum of Understanding (MOU) for referral of GBV-GRM cases

8.7 Timeframe for processing Grievances

This section provides information on the expected timeframe for each stage of the GRM. It is expected that every responsible party will ensure they achieve the stipulated timelines. GBV/SEA/SH cases will not follow this timeframe and support must be provided to the survivor immediately due to the serious nature of SEA/SH issues.

Table 8-11: Time Frame for Processing Complaints

Process	Description	Completion Timeframe	Responsible person
Receipt of complaint	Document date of receipt, name of complainant, location, nature of complaint etc.	1 day	Secretary to GRC at project level
Acknowledgement of grievance to the complainant	By letter, email, phone	1 day	Secretary to GRC at project level
Screen and Establish the Merit of the Grievance	Review the complaint/ Listen to the complainant and assess the merit	2 days	Project level GRC Secretary & the aggrieved PAP or his/her representative

Process	Description	Completion Timeframe	Responsible person
Refer unrelated project grievances	Where complaint is not related to KISIP 2 Project refer to appropriate authority and inform complainant	2 days	Project level GRC Secretary & the aggrieved PAP or his/her representative
Investigate the grievance	Visit the site, conduct investigations and interviews	1 – 3 days	Project level GRC members
Implement a redressal action	Discuss and agree on the grievance resolution	1 – 7 days	Project level GRC members & the aggrieved PAP or his/her representative
Escalate to county coordinator for a dissatisfied scenario	Refer the complainant to the County Coordinator GRC	3 – 10 days	Project level GRC Chairman
Receipt and record of complaint at county coordinator GRC	Document date of receipt, name of complainant, location, nature of complaint etc.	1 day	County level GRM Officer
Investigate/ Implement a redressal action	Review the previous action by the project level GRC/ conduct investigations and interviews. Recommend grievance resolution	2 – 7 days	County level GRM Officer
Escalate to National Coordinator for a dissatisfied scenario	Refer the complainant to the National Coordinator GRC	3 – 10 days	National level Coordinator
Receipt and record of complaint at National Coordinator GRC Document date of receipt, name of complainant	Document date of receipt, name of complainant	1 day	National level GRM Officer
Investigate/ Implement a redressal action	Review the previous action by the GRCs/ conduct investigations and interviews. Recommend grievance resolution	2 – 5 days	National GRC
Last resort - Advice complainant of option to seek judicial redress	Where resolution is not reached, complainant is free to seek judicial redress.	7days	National Coordinator

Process	Description	Completion Timeframe	Responsible person
	National Coordinator to document the case including all attempts at resolution and send a report to the TTL	5days	
Close the case	Follow up to obtain feedback and document resolution in logbook	As required	GRM officers

8.8 Sample Chance Find Procedure

Chance find procedures are an integral part of the project ESMMP and civil works contracts. The following is proposed in this regard:

- If the Contractor discovers archaeological sites, historical sites, remains and objects during excavation or construction, the Contractor shall:
- Stop the construction activities in the area of the chance find.
- Delineate the discovered site or area.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities, or the Ministry of State for National Heritage and Culture take over.
- Notify the supervisor, Project Environmental Officer, and Resident Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less).
- Responsible local authorities and the Ministry of State for National Heritage and Culture would then oversee protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archaeological importance) conservation, preservation, restoration, and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.
- Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion

The proposed project is environmentally, legally, and socially acceptable. The potential significant environmental impacts can be adequately mitigated by the proposed measures, and it is the responsibility of the proponent and all other actors to see to it that the measures are implemented. This way, the environmental threats shall be downscaled to acceptable levels.
It is based on the above, that it is recommended that the project be issued with the necessary clearance for the project to commence implementation.

The total cost for the proposed upgrading works is **KES 112,311,749.05** and the project is estimated to take 1 year.

