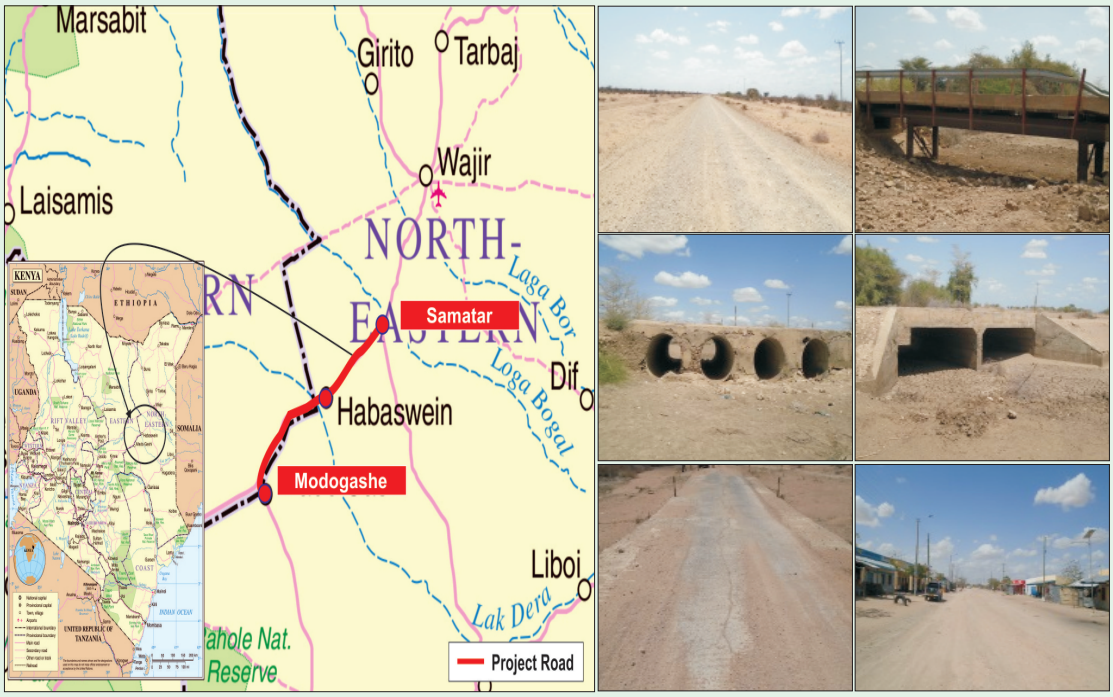
NORTH EASTERN TRANSPORT IMPROVEMENT PROJECT (NETIP)

REPUBLIC OF KENYA

KENYA NATIONAL HIGHWAYS AUTHORITY (KeNHA)

INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA)



Consultancy Services for Design Review of Modogashe – Samatar Road, Kenya (IDA funded)

FINAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT

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LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ASALs	Arid and Semi-Arid Lands
BEP	Best Engineering Practice
CAP	Chapter
CO2	Carbon dioxide
CO	Carbon Monoxide
^{o}C	Degrees celcius
DOHSS	Directorate of Occupational Health and Safety Services
BEP	Best Engineering Practices
E	Easting
EA	Environmental Audits
EAEC	East Africa Engineering Consultants
ECDE	Early Childhood Development and Education
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ENNDA	Ewaso Nyiro North Development Authority
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
FGDs	Focus Group Discussions
GOK	Government of Kenya
HIV	Human Immunodeficiency Virus
H_xC_x	Hydrocarbons
IDA	International Development Association
KENHA	Kenya National Highways Authority
KNBS	Kenya National Bureau of Statistics
KII	Key Informant Interviews
NEMA	National Environment Management Authority
NETIP	North-Eastern Transport Improvement Project
N	Northing
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Act
PPE	Personal Protective Equipment
PM	Particulate matter
WB	World Bank

EXECUTIVE SUMMARY

0.1 INTRODUCTION

The Government of Kenya (GOK) has undertaken the North-Eastern Transport Improvement Project (NETIP) using credit from the World Bank under the International Development Association (IDA). Under the project, Modogashe-Samatar road section has been taken up for upgrading to bitumen standard. The design contract comprised Feasibility Studies, Environmental and Social Impact Assessment, Preliminary and Detailed Engineering Design and Preparation of Tender Documents for the Modogashe Samatar Road.

0.1.1 The NETIP

Broadly the proposed project development objectives are to improve the movement of goods and people along Isiolo-Wajir-Mandera part of the Mombasa-Garissa- Wajir- Mandera- Mogadishu road corridor and to enhance connectivity between Kenya and Somalia and Ethiopia.

The Isiolo-Mandera corridor is among the very few Class A roads that remain unpaved. It transverses a region with rudimentary road infrastructure, isolated and with high incidence of poverty. Upgrading of the road corridor is one of the top priority of the GoK, and consistent with the transport policy of bituminizing of all Class A roads in the country. Improving of the road will no doubt stimulate the development, integrate, and contribute to improving security and bringing about sharing the prosperity of the country with this region.

0.2 PROJECT DESCRIPTION

The project road is approximately 90km (section of B9) which runs from Modogashe through Habaswein and on to the end at Samatar. It is located in the North-Eastern part of Kenya bordering Wajir County to the North, Isiolo County to the Northwest, Tana River County to the west, Lamu County to the south and Somali to the east and north east. The road starts at Modogashe at its intersection with C81 road and terminating at Samatar junction. The road reserve is 60m and most of the areas traversed by this road is community Land. The existing alignment traverses six (6) settlements with few sensitive receptors adjacent to the corridor1 i.e. learning institutions, religious facilities health centres. The Road is in fairly motorable state.

0.3 DESCRIPTION OF THE PROJECT ENVIRONMENT

The area has a very warm/hot climate due to the low elevation and distance away from the coastal area. Given the arid nature of the area, temperatures are generally high throughout the year and range from 20^0C to 38^0C. The average temperature is however 36^oC.

The region has bimodal type of rainfall, the long rains (March – April) and the short rains (October – December). The average annual rainfall is 320mm. The project area is located in a flat area which is basically a flood plain. The area experiences periodic flash floods during the rainy seasons. The lowest are is 243m and 263m for the highest elevation point. The major physical features are seasonal Laghas and the Tana River Basin on the western side.

The project area has scanty vegetation which is characterized by drought resistant shrubs and grasslands. However, due to the prevailing arid condition, the most dominant tree species are *Acacia spp.* which were common along the road. Other species include *Balanites spp. and commiphora spp, panicum spp and Eragrostis spp.*

Prosopis juliflora is also found within the project environment in some Laghas, material sites and along the section between Guticha and Samatar.

The area has different types of soil that spread across the project environment. At the start of the project at Modogashe, the area is characterised by sodic or saline sandy soils that are generally light brown in colour. Towards the swamp the area is comprised of xerosols that are mainly weakly developed soils of the arid regions that are light brown. Around the swamp the soils are dark brown alluvial soils. Other soils found within the area include poorly drained moderately deep to deep soils such as vertisols and clay soils. Towards the end of the project in Samatar the project area is characterised by shallow and juvenile soils such as lithosols and legosols.

The project road crosses the North Ewaso Ngiro River at coordinates (551402N, 110024E) near Habaswein, Lorian Swamp and several laghas which act as source of water for domestic use and livestock and wildlife drinking points.

The project area is also rich in avifauna and fauna with antelopes, giraffes, warthogs observed grazing adjacent to the project road. The project environment is a rural country and the main sources of air pollution are emissions from vehicular sources and particulate matter from dust.

Locals obtain their water from boreholes dug by the County Government and NGOs such as the Red Cross. Water is channelled via pipes to water kiosks established in the settlements. A dry water pan was also observed near Samatar junction.

The main economic activity in the project area is livestock rearing with the main animals reared including cattle, camel and goats. The area residents also carry out other forms of economic activities such as hotel, retail shops, butcheries and miraa (Khat) stalls.

There are a few settlements and sensitive receptors adjacent to the corridor i.e. schools, religious centres (mosques), shopping centres and health centres which could potentially be affected by the implementation of the project through relocation, displacement, noise and increased air pollution (during construction)

0.4 PROJECT SOCIAL ENVIRONMENT

The road traverses mainly Garissa and Wajir with only a small portion of about 2 kilometers in Modogashe is shared by Garissa and Isiolo. A Social risks analysis of Isiolo, Garissa and Wajir shows uncanny similarities. They are largely inhabited by the Somali and the Borana. There are longstanding conflicts between the various communities over land and land-based resources, and new risks associated with investment, development and devolution. Inter-communal conflict is common between the major pastoralist groups who frequently migrate across the counties and is exacerbated by drought and land alienation for investment, development and conservation, amongst others.

Ethno-political and border tensions and conflicts are also prominent and have been exacerbated since devolution. Except for Isiolo, the other counties have experienced terrorist incidents and in all three radicalization of youth is a significant problem.

Border and Political Conflicts in Garissa is evidenced by the longstanding claim over Modogashe Town by Borana and the Somali, Clan disputes, Refugee influx, Radicalization of Youth and terror attacks, Feeling of Exclusion from the Southern Kenya, Gender inequality and low women participation in the socio economy, Gender based violence and notable incidence of drugs and substance abuse are some of the social risks.

The social risk for development projects in Wajir County is due to insecurity, its proximity to Somali, conflicts over boundaries with Mandera, water and grazing access, inter-clan political tension and frequent Al Shabaab attacks. Women's empowerment is low, with high maternal mortality and female illiteracy. Water is scarce and drought is frequent, leading to movement of animals into neighbouring Somalia and other counties. Deforestation due to charcoal selling and rangeland degradation is widespread.

0.5 POLICY LEGAL AND REGULATORY FRAMEWORK

The relevant Acts reviewed include EMCA, 1999 (Amendment,2015) and the respective regulations, Water Act Cap 372 of 2016, Occupational safety and Health Act, 2007, Work Injury Compensation Benefits Act, 2007,Public Health Act CAP 242, 2012, Physical planning Act, CAP 286, 2010; Traffic Act CAP 403, 2014; Public Roads and roads of Access Act, CAP 399, 2010; Lands Act, CAP 280, 2015; Kenya Roads Act, CAP 408, 2012; National Land Commissions Act, CAP 5D, 2012; Registration of Titles Act Cap 281, 2010; The Wildlife Conservation and Management Act, CAP 376, 2013; Intergovernmental Relations Act, 2012; County Government Act, No. 17, 2012 (Revised 2014) and Prevention, Protection and Assistance to Internally Displaced Persons and Affected Communities Act No. 56, 2012. Security Laws (Amendment) Act, 2014, Persons with Disability Act, Chapter 133, Sexual Offences Act, 2006 and its amendment 2012, National Gender and Equality Act, 2011, HIV / AIDS Act, 2006, Employment Act, 2007, County Governments Act and the Land Registration Act, 2012

The institutional framework reviewed include the following institutions: National Environment Management Authority; Kenya Roads Board; Kenya National Highways Authority; Kenya Wildlife Service; The Water Resource Authority (WRMA) and National Land Commission.

Policies relevant to the project to be reviewed include: Kenya Vision 2030; National Environment Policy, 2013; Sustainable Development Goals; Integrated National Transport Policy; Land policy; Integrated National land use Guidelines; Draft wetlands conservation and management policy; Ramsar Convention on wetlands; Convention on Biological Diversity; World bank safeguard policies which include Environmental Assessment (Operational Policy, OP 4.01), Natural Habitats (Operational Policy, OP 4.04), Indigenous Peoples (Operational Policy 4.10), Physical Cultural Resources (Operational Policy 4.11), Involuntary Resettlement (Operational Policy 4.12),. CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora). National Poverty Eradication Plan (NPEP) of 1999, Public Health Policy of 2014, HIV/AIDS Policy of 2009, Gender Policy of 2011

0.6 EXISTING IMPACTS

Dust Pollution

Due to the gravel condition of the road and dry conditions in the project area movement of traffic leads to increase in levels of fugitive dust resulting in air pollution with effects evident on the vegetation and hamlets bordering the road

Road kills

The existing road has no speed signs, wildlife habitat and crossing signs and no identified wildlife crossing corridors hence posing accident risk to the wildlife in the project area which roam freely. Construction of the road means greater traffic volume, road use subsequent road kills if not mitigated.

Soil Erosion

Erosion is evident along some sections of the project road, primarily attributed to surface water runoff and lack of suitable drainage systems. The most common type of erosion being bank erosion and rill erosion. Erosion is prevalent where the road crosses laghas and the Lorian Swamp with the effects evident on the drainage structures along this section.

0.7 POSITIVE ENVIRONMENTAL IMPACTS

Streamlined Drainage Outfalls

Sections of this road are faced with drainage challenges especially around Lorian swamp due to inadequate and silted drainage structures i.e. pipe and box culverts. This makes some sections of the road to be prone to floods during high precipitation periods. The project will provide streamlined drainage outfalls to enhance flow.

Improved aesthetics

The current condition of the road generates a lot of dust with the effect visible on the surrounding vegetation bordering the road alignment. The upgrading of the road to bitumen standards will lead to improved aesthetics of the area.

Climate Change Mitigation

The primary cause of climate change is the burning of fossil fuels, such as oil and coal which emits greenhouse gases into the atmosphere primarily carbon dioxide. Human activities such as deforestation also contribute to the proliferation of greenhouse gases that cause climate change. Upgrading of the road will result in use of less fuel to travel the same distance. When less fuel is burnt, fewer emissions are generated. Vehicles emissions also include CO, HC, Sox, PM10, PM2.5 that have health implications. Construction of modern drainage structures will ensure smooth flow of flash flood waters a common phenomenal in the project area which is attributed to climate change. Easing the traffic flow and planting drought resistant tree buffers along the road will reduce GHG emissions.

0.8 POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Invasive species

This impact has been rated medium and is anticipated to manifest both during the construction and operation phases of the project. Enhanced *Prosopis juliflora* invasion is a potential long-term impact and this relates to its advancement. Construction activities may aid in the dispersal of its seeds and consequent invasion of other areas. The impact of *Prosopis juliflora* will be rampant at all disturbed sites, roadsides and borrow areas if not checked.

Construction material sourcing

This impact has also been rated medium and is expected to be manifested in the construction phase of the project. The material sites if not properly rehabilitated will result in Badlands that are both agriculturally unproductive and visually intrusive.

Soil (soil erosion and contamination)

Construction activities have the potential to loosen soils which can be eroded thus causing siltation and blockage of drains. Considering the dominant type of soil in the project area is sandy soil, soil erosion is expected to be minimal due to its characteristics i.e. large pores that allow much of the rainfall to soak into the soil. Sandy soils have good infiltration and drainage. Erosion will be prevalent on the water resources i.e. river crossings but can be mitigated through protection works.

Oil/grease spillages from the garage, workshops, asphalt plant, fuelling station, crusher site, Fuel off-loading sections and construction machineries will result in soil pollution.

Deposition hydrocarbon residuals and accidental spills from the construction machineries will cause soil contamination

Impacts on fauna

Noise and vibrations caused by heavy machinery, material extraction activities such as blasting, crashing and haulaging and increased traffic during construction and operation phase may affect the wildlife number, diversity, breeding and eating habits of the wildlife in the project area. Construction laborers may be a threat to the wildlife in the area.

Vegetation clearance to pave way for carriageway extension and deviations; noise and vibrations from vehicles and machinery coupled with smoke produced may scare the birds and pollute their habitats. These may cause them to migrate to other areas and result in ecological imbalance.

Impact on water resources

Oil/grease spillages from the garage, workshops, asphalt plant, fuelling station, crusher site, Fuel off-loading sections, construction machineries and liquid wastes from the camps will result in contamination of surface water bodies through surface runoff and also pollution of ground water through infiltration and percolation of the contaminants to the water aquifers.

Air quality

Aerial emissions from earth moving machines, slow traffic and construction equipment will be significant during construction phase of the project. Air quality is expected to decline as a result of an increase in levels of fugitive dust (PM) from the movement of heavy machinery on earth roads and from haulage activities, excavation works, the stockpiled earth materials and dusty roads during the construction period emissions calling for appropriate watering programs throughout the construction period. This is expected to be a short term, reversible impact.

Potential Positive Social Impacts

Economic benefits from the road would aid in the realization of the national development goals, and contribute to poverty alleviation in the long run. The project area has high potential for livestock production, commerce and tourist attractions which could play pivotal role in improving the levels of livelihood of a large cross-section of the rural poor and marginalized communities. This can be greatly be realized through establishing a reliable road network in the counties. The study is also necessary to provide guidelines to stakeholders participating in the mitigation of adverse social impacts of the project.

0.9 POTENTIAL ADVERSE SOCIAL IMPACTS

The main potential adverse social impacts are as follows:

- Increased rate of accidents during , and after construction of roads
- Possible ethnic and political conflicts over jobs and other benefits of the roads
- Loss of land acquired for road construction
- Increase in property prices may lead to conflict
- Unhealthy competition for local businesses
- Conflicts over use of limited resources- water, food, grazing land, schools, etc. These tend to be on one side of the road and a potential source of conflict

- Labor influx may be a source of conflict due to influx of non-locals and foreigners especially non-muslims
- Increase in crime due to influx of foreigners
- Demolition of buildings which have encroached the road reserve may lead to killing of trading centers
- Increased incidence of STI's , HIV/AIDS and diseases related to increased population
- Disruption of Social Mores , Culture and family values as new ones are introduced
- Destruction of wildlife; the community has taken it upon itself to protect its animals
- Air pollution ,blasting effects, dust, noise, and sundry environmental impacts
- Increased incidence of school dropouts and layabouts, as well potential for teenage pregnancy

Mitigation measures for these have been proposed namely:

- Labor influx management- to ensure that plans are made for managing the in-migration of laborers seeking work in the project and to avoid community conflicts over jobs
- Child Protection Plan- to mitigate the adverse effects the project could have on children.
- Stakeholder Engagement Plan- to provide for stakeholder identification, consultation and engagement throughout the project period.
- Grievance Redress Mechanism- to create a framework for grievance identification, reporting and resolution in the project during implementation
- Gender Mainstreaming - To facilitate involvement of Women, Youth and Men in the project in an equitable manner. To consider possible affirmative action for the women while preventing sexual exploitation and abuse.
- Preventing Sexual Exploitation and Abuse
- Factoring Social Amenities in the road corridor on both sides of the road 23. A robust HIV/AIDs Awareness Campaign Program shall be run during the implementation of the project

Other mitigation measures have also been proposed in this document, however the overarching mitigation measure is that there should be a robust engagement with the communities as the work progresses in order to earn their cooperation. Other measures include proactive measures in regards to security, communicable diseases, conflict management and sufficient compensation for acquired land.