9.2 Recommendation

This assessment recommends the following provisions:

- All mitigation measures need to be specified in tender and contract documents and must be included in the engineering drawings, specifications, and bills of quantities.
- The Contractor will be required to prepare a Construction Environment & Social Management Plan (CESMP) which shall be approved by the proponent before the beginning of works. Within the C-ESMP suite, the following instruments should be prepared:
  i. Health and Safety Management Plan.
  ii. Traffic Management Plan.
  iii. Labour, Influx and Local Recruitment Management Plan.
  iv. Spoil Management Plan.
  v. Stakeholder management Plan.
  vi. Emergency Response Plan.
  vii. A Gender Responsive Grievance Redress Management Plan for Internal and external grievances.
  viii. Child Protection Strategy.
  ix. Waste Management Plan.
- Diligence on the part of the contractor and proper supervision by the project engineer during construction and the initial operation phase is crucial for mitigating impacts.
- Contractor shall be required to commit to implementing the Environment, Social Health, and Safety (ESHS) Provisions by developing site-specific (ESHS) plans.
- At project implementation stage, the Contractor to report to the project management team comprising of the Consultant and the project proponent monthly on how Environment, Social Health, and Safety (ESHS) provision detailed in this Environmental Social Impact Assessment are addressed.
- The proponent should be given all the available support to implement the project.

- Necessary permits should be issued by the licensing authority so that the work can commence such and National Environment Management Authority (NEMA) license, Directorate of Occupational Safety and Health Services (DOSHS) permit, Business permit and any other relevant that may be required.
- Periodic environmental and social monitoring is required by KISIP 2 team to ensure that mitigation measures have been implemented to prevent or avert any negative impacts of the project.
- On completion of the road and Civil Works, KISIP 2, the proponent to commission an independent Consultant to undertake an initial Environment, Social, Health and Safety Audit as required by Environmental (Impact Assessment and Audit) Regulations 2003 with 2019 amendments.
- The audit shall identify nonconformities which the Contractor together with the Client shall address through the defect's liability period of the Project. This audit shall also form basis of annual Project self-audits by the Client.
- To reduce GHG emissions, the contractor should ensure plant and equipment are properly serviced and use fuel which is free from impurities.
- Necessary permits should be issued by the licensing authority so that the work can commence such and NEMA license, DOSH permit, Business permit and any other relevant that may be required.
- Periodic environmental and social monitoring is required by KISIP 2 team to ensure that mitigation measures have been implemented to prevent or avert any negative impacts of the project.
- On completion of the road and Civil Works, KISIP 2 the proponent to commission an independent Consultant to undertake an initial Environment, Social, Health and Safety Audit as required by Environmental (Impact Assessment and Audit) Regulations 2003 with 2019 amendments.
- The audit shall identify nonconformities which the Contractor together with the Client shall address through the defect's liability period of the Project. This audit shall also form basis of annual Project self-audits by the Client.
- During implementation, the relevant World Bank policies will be fully adhered to.
- Contractor to involve a community liaison person.
- Project workers should have a transparent, open, available and anonymous GRMs.