0.10 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

The Environmental Management and Social Plan provides a framework for management and mitigation of the environmental and social impacts associated with the construction of the road. The guiding principle for the Environmental Management and Social Plan will follow the national objective of enhancing environmental, social and economic benefits to the people living in the region. To achieve this, acceptability by the beneficiary community and minimal effects to the physical and biological environment need to be integrated in the project through constant consultations, evaluations and review of the design aspects throughout the project period.

Mitigation measures, design features, or actual impacts shall be monitored to ensure environmental acceptability of the project during construction and operation phases of the project.

0.11 GRIEVANCE REDRESS MECHANISM

The overall objective of the GRM is to establish an effective communication channel among the stakeholders for providing a timely and efficient two-way feedback mechanism to address any grievances and complaints against the project from multiple stakeholders and Project Affected persons.

The GRM should comply with the Law of Kenya and WB Practices. In the Modogashe - Samatar Road Project, grievances, Complaints as well as Disputes are expected to arise from several stages of the project including design and implementation phase. The project will have a four tier grievance system beginning at the project/community level, then the Sub County Level before Kenha is invited to arbitrate. If all else fails, then the complainant can go to court as the fourth level

0.12 PUBLIC CONSULTATIONS AND STAKEHOLDER ENGAGEMENT

As stipulated by World Bank Safeguards Policies and Procedures, Stakeholder involvement and Public consultation about the proposed Modogashe-Samatar road were carried out in the towns of Modogashe I (Lagdera), Modogashe II (Sericho), and Habaswein. Focus Group Discussions were further carried out in the two towns and at Skanska, Kanjara and Guticha. Key concerns of stakeholders along the road corridor were captured and recorded.

0.13 CONCLUSION

It is anticipated that the project will have varying and sometimes potentially high impacts on the environment, social and economic aspects of the project area, both positive and negative. The project will lead to improved living standards and poverty reduction due to increased incomes associated with the developments that will follow. However, the study also shows that the project will lead to negative impacts on the bio physical environment. The impacts identified ranged from medium to low in magnitude. The impacts rated medium include impacts on vegetation, Fauna, livestock resources and land resources within the project environment while those rated low include impacts on water resources, soil, air quality and noise and vibrations. The identified impacts can be sufficiently avoided or mitigated if the mitigation measures proposed in the report are implemented.

There are social impacts are largely associated with the opening up of the area to external commerce and social dynamics. These are both positive and negative. Negative impacts are primarily indirect relating to long-term changes in demography, changes in inter and intra-ethnic conflicts over resources, security and changes livelihoods due to land appropriation and reduced access to grazing resources. These can be mitigated through proactive engagement with the local communities and stakeholders and executing deliberate programmes on gender, labour management, conflict mitigation and tracking social changes.

The road was highly welcomed in the greater part of the road corridor. The issue in Modogashe was recommended for resolution. A forum comprising only leaders from Modogashe needs to be convened by KeNHA to resolve the matter.

A comprehensive Resettlement Action Plan should be carried out to take care of those who will be affected by the road. This will comprise substantially of those in Modogashe and Habasewein Towns.

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1. INTRODUCTION

1.1 OVERVIEW

The Government of Kenya (GOK) has undertaken the North-Eastern Transport Improvement Project (NETIP) using credit from the World Bank under the International Development Association (IDA) facility. Under the project, Modogashe-Samatar road section has been taken up for upgrading to bitumen standard.

This Environmental and Social Impact Assessment (ESIA) Study was carried out with the aim of providing baseline information as well as identifying both the negative and positive impacts of the road project while formulating a sustainable Environmental and Social Management Plan (ESMP). This would guide the decision and policy makers on appropriate ways to handle the pertinent environmental issues that may arise during the project life and afterwards. Myriad adverse impacts, ranging from wildlife habitat destruction, changes in ecological setup, human displacement, and environmental pollution to cultural disorientation need keen appraisal to achieve less retrogressive impacts from such development. The ESIA provides details of mitigation measures necessary to reduce / minimize anticipated adverse environmental and social impacts during construction, operation and decommissioning phases of the project.

1.2 PROJECT OBJECTIVE

The proposed development objectives are to improve the movement of goods and people along Isolo – Wajir – Mandera part of the Mombasa – Garissa – Wajir – Mandera – Mogadishu road corridor and to enhance connectivity between Kenya Somalia and Ethiopia.

1.3 OBJECTIVES OF THE ESIA STUDY

The main objective of this assessment was to identify potential impacts of the project to environmental and social aspects, and formulate recommendations to ensure that the proposed project takes into consideration appropriate measures to mitigate any adverse impacts to the environment and people's health through all phases of its implementation.

The analysis shall include, but not limited to, the following objectives:

- To identify all potential significant adverse environmental and social impacts of the proposed project and recommend measures for mitigation measures.
- To verify compliance (identify and analyse the relevant legal provisions) with the environmental regulations and industry's standards.
- To generate baseline data (upon which impacts will be assessed and..) for monitoring and evaluation of how well the mitigation measures will be implemented during the project cycle.
- To recommend cost effective measures to be implemented to mitigate against the expected impacts.
- To provide guidelines to stakeholders participating in the mitigation of adverse social impacts of the project.
- To prepare an environmental and social Impact assessment report compliant to the Environmental management and Coordination Act CAP 387 and detailing findings and recommendations (aligned to World Bank policies).

1.4 SCOPE

1.4.1 Environmental Assessment

The scope largely covers the following areas:

Baseline Environment:

- Physical Environment (climate, topography, geology, hydrology, water resources, air quality etc.)
- Biological Environment (Flora and fauna diversity, endangered species, sensitive habitats etc.),

Legal and policy framework:

- Focusing on the relevant national policies, environmental regulations and World Bank's safeguard policies.

Environmental impacts

- Physical impacts
- Biological impacts

1.4.2 Social Assessment

The Social Assessment was preceded by detailed desktop reviews, a reconnaissance of the project area followed by a detailed and comprehensive baseline study to establish the likely socio-economic impacts the road project will have on the socio-economic environment and the stage at which the impacts will occur - whether during the construction or operation phase. The elements on which the study focused included but not limited to the following; demographics migration (in and out); communication; land use (existing and potential); settlement patterns; community structures and social cohesion; gender issues; culture and cultural properties; employment levels; income levels and distribution; levels of business activity (on goods and services); tourism and recreation; public health; HIV/AIDS situation; planned development activities; and, safety and security.

1.5 PROJECT JUSTIFICATION

Kenya's North-Eastern region has very poor road network, both in length and condition. The project road is currently an earth/gravel road. As expected the condition of the road has been a serious deterrent to socio-economic development of the region. Some of the consequences include high travel costs, time wasted in travelling, high cost of goods, insecurity, difficulties in accessing social services. Upgrading the road will result in reduced vehicle operating costs (fuel saving, reduced repair and maintenance costs) including time saving for existing and generated traffic. Additionally, the road is traversing pastoralist communities who stand to benefit through efficient transportation of livestock and livestock products to markets outside the project area. Further the upgraded road will increase the potential for institutional development and increased attraction for commercial development. In addition, the improvement of the road is critical in promoting and facilitating traffic movement within and around Wajir, Garissa, Isiolo and the greater North-Eastern region. In summary the project will lead to overall improvement of the communities' standards of living and facilitate economic development of the region thus contributing towards attaining the Kenya Vision 2030 objectives.

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2. METHODOLOGY

2.1 ENVIRONMENTAL ASSESSMENT

2.1.1 Desktop study

Available literature on Isiolo and Garissa counties was reviewed in order to get an understanding of the bio - physical and social settings within these counties. It also enabled getting an in-depth understanding of the project areas. These included published and unpublished literature on bio-physical conditions of the project area and legislative and policy framework applicable to the project. The list of documents and literature that were reviewed are contained in the references sub-section of this report.

2.1.2 Scoping

This was carried out to determine the key environmental issues to focus on during the study. Further, it was done to determine the anticipated impacts in the project life cycle. During scoping, main environmental issues were identified.

The scoping exercise mainly aimed to:

- Identify potential stakeholders with an interest in the project and inform them of the project and the EIA process
- Determine the spatial and temporal extent of the boundaries for the ESIA as well as the key issues to be addressed in the environmental and social assessment. This was done through a review of relevant background literature on the development in the project area and rapid field assessment in order to focus the environmental assessment on key issues requiring assessment and to identify reasonable alternatives
- Focus the study on key and relevant issues for quick decision making
- Identify areas of likely impact and environmental issues that may require further investigation in the subsequent ESIA

2.1.3 Fieldwork and study

2.1.3.1 Reconnaissance survey

A reconnaissance survey was conducted from the 27th to 28th June, 2017 to get an appreciation of the project area.

2.1.3.2 Field survey

A detailed fieldwork was carried out. This was conducted to gather data on the existing environmental conditions in the project area and key environmental aspects that were identified through the scoping process and consultations.

2.1.3.3 Field survey techniques

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

- Direct observations and recordings, including photography, along the proposed alignment and its vicinity
- Observation of various environmental parameters which include;
  - Soils and geology of the area
  - Prevailing weather conditions
  - Fauna observation
  - Existing water resources

- Sensitive receptors e.g. learning centres, worship centres, market centres and offices

- Use of checklists for determining potential environmental impacts of the proposed project
- Discussions with key informants along the road and its vicinity

2.1.3.4 Checklists

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

- Facilitate identification of potential environmental impacts
- Provide a means of comparing the predicted environmental impacts
- Indicate the magnitude or intensity of both positive and negative environmental impacts
- Indicate possible adverse environmental impacts that are potentially significant but about which sufficient information cannot be obtained to make a reliable prediction
- Indicate negative potential environmental impacts in the project area, which merit mitigation measures and monitoring during project implementation as well as those that can be mitigated in the design of the project

2.1.4 Analysis of impacts

Impacts will be analysed using the Leopold matrix adopted and modified from the (WB methodology, 1995). This matrix takes into account all the important environmental / project impacts and interactions, making sure that indirect and cumulative effects, which may be potentially significant, are not inadvertently omitted.

2.2 SOCIAL ASSESSMENT

2.2.1 Baseline Socio-economic Data

The methodology used comprised the following techniques/approaches:

a. Review of secondary data. Data was collected through desktop reviews of secondary data comprising:
   I. Past Environmental and Social Impact Assessment (ESIA) reports in the same project and other similar projects,
   II. Maps, designs and documents of the project,
   III. Vision 2030 paper,
   IV. Development strategy papers,
   V. Population census reports,
   VI. Health and demographic survey reports,
   VII. Past reports on other similar studies within the country and in other parts of the world, etc.
   VIII. Kenya National and County Laws

World Bank Safeguards Policies and Procedures have been triggered for this project. This includes OP/BP 4.01 Environment Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.11 Physical Cultural Resources, and OP/BP 4.12 Involuntary Resettlement. The main reference document therefore was the Final Report of the preliminary engineering design of Garissa – Modogashe - Wajir Road (B9) prepared by the East Africa Engineering Consultants (EAEC) commissioned on 8th March 2005 by the Ministry of Roads and Public Works, and previous ESIA

reports for the project. This was necessary to identify the gaps and to be able to address them in the new phase.

b. Purposive Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). FGDs were conducted in five study sites with participants selected purposively to represent key stakeholders. The sites were Modogashe, Skanska, Habaswein, Gutich and Kanjara. At least three KIIs were conducted in each site.

c. Observations of the socioeconomic environment was also made and documented during visits to the road corridor under study

d. Data Analysis, Reporting and Documentation ~ Data was quantitatively and qualitatively analysed in terms of themes. The Social Impact Assessment Report was compiled from the findings in accordance with the guidelines issued by NEMA for such works and prepared and submitted by the proponent for consideration and approval. The Consultant ensured constant briefing of the client during the exercise (See Annex 4).

e. Qustionnaires were administered to assess socio-economic status of the population and results are presented in Annex 5.

2.2.2 Description of Key Indicators

Social Impact Assessment

The SIA was carried out by scoping, collection and analysis of primary and secondary data, and consultations with identified stakeholders to identify and assess qualitatively and quantitatively, the potential and adverse social impacts be they direct, indirect, induced and cumulative including impacts on critical social environment. The assessment identified necessary measures to first avoid, or otherwise reduce, mitigate and/or manage and/or compensate for such negative impacts and enhance positive effects of the project.

Vulnerable and Marginalised Group Plan

The study area is inhabited by several minority communities. The study report has proposed measures to avoid or minimize adverse impacts and maximize positive impacts on these communities.

Gender Assessment and Action Plan

The study captures the gender dimensions of the project and the differential impacts on women to maximize project benefits. Women and youth in particular are important stakeholders in the project development, falling among both the affected and the beneficiaries. This study proposes that the project mainstreams gender issues in the design and implementation.

Public Participation and Consultation Process

It is a requirement of OP/BP 4.01 and EMCA, 1999 to carry out stakeholder engagement of the PAPs and NGOs/CSOs. In conformance, public consultation was carried out in the five settlements and trading centres of the road corridor namely, Modogashe, Skanska, Habaswein, Kanjara, and Guticha/Samatar. The consultation process that was entered into was to inform, involve and get ideas from communities and potential PAPS on their view of the Project and its potential impacts.

The Consultation Process was crafted to engage with different entities and at different levels to capture a range of participants, and to lay ground for stakeholder consultation to be carried out continuously throughout the project cycle.

The Venues of public interaction and mode of presentation were purposely identified and indicated to ensure local people could take part as active participants (rather than simply respondents) in the consultations and in the project in General. At least one meeting was held in each of the Centres (See Annex 1 for the minutes and Annex 2 for photos).

2.3 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

An environmental and social management plan will be prepared to be used in mitigating the anticipated environmental and social impacts that may arise as a direct or indirect result of implementing the project. The ESMP will be prepared to mitigate the impacts that are anticipated during all the phases of the project namely the construction, operation and decommissioning phases of the project.

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3. PROJECT DESCRIPTION

3.1 INTRODUCTION

The road design has been described in more detail in the Preliminary Design report. This environmental and social impact assessment outlines relevant features of the design that are useful in identifying potential impacts that may arise as a result of the project.

3.2 COMPONENTS OF THE PROPOSED PROJECT

The proposed project will have pipe and box culverts, bridge, concrete drains, road furniture; service roads, footpath and street lighting provisions for Modogashe and Habaswein towns. Total two (2) sets of bus bays and 2 sets of lorry parking bays are proposed at Modogashe and Habaswein towns.

3.3 LOCATION OF THE ROAD

The project road is approximately 90km which runs from Modogashe through Habaswein and on to the end point at Samatar. It is situated in Garissa, Isiolo and Wajir Counties. The road starts at Modogashe town which is about 160km from Garissa town, and passes through Habaswein and the end point is Samatar which lies within Wajir south constituency.

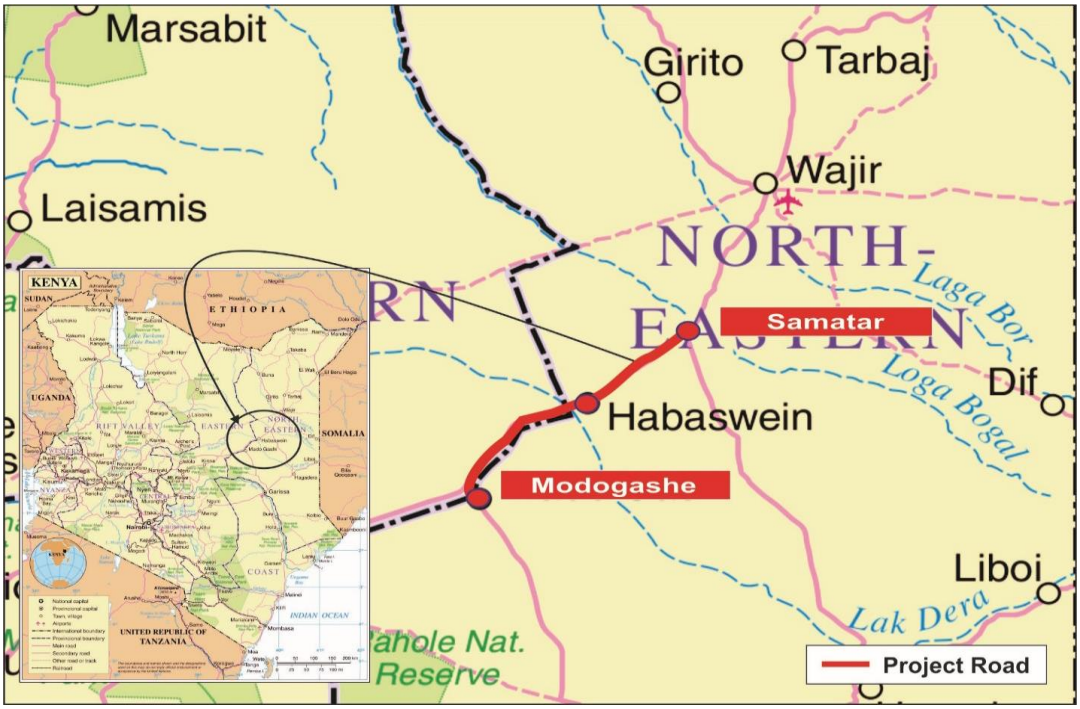

Figure 3.1: Map showing location of the project road

The road starts at Modogashe at its intersection with C81 road and terminating at Samatar junction. The road reserve is 60m and most of the areas traversed by this road isTrust Land. The existing alignment traverses six (6) settlements with few sensitive receptors adjacent to the corridor1 i.e. learning institutions, places of worship (mosques) and health centres. The Road is in fairly motorable state.

3.4 PROPOSED DESIGN CONCEPT

The road design is expected to improve the existing drainage provisions, road safety and comfort enhancement at a minimum cost. The ultimate objective of the design is to improve mobility and access. It will result in time saving and as a result improved economy.

3.5 PROPOSED AIRSTRIPS SITES

The first proposed site is at approximately at km 30. The site is more than 8km away from the nearest hamlet (Skanska) and the terrain is flat with very little vegetation around the area.