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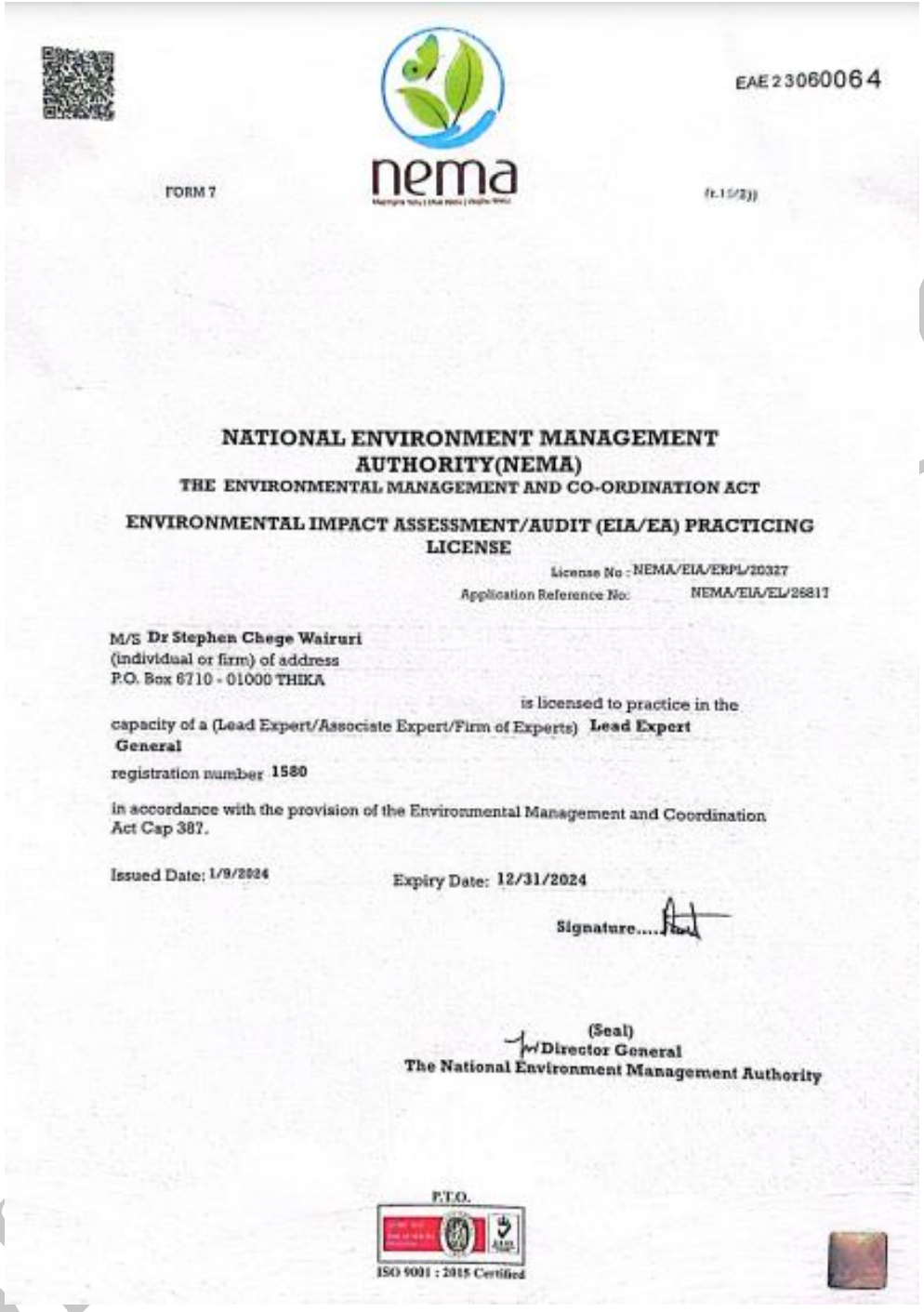
ANNEXES

Annex 1: Lead Expert NEMA License



EAE 23060064

FORM 7 (r.11(2))

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/20327

Application Reference No: NEMA/EIA/EL/26817

M/S **Dr Stephen Chege Wairuri**
(individual or firm) of address
P.O. Box 6710 - 01000 THIKA

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert General**
registration number **1580**

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

Issued Date: 1/9/2024 Expiry Date: 12/31/2024

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001 : 2015 Certified

Annex 2: Minutes and Attendance Sheet

REPUBLIC OF KENYA

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT SECOND KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT (KISIP 2)

CONSULTING SERVICES FOR INFRASTRUCTURE UPGRADING PLANS, DETAILED ENGINEERING DESIGNS AND PREPARATION OF PROCUREMENT DOCUMENTS AND CONSTRUCTION SUPERVISION OF INFRASTRUCTURE IMPROVEMENT WORKS IN SELECTED INFORMAL SETTLEMENTS IN THE COUNTIES OF NYERI, MERU, THARAKA-NITHI, AND WAJIR. (ONE CONTRACT).