The 2nd proposed site is at coordinates 0547865, 0108338 approximately 40km from Modogashe. This site covers part of the lorian swamp with the possibility of flooding of the road when the swamp is filled with water. The area is too windy with a lot dust (silt from the Lorian Swamp) being carried by the wind affecting visibility. The area is also dominated by moderate acacia trees which are heavily nested due to the presence of several laghas including the Ewaso Ngiro.

3.6 STRUCTURES ALONG THE ROAD

The current road alignment has pipe culverts, box culverts, concrete drifts and bridges at locations where there are seasonal rivers and where storm-water crosses the alignment. All existing blocked or collapsed culverts will be excavated and removed and replaced with new drainage structures.

3.7 DRAINAGE CROSSINGS

The alignment crosses the North Ewaso Ngiro at coordinates (551402N, 110024E) near Habaswein and several laghas which are critical sources of water for domestic use; livestock and wildlife drinking points. Spread of flood water from the Ewaso Ngiro shall necessitate provision of battery of culverts for cross drainage spread over road length starting from km 26 to km 48 of the project road. The streams in the project area carry substantial silt charges that settle at cross drainage structures. The culverts built in areas where the project road crosses the Lorian Swamp are heavily silted and clogged.

3.8 CONSTRUCTION MATERIAL SOURCES (GRAVEL, HARD STONE AND SAND)

3.8.1 Gravel

Six (6) potential borrow pits that will be used as source of gravel have been identified and assessed. The Contractor will be required to undertake separate ESIAs for separate gravel borrow areas and observe safety in mining the materials. Potential gravel sources are indicated in table 1 below (See Annex 6).

Table 3.1: Potential Gravel Sources Identified

M/S No.	Chainage	Description	Easting	Northing
1	km (-) 04+600	4.6 km from 0+000 along the Modogashe-Garisssa Road	37N 0521334	UTM 0076858
2	km 01+900	Along the Modogashi - Samatar Road	37N 0519110	UTM 0082389
3	km 52+000	Around Habaswein town	37N 0561550	UTM 0114587
4	km 53+000	Past Habaswein Town	37N 0562402	UTM 0117853
5	km 60+000	Past Habaswein town towards Samatar	37N 0562962	UTM 0118278
6	km 75+000	Past Habaswein town towards Samatar	37N 0564299	UTM0119632

3.8.2 Hard stone

Preliminary investigations indicate that there are no suitable hardstone quarries in the project area and the contractor may have to source these from outside of the

project area. One option is use of commercial quarries that have been used in other projects within the region. Potential hard stone sources are indicated in table 1 below (see **Annex 6**).

Table 3.2: Potential Hard Stone Sources

S/ No.	Location	Northing (36N)	Easting (UTM)
1	Kibiru quarry	0346973	0034060
2	Babitho quarry	0425930	0059160
3	Mtaiboto quarry	0355640	0070128
4	Ndamuru quarry	0370080	0039532
5	Kula Mawe quarry	0410751	0062256

3.8.3 Sand

Three (3) sand sources have been identified in the project area at chainages (km) 50+000 (RHS), 50+000 (LHS) and 03+000 (RHS). Sand to be utilized in the project will be of specified standard and as per Engineer's approval. Where the contractor opts for direct harvesting then he will be required to seek Engineer's approval. In addition other permits from County Govt. required -include use sustainable sand harvesting guidelines and any other County regulations

3.8.4 Social Aspects

The road will also consider provision of social amenities that include road safety awareness campaigns, clear road safety signs, HIV and AIDS awareness campaigns and sufficient compensation to people who may be directly affected especially within the two main towns of Modogashe and Habaswein. Other social support within the road corridor will be assessed and where feasible implemented.

3.9 PROJECT ALTERNATIVES

Consideration of alternatives is one of the most critical elements of the environmental assessment process. Its role is to provide a framework for sound decision-making based on the principles of sustainable development. Alternatives should be considered as early as possible in the project cycle. Key criteria for consideration when identifying alternatives are that they should be practicable, feasible, relevant, reasonable and viable. Assessment of alternatives should include a comprehensive comparison of all potential impacts both direct and indirect and cumulative, on the environment. The goal of evaluating alternatives is to find the most effective way of meeting the need and purpose of the proposal either through enhancing the environmental benefits of the proposed project or through reducing or avoiding potentially significant negative impacts.

There are three alternatives to this project, namely:

3.9.1 The no action alternative

The 'No Project Alternative': assumes that the implementation of the project does not go ahead, implying a continuation of the current situation leaving the socio-economic prospects of the area dormant and inhibition of free flow of traffic within project area and the larger North Eastern region. This is not a preferred option by either the road users, communities bordering the project road or the country in general since it has economic, social and environmental implications.

Under the No action alternative, no improvements will be undertaken; the

resultant socio-economic benefits of the developments would be foregone. The anticipated environmental and social impacts resulting from construction and operation of the development would not occur.

3.9.2 Upgrading of the road

Since road transport is the major form of transport in the region, upgrading the road to bitumen standards will enhance movement of goods and people. The project is on an existing alignment implying lower construction costs and lower environmental and social impacts compared to developing a new alignment. Upgrading of the road has the following potential implications:

- Relocation of people and demolition of structures; especially business premises and institutions encroaching on the road reserve.
- Increased traffic that will impact on the fauna, schools and residential dwellings
- The improvement will affect environmental features i.e. biological and physical features.

Upgrading of the road will enhance traffic flow, save travel time, reduce travel cost thus improve accessibility, enhance mobility and improve welfares. This is the most preferred option. To optimize this alternative clear wildlife caution signs will be erected at regular intervals all along the road. This is because there are no specific wildlife crossing corridors across the road.

3.9.3 New Alignment

Introduction of a new route would have significant negative social, environmental and economic implications. It may possibly entail clearing of the already minimal vegetation to pave way for the new corridor, displacement/relocation of settlements/hamlets, businesses, public utilities and new road design investigations undertaken. This option is not economically viable, environmentally suitable and neither is it cost-effective.

3.9.4 Road vs Airstrip

The project road can be accessed through Garissa airport, Isiolo airport and Wajir airport which are all approximately 160km from the start point (Modogashe) of the project road. Whereas construction of an airstrip in the project area may not be economically feasible considering the current economic potential of the area, adopting a section of the road for occasional use as an airstrip could be Justifiable.

3.10 ALTERNATIVE ROAD BUILDING TECHNOLOGIES

3.10.1 Concrete Paving

Concrete is typically only used for local roads in urban areas. Concrete is more long lasting than asphalt and significantly stronger as well, but is quite expensive to lay and maintain.

3.10.2 Asphalt Paving

Asphalt paving is one of the most common type of construction technique. Advantages of this form of road construction are that the pavement produces relatively little noise, its relative low cost compared to other materials, and that is relatively easy to repair and maintain as well. However, asphalt is significantly less durable. This is perhaps the most preferred option for this project considering the location and cost implications.

3.10.3 Project Budget

At the time of submission of this report, Consultant has submitted Draft Final Report.

The Bill of Quantities presented herein below are from Draft Final Report

Bill No.	Description	Amount (KSHS)
1	Preliminary and Supervisory/Support Services	1,322,912,692
4	Site Clearance and Topsoil Stripping	150,938,723
5	Earthworks	1,529,714,215
7	Excavation and Filling for Structures	174,899,985
8	Culverts and Drainage Works	10,745,670
9	Passage of Traffic	370,335,000
12	Natural Material Subbase and Base	1,223,959,795
14	Cement and Lime Treatment	645,578,479
15	Bituminous Surface Treatment and Surface Dressing	718,671,249
16	Bituminous Mixes	2,454,129,370
17	Concrete Works	516,452,710
20	Road Furniture	280,482,383
21	Miscellaneous Bridgeworks	4,787,951
22	Dayworks	33,805,000
25	HIV/AIDS Awareness and Education	15,600,000
1	**Sub Total (1)**	**9,453,013,220**
	Add 5% of Sub-Total 1 of Bills as Provisional Sums for Contingencies to be Expended in the whole or part as directed by the Engineer in accordance with sub-clause 52(4) and clause 58 of the Conditions of Contract (2)	**472,650,661**
	Add 15% of Sub-Total 1 of Bills as Provisional Sums for Variation of Price in accordance to Clause 70 of the Conditions of Contract.	**1,417,951,983**
2	**Sub-Total (2)**	**11,343,615,864**
3	**Add 16% of Sub-Total (2) for V.A.T. - (3)**	**1,814,978,538**
	Grand Total carried forward to Form of Bid (Sub-Total 2+3)	**13,158,594,403**
	Total Cost per Km	**146,206,604**

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4. BASELINE BIOPHYSICAL CONDITIONS

4.1 LOCATION

The project road is in the North-Eastern part of Kenya bordering Wajir County to the North, Isiolo County to the Northwest, Tana River County to the west, Lamu County to the south and Somali to the east and north east.

4.2 CLIMATE

The project area has a very warm/hot climate due to the low elevation and distance away from the cooler/coastal areas. Given the arid nature of the area, temperatures are generally high throughout the year and range from 200C to 380C. The average temperature is however 36oC. The hottest months are September and January to March, while the months of April to August are relatively cooler. The relative humidity averages 60% in the morning and 55% in the afternoon. An average of 9.5 hours of sunshine is received per day. The region has bimodal type of rainfall, the long rains (March – April) and the short rains (October – December). The average annual rainfall is 320mm. The erratic and unreliable rainfall cannot support crop farming which partly explains the high food insecurity and food poverty levels. Strong winds are also experienced between April and August with the rest of the months getting calm winds. The strong winds provide a huge potential for wind generated energy.

4.3 GEOLOGY AND SOILS

The most dominant type of soil in this region is sandy soil which has coarse texture and low water holding capacity. The soils range from the sandstone, dark clays in some patches, to alluvial (white and red sand) soils along the Tana River basin. The white and red soils are found in Balambala sub-county where the terrain is relatively uneven and well drained. The rest of the region has sandy soils that support scattered shrubs and grassland. The alluvial soils occur along the Lagha valleys. The soils are very fertile and can support increased agricultural production using irrigation. The Lorian swamp is characterised by a combination of sand and silt soils.

Specifically, project area has different types of soils that spread across the project environment. At the beginning of the project environment around Modogashe the area is characterised by sodic or saline sandy soils that are generally light brown in colour. Towards the swamp the area is comprised of xerosols that are mainly weakly developed soils of the arid regions. Around the swamp the soils are dark brown alluvial soils. Other soils found within the area include poorly drained moderately deep to deep soils such as vertisols and gley soils. Towards the end of the project in Samatar the project area is characterised by shallow and juvenile soils such as lithosols and legosols.

Soil erosion is also evident along the project area especially on the Habaswein – Samatar section. Material sites also exhibit erosion prone areas. The effect of soil erosion was evident along the alignment with the main type of erosion occurring being bank erosion, splash erosion and rill erosion. Erosion is dominant where there are seasonal Laghas and at coordinates 0537423, 0103569 to 0550600, 0109355 (start and end of Lorian swamp) and 0564422, 0119517 towards Samatar. The soil in the project area is dominantly sandy which has a high permeability hence rain water is readily absorbed. Water logging around the Lorian swamp loosens the soil and makes it prone to wind erosion during seasons when the swamp is dry). Other factors that might contribute to the soil erosion in the project area include overgrazing, deforestation and intensity and amount of rainfall.

Plate 4.1: Dark brown sandy soils supporting scattered shrubs

Plate 4.2: Alluvial soils found in Lorian swamp

Plate 4.3: Sodic clay soils found in a water pan in Samatar

4.4 VEGETATION RESOURCES

Generally, the project environment has scanty vegetation which is characterized by drought resistant shrubs and grasslands. However, due to the prevailing arid condition, the most dominant tree species are Acacia spp. which were common along the road. Other species include Balanites spp. and commiphora spp, panicum spp and Eragrostis spp.

Plate 4.4: Dry scanty vegetation

Plate 4.5: Mature acacia tree serving as habitat for birds

Prosopis juliflora is also found within the project environment in some Laghas, material sites and along the section between Guticha and Samatar. Prosopis juliflora is an introduced tree species that is rapidly gaining the status of an invasive weed in a large swathe of the East and Horn of Africa dry lands. In Kenya, the Prosopis species were introduced from mid 1970s and early 1980s, mainly in arid and semi-arid areas to mitigate the impacts of drought and famine and to safeguard the existing natural vegetation from over exploitation due to rising human population. However, due to its prolific invasive nature, the species has spread to many areas, mainly on disturbed sites and in some places replacing the indigenous vegetation. The highest Prosopis invasion in Kenya has been reported in Tana River, Garissa, Baringo and Turkana counties, where pasturelands, farmlands and wetlands have been invaded.

4.5 TOPOGRAPHY

The project area is located in a flat area which is basically a flood plain. The area experiences periodic flash floods during the rainy seasons. The lowest are is 243m and 263m for the highest elevation point. No mountains or valleys were observed within the project environment. The major physical features are seasonal Laghas and the Tana River Basin on the western side.

4.6 WATER RESOURCES

The project road crosses the North Ewaso Ngiro River (551402N, 110024E) near Habaswein and several seasonal laghas. Tana River runs on the Eastern side of the Garissa – Modogashe road. Ewaso Ngiro River has its catchments area in the Aberdare ranges and Mount Kenya flows between October – March draining into the Lorian swamp. River Tana (Permanent River) is fed by the Kinna and Bisanadi perennial rivers. Residents rely on shallow wells, boreholes and water pans which act as a source of water for domestic use and livestock drinking points. The project area is generally water scarce with acute water shortages experienced during the dry season. Various interventions have been undertaken to mitigate against these water shortages. These include water tankering and the activation of the rapid response team charged with the responsibility of repairing boreholes during drought.

Plate 4.6: The road crossing a seasonal Laghas

Plate 4.7: The existing road crossing the North Ewaso Ngiro River

Table 4.1: Common sources of water per county

	Garissa	Isiolo	Wajir
Shallow wells	25	17	1100
Boreholes	65	58	178
Water pans	177	-	230

Source: KNBS County Abstract, 2014.

There is a water supply scheme in all the county headquarters, though they supply water to a very limited proportion of households. In Isiolo County, the responsible authorities are Garbatulla Water Supply and Merti Water Supply. In Garissa County, the responsible authority is Garrissa Water and Sewerage Company (GAWASCO), with nine other water supply schemes along river Tana managed by the Users Associations that supply water urban centres.

4.6.1 Ground water

The project area is covered with tertiary marine sediments that have a high potential for ground water harvesting. A lot of ground water potential is found along the Merti aquifer stretching from ShantAbaq sub-county to Jarajila Sub-county. Along the aquifer, the water is fresh but some parts of Jarajila have saline water. Over 58 percent of the domestic water is sourced from boreholes and 17 percent from shallow wells. The northern and central parts of the county have no underground water potential and therefore cannot support human habitation during the dry periods.

NGOs like the Red Cross and GOK have dug boreholes and shallow wells in the project area with locals accessing the water through water kiosks built in the settlements.

4.7 SANITATION

46.76 percent of the population use pit latrines and only 2.6 percent use VIP latrines. Majority of the population use bushes. There are water and sewerage authorities in each county, but the sewerage lines serve a very small proportion of the population within the urban centres. Less than 20 percent of the population has access to improved sanitation.

4.8 LORIAN SWAMP

The project road crosses the Lorian swamp at coordinates 0545612, 0107476 (start point) to coordinates 0550600, 0109355 (end point) towards Habaswein. The swamp receives water mainly from the North Ewaso Ngiro Rive originating from the Aberdare ranges and flows within the months of October - March. The river carries a lot of silt which are deposited into the Lorian Swamp. The Swamp covers Isiolo, Garissa and Wajir Counties.

Mean annual rainfall over the swamp is 180 – 250mm, but precipitation is highly variable. Several ephemeral rivers (Wadis) from the SW and NW supply the swamp with additional water. The swamp is located in a 2310km2 depression, 196km long and 25km wide, yet the inundated area is smaller and expands and contracts with river discharge and rainfall over the swamp.

The vegetation of the swamp has three different zones; the upper Cynodon dactylon zone in briefly flooded areas, a zone with Echinochloa spp and Setaria spp on more regularly inundated flood plains and the third zone with aquatic grass and sedge species in the lowest parts of the swamp. The swamp acts as a source of water for humans and livestock. The vegetation also serves as an important range resource for the livestock within the area. The swamp is infested

with malarial mosquitoes and fauna present include ostrich, Antelopes, avifauna and crocodiles in the permanently wet areas.

Factors contributing to drying of Lorian Swamp

I. Abstraction upstream – Main rivers from Meru and Isiolo feeding the Ewaso Ngiro have dried up due to over abstraction of water from the users upstream.

II. Climate Change – The project area is receiving very little precipitation because of climate change.

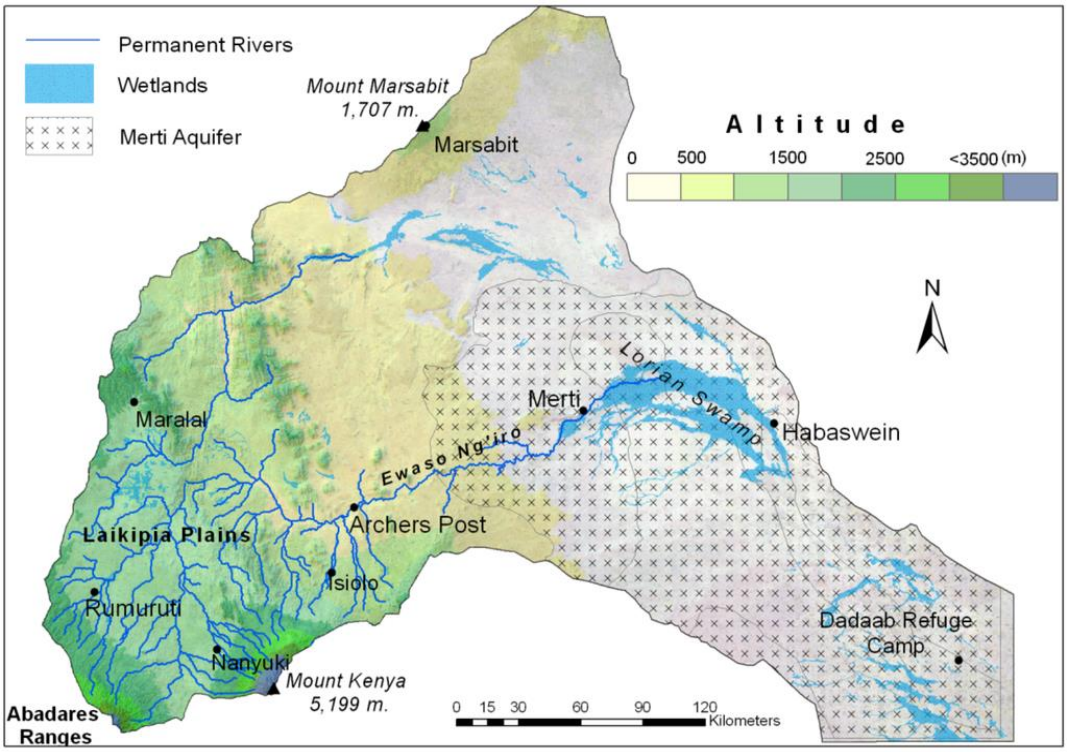

Figure 4.1: Location of the Lorian swamp

Plate 4.8: The expansive Lorian Swamp

4.9 FAUNA

The project area is rich in wild life ranging from spotted hyena, Black rhino (Dicerosbicornis), African Wild dog (Lycaonpictus), Giraffe, Elephant, Ostrich, Monkeys, Antelopes, Impala, Giraffe, Leopard, Warthog, Lesser kudu, Greater kudu, Hippo, Grevy zebra, Buffalo, Lion and numerous bird species. The wildlife move freely across the projet area. Fish and crocodiles are prevalent in Tana

River. Most of the wildlife in the project area are residential with the exception of elephants that migrate from the Meru ecosystem. The elephants migrate eastwards to access water from the Tana River occasionally trampling on the farms in their paths along the river banks resulting in human-wildlife conflicts. The project road does not have a clearly defined migration corridor. As can be seen from Fig. 3 below elephant migration is poredominantly north from the mount Kenya ecosystem and south east to the Tana and west and northwest to the Samburu ecosystem.

Figure 4.2: Google Earth image showing the location of Meru national Park in relation to Tana River

The local population in the project area co-exist peacefully with the wildlife. However, there are rare reported cases of human-wildlife conflicts

The grevy zebra (Equus Greyvi) which is the most threatened of the three zebra species is unique to Garissa area. It is in competition for resources with other grazers and livestock lowering their survival rate.

The project area is also rich in avifauna visible from the heavily nested acacia trees bordering the alignment. The road section crossing the North Ewaso Ngiro and Loian Swamp between coordinates 05412760, 0105824 and 0551229, 0109859 covering a distance of 10.6 km towards Habaswein is heavily inhabited by avifauna. Other sections along the road with moderate habitation of birds include coordinates 0584035, 0134550; 0565537, 0131473; 0564577, 0119602 towards Samatar.

Plate 4.9: Giraffes grazing next to the alignment

Plate 4.10: Warthogs roaming freely next to the road

Plate 4.11: Guinea fowls under an acacia tree

4.10 AIR QUALITY

The project area is mainly a rural country and therefore air quality along the project corridor is influenced by emissions from vehicular sources and particulate matter from dust. The proposed alignment covers unpaved section which are made of all weather and dry weather roads. Currently the populations are concentrated at the urban centres which include Modogashe, Skanska, Habaswein, Kanjara, Guticha and Samatar. The centres also have a slightly higher concentration of vehicular emissions and particulate matter because of the high number of vehicles. This is especially more pronounced in Habaswein and Modogashe. The rest of the project area has a relatively low concentration of both vehicles and there is reliance on carts that are powered by animals such as camels.

The main air quality pollutants are components of emissions, principally carbon dioxide (CO2), carbon monoxide (CO), Nitrogen Oxides (NOx), Sulphur Oxides (SOx) and Particulate Matter (PM2.5, PM5 and PM10). There are also hydrocarbons (HxCx), fuel aerosols and soot. The most important air quality receptors are sensitive institutions along the project road. These institutions include learning centres, health facilities and urban centres, the latter being sites of concentrated settlements. **Tables 4.2, 4.3 and 4.4** below summarize the common receptors that were within 200m of the road alignment. These receptors are distributed all along the project road with worship centres forming the bulk of the sensitive receptors.

Table 4.2: Learning centres along the road

Institution	Location
Sericho secondary school	0519284 0081959
Un-named school under construction	0529766 0096966
Habaswein polytechnic	0555282 0112587

Table 4.3: Worship centres along the road

Worship centre	Location
Mosque	0519282 0081784
Mosque	053240 0100381
Mosque	0554064 0111856
Mosque	0555282 0112587
Mosque	0561282 0117144
Habaswein Pentecostal Church	0554519 0112229
Mosque	0555210 0112572
Mosque	0556594 0113559
Mosque	0561282 0117144
Mosque	0555210 0112572
Mosque	0561277 0117130
Mosque	0572833 0125944
Mosque	0573632 0126556
Mosque	0561292 0117151

Table 4.4: Centres and other offices / Institutions along the road

Centres or office / Institution	Location
Modogashe centre	0519007 0080479
Skanska	
Habaswein Centre	0554064 0111856
Habaswein police station	0554519 0112229
Habaswein district hospital	0556594 0113559
Habaswein Power station	0556337 0113325
Modogashe water supply	0533614 0100778
Kanjara Centre	0572833 0125944
Guticha centre	0580851 0132125
Samatar Centre	

4.11 NOISE AND VIBRATIONS

The current ambient noise and vibration conditions within the project corridor can be described as low except for urban centres where typical urban noise is experienced and the paved sections where vehicular noise is dominant. Throughout the project area the source of noise that was evident was from the vehicles used as means of transport.

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5. BASELINE SOCIO - ECONOMIC ENVIRONMENT

5.1 INTRODUCTION

The proposed road project involves upgrading of 90km of the road between Modogashe town in the border between Garissa and Isiolo through Habswein town (Wajir) to Samatar in Wajir County, covering the counties of Isiolo, Garissa and Wajir. The road passes through the settlement villages of Skanska (Garissa), Samatar / Guticha (Wajir), Legdima and Kanjara (Wajir). The road is part of the 540km road that runs from Modogashe Town through Habaswein (Wajir South/West), Lagh Boghol (Wajir South), Leheley, Wajir, Elwak, Rhamu to Mandera town. The major trading centres along the road corridor are Modogashe and Habaswein.

Much of the project is based in Wajir County, although the whole project touches three counties including Garissa and Isiolo. The road is straight, and it is being expanded from an existing corridor, traversing a stretch of land that is almost entirely communally owned.

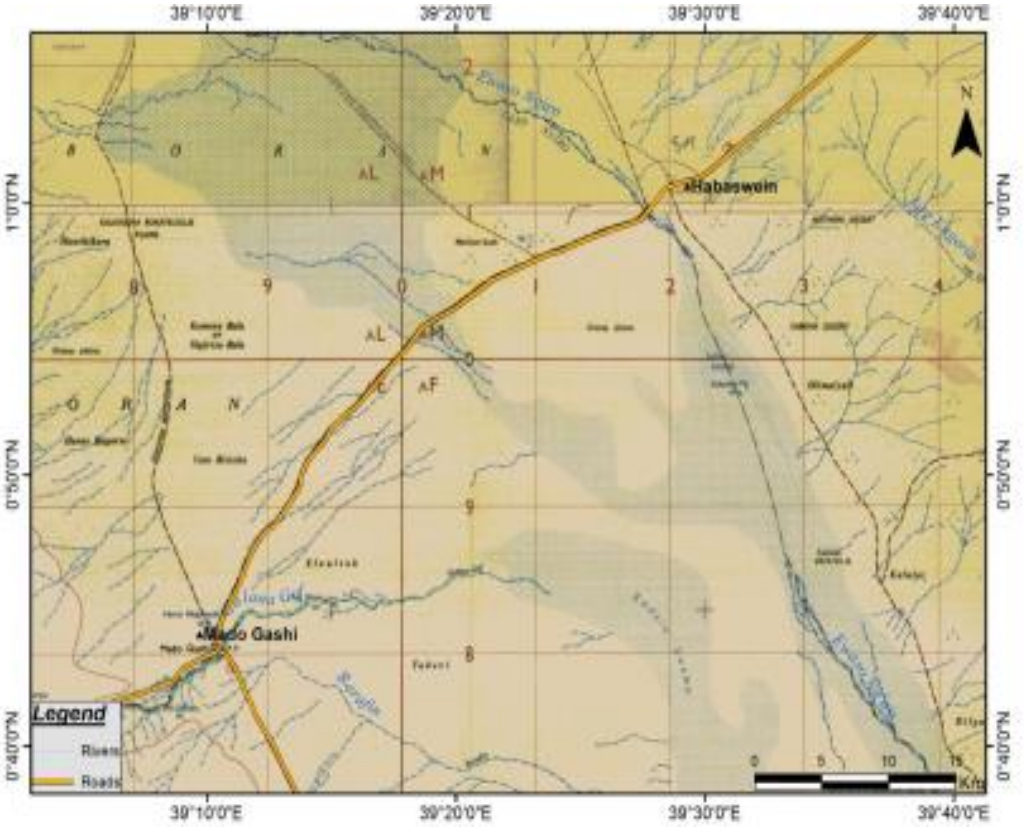

Figure 5.1: Map of the road

5.2 PROJECT AREA ADMINISTRATIVE UNITS

The project traverses three counties of Wajir, Isiolo and Garissa, and four sub-counties of Lagdera in Garissa, Garbatula in Isiolo and Wajir South and West in Wajir County. The total number of divisions traversed by the project are 16, and the total Locations and Sub Locations are 81 and 107 respectively. The project covers a total administrative area of 46,944.4 square km.

The population densities of the respective administrative units are given below. This data is important in determining how much land pressure exists on the project area, and how much residents might have encroached onto the road reserve. The area is generally sparsely populated, owing to the aridity of land,

with the highest density being found in Garbatula. Dense populations are however expected in trading and settlement centres and near watering points along the road; centres like Skanska, Samatar, Legdima and Kanjara.

Table 5.1: Administrative units and densities of the project area

Sub-County	Area	Density	Divisions	Locations	Sub-Locations
Lagdera	6,519.0	14	3	12	19
Garbatula	9,819.0	15	3	19	36
Wajir South	21,595.7	06	4	20	20
Wajir West	9,010.7	10	6	30	32

Source: IEBC 2012

5.3 POPULATION

The region has a high fertility rate and a high population growth. This is attributed to the fact that the community has low uptake of contraceptives. The high infant population ratio calls for enhanced immunization and vaccination programmes. The County has low vaccination coverage

Isiolo County's population stood at 143,294 as per the 2009 Population census comprising of 73,694 males and 69,600 females. The population was projected to rise to 159,797 by the end of 2012 and 191,627 by 2017. The predominant community in Isolo at 60% of the population is the Borana. According to the Social Profile,they are divided into three subgroups: Boran (also known as the Boran Guttu), the Sakuye and Gabra. The remaining 40% consists of the Turkana, Samburu, Meru, Somali and immigrant communities from other parts of the country. The population density of the county is 8 inhabitants per Km².

Projections from the Kenya 2009 Population and Housing census indicate that Wajir County has a total population of 727,965 which is projected to rise to 852,963 in 2017. Males comprise 55 per cent of the population whereas female population account for 45 per cent. The County has an inter-censual growth rate of 3.22 per cent which is higher than the national population growth rate of 3.0 per cent. The counties' population is summarized in the tables below:

Table 5.2: Population Distribution and Density by Sub County-Isiolo County

Sub-County	Area (Km^2)	2009 (Census)		2012 (Projections)		2015 (Projections)		2017 (Projections)	
		Population	Density (Km^2)	Population	Density (Km2)	Population Density	(Km^2)	Population	Density (Km^2)
Isiolo North	15,881	100,176	6	111,712	7	124,577	8	133,966	8
Isiolo South	9,819	43,118	4	48,083	5	53,621	5	57,662	6

Source: Isiolo County Integrated Development Plan (2013-2017)

Table 5.3: Population Distribution and Density by Constituency/Sub-County-Wajir County

Constituency	2009 (Census)		2012 (Projections)		2015 (Projections)		2017 (Projections)	
	Population	Density (Km^2)	Population	Density (Km^2)	Population	Density (Km^2)	Population	Density (Km^2)
Wajir South	130,070	6	143,044	7	157,311	7	167,605	8
Wajir North	135,505	16	149,021	17	163,885	19	174,609	20
Wajir East	112,572	28	123,800	31	136,149	34	149,729	37
Tarbaj	111,846	12	123,001	13	135,271	14	148,763	16
Wajir West	91,143	9	100,233	10	110,232	11	121,227	12
Eldas	80,805	27	88,864	29	97,729	32	107,476	35
Total	**661,941**	**12**	**727,966**	**13**	**800,576**	**14**	**852,963**	**15**

Source: County CIDP

Table 5.4: Population cohorts per gender per county in 2017

Age group	Isiolo			Garissa			Wajir		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	16,148	15,015	31,163	65,253	58,614	123,868	28,961	28,277	57,238
5-9	14,464	13,834	28,298	78,420	67,667	146,087	35,445	32,410	67,855
10-14	13,175	12,369	25,534	79,727	60,927	140,654	36,995	31,886	68,881
15-19	10,775	10,312	21,087	61,038	45,592	106,629	29,012	23,791	52,803
20-24	9,126	9,364	18,490	41,509	36,098	77,608	22,286	18,055	40,341
25-29	7,549	7,498	18,047	26,982	30,896	57,878	18,273	14,942	33,215
30-34	5,732	5,257	10,989	22,200	24,747	46,946	13,413	15,561	28,974
35-39	4,520	4,263	8,783	16,559	19,764	36,323	11,154	13,958	25,112
40-44	3,747	3,403	7,151	18,651	16,012	34,663	8,327	9,481	17,808
45-49	3,296	2,885	6,181	11,203	8,485	19,688	8,533	7,870	16,403
50-54	2,984	2,451	5,435	11,725	7,683	19,408	4,438	3,782	8,220
55-59	1,933	1,381	3,215	5,410	3,183	8,593	4,604	4,129	8,733
60-64	1,642	1,511	3,153	7,003	4,562	11,566	2,683	1,559	4,242
65-69	959	766	1,825	2,573	1,636	4,209	3,008	2,210	5,218
70-74	1,036	1,051	2,088	3,677	2,806	6,483	1,018	583	1,601
75-79	554	465	1,019	1,262	918	2,180	1,177	1,136	2,313
80+	936	1,222	2,158	3,373	3,302	6,674	1,775	1,639	3,414
Total	**98,476**	**93,037**	**191,516**	**456,565**	**392,892**	**849,457**	**231,102**	**211,269**	**442,371**

Source: County CIDP

Life expectancy in the region stands at 56-65, with that of the female members being higher than that of males. The dependency ratio in the region is high, impacts negatively on development negatively as more resources are usurped in taking care of the dependents, thereby reducing investments and savings. The region has a high labour force (15-64 years) projected to rise by 33.7 percent by

the end of 2017, with the proportion of the female members being slightly lower than that of the males. This is indicative of the potential to develop labour resource in the region through investment and employment opportunities. The bulk of this labour is unskilled or semi-skilled, mainly engaged in livestock activities.

The average household population in the region is 6. There are generally more males than females. There is a high morbidity rate of over 15%, attributed to the insufficient health facilities and high doctor: population ratio and poor nutrition. This in turn explains the low life expectancy and the low population of members of over 80 years.

Community Willingness to work in the Project

During the public consultations and in the questionnaire survey, the community expressed willingness to engage in employment in the project. However, no person in the consultations reported to have worked in similar large scale road works before. The older people recalled a previous Contractor who founded the settlement at Skanska but who was later relocated elsewhere to build a road before building their road.

The community is however, keen mainly on machine operations and lorry driving. Some expressed aversion to physical labour. They nonetheless expressed interest to learn if they are paid well. The participants in public meetings and consultations resolved to send their children to technical colleges in Garissa and Wajir to learn tipper driving, Machine and Equipment Operation and other skills related to road works. They expressed a demand for locals to be given priority in employment with each settlement being given a quota in the total number of unskilled labor and priority in the skilled labor. There was resolution to have a stakeholder committee in each of the five settlements- Modogashe, Skanska, Habaswein, Lagdima, Kanjara and Guticha to provide the contractor with willing locals to work in the project. As noted before, there was notable ambivalence towards manual labor.

It was notable that some young male youth already possess certificates, diplomas and one degree holder in road related technical training. A recurrent request was for a skills transfer program to be inbuilt in the project. The consultations also resolved that since the road had many identified benefits, they would welcome people from other parts of the country to work since they appreciated the paucity of technical skills in their corridor. They however urged respect for their culture, religion and mores by all in-migrating persons

5.3.1 Ethnicity

The population of the region is composed mostly of the Cushitic speaking communities. As the road moves from Modogashe through Habaswein to Samatar, it crosses subcounties as follows: Modogashe is a border town in Lagdera subcounty of Garissa County and Garbatula/(Sericho) Sub County of Isiolo.The Borana inhabit the Isiolo side while the Somali are on the Garissa side. The next Centre is Skanska which is in Garissa and partly Wajir and inhabited by Somalis. The rest of the Centres/Towns/Settlements namely Habaswein, Lagdima,Kanjara ,Guticha and Samatar are in Wajir County(In Wajir South and West sub Counties) .. The population is predominately Somali, with three major clans, the Degodia, (mainly in in Wajir East and West), the Ogadenis and related clans (who occupy Wajir South), and the Ajuran in Wajir North Other immigrant communities such as Turkana, Samburu and Meru are found mainly around Modogashe. The project is expected to open up the region to other communities and to promote integration and coexistence due to increased interaction.

5.3.2 Politics of Ethnicity and Land

According to the, the Overseas Development Institute (ODIpolitics is also a driver of conflict in these pastoralist areas. The Lagdera Deputy County Commissioner noted that politics of land is the cause of conflict at Modogashe. The Borana feel that Somalis from Garissa have used the road as a boundary to expropriate their land. According to the County Profiles "Garissa and Isiolo have a boundary dispute especially along the divided town of Modogashe which came to the fore, when they were triggered by explorations for oil and gas. It was reported that past violent conflicts have occurred between the communities due to land and boundaries. Land thus has becomes the epicentre of political and economic conflict and settlement on land has become a way of increasing political and economic power.