KISIP 2

Project Program	**Second Kenya Informal Settlements Improvement Project (KISIP 2)**
Assignment Name	Consulting Services For Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents and Construction Supervision of Infrastructure Improvement Works in Selected Informal Settlements In The Counties of Nyeri, Meru, Tharaka-Nithi, And Wajir
Subject:	Minutes of Public participation Meeting for Barwaqo Informal Settlement held on October 11, 2023 at Barwaqo
Date and Time:	October 11, 2023
Venue:	Barwaqo Market Centre

Members Present

Name	Designation	Organization
Christine Sabwiri	SHO	KISIP
Blanton Gitau	Engineer	KISIP
Carol Mataara	Road Engineer	Gath/Losai
Joseph Mwaura	Ass. Engineer	Gath/Losai
Risper Pete	Sociologist	Gath/Losai
Moses Odhiambo	GIS	Gath/Losai
Sarah Karanja	Sociologist	Gath/Losai
Arthur Kasidi	Road Engineer	Gath/Losai
Joseph Mwaura	Ass. Engineer	Gath/Losai
Omar Hassan	community member	
Zeinab Hassan	community member	
Suldana Abdi	community member	
Hassan Mohammed	community member	
Falhadha Osman	community member	
Hassan Aluabdi	community member	
Halima Abdi ahmed	community member	
Yusuf Mohamed	community member	
Abdinassir Kontuma	community member	
Osman Ahmed	community member	
Hussein Ali	community member	
Barwaka Ibrahim	community member	
Robay Abdullahi	community member	
Jibril Ibrahim	community member	
Aden Adow	community member	
Hassan Ahmed	community member	
Omar Hassan	community member	
Zeinab Hassan	community member	
Suldana Abdi	community member	

AGENDA

1. Introduction.
2. Meeting Agenda.
3. Election of SEC and GRC members
4. Determination of the Community Priorities
5. A.O.B
6. Meeting Closure

Minute No	ITEM DESCRIPTION
Min 1	**Introduction** The meeting began at 12:00p.m with a word of prayer from one of the members. This was followed by self-introductions by all members. The Chief welcomed the attendees and handed over the meeting to the KISIP Team to take the community members through the agenda of the day.
Min 2	**Meeting Agenda** The Team Leader of the KISIP stated the meeting Agenda was to: • Select a GRC and SEC committee. • Identify priority project interventions by the community members The County representative underscored the crucial role of community members in identifying interventions for the KISIP II Project. This approach guarantees active involvement from the community, which, being well-acquainted with existing challenges, will actively contribute to shaping the project's focus and direction
Min 3	**Election of GRC and SEC members** The KISIP Team took the community members through the roles and responsibility of SEC and GRC members and stated their roles, function and objective will be; **1. Grievance Redress Committee (GRC):** Objective: The GRC will serve as a mechanism for addressing community members' grievances and concerns regarding the settlement's development projects. Function: • Receives and reviews grievances from community members. • Conducts impartial investigations into reported issues. • Facilitates communication between community members and relevant project stakeholders. • Recommends solutions and actions to address identified grievances. **2. Settlement Executive Committee (SEC):** Objective: The SEC will be responsible for the overall governance and management of settlement affairs, ensuring that community interests are represented and protected. Function: • Oversees the implementation of development projects within the settlement. • Manages settlement resources and finances transparently.

Minute No	ITEM DESCRIPTION
	• Acts as a liaison between the community and external stakeholders. • Makes decisions on matters that impact the overall well-being of the settlement. • Promotes community engagement and participation in decision-making processes. • Representing the community members • Mobilizing the community members • Creating awareness to the other community members The community members were told the above by the Team leader and they were all in agreement. The Team Leader stated that the SEC will comprise of 11 members including; • The Chief • Four titled land owners • Two Tenants • Faith Based Organization • Community Based Organization • Chairman • Vice chairman • Person Living with Disability • Secretary • Youth • Widow The GRC will include five members with one of the five voted as Chairman. The Team Leader led the meeting in the voting process and the committee members were selected. The vote was undertaken and the members for the GRC and SEC identified and roles allocated
Min 4	**Determination of the Community Priorities** KISIP Engineer Blanton Gitau underscored the pivotal role of community members in determining the priority projects to be undertaken. Providing a comprehensive list of projects within the KISIP scope, the community members were guided through the aforementioned list of selected interventions. Community members identified the following projects as the top priorities for implementation in Barwaqo: [List of Priority Projects].