5.3.3 Clanism

The population in Garissa County is 98 per cent Somali. Internally, the Somalis identify themselves with clans, which is a key factor in development and in distribution of resources in the county, employment and also leadership selection. The clans found in the county are Abudwaq, the Aulihan, the Abdalla, Muqabuul, Qare, and Dogodia. The rest of the population includes migrant communities like the Turkana, Samburu, Meru and Kikuyus in the county and a population of refugee communities. The main languages spoken in the county are Somali, English and Swahili. The county's population is mainly Muslim with an insignificant group of residents, mainly workers, professing Christianity. Due to their diverse economic activities, these communities are occasionally prone to inter clan conflicts.

5.3.4 Conflict over water and pasture between Ethnic Communities

Water is a scarce resource in the project area. Families and ethnic groups often quarrel over the resource. All the dominant communities and Clans are extensive pastoralists. Livestock movement in search of water and pasture is a major driver of conflict. Livestock movement is the foundation of pastoralism. It only causes conflict if reciprocal resource agreements are not observed or there is scarcity of resources leading to competition "Competition for scarce natural resources is widely understood to be a primary cause of conflict in the region," notes UK think-tank, the Overseas Development Institute (ODI), .The movement of livestock and herders often transcends national borders and ethnic borders and pastoralist groups across the region depend on the same communal pool of natural resources. Although neighbouring states often share ethnic groupings, such migrations can be problematic and lead to fights. In Habaswein and the larger Wajir, the Ogaden and Ajuran Somalis fight over Water and other resources even though they are related.

Local community members at a function

5.3.5 Gender and Women Empowerment

According to the county Profiles, Women in the road corridor suffer low empowerment. The recurrent theme in women lot is low participation in the economy, FGM, early marriage and lack of property ownership, According to the County Profiles, Women have traditionally played supporting roles in Somali and Borana families, and taken lead in household duties. Women in the rural areas do not own livestock, although in the urban areas women have been able to accumulate property in their own right. Women have traditionally been 'absent' in pastoralist decision making institutions, and only found voice in influencing their men sitting on the customary tribal councils. Women continue to play a supporting role in clan mobilization, inciting the men to put on shows of belligerence through their singing and accentuation of clannism, (although many women may originate from other clans). Women in the pastoral and rural sector had clearly defined gender roles, they worked hard and had responsibility for building the nomadic huts, tending the home and children, milking animals, looking after home herds of sheep and goats, fetching domestic water and sometimes firewood; beside the cooking and cleaning. Rural women tend to marry early, while educated women delay their marriage and have fewer spaced children.

The road project will likely lead to opening up women opportunities. Their access to social amenities will be accelerated and likely growth of urban centres will increase their business opportunities. It is also likely that girls will have greater chances of education due to the relaxing of social attitudes as a result of interacting with other opportunities. Patriachy, though unlikely to disappear, will abate. Women uptake of funds for socio economic improvement is likely to improve. Easier access to government means that women will benefit more from the justice system to assert their rights.

5.4 URBAN POPULATION

Table 5.5: Urban population

County	Town	2009 census			2017 projection		
		Male	Female	Total	Male	Female	Total
Garissa	Modogashe	12,025	9,754	21,779	16,406	13,308	29,714
Isiolo	Garbatulla	1,931	1,843	3,774	2,582	2,465	5,047
Wajir	Habaswein	43,684	39,116	82,800	56,290	50,404	106,694

Source: KNBS County Abstract, 2014.

The region has 10 major administrative centres distributed through the three counties. These centres have high population concentrations like Nanighi, Modogshe, Daadab, Hulugho, Bura East and Balambala, Garissa Township and Masalani Township in Garissa, and Kinna, Modogashe, Merti and Oldo/Nyiro; with all of the urban areas making up less than 5 percent of the whole land area. There are also smaller centres that serve as livestock markets and watering points in the region. The completion of the project is likely to spur the growth of these centres and develop the urban centres into towns and cities

5.5 INFRASTRUCTURE

5.5.1 Transport

The region has a total road network of 9,603.09 km with only 310km being of bitumen standard, representing 3 percent. Most of the roads are impassable during rainy seasons. The county has very few bridges found across River Tana and Ewaso Nyiro, with the rest of the smaller streams being crossed over concrete drifts. Most of the places in the region are rendered totally inaccessible during heavy rains.

Table 5.6: Infrastructure

Type of road	Garissa	Isiolo	Wajir	Total
Earth	776.1	1,185.49	5,845.3	7,806.89
Murram	502.5	263.70	720.0	1,486.20
Bitumen	275.0	35.00	0.0	310.00
Total	1,553.6	1,484.19	6,565.3	9,603.09

Source: KNBS Statistical Abstract

The region has 2 international airports at Isiolo and Wajir, and 19 airstrips. There are no railway lines in the region.

5.5.2 Telecommunication

According to KNBS County Abstract (2014), there are a total of 440 connections of fixed and wireless telephone lines in households, establishments and government offices. The region generally has less than 60 percent connectivity, mainly concentrated in the urban centres, with the rest of the regions being cut out of connection. There are also several internet cafes spread out in urban centres within the region.

5.5.3 Postal services

The number region has a total of 10 post offices that are have less than 20 vacant letter boxes. With improved infrastructure, postal services could be made more efficient and so have more residents being connected.

Table 5.7: Postal services and letter boxes

	Garissa	Isiolo	Wajir
Post offices	6	1	3
Letter boxes installed	2,600	1,149	1,100
Letter boxes rented	2,496	851	752
Letter boxes vacant	104	298	348

Source: KNBS County Statistical Abstracts

5.5.4 Financial institutions

The region is served by a total of 23 commercial banks, 198 Savings and Credit Co-operative societies, 8 insurance companies, 11 microfinance institutions and 2 NGO institutions. Most of the financial institutions are located within towns and urban centres. This is however a disadvantage to the majority of the rural population, cutting off up to 70 percent of the households from financial services (KNBS County Abstracts, 2014).

However, mobile money transfers are spread out across the region and serve as alternative saving platforms for the residents.

Table 5.8: Financial institutions in the region

Sub County	Banks	SACCOs	Insurances	Micro Finances	Others
Garissa	12	21	6	6	2
Isiolo	7	49	-	5	-
Wajir	4	128	2	-	-

Source: KNBS County Abstract, 2014.

5.6 EDUCATION

Education data is useful in informing the economic levels of the residents for use in computing compensation in case they will be affected by the project.

The literacy levels in the region are below 20% with women literacy standing at around 8% in the entire region. This is evident from the data given below, indicative of low enrolment rates and high teacher to learner ratios. The region also has few learning institutions, with less than five institutions of higher learning, and less than 100 secondary schools. There is a high teacher to learner ratios at all levels of learning. The high number of adult education opportunities is however laudable as a way to reduce illiteracy.

Table 5.9: Pupil enrollment in ECDE Centres

	Sex	Enrollment	Net Enrollment rate
Garissa	Boys	30,441	79.2
	Girls	24,324	54.4
	Total	54,765	65.9
Isiolo	Boys	9,001	98.6
	Girls	8,482	97.5

	Sex	Enrollment	Net Enrollment rate
Wajir	Boys	10,922	5.2
	Girls	7,751	5.0

Source: KNBS Source: KNBS County Abstract, 2014.

Table 5.10: Pupil enrollment in Primary schools per Sub County

Sub County	Total
Total	**124,503**
Isiolo	23008
Wajir	67187

Source: KNBS County Abstract, 2014.

Table 5.11: Student enrollment in secondary schools per sub-county

Sub County	Total
Garissa	44,756
Isiolo	1,822
Wajir	10,363
	44,756

Source: KNBS County Abstract, 2014.

Table 5.12: University education

	Male	Female	Total
Garissa University	428	372	800

Source: KNBS County Abstract, 2014.

Table 5.13: Enrolment in technical institutions

Name of institution	Category	Number	
		Male	Female
North Eastern Provincial Technical	Public	378	179
Garissa TTC	Public	300	300
		678	479

Source: KNBS County Abstract, 2014.

Table 5.14: Adult education Centres by county

	Sub county	Number	Enrollment	
			Male	Female
Garissa County	Garissa	32	976	998
	Lagdera	14	366	367
	Balambala	15	329	213
	Daadab	14	2315	1289
	Total	127	5064	4136
Isiolo County	Isiolo	31	312	733
	Garbatulla	25	65	319

	Sub county	Number	Enrollment	
			Male	Female
	Merti	16	89	208
	Total	72	466	1260

Source: KNBS County Abstract, 2014.

The teacher: pupil ratio in ECDE institutions is 1: 105, with a pre-school enrolment rate of 9.6 percent and a completion rate of 89.34 percent and a retention rate of 11 percent. This is attributed to the nomadic lifestyles of the people. Settled schools seem not appropriate to the nomadic lifestyles and cultural reasons see literature e.g. A Study of Education and Resilience in Kenya's Arid Lands, UNICEF In addition to the formal education, there are madarasa classes where children are taught religion.

Table 5.15: ECDE Centres

County	Number
Garissa	347
Isiolo	213
Wajir	243

Table 5.16: Primary school centres

County	Number
Garissa	224
Isiolo	124
Wajir	245

Table 5.17: Secondary schools

County	Number
Garissa	41
Isiolo	23
Wajir	45

Table 5.18: Youth polytechnics

Institution	Garissa	Isiolo	Wajir
	Public	Public	
Youth Polytechnics	4	1	1
Universities	1*	1	0
Technical Institutions	2	1	1

**the KNBS reports three universities but two university colleges have since closed down*

Source: KNBS County Abstract, 2014.

There is a teacher: pupil ratio of 1:61 in primary schools with a net enrolment rate of 23.5 percent, a transition rate of 58.3 percent and a completion rate of 62.7 percent. This is largely due to lack of trained teachers in the county and terror attacks which have led to non-local teachers leaving the areas.

5.7 ENERGY ACCESS

Fuel analysis is an important economic indicator. Data on fuel usage gives the proportion of people connected to electricity and people who use renewable vs

non renewable energy sources. 78.8 percent of the population in the three counties use firewood as a source of energy for cooking, with 18.2 using charcoal. There is electricity in few areas including Garissa Township, Ijara, Dadaab, Bura East and Modogashe. Only 0.7 percent of the population has access to electricity. Solar systems have been installed in health facilities, schools and watering points.

Table 5.19: Connection to power

Entity	Garissa	Isiolo
Domestic customers	13,000	8202
Small businesses	700	1037
Large power	13	2
Street wiring		6

Source: KNBS County Abstract, 2014.

Over 70 percent of households in Isiolo County rely on firewood as the main source of cooking fuel. Only

5.8 HOUSING

A large population in Wajir and Garissa counties live in manyattas. Majority of the structures have walls made of grass straws while 19.4 percent are made of mud and wood.

Figure 5.2: A manyatta

According to the CIDP, 95.6 per cent of the households in Wajir county live in their own houses. Grass straw walled houses constitutes 75.9 per cent and those with earth floor constitute.

91.5 per cent. The grass thatched houses constitute 86.2 per cent. Walled houses are found in Wajir town, Bute, Habaswein, Griftu, and divisional headquarters and in few rural areas (settlements)

In Garissa on the other hand, The CIDP indicates that Housing remains a big challenge in the county with a high percentage of the population living in manyattas. The distribution of housing in the county by wall material is varied. Majority of residents, 43 per cent, use grass straws, while 19.4 per cent live in houses with mud/wood walls. Only 12.9 per cent of residents reside in brick/block walled houses.

In Isiolo County, most of the houses (manyattas) are constructed of mud, grass and wood. There are a total of 9850 manyattas made of mud and sticks, and 5491 made of grass and sticks. Permanent housing structures found in the urban centres, with 3220 being stone walled and 2090 being brick walled.

5.8.1 Household distribution by roofing material

Table 5.20: Roofing materials

Material	Proportion
Corrugated iron sheets	29.3
Tiles	0.8
Concrete	0.2
Asbestos	2.5
Tin	0.7
Grass	60.3
Makuti	4.6
Mud/dung	0.8
Other	0.9

Source: KNBS County Abstract, 2014.

5.9 LAND AND LAND USE

5.9.1 Mean holding size

Most of the land in Garissa and Isiolo town is Community Land under trusteeship of the County government until it is registered. In Isiolo, government land constitutes 10 percent of the total land, including land for schools administration, army barracks and health facilities. The other 10 percent of non-communal land is owned by private investors in housing, industrial and commercial purposes. Less than one percent of the population have land titles in the three counties.

Most of the land is generally used for nomadic pastoralism. In some places in Isiolo, agro-pastoralism is carried out involving livestock keeping and crop farming. In Garissa County, there are arable lands owned by groups with mean holding size of 1.3 hectares along River Tana.

There are 5 National Cereals and Produce Board silos in Garissa town, each with a storage capacity of 4,500 metric tonnes, mainly used to store relief foods.

Due to harsh climatic conditions in the project area, the traditional practice of pastoralism by the locals occurs during the rainy season. Pastoralism occurs year round, with livestock moved from dry season to wet season grazing areas depending on the season. Much of the land (80%) is communally owned and is under the trusteeship of the county government. Government land constitutes

10% of total land and includes land for schools, administration, army barracks, and health facilities. The remaining 10% of the land is under private ownership and was alienated for private investment in housing, industrial and commercial purposes. Over 80 percent of the land cannot support crop farming and is used as grazing land by the pastoralists. In some wards areas such Kinna, agro-pastoralism is practiced with the inhabitants engaging in both livestock and crop farming. Food insecurity is rampant due to low food production. Most people rely on livestock products like milk and meat which is their staple food. Livestock production activities are widely practiced. Poultry keeping is more pronounced in Wajir town. Livestock population density in the county is low due to the low land-carrying capacity of the rangeland. Drought, livestock diseases and pests adversely affect livestock development in the county.

Agriculture is majorly practiced in depressions and along drainage lines where there is more moisture due to seasonal flooding. Irrigation using underground water is limited in areas with permanent shallow wells. The major planted crops include sorghum, drought resistant maize, beans, melons, cowpeas, green grams and horticultural crops like kales, spinach, tomatoes, sweet and hot peppers. These agricultural activities are undertaken in small scale.

5.9.2 Pastoralism and Livestock Farming

Most of the land is generally used for nomadic pastoralism. In some places in Isiolo, agro-pastoralism is carried out involving livestock keeping and crop farming. Livestock is used to measure wealth and prestige and is the fulcrum of community life.

The communities carry out nomadic pastoralism and move from place to place in search of water and pasture. These lead to conflicts over land and water resources. Due to increased land fragmentation and water and pasture scarcity there are increased incidents of conflict during the dry seasons. The ODI study referred to in 6.2.1 above discusses the conflict for resources occasioned by fight for water due to water and pasture. It is recommended that water points be differentiated between communities to mitigate conflict. Any proposed boreholes in the project should be cognizant of these. Water points also need to be planned with communities to avoid disrupting dry and wet season grazing patterns.

5.9.3 The main livestock types

Livestock rearing is the main economic activity in the region. The main cattle breed kept is the Boran. Goats and sheep are also reared, with the main breeds being galla and black headed Persian respectively. Camel husbandry is also prominent as an economic and cultural activity. Fishing is carried out in Garissa County along River Tana and in fish ponds. There are five fish ponds with a total area of 1,200m2. The main types of fish are mudfish, catfish, bonefish, tilapia and eel. There are 6 landing beaches along River Tana in Garissa County. The main animal products are meat, milk, fat, skins and hides.

In Wajir, the main economic activity in the project area is livestock rearing; the area is a leading producer of livestock products in the country. The main animals reared include cattle, camel and goats. Livestock keeping is the mainstay of Wajir's economy. The major livestock breeds in the project area are cattle (Borana and dairy crosses), sheep (black head Persian), goats (Galla and Totenberg) and camel (dromedary). The livestock farmers practice nomadic pastoralism.

The main livestock cattle breeds are Zebu and Boran which are drought resistance breeds mainly for beef production. Goat breeds include the Galla (main), the Small East African and Saanen. A few farmers also keep dairy breeds and many crosses of local and exotic breeds. The Black Head Persian breed is

the dominant sheep breed in the project area. The major breeds of camels found in the county are the Somali, the Turkana and the Rendille. The market for the county's livestock is mainly in Nairobi and other neighboring counties.

Table 5.21: Types and number of animals kept

Type	Number
Camel	484,800
Cattle	780,000
Goats	1,352,000
Sheep	520,000
Donkeys	240,000
Poultry	249,600

Source: KNBS Statistical Abstract 2014

Table 5.22: Number, quantity and value of animals slaughtered

Type	Number of animals	Quantity slaughtered	Value
Cattle	1050	136.5	54.60
Camel	6050	1512.5	605.00
Goats	115000	1380.0	552.00
Sheep	115000	1380.0	552.00

Source: KNBS Statistical Abstract 2014

Table 5.23: Quantity and value of milk produced by type of animals

	Garissa		Isiolo	
Type	**Quantity**	**Value**	**Quantity**	**Value**
Camel	436.3	15,271.00	-	245,592,000
Cattle	27.9	819.30	-	252,792,000
Goats	8.3	256.90	-	-

Source: KNBS Statistical Abstract 2014

Table 5.24: Hides and Skin

	Garissa		Isiolo		Wajir	
Species	**Value (kg**	**Value**	**Quantity**	**Value**		
Camel	968,000	96,800,000	2,008	444,758		
Cattle	5,250	525,000	4,658	1,198,265	2,596	213,500
Goats	115,000	10,450,000	19,561	1,451,185	70,417	8,928,430
Sheep	115,000	9,200,000	18,134	1,016,601	56,892	7,400,640
Total		**116,975,000**				

Source: KNBS Statistical Abstract 2014

Table 5.25: Quantity and value of fish (Garissa)

Fish	Quantity (kg)	Value (KSh)
Fresh water fish	31,275	582,100

5.9.4 Main crops grown

The main crops grown are watermelons, mangoes, vegetables, tomatoes, pawpaw, bananas, cowpeas, simsim, maize, beans and green grams. Most of the crops are grown under irrigation near major water supply units.