Minute No	ITEM DESCRIPTION
	• Water • Roads • Drainage • High mast floodlight/streetlight • Pedestrian walkways This collective consensus reaffirms the community's endorsement of the identified projects as crucial interventions for implementation.
Min 6	**Any Other Business** KISIP representative expressed gratitude to all the members for taking the time to attend the meeting. He introduced the Consultant team, highlighting that they would be entrusted with the responsibility of designing the proposals put forth by the community. The Chief thanked the attendees for taking their time to attend the meeting and assured them that during the Project implementation they will be involved through the office and the SEC and GRC officials.
Min 7	**Meeting Closure** The meeting concluded at 2:00PM. Community members and stakeholders were encouraged to reach out to the project team for any additional information or clarification. The KISIP National team, County Representatives and Consultant proceeded with the field visit to familiarize themselves with the proposed sites.

Annex 3: Sample filled questionnaires

REPUBLIC OF KENYA

IDA International Development Association WORLD BANK GROUP

AFD AGENCE FRANÇAISE DE DEVELOPPEMENT

ESIA QUESTIONNAIRE

The Government of Kenya has received Credit facility from the International Development Association (IDA) and AFD towards the cost of the Second Kenya Informal Settlements Improvement Project (KISIP 2) and intends to apply part of the credit to procure Consultancy Services for Infrastructure Upgrading Plans, Detailed Engineering Designs and Preparation of Procurement Documents, Resettlement Action Plan (RAP) and Environmental and Social Impact Assessment (ESIA) Reports and Vulnerable and Marginalized Groups Plan (VMGP) where applicable, and Supervision of Construction of Infrastructure Works in Selected Informal Settlements in the Counties of Nyeri, Meru, Tharaka-Nithi, and Wajir.

You have been selected to participate in this exercise and we would highly appreciate your assistance for responding to all questions in this questionnaire adequately and appropriately as possible. Please fill in the following questionnaire giving in your comments where necessary.

This questionnaire is intended to ensure there is adequate Consultations & Public Participation (CPP) before implementation of the said project. It is proposed this questionnaire is filled and signed by members of the surrounding community and institutions in the area of the said project, as required by the National Environment Management Authority, NEMA and World Bank.

Your response will be treated with confidentiality and will only be used for the purpose of this project.

Respondents' Details

Name (Optional)Jina (Kwahiari)	Musa Ahme Adow
ID Number (Optional): NambayaKitambulisho (Kwahiari)	36597281
Telephone (Optional):NambayaSimu (Kwahiari)	0724541357
Project area: Eneo la mradi	Barwaqo

1. How long have you lived in this area *(umeishakatikaeneohilikwamudamgani)*

Time	Tick appropriately
Months (indicate the number)	
1-2 Years	
3-5 Years	✓
6-10 Years	
More than 10 Years	

2. What is your occupation (Unafanya*kazi/biasharagani?*)

Occupation	Tick appropriately
Fisherman*(Mvuvi*)	
Farmer (*Mkulima)*	
Civil servant (*MfanyikaziwaUmma*)	
Casual labour (*Kibarua)*	
Self-employed (*Umejiajiri)*	
House wife (*Mkenyumbani*)	
Trader (*Mchuuzi)*	
Student *(Mwanafunzi)*	
Unemployed (*Hana Ajira)*	✓
Others (Please specify) (*Nyinginezo, taja)*	

3. What is your education level (*Kiwangochako cha elimunikipi?)*

Education level	Tick appropriately
None (Sijasoma)	
Preprimary (Chekechea)	✓
Primary (ShuleyaMsingi)	
Secondary (ShuleyaUpili)	
Vocational/Technical *training (Masomoyamiundomsingi)*	
University *(Chuo Kikuu)*	

4. What your views on the following infrastructures in this area?*Unamaoniganikuhusumiundombinukatikaeneohili*

2 | Page

Infrastructures *(miundombinu)*	Rate (Tick appropriately) *(Weka tiki ipasavyo)*		
	Poor (mbaya)	**Fair (haki)**	**Good (nzuri)**
Road conditions *(hali ya barabara)*	✓		
Security *(Usalama)*			✓
Security lights (*taa za barabarani)*	✓		

5. a) Are there security issues in your area?*(Kuna masuala kuu ya usalamakatikaeneohili?)*

   Yes*(ndio)* ☐ No*(apana)* ☑

   b) If yes in (a) what are the main security issues in this area?*(tajamasuala kuu ya usalamakatikaeneohili)*

   N/A

6. a) Are there challenges of the roads in the area?(*Kuna changamotozozotezab*☑*arakatikaeneohili)*Yes*(ndio)* ☐
   No*(apana)*

   b) If yes in (a), what are the challenges of the roads in this area? *(tajachangamotohizo)*

   The Road is Bushy
   The Road is narrow
   The Road has alot of Potholes
   The Road is Too Dusty
   The road lack road Signs

7. Are you aware of the proposed interventions in this area under the Second Kenya Informal Settlements Improvement Project (KISIP 2) (roads, high mast flood lights, and street lights) and project location

3 | Page

(Unajuakuhusuhatua zinazopendekezwa za (hali ya barabara na taa za barabarani)katikaeneohilichiniya Second Kenya Informal Settlements Improvement Project (KISIP 2)namahalizitakapofanywa?)

Yes /Ndiyo ☑ No / Hapana ☐

8. Do you think this project will affect the normal land use in the area and if so in what way?

(Unaonakamahuumradiutabadirishamatumiziyakiuchumiamayaardhinakwanjiaipi?)

During the construction some shops along the road will not be accessible

9. Are there historical or cultural heritage that would be affected by this project? If so, state them. *(Kuna mambo za kale amazakitamaduniambazozitadhuriwaamaziharibiweamazihamasishwenahuumradi? Kama ndiyo, zitaje.)*

N/A

10. Are there hydro-geological (ground-water) or surface water resources condition that will be affected by this project? If so, state them. (*Kuna mambo zamajiyachiniamajuukwaardhiambayoitaharibiwa, amaidhuriweamaihamasishwenahuumradi? Kama ndiyo, fafanua.*)

N/A

11. Do you think there will be any wastes generated during this project and how do you propose that is handled? (*Unafikiriakunatakatakaambazozitatokananahuumradinaungetakazifanywenini?)*

Yes - the remains of the used materials should be disposed.

12. What are the expected POSITIVE environmental and social impacts?*(Ni manufaaganiyetusisiamayamazingiraambayoitatokananakukamirishwakwahuumradi?)*

- During the construction the dust generated during will lead to health issues.
- Emusion from the machine will affect ozon. layer
- While excavating the land. It will lead to so water catchment area which will create site for mosquito breading if not filled well.

13. What are the expected NEGATIVE environmental and social impacts?*(Ni madharaganikwetusisiamakwamazingiraambayoitatokananahuumradi?)*

- It will lead to uraglyness of the land.
- Creat abreeding sites for mosquitoes
- Gas emussion from Machine will affect ozone layer
- If well drained it will lead to poor drainage systems hence stagnant water will cause health issues in the area.

14. What suggestions would you make to mitigate any adverse environmental and social impacts?*(Ungetakahiimadharakwetusisiamakwamazingirayetukutokananahiimradiitatuliwe namnagani?)*

Suggestion -> Traffic Management.
Job opportunities for the resident
Noise and air pollution Mitigation
Community engagements
Water Management
Sustainable design
Environmental Impact Assessment

15. Give any relevant observations, recommendations or comments on this project.

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(Toa maoniyakoyoyotekuhusuhuumradiambayoungetakaiangaliweamaisuluhishwekwamakini.)

Consider ~~doing~~ Conducting Thorough site ~~de~~ analysis to identified potential challenges and opportunities, Prioritized sustainable and durable Material, Ensure effective drainage system. to enhanced road longevity
Collaborate with local community

16. In your conclusion, do you welcome the project in the said area, and why? (*Kwatamati, unakaribishahuumradikwaeneohili, nakwanini?*)

Yes (Ndiyo) ☑ No (apana) ☐

In Conclusion, Welcom the road construct We will Welcom. Because the project promises improved Connectivity enhance Accessability and economic development

Signature.....