Table 5.26: Crops grown

	Crop	Hactares	Production (tonnes)	Value (KSh)
Garissa	Maize	245	201.0	4,022,000
	Greengrams	105	60.0	2,300,000
	Sorghum	35	9.0	171,000
	Rice	30	34.0	2,720,000
	Cowpeas	85	53.0	1,590,000
	Bananas	875	11,818.0	184,960,000
	Mangoes	564	10,752.0	114,200,000
	Pawpaw	104	891.0	13,075,000
	Watermelon	145	1741.0	33,990,000
	Tomatoes	280	1659.0	35,050,000
	Capsicum	59	409.0	17,100,000
	Onion	88	721.0	35,700,000
Isiolo	Maize	750	2.25	66,512
	Beans	690	1.61	30,912
	Sorghum,	305	1.75	56,875
	Greengrams		0.3	3,000
Wajir	Maize	170	29.3	731,250
	Sorghum	325	36.0	600,000
	Millet	20	9.3	154,500

Source: KNBS Statistical Abstract 2014.

Apart from these crops, the following crops are also grown under irrigation in Isiolo county: tomatoes, onions, cabbages, kales, spinach, carrots, bananas, pawpaw, melons, brinjals, sweet pepper, French beans, butter nuts, kerella, capsicum, ravaya, aubergines, chillies, okra and baby corn.

5.9.5 Annual retail market prices

Table 5.27: Prices of farm produce

Commodity	Price per Kg		
	Garissa	Isiolo	Wajir
Dry maize	50	40	50
Dry beans	80	80	90

Commodity	Price per Kg		
	Garissa	Isiolo	Wajir
Potatoes	40	40	50
Tomatoes	30	45	92
Cabbages	50	40	99
Mango	70	-	-
Sorghum	80	40	-
Sukuma wiki	40	20	90

5.10 MINING

There are minimal mining activities in the county, although there are traces of gypsum which are yet to be exploited. Quarrying activities are however carried out in various places in the region.

5.11 TOURISM

There are is a wide variety of wildlife species in the region including lions, giraffes, zebras, elephants, cheetah, leopards, hippopotamus, crocodiles, hartebeests, Thompson gazelle, gerenuk jackals, hyena, buffaloes, topi and hirola. There are a number of tourist hotels in the region, with a few of them being three star. These, with the rich Somali culture and the region's proximity to the coast indicate the potential for tourism development in the county. There is also a museum in Wajir, the Wagalla massacre site, wells and old pre-colonial structures.

5.12 TRADE AND INDUSTRY

5.12.1 Trade

The main type of business carried out in the region is retail trade with 3,000 registered retail traders, followed by wholesale trade with 36 registered traders and hotels with 30 registered traders.

Table 5.28: Business units

Category	Quantity		
	Garissa	Isiolo	Wajir
Trading centres	7	41	5
Licensed retail traders	2,412	84	500
Mini markets	4		
Supermarkets	1		
Licensed wholesalers	17	9	12
Licensed hawkers	0		
Registered hotels	0	15	15
Commuter bus service companies	7		
Construction companies	95		
Banks	12	7	7
Bakery	1	1	1

Category	Quantity		
	Garissa	**Isiolo**	**Wajir**
Driving school	1		
Hardware store	8		
Petrol stations	6		
Licensed liquor outlets	4		
Informal enterprises	111		
Other licensed businesses	130		

Source: KNBS County Abstract, 2014.

5.12.2 Industry

Industry is poorly developed in the region. The Garissa county had only one industry, Maua Milling. However, the industry has been closed down due to the current insecurity problems facing the county.

In Wajir, there are small scale industries in lime production, gums & resins, juice production and hides & skins tannery. Currently the county has two bakeries, 11 jua kali associations and 1,200 jua kali artisans. The gum and resin factory was built in Wajir East Constituency by Ewaso Nyiro North Development Authority (ENNDA) although it is yet to be operationalized. The county has large potential in lime production which is yet to be explored. Livestock farming can also be done on large scale hence the need to establish a milk and meat processing plant. Livestock production and value addition can be increased with the participation of county governments and third party players as well as entrepreneurs.

The main hindrance to industrial development is the lack of electricity in trading centres. Less than 50% of trading centres have any electricity at all. Only Modogashe and Habaswein have fairly consistent electricity. Nomadic pastoralism also discourages industry development as the residents do not settle permanently on one place; and leverage cannot be taken out of land for loans or as a factor of industrial production.

5.12.3 Employment

The region has an absolute poverty of 60 percent, with the urban poor being 55 percent and the rural poor being 64 percent. The residents have a per-capita income of less than KSh. 9000.

The greatest source of employment is livestock keeping. Other sources of employment include mining, tourism hotels, transport sector in town, government jobs, in processing and trading. However, there is a great proportion of unemployed labour force in the region, averaging 40 percent in all the three counties. For example the unemployment rate in the Garissa County stands at 28.4 per cent. It is therefore imperative that the county invests more in activities that will create employment for the un-employed. The rate of unemployment in Wajir county on the other hand is 63 per cent. The causes of unemployment are cyclic droughts, insecurity, high illiteracy and inefficient marketing systems for county products.

An average of 60 percent of the population lives below poverty line (KNBS Abstract, 2014). This is attributed to the high unemployment of labour force and low skill level. The communal ownership of land, limiting ability of residents to borrow loans and develop properties. Pastoralism is the main employment opportunity and it depends on communal land. Other obstacles such as Lack of

alternatives due to low skill base, limited extension services for the livestock services, inadequate markets, insecurity and historical exclusion do exist.

Development of the road will create a lot of employment opportunities that will help alleviate the poverty level. Provided that security improves, investment increases and the skill base follow the road.

Major source of employment opportunities are the government, Non-Governmental Organizations, donor agencies and business agencies. Three percent of the county population is self-employed, with 2 percent living in urban centres. Most of them are engaged in milk vending enterprises, jua kali, hawking and livestock trade.

5.13 GROUPS AND ASSOCIATIONS

The region has 819 active women groups, 1278 active youth groups, 395 active CBOs and 50 farmers groups. The groups undertake various economic activities within the region and source for funding from government institutions and Non-Governmental Organizations. Notable are the farmers groups that own land along River Tana and carry out intensive farming under irrigation.

5.14 HEALTH

According to KNBS (2014), the region has a total of 37 hospitals with a great proportion being public. There are 62 health centres 153 dispensaries and 111 clinics distributed across the three counties. However, most of the facilities are found in urban centres, with the average distance to the nearest health facility being 30- 35km. The doctor: population ratio is 1:41,538, and nurse: population ratio being 1: 2,453.

Table 5.29: Types of health facilities per county

Sub County	Hospitals				Health Centres				Dispensaries			Clinics
	Govt	Priv	NGO	FBO	Govt	FBO	Priv	NGO	Govt	FBO	Priv	Priv
Garissa	15	2	4	0	21	1	6	1	64	2	1	54
Wajir	8	5	0	0	28	0	0	0	50	2	0	54
Isiolo	2	1	0	1	4	1	0	0	19	8	3	3

Source: KNBS County Statistical Abstract

There is a high morbidity rate of over 15 percent, and a high fertility rate of 6 %. Life expectancy in the region is between 55-65years. The main causes of death in the region are shown in the table below:

Table 5.30: Top ailments that cause deaths

Cause	Garissa	Isiolo	Wajir	Total	Percent
Malaria	748	4,540	1,488	6,776	5.22
Typhoid	184	236	449	869	0.71
Anaemia	118	440	943	1,501	1.11
Pneumonia	115	2,856	12,707	15,678	12.02
Upper Respiratory Diseases	98	34,409	71,519	106,026	80.91
Tuberculosis	88	10	19	117	0.01
Diabetes	78	2	46	126	0.01
Cancer	42	-		42	0.01
Total	**1,471**	**42,493**	**87,171**	**131,135**	

Source: KNBS County Abstract, 2014.

Table 5.31: Hospital beds and cots

Sub County	Beds	Cots
Garissa	803	71
Isiolo	263	50
Wajir	323	16

Source: KNBS County Abstract, 2014.

HIV and AIDS infection is at 1percent, with 10 percent of the population having a comprehensive knowledge on HIV prevention.

Most hospitals in Garissa County are powered by solar energy while 40 health centres are connected in Isiolo County.

The prevalence of underweight cases among the children in the county is at 26.8 percent and that of wasting cases is at 8.8 percent. Prevalence of stunting is at 38.6 percent. These are attributed to the prevalence of food insecurity in the region. Immunization coverage in Garissa County is at over 60 percent.

Garissa County has very low contraceptive acceptance rate of 4 percent, being attributed to cultural and religious practices.

5.15 ISSUES RELATED TO GENDER, POVERTY AND VULNERABLE GROUPS

Of particular interest is the role and place of women in the community. Majority of the women, due to the cultural and religious reservation, do not take active role in the socio economy.

The project road traverses both an urban areas of Habaswein and Modogashe and rural semi-arid settlements all the way to Samatar. According to the respective CIDP's the counties located in Arid and Semi-Arid Lands (ASALS) have high Gender Inequality Indices. Men generally have better opportunities than women.

In addition, there are certain groups which are more likely to experience poverty. These vulnerable groups include children living in poor households, the disabled and the youth. Improving equity in gender issues and reducing gender disparities will benefit all sectors and thus contribute to sustainable economic growth, poverty reduction and social injustices in the development processes. Legal provisions including the Constitution (2010) have been put in place that empowers women to participate in various development activities as a right. Issues of gender are discussed in a separate Report chapter elsewhere in this report in greater detail covering the various dimensions including focus group discussions.

5.16 RELIGION

Over 90% of the populations in the project area are Muslims. The rest are Christians who migrated to the area under employment by the government or International Non-Governmental Organizations. Small segments of the Christian population carry out trading activities within Isiolo and Wajir town.

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6. PUBLIC PARTICIPATION

6.1 INTRODUCTION

Stakeholder Engagement and public participation process particularly with local citizens affected by development proposals, is construed as integral in successful decision making in the ESIA. Stakeholder Engagement and Public Participation is also necessary for Category B projects as stipulated by World Bank Safeguards Policies and Procedures. It is an important process through which stakeholders including beneficiaries and members of public living in project areas (both public and private), are given an opportunity to contribute to the overall project design by making recommendations and raising concerns projects before they are implemented. In addition, the process creates a sense of responsibility, commitment and local ownership for smooth implementation.

This chapter describes the process of public consultation and participation that was followed to identify the key issues and impacts of the proposed project. Views from the residents, local leaders, surrounding institutions and development partners for the proposed upgrade of the Modogashe-Samatar road, who in one way or another would be affected or have interest in the proposed project was sought through interviews and public meetings as stipulated in the Environment Management and Coordination Act, 1999 and its amendment Act 2015 and WB Safeguards Policies that require Stakeholder Consultation with the PAPs and the NGOs/CSOs and other relevant stakeholders for Category B projectsStakeholder involvement and Public consultation workshops about the proposed Modogashe-Samatar road were carried out in the towns of Modogashe I (Lagdera), Modogashe II (Sericho), and Habaswein. Focus Group Discussions were carried out at Skanska, Kanjara and Guticha. Key concerns of stakeholders along the road corridor were captured and recorded. The Stakeholder Engagements were done to foster better mutual understanding, address concerns and incorporate opinions to this report.

This chapter describes the process of public consultation and participation that was followed in identifying the key issues and impacts of the proposed project.

6.2 CONSULTATION AND PUBLIC PARTICIPATION

The general objectives of the consultation and public participation were to:

a) Disseminate and inform the stakeholders about the project with special reference to its key components and location.

b) Create awareness among the public on the need for the ESIA for the proposed project.

c) Gather comments, suggestions and concerns of the interested and affected parties.

d) Incorporate the information collected in the ESIA study.

e) Establishment of Communication channels between stakeholders

6.3 STAKEHOLDER MANAGEMENT PLAN

A stakeholder analysis and preparation of a stakeholder management plan was done, and this led to a comprehensive inclusion and consultation of all stakeholders throughout the ESIA process. This was done to ensure a transparent and participatory approach and framework through dissemination of information regarding the proposed interventions, reception of feedback from stakeholders about the potential impacts, concerns and recommendations on new findings, or further improvements that can be included in the project.

The SMP ensures that all stakeholders are effectively involved in project decisions and execution throughout the project cycle, to gain support for the project and to be able to anticipate any resistance, conflict, or competing objectives among the project's stakeholders.

The Stakeholder Management Plan included:

1. Stakeholder identification – stakeholders were identified by names and titles. These included the people, groups, and organizations that have significant influence on project direction and its success or who are significantly impacted by the project.
2. Stakeholder Management planning– strategies and mechanisms that would be used to achieve the greatest support of the stakeholders and to minimize any potential resistance were identified and incorporated during the consultations.
3. Stakeholder engagement management – this outlined the processes and steps that would be undertaken to carry out the planned strategies.
4. Stakeholder engagement control – described the methods that would be used to monitor stakeholder engagement and alert the project team if problems surfaced.

6.4 STAKEHOLDER IDENTIFICATION (SCREENING)

An all-inclusive stakeholder identification and screening was done. This was necessary to ensure that communities' sensitization exercise was established in a bid to obtain the goodwill and a 'buy in' from the members and leaders across the community.

Stakeholder groups identified were in two categories: -

- Primary stakeholders- directly or indirectly affected by a project.
- Secondary stakeholders - indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively.

Primary Stakeholder Groups included: -

- Government officials – Representatives from the Ministry of Interior and co-ordination of government, Heads of Departments of the various other ministries whose functions are not devolved such as Education, Youth
- Impacted neighboring communities -women, elders and youth, religious groups, transporters such as bus companies, Boda-boda operators etc. affected through components of the natural or social environment because of various aspects of the project
- Employees and managers - County government representatives, Traffic Police division, business communities, Teachers,
- NGO's and conservation organizations – local NGO's and CBO representatives.

6.5 STAKEHOLDER MANAGEMENT PLANNING

Community Sensitization: Community sensitization was done prior to the main exercise of stakeholder engagement. Due to logistical constraints, the project proponent together with the sociologist worked together in the mobilization and sensitization of the community leaders and their residents on the upcoming activities towards the project study and public participation.

Stakeholder Register: The registers were well documented and enlisted all the participants by name and title, their influence and impact on the project. The core

stakeholders comprised people who would be directly served by the road project and further included residents along the road corridor, motorists, businessmen and service providers who rely on the road, etc.

Mobilization: Regional Mobilization for Stakeholder Workshops was done two weeks prior to the main exercise. This involved:

i. Preparation of Guests' Contacts,

ii. Communication by phone calls,

iii. Distribution of Invitation Letters,

iv. Identification of Venue and booking,

v. Preparation of workshop budget etc.

Key Informant Interviews (KII's): Some of the key stakeholders comprised of GoK officers in charge of diverse sectors, which are likely to be impacted by the road project. This category was also consulted as key informants on sectoral policy. They would also advise this ESIA study on mitigation measures to be put in place to minimize the adverse impacts in respective sectors.

Public Barazas: They included public fora with community leaders, representatives and members from all major and minority groups in the project area. The contributions made will determine the best interests of the community for the overall success of the project.

Focus group discussions: These were carried out at every survey location along the project road. These comprised a total of six FGDs for the ESIA study. The discussions had a minimum of 12 and a maximum of 20 participants per location. The groups were adequately representative to ensure that all communities and minority groups were included. A deliberate reach out was made to Youth and Women. The latter is especially important for the Gender Assessment and Action Plan.

FGD questionnaires: The ESIA phase utilized a guideline provided in a questionnaire format of open ended questions and coded answers. These questions were set as a guideline in capturing fundamental discussions from the focus groups.

6.6 STAKEHOLDER INVOLVEMENT PROCESS

i. Phone/Email

This was the first contact destination employed to unlock communication and engagement with the persons affected by the project at the grassroots. The first point of call was at the deputy County Commissioner's Office for respective sub-counties from which information concerning the administration units in the area was obtained as well as contacts for the unit representatives. From this point, the Consultant proceeded to consult with the unit representatives – the area chiefs – concerning organization of stakeholder engagement procedures, either through social-economic surveys, key informant interviews, or public meetings.

ii. The Socio-Economic Surveys

Socio-economic surveys on a representative sample of project affected persons along the road were carried out. This made use of local research assistants who would identify well with communities and the various sample households. The data from the questionnaires was then analyzed for qualitative and quantitative data.

iii. Stakeholder Consultation Process

For projects that have social impacts such as the one proposed, consultations were not a single conversation but a series of opportunities that would create a comprehensive understanding of the project among those likely to be affected or interested, and to learn how these external parties view the project and its attendant risks, impacts, opportunities, and mitigation measures.

Public participation included the promise that the public's contribution will influence the decision. The detailed Stakeholder Consultation covered the following: -

- Key Informant Interviews (KII) with County Officials and Heads of departments of various Government ministries e.g. Ministry of Interior and co-ordination
- Second Level Public Consultation forums– these forums were held in locations agreed on with the Client and in consultation with the stakeholders. Local leadership was largely relied upon to mobilize the participants. These locations were; Modogashe (Lagdera), Modogashe (Sericho), Skanska, Habaswein, Kanjara, and Guticha.

iv. Key Informant Interviews (KII)

Objectives: The main objective of these interviews was to disseminate information about the road to county officials and representatives of various lead agencies. The interviews were also carried out to get feedback on any improvements and mitigation measures to ensure improved project construction and operation.

6.7 PUBLIC CONSULTATIONS

Public Consultations were organized through the county administration and chief's offices whose mandate is interior and coordination relevant to the central government. The invitations covered the broad spectrum of community members likely to be affected by the project within the roads corridor of influence.

These included: -

- Heads of Departments for the various government ministries
- Village Elders
- Youth
- CBO's
- The Vulnerable- female headed households
- Women
- Churches
- PWD
- County officers

The Focus Group Discussions were directed group engagements at a Central point to appreciate the roads, comment on them and discuss impacts as well comments on encroachments.

Participation

Project information was presented in Kiswahili and Borana and/or Somali since most of the stakeholders understood both. The Consultant organized the public hearings, presented the technical details of the planned project describing the social, economic and cultural status of the project area. The project proponent representative also gave a clear guidance of KeNHA roads to ensure that the communities' understood their mandate. The forums also were addressed by the project environmentalist who was present in all the meetings. Their views were sought, and furnished with the requisite replies/information to the questions/ issues that arose during the hearing and kept records of these meetings.

6.8 METHODOLOGY USED IN STAKEHOLDER ENGAGEMENT AND PUBLIC PARTICIPATION

A series of consultations were carried out in all the five towns along the road project in October 2nd – 8th 2017. The summary of deliberations is attached as well as minutes and attendance in Annex 1.

The participants included:

i. Sub County administrators
ii. Chiefs and Sub-chiefs
iii. Community leaders (from all locations to be studied)
iv. Livestock farmers' representative
v. Businessmen representative
vi. Transport groups' representative
vii. A woman representative
viii. Indigenous and other vulnerable groups representatives
ix. Representatives from various government Institutions as:
    - Kenya National Highways Authority
    - Ministry of Health
    - Water Resources and Management Authority
    - Kenya Wildlife Service
    - Kenya Power and Lighting Corporation
    - Ministry of Lands
    - Ministry of Education, Youth and Social Welfare
    - Ministry of Transport, Roads, Public Works and Housing
    - National Environmental and Management Authority
    - Kenya Forest Service, etc.

In-depth interviews were used as a tool for stakeholder identification and mobilization as well as collection of baseline data and information. In addition, it provided an opportunity to the participants to raise their concerns about the proposed project and make recommendations on how negative impacts can be minimized. Furthermore, questionnaires were also issued to these groups to gain much more information concerning the project and its impact on the environment.

The stakeholders who will be affected or have interest in the proposed Modogashe - Samatar road includes the County Governments and National Government, Coordinators, civil society, CBOs, farmers, land owners and traders along the road corridor. In addition, the following stakeholders were also considered:

- Local community representatives (Local political and community leaders)
- Local community members along the propose way leave.
- Business operators – Hotel owners, shop owners, bus owners among others.
- Truck drivers, bus and taxi drivers turn boys, mechanics.

From the public participation, it was apparent that majority of the members of the public were not aware of the proposed project since no public meeting had been held prior to the public participation. The consultant therefore presented the details of the project to the stakeholders.

The project was received with mixed reactions by the members of the public as they anticipated numerous impacts, both negative and positive. The local communities and major stakeholders independently expressed their views on the project. The summary of the number of participants at public/ community interviews for the project are listed below (Table 6.1).

Table 6.1: Summary of number of participants at Public consultation meetings

	Venues	Participants	
PUBLIC FORUMS/FGD			**Women**
1.	Modogashe I (Lagdera)	172	42
2.	Modogashe II (Sericho)	150	56
3.	Habaswein	100	43
4.	Skanska	150	60
5.	Kanjara	150	68
6.	Guticha	50	22
Household Surveys/KII			
1.	Modogashe I (Lagdera)	10	5
2.	Modogashe II (Sericho)	12	6
3.	Habaswein	13	5
4.	Skanska	7	3
5.	Kanjara	12	6
6.	Guticha	7	2
Public Forums/FGD			
1.	Modogashe I (Lagdera)	172	
2.	Modogashe II (Sericho)	150	
3.	Habaswein	100	
4.	Skanska	150	
5.	Kanjara	150	
6.	Guticha	50	
Household Surveys/KII			
1.	Modogashe I (Lagdera)	10	
2.	Modogashe II (Sericho)	12	
3.	Habaswein	13	
4.	Skanska	7	
5.	Kanjara	12	
6.	Guticha	7	

Questionnaire interviews

Members of the public working, residing and those owning business properties along Modogashe-Samatar road were interviewed using a tailored questionnaire. The exercise was conducted by experienced experts via interviews and discussions using questionnaires designed in such a way that the stakeholder's concerns, comments and issues were be comprehensively captured. The

completion of the questionnaires subsequently allowed for the synthesis and analysis of issues that arose and which will provide the basis upon which the social aspects of the ESIA was undertaken. The purpose of carrying out the interviews was to identify the positive and negative social impacts of the project. Interviews also assisted in the identification of miscellaneous issues that if overlooked may introduce conflicts that may hinder the implementation of the project.

Focus Group Discussions

Various groups from different towns/locations along the road project were mobilized into small focus group discussions so that their views can be collectively identified.

- **Emerging Issues**

The highlight of main issues of concern raised by stakeholders in these meetings that could improve on this ESIA's relevance, help to identify real and perceived issues, and probably reduce overall project cost are as follows:-

Summary of Recommendations made by the Public:

The following suggestions were made during the public consultations and house-to-house interviews:

- The welfare and comfort of the community and neighbors should be considered seriously by the contractor and the proponent
- The proponent should consider employing locals as casuals during construction and operation activities.
- Work Campsites should be built closer to established villages so that the community benefits from services like water and clinics that will be available. This will also discourage the mushrooming of new villages.
- The environment and health of the public should be protected from degradation.
- Schools for children, clinics, boreholes and water pans should be constructed for the communities or as part of Corporate Social Responsibility (CSR).
- Pedestrian crossing points should be provided to enable convenient accessibility to either side of the road at strategic points. The design of the proposed road should have strategic underpasses at intervals where the animals and humans (including school children, pedestrians) can easily find them and access either side of the road. Foot bridges, underpasses were deemed to be necessary around the settlements and the wildlife catchment.
- The proponent should ensure fair compensation of all displaced persons regardless of their position on the road reserve. This was especially important because most people on the road reserve have no titles.
- The proponent should involve KWS Scientists and Engineers and other key stakeholders at all stages of the project including design stage to ensure that the impacts to the protected and other wildlife areas are minimal.
- The proponent should ensure that all the stakeholders (including KWS, Water, Roads), are involved especially from the design stage of the proposed road to ensure that other infrastructures are considered to minimize disruption. This can be done to ensure integrated planning of infrastructure.
- To avoid flooding during rainy seasons the road should be raised and big box culverts should be constructed in flood prone areas.

- Security of the wildlife should be ensured to protect them from poaching especially during the construction period as many people are expected to move to the area to work on construction of the road
- The Mosques along the road corridor should not be interfered with during the construction.
- Where possible and necessary the developer should install speed bumps and rumble-strips for example in towns, near schools etc. Other structures also should include: bus stops in all the villages along which the road traverses.
- KENHA should come up with a proper drainage design along the road and in major towns.
- Graveyards that are along the road reserve should be not be interfered with whatsoever. The design of the road can be made in such a way as to circumvent the graveyards if possible.
- Women should be considered for office jobs and all other available jobs during construction.
- Public consultation should be continuous throughout the project.
- Every settlement area and towns should have bumps on the roads to check vehicle speeds.
- The road at Modogashe is the boundary of Garissa (Lagdera) and Isiolo (Garbatula) where there is a long standing conflict on the location of the boundary
- It was said that most of the roads in the area emerged due to people settling in the place and they did not have any signs to show where the road network had been reserved. They therefore recommended that compensation should be done to all persons affected whether on the road reserve or not.
- Trees should be planted in every place where there is a settlement and water should be provided for their nurturing. There will be no need to plant trees and then left to die due to lack of water.
- It was largely noted that the ROW is still intact for the most part. Some people in the settlements however felt that the ROW should be clarified since it was not made clear to them when they settled
- **Other Key Issues were:**
  - A Comprehensive RAP is anticipated by the communities
  - Employment – The stakeholders wanted to be given priority when it came to job opportunities during the construction of the road.
  - Clarification of the road reserve. The Participants didn't have clarity on the extent of the road reserve.
  - Further and continuous consultation was requested before, during and after the project was started
  - Road Safety – Stakeholders expressed concern for safety of pedestrians during the Construction and operation of the Road. The stakeholders proposed zebra crossings, flyovers and humps to avoid human vehicle accidents.

- Compensation – Stakeholders expressed concerns over compensation for those that did not have land ownership documents. Land is mainly communal and held in trust by the county Government.
- Additional Roads and Markets – the Stakeholders raised concerns about being left out in the provision of additional roads and markets.
- Road Safety – Stakeholders expressed concern for safety of pedestrians in particular school children and the disabled in society during the Construction and operation of the roads. Sensitizations and signage were proposed. A special road safety program was suggested.
- HIV/AIDS spread – The Stakeholders raised great concern about the risk of HIV/AIDS and unwanted pregnancies that would result from immigrant workers during the construction of the road. They wanted to know if any safeguards were in place to reduce the risks of the epidemic such as trainings, VCT services, etc.
- Employment – The Stakeholders wanted to be given priority when it came to employment opportunities during the construction of the road.
- Environmental Impacts – The stakeholders wanted to know what would be done to mitigate environmental impacts such as soil erosion and increased effluent from the road reserve.
- Road Design – The Stakeholders wanted to know if camels and bodabodas had been taken into account during the design. They suggested having a special lane for motorcycles in order to reduce the rate of accidents in the area.
- Respect for Culture and Islam by the in migrating laborers was stressed
- Protection of Wildlife in Lorian was emphasized
- There was concern for possible competition for resources such as water and food

6.8.1 Social Amenities Requested in the Project

During the public consultations, the communities expressed ardent support for the project. In all the venues, there was excitement that the project was being actualized. There were requests for social amenities to be set up as part of the project. The debates in the public for a were not conclusive. There was a request by the County Governments of Both Garissa ,Isiolo and Wajir that they be consulted further to avoid duplication . Some of the projects proposed are already planned by the governments.

It was apparent from the consultations that the biggest needs of the communities revolved around water, irrigation, education, health and livestock farming. Boreholes, Waterpans, Abbatoirs, Livestock Markets, Upgrading of Schools and Health Centers and Access to Government Offices were recurrent requests across the five study sites at which public consultation was carried out. The indicative list is annexed to this report (Annex 3). There will be a needs assessment analysis running in tandem with the ESIA preparation which will properly ventilate these proposals and arrive at the appropriate social amenities,

Consequently, before the final version of this report, these consultations will have been completed and the final amenities to be included in the project agreed upon.

6.9 THE MODOGASHE CHALLENGE

6.9.1 Background

Modogashe Township bestrides two Counties (Garisa and Isiolo) and is inhabited by two prominent communities- the Somali and the Borana. It is the divisional headquarters of Lagdera (Garisa) and Sericho (Isiolo) Divisions. The road traverses the middle of the town. It would seem that the road traversing the town is a source of conflict between the Somalis and Boranas.

A successful community consultation forum was held on 2nd of October 2017 at Lagdera Sub County of Garisa County. The meeting comprised mainly members of the Somali Community and fully welcomed the project. They took active part in the deliberations and expressed intention to fully participate in the project. The meeting in Lagdera was thus successful as it was attended by close to 200 people.

Since Modogashe is one town, It was initially planned to hold a joint meeting for both Lagdera and Sericho Divisions but on the morning of 2nd October 2017, the Assistant County Commissioner, Sericho requested that the meeting be deferred to another date and that a separate meeting be held for Isiolo County. It was agreed to hold another meeting on Thursday and Friday of the same week on the Sericho side of Modogashe Town.

The meeting for Isiolo side took place on 5th October 2017. The community had demanded that only government officials from Isiolo be involved. The expressly asked that Garissa KeNHA does not take part. The Regional Manager of KeNHA in Isiolo thus sent representation to the meeting which was chaired by the Assistant County Commissioner, Sericho Division.

6.9.2 Deliberations in the meeting

The meeting was attended by a broad representation of the community among them being the community Sheikhs, Elders, Women groups, Youth representatives, Persons with disability, Civil Society Actors, The National and County Government Officials.

From the start, the community expressed support for the project and listed the benefits and negative impacts as they saw them. These mirrored the impacts listed earlier from other venues.

However, they declared nonsupport of the road proceeding through the present alignment within Modogashe town. They said that there was an earlier route which the road followed and which should be reverted to. The alleged that the present route was imposed on them by the leadership of the neighboring community to create a new boundary taking away their land. According the community elders present, the boundary dispute has been simmering for over 30 years and has been the cause of violent confrontation between them and their neighbors. They alleged that previous leaders of their neighbors had used their proximity to the national government to move the boundary.

They alleged political and economic marginalization by the government in Isiolo and Nairobi which they believe favored their neighbors at their expense. KeNHA representative from Isiolo attempted to explain the rationale for the road's present alignment but they vehemently opposed the explanation.

To move the process forward they demanded as follows:

- That the original road be reverted to. They went ahead to show KeNHA and the Consultant where the road followed.
- They demanded that the Governor Isiolo, The County Commissioner, and all political leaders i.e. Member of Parliament for Isiolo South, The Member

of County Assembly for town Ward, The Woman Representative, The Chiefs affected, and Community Elders be invited to one meeting to resolve the matter. They declared that only then would the project proceed.

- They also demanded greater participation by the County Government in all decisions.
- They alleged existence of a road map within KeNHA which contained the original alignment of the road to be followed.
- They demanded that all survey work stops until the proper road had been agreed upon. In the alternative, they agreed that survey work can proceed on the old road.

6.9.3 Way forward

In the circumstance, the meeting was brought to a close without community consenting to design and survey work to be completed. It was resolved to consult with the client to take up the issues and provide access for design work to proceed. The road section affected is about one kilometer covering the entire Habaswein CBD.

The Assistant County Commissioner and other security leaders urged the community to keep the peace as the matter was being pursued. KeNHA representatives undertook to follow up the matter and urged peace.

A meeting was proposed for a later date in Isiolo for Modogashe leaders alone to try and resolve the boundary issue and clear the path for the project to proceed.

6.9.4 Post script

Further to the meeting, the survey team attempted to map out the “old road” as proposed in the meeting. Towards the end, they met resistance from the Somalis who insisted that the current road be followed.

The meeting proposed for Modogashe leaders is still outstanding and the client may have to engage them directly to clear access for the road to be designed and ultimately built. At present, survey works have not been carried out within Modogashe Town.

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7. LEGAL, INSTITUTIONAL AND POLICY FRAMEWORK

7.1 INTRODUCTION

The objective of the review of the policy legal and regulatory framework is to ensure that the development is sustainable and does not compromise the future generations by destruction of the natural resources. It will also ensure that the relevant authorities are consulted to facilitate provision of information to ensure that the project development runs smoothly.

7.2 CONSTITUTION OF KENYA

The constitution provides for Environmental rights and freedoms which are presented in Chapter 5 Article 42 of the new Constitution. It states that: 'every person has the 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 legislative and other measures, particularly those contemplated in Article 69; and to have obligations relating to the environment fulfilled under Article 70.11.'

In fulfilment of this supreme requirement, it is expected that during the construction of the Modogashe – Samatar road, utmost care would be taken to protect the environment from unnecessary degradation that could be attributed directly to the roadworks. The same measures would also apply during its operation.

7.3 LEGAL FRAMEWORK

7.3.1 Environment Management & Coordination Act, (EMCA) 1999, Amendment, 2015 (CAP 387)

Part II of the Environment Management & Coordination Act, 1999 states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. Part V of the regulation gives provisions for the provisions for the protection and conservation of the environment. To partly ensure this is achieved, Part VI of the Act directs that any new programme, activity or operation should undergo environmental impact assessment (EIA) and a report prepared for submission to the National Environmental Management Authority (NEMA) who, in turn, may issue a license as appropriate. Part VII of the act also provides for Environmental Audit to assess how the activities of the establishment conform to the provisions in the Environmental Impact Assessment. Part VIII on Environmental Quality Standards outlines the provisions for the establishment of a Standards and Enforcement committee which shall in consultation with relevant lead agencies ensure compliance to outlined environmental standards. Part IX of the Act provides for Environmental restoration and conservation orders and environmental easements where the authority gives provisions for issuance of the orders and the contents of the orders. Part XIII also provides for handling of environmental offences. The act also operates in tandem with the regulations provided for in Part XIV of the Act.

The Act also provides for the establishment of appropriate legal and institutional framework for the management of the environment.

This Environmental Social Impact Assessment report has been prepared in compliance with this Act.

7.3.1.1 Environmental (Impact Assessment and Audit) Regulations, 2003 (Revised 2016)

These regulations are made under section 147 of the EMCA, 1999 (Amended 2015), and contain rules relative to content and procedures of an EIA in the sense of section 58 of the Act. They also contain rules relative to environmental impact audit (EA) and monitoring and strategic environmental assessment (SEA) and regulate some other matters such as appeal and registration of information regarding environmental impact assessment.

It states in Regulation 3 that "These Regulations shall apply to all policies, plans, programmes, projects and activities specified in Part IV, Part V and the Second Schedule of the Act.

Road construction is classified as a high-risk project in the second schedule of the regulation and will therefore undergo an ESIA prior to its commencement.

7.3.1.2 Environmental Management and Coordination (Conservation of Biological Diversity-BD) Regulations 2006

Part II of the Regulations provides for the conservation of biological diversity through the requirement of an environmental impact assessment for persons who engage in activities that may potentially have an adverse impact on the environment, propose to introduce exotic species in Kenya or unsustainable use of natural resources. These regulations apply to conservation of biodiversity which includes conservation of threatened species, inventory and monitoring of biodiversity and protection of environmentally significant areas, access to genetic resources, benefit sharing and offences and penalties.

7.3.1.3 Environmental Management and Co-ordination (Waste Management) Regulations 2006

The regulations are found under sections 92 and 147 of the EMCA, 1999 (Amended 2015). These regulations outline requirements for handling, storing, transporting and treatment/disposal of all waste categories including industrial waste, hazardous and toxic waste, pesticides and toxic substances, biomedical wastes and radioactive substances.

Construction of the road is likely to generate waste from construction process and waste generated by construction workers. The proponent and the contractor shall be obligated to ensure that proper waste management plan is generated and implemented effectively.

7.3.1.4 Environmental Management and Co-ordination (Water Quality) Regulations 2006

The regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources. The objective of the regulations is to protect human health and the environment. The regulations also provide guidelines and standards for discharge of poisons, toxins, noxious, radioactive waste or other pollutants into the aquatic environment.

The guidelines on discharge will be relevant anytime there is a discharge of effluent into the environment to ensure that the effluent meets the specified standards before discharge to the water bodies in the project area. The proponent in liaison with the contractor will ensure that the effluent is treated as per the specified guidelines before it is discharged into any of the water bodies around the project area.

7.3.1.5 Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Control Regulations, 2009

This law has given general prohibitions on excessive vibrations, and permissible noise levels. It gives provision related to noise from certain sources such as from motor vehicle, construction at night and noise, excessive vibrations from construction, demolition, mining or quarrying sites.

Table 7.1: Maximum Permissible Noise Levels for Construction Sites

(Measurement taken within the facility)

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

Time Frame

Day: 6.01 a.m. – 6.00 pm (Leq 14h)

Night: 6.01 p.m. – 6.00 a.m (Leq 14h)

The project will require reference to this section because of the machines and vehicles used in the construction phase as well as vehicles using the road in the operational phase.

7.3.1.6 Environmental Management and Co-ordination (Fossil Fuel Emission Control) Regulations 2006

These regulations are contained in the Legal Notice No. 131 of the Kenya Gazette Supplement No. 74, October 2006. They apply to all internal combustion engine emission standards, emission inspections, the power of emission inspectors, fuel catalysts, licensing to treat fuel, cost of clearing pollution and partnership to control fossil fuel emissions used by the contractor.

The fossil fuels in this context are petrol and diesel that will be used during the construction of the road. These will be combusted and emitted from the machines and construction vehicles used. Other emission sources include the vehicles that will be using the road as a result of diverted traffic.

7.3.2 Water Act Cap 372 of 2016

This is an Act of Parliament to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services. Water in Kenya is owned by the Government, subject to any right of the user, legally acquired. The control and right to use water is exercised by the Minister administering the Act, and such use can only be acquired under the provisions of the Act. The Minister is also vested with the duty to promote investigations, conserve and properly use water throughout Kenya. Water permits may be acquired for a range of purposes, including abstraction for roads construction.

The directives of this act will be relevant during abstraction and use of water from the rivers and boreholes within the project area during construction of the road. The contractor may be required to obtain a water use permit depending on the intended use, and the water source.

7.3.3 Occupational Safety and Health Act, 2007

This Act applies to all workplaces and workers associated with it; whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and non-workers. It is thus recommended that all Sections of the Act related to this project, such as provision of protective clothing, clean water, and insurance cover are observed so as to protect all from work related injuries or other health hazards.

Relevant regulations include:

The Factories (Wood Working Machinery) Rules 1959;

The Factories (Eye Protection) Rules 1978;

The Factories (Electric Power) (Special) Rules 1978;

The Factories (Building Operations and Works of Engineering Construction) Rules 1984;

The Factories and Other Places of Work (Health & Safety Committees) Rules 2004;

The Factories and Other Places of Work (Medical Examination) Rules 2005;

The Factories and Other Places of Work (Noise Prevention and Control) Rules 2005;

The Factories and Other Places of Work (Fire Risk Reduction) Rules 2007;

The Factories and Other Places of Work (Hazardous Substances) Rules 2007.

The Act together with the rules will apply directly at all work areas and to all the construction workers as appropriate.

7.3.4 Work Injury Compensation Benefits Act, 2007

This Act provides for compensation to employees for work related injuries and disease contracted in the course of their employment and for connected purposes. Key sections of the Act include the obligations of employers; right to compensation; reporting of accidents; compensation; occupational diseases; medical aid etc.

In the event that any accidents or incidents occur during the project cycle, this Act will guide the course of action to be taken. In any case the contractor is expected to have insurance for all the workers.

7.3.5 Sexual offenses Act, CAP 62, 2006

An Act of Parliament to make provision about sexual offences, their definition, prevention and the protection of all persons from harm from unlawful sexual acts, and for connected purposes.

This applies to the construction workers who may be tempted to engage in unwanted sexual acts.

7.3.6 Public Health Act CAP 242, 2012

Part IX Section 115 of the Act states that no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Any noxious matter or waste water flowing or discharged into a watercourse is deemed as a nuisance.

Section 118(c) state that any street, road or any part either street or road that is constructed if in the opinion of the medical officer of health is deemed to be offensive or to be injurious or dangerous to health then it is a nuisance liable to be dealt with in the manner provided for in the Act.

The act will be relevant since it will act as a guideline in ensuring that appropriate measures will be taken in accordance to the Act in order to safeguard the health of project workers and the general public within the project area.

7.3.7 Physical planning Act, CAP 286, 2010

Section 29 of the Act empowers the County Government to reserve and maintain all land planned for open spaces, parks, urban forests and green-belts. The same Section allows for prohibition or control of the use and development of such an area. Section 30 states that any person who carries out development without development permission will be required to restore the land to its original condition. It also states that no other licensing authority shall grant license for commercial or industrial use or occupation of any building without a development approval granted by the respective County Government.

The project passes through three counties. However, since the road is in existence and will be upgraded this act will be relevant in consultation between the physical departments of the counties of Garissa and Isiolo.

7.3.8 Traffic Act CAP 403, 2014

This Act emphasizes that motor vehicles use appropriate fuel. The Traffic Regulations in the Act specify that all the vehicles are required to be well constructed, maintained and used so as not to emit any smoke or visible vapour. This Act also 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. It also allows the Highway authority the jurisdiction to close the road while carrying out construction works.

The proposed project is essentially under the provision of this Act.

7.3.9 Public Roads and roads of Access Act, CAP 399, 2010

This is an Act of Parliament which provides legal guidance on roads of public travel and access to public roads. 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 adjacent land owners seeking permission to construct the respective roads. Public meetings should be held for purposes of public consultations and notifications before implementing a road project.

Elaborate public consultations will be required during the planning and design stages and all stages of implementation.

7.3.10 Lands Act, CAP 280, 2015

This is an act of Parliament that gives effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land based resources.

In situations where private and public land will be required for the project, then reference shall be made to the Act.

7.3.11 Community Land Act No. 27 Of 2016

This is an act of parliament which provides for the recognition, protection and registration of community land rights, its management and administration. The act also provides for the role of the county governments in relation to unregistered community land and connected purposes.

The Act is particularly relevant in regards to land acquisition for purposes of the road and associated activities.

7.3.12 Kenya Roads Act, CAP 408, 2012

This is an Act of Parliament which provides for the establishment of the Kenya National Highways Authority (KeNHA), the Kenya Urban Roads Authority (KURA) and the Kenya Rural Roads Authority (KeRRA). It also provides for the powers and functions of the authorities.

The Act legitimizes the proponent to undertake the project and to observe all provisions of relevant laws.

7.3.13 National Land Commissions Act, CAP 5D, 2012

This is an act of Parliament which makes further provisions as to the functions and powers of the National Land Commission, qualifications and procedures for appointments to the Commission. It also gives effect to the objects and principles of devolved government in land management and administration.

This act legitimizes the National lands commission to execute the functions related to land during the project implementation phase.

7.3.14 Registration of Titles Act Cap 281, 2010

This Act provides for the transfer of land by registration of titles. Parts within the Act elaborate on mechanisms of bringing land under the Act, grants, transfers and transmission of land, registration of titles, and mode and effect of registration, transfers, leases, charges, powers of Attorney, and rectification of titles, among others.

This Act will be important during the land acquisition and especially during the transfer of titles by the affected persons.

7.3.15 The Wildlife Conservation and Management Act, CAP 376, 2013

This Act provides for the protection, conservation and management of wildlife in Kenya. The Act deals with areas declared as National Parks, under the Act. The Act controls activities within the park, which may lead to the disturbance of animals. Further the Act protects wildlife outside the parks. The Act prohibits killing of wildlife for any purpose whatsoever unless authorized by the KWS.

There are wildlife species outside the protected areas within the project environment. This act will be applied in protection of the wildlife from the project induced impacts within the project area.

7.3.16 Intergovernmental Relations Act, 2012

An Act of Parliament to establish a framework for consultation and cooperation between the national and county governments and amongst county governments; to establish mechanisms for the resolution of intergovernmental disputes pursuant to Articles 6 and 189 of the Constitution.

Since the project forms a border between three counties there will be need for wide consultations between the national and county governments on the project.

7.3.17 County Government Act, No. 17 Revised 2014 (2012)

An Act of Parliament to give effect to Chapter Eleven of the Constitution; to provide for county governments' powers, functions and responsibilities to deliver services.

Consultations with the respective county governments will be needed and maintained throughout the implementation of the project.

7.3.18 Prevention, Protection and Assistance to Internally Displaced Persons and Affected Communities Act No. 56, 2012

An Act of Parliament that makes provision for the prevention, protection and provision of assistance to internally displaced persons and affected communities

and give effect to the Great Lakes Protocol on the Protection and Assistance to Internally Displaced Persons, and the United Nations Guiding Principles on Internal Displacement.

In the Act an internally displaced person means a person or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, large scale development projects, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.

Part V section 21 (1) states that Subject to the Constitution, the Government shall abstain from displacement and relocation due to development projects or projects to preserve the environment and protect persons from displacement by private actors. Section 21 (2) states that In exceptional cases, displacement and relocation due to development projects or projects to preserve the environment may be — (a) authorized and carried out in accordance with the applicable law; (b) justified by compelling and overriding public interests in the particular case; and (c) conducted when no feasible alternatives exist. Section 21 (3) states that Where displacement and relocation cannot be averted, the Government shall minimize it, mitigate its consequences and assist and protect the affected persons as provided for in sections 7 and 8 of the Act. Section 21 (4) states that where the displacement is permanent, the Government shall provide the affected persons with a durable solution as provided for in section 9 of this Act.

Section 22 outlines the procedures for displacements that are induced by development projects.

The Modogashe – Samatar road is a large development project and may result in the displacement of some people to create room for the road reserve. The provisions under this Act shall be reviewed and applied.

7.4 POLICY FRAMEWORK

7.4.1 Kenya Vision 2030

Through the social pillar Kenya aims to build a just and cohesive society in a clean, secure and sustainable environment. The economic, social and political pillars of Kenya Vision 2030 are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation (STI); land reform; human resources development; security as well as public sector reforms. The Vision 2030 aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water and sanitation facilities, and telecommunications. Vision 2030 medium plans 2 and 3 explicitly prioritise climate change resilient infrastructure including roads as part of the drought ending agenda.

7.4.2 National Environment Policy, 2013

This policy aims to protect the environment. Section 5.6 on Infrastructural Development and Environment 5.6.1 states that Infrastructural development includes among others buildings, roads, ports, railways, ICT, pipelines, irrigation systems, airports and electricity transmission. This section also emphasizes that the environment aspects of such infrastructural developments are distinct and unique such as effects on flora and fauna, social and psychological disruption, vegetation clearance, excavation works and spillages during construction. This policy states that the government will:

- Ensure Strategic Environmental Assessment (SEA), Environmental Impact Assessment, Social Impact Assessment and Public participation in the planning and approval of infrastructural projects
- Develop and implement environmentally-friendly national infrastructural development strategy and action plan
- Ensure that periodic Environmental Audits are carried out for all infrastructural projects

7.4.3 Sustainable Development Goals

The SDG goal No. 9 targets to achieve building of resilient infrastructure, promote sustainable industrialization and foster innovation. Investment in transport infrastructure is crucial in achieving sustainable development and empowering communities.

The SDG goal No. 13 targets to combat climate change and its impacts. Greenhouse gas emissions from human activities are accelerating climate change resulting in severe impacts including changing weather patterns, rising sea level and more extreme weather conditions.

The construction of the road will result in socio-economic growth and productivity for the project affected persons. In line with SDG goal No. 13 the Contractor will ensure periodic maintenance of vehicles and machines to minimize unnecessary exhaust emissions in the atmosphere; Machineries to be used must have been approved with appropriate machine inspection certificate; where need be, vegetation clearance shall be limited to the project footprint only.

SDG 1- End poverty in all its forms everywhere

Poverty is more than the lack of income and resources to ensure a sustainable livelihood. Its manifestations include hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion as well as the lack of participation in decision-making.

The project will contribute to improvement of livelihoods and social infrastructure hence reduction of poverty within the project area.

7.4.4 Integrated National Transport Policy

This is a national policy which aims to develop, operate and maintain an efficient, cost effective, safe, secure and integrated transport system that links the transport policy with other sectoral policies, in order to achieve national and international development objectives in a socially, economically and environmentally sustainable manner.

7.4.5 National land use policy, 2016

The overall goal of the national land use policy is to provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land related resources in a sustainable and desirable manner at national, county and community levels. The policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation. Key principles informing it include efficiency, access to land use information, equity, elimination of discrimination and public benefit sharing.

7.4.6 Land policy

Environmental management principles: To restore the environmental integrity the government shall introduce incentives and encourage use of technology and scientific methods for soil conservation. Fragile ecosystems shall be managed and protected by developing a comprehensive land use policy bearing in mind the needs of the surrounding communities. The sustainable management of land

based natural resources depends largely on the governance system that defines the relationships between people, and between people and resources. To achieve an integrated approach to management of land based natural resources, all policies, regulations and laws dealing with these resources shall be harmonized with the framework established by the Environmental Management and Coordination Act (EMCA),1999 (Revised 2015).

7.4.7 Sessional paper no. 8 of 2012, National Policy for Sustainable Development of Northern Kenya

The goal of this policy is to facilitate and fast-track sustainable development in Northern Kenya and other arid lands by increasing investment in the region and by ensuring that the use of those resources is fully reconciled with the realities of people's lives.

Objectives

- To strengthen the integration of Northern Kenya and other arid lands with the rest of the country and mobilise the resources necessary to ensure equity and release the region's potential.
- To improve the enabling environment for development in Northern Kenya and other arid lands by establishing the necessary foundations for development.
- To develop alternative approaches to service delivery, governance and public administration which accommodate the specific realities of Northern Kenya and pastoral areas.
- To strengthen the climate resilience of communities in the ASALs and ensure sustainable livelihoods

Implementation of this policy will contribute towards the Government's vision of security, justice and prosperity for the people of Northern Kenya and other arid lands. It will help achieve the three pillars of Vision 2030 – economic, social and political – but particularly the social pillar, which seeks to 'create a just and cohesive society that enjoys equitable social development in a clean and secure environment'. Finally, it will reduce dependence on relief interventions and the heavy financial burden of emergency response. Therefore, this policy prioritises the road.

7.4.8 Employment Act and International Labor Organization

Kenya is a signatory to various conventions established by the International Labour Organization (ILO) and has legislation dealing with employee rights. The employment act (Chapter 226 of the Laws of Kenya) fixes minimum standards of employment. The regulation of Wages and Condition of Employment Act (Cap. 229 of the Laws of Kenya) creates wage fixing institutions to continuously review standards of employment on a sector-by sector basis. These Acts effectively deal with issues (such as the prohibition of forced labour, child labour and discrimination in employment) that are covered in ILO conventions which Kenya has since ratified.

Convection 169 of the International Labour Organization includes consideration of land rights, requiring governments to identify lands which are traditionally occupied, and to guarantee effective protection of their rights of ownership and possession. Further it states that resettlement should only occur as an exceptional measure or with their free and informed consent.

This recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. The Contractor will promote sound worker management relationships and enhance the development benefits of the project by treating workers in the project fairly and providing safe and healthy working conditions.

7.4.9 The Children's Act - Safeguards for The Rights and Welfare of The Child

-The Children's Act makes provision for parental responsibility, fostering, adoption, custody, maintenance, guardianship, care and protection of children; to make provision for the administration of children's institutions; to give effect to the principles of the Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child and for connected purposes

The Act obligates the Government shall to take steps aimed at achieving full realization of the rights of the child by providing among others that every child shall be protected from economic exploitation and any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development. It strongly prohibits child labor.

7.4.10 Prohibition of Female Genital Mutilation Act

This legislation prohibits the practice of female genital mutilation, to safeguard against violation of a person's mental or physical integrity through the practice of female genital mutilation and for connected purposes. This law will apply in the road corridor. According to Garissa CIDP, FGM is prevalent in the region The Act requires Government to take necessary steps within its available resources to—

(a) protect women and girls from female genital mutilation;

(b) provide support services to victims of female genital mutilation; and

(c) undertake public education and sensitise the people of Kenya on the dangers and adverse effects of female genital mutilation.

7.4.11 Rangelands Management

Shifts in settlement and grazing patterns, rising human populations and increasing climate variability have significantly reduced the productivity of rangelands of Northern Kenya. The Kenyan Government has policy targets on developing the ASAL region including improved livelihoods for the approximately 20% of the population living in the 80 % of the area of the country that is arid and semi-arid. This includes drought management and relief as well as the development of economic sectors, such as livestock but also wildlife and tourism, to enhance the resilience of communities in Northern Kenya and improve their livelihoods. The ASAL is well recognised as a policy priority by the Government

The Norther Rangelands Trust (NRT) exists to support the conservancies and other community driven rights based natural resource management organizations, including Community Forestry Associations and Water Resource User Associations, where opportunities for claiming rights by communities to manage the natural resource capital and benefit from the economic returns exist. Conservancies are reinforcing customary systems for regulating access to resources and promoting resilience. The ASALs have a range of productive resources that, with a rights based approach to management, can contribute to an inclusive green growth trajectory.

Since the enactment of a new constitution for Kenya in 2010, devolving considerable autonomy to the Counties, drivers of positive change in the ASALs have included growing political mobilization of local leaders from the ASALs, public participation in democratic processes, decentralization of budgetary and administrative powers and new thinking about community resource management. Emerging policy and institutional arrangements at national and county levels have been designed to transform many of the relationships between the interconnecting drivers of change in the ASALs. ASAL communities now have opportunities for a stronger voice in their local economic and environmental decision-making, and in the national government. County Integrated

Development Plans (CIDPs) have been formulated by the ASAL county governments, outlining strategies to integrate local economic development and environmental management. Input to land use planning, management of conflicts, and coordination on the use of the natural resources including access and rights by the conservancies are opportunities that NRT promotes.

NRT promotes: sustainability plan for all projects. They identify and manage drivers of environmental degradation and poverty while promoting poverty reduction programs. NRT practices rights based development which targets poor communities and champions community rights to land, development of enterprises and gender equality. It supports negotiated access to and inclusive growth and sustainable management of natural resources.

7.4.12 County Integrated Development Plans (CIDP)

All three Counties of Wajir, Garissa and Isiolo have County Integrated Development Plans which guide and reflect the strategic midterm priorities of the county governments. The CIDP contains specific goals and objectives and programs of the County Government, a costed implementation plan, provisions for monitoring and evaluation and clear reporting mechanisms. It will contain information on investments, projects, development initiatives, maps, statistics, and a resource mobilization framework. Most critically it contains a County Profile and Priorities which inform the development of the County. The latest plans are 2013-2017. All the Counties are in various stages of reviewing their CIDP's.

7.4.13 National Cohesion and Integration

The National Cohesion And Integration Act was created to encourage national cohesion and integration by outlawing discrimination on ethnic grounds; to provide for the establishment, powers and functions of the National Cohesion and Integration Commission, and for connected purposes Its object and purpose is to facilitate and promote equality of opportunity, good relations, harmony and peaceful co-existence between persons of the different ethnic and racial communities of Kenya, and to advise the Government .It promotes tolerance, understanding and acceptance of diversity in all aspects of national life and encourage full participation by all ethnic communities in the social, economic, cultural and political life of other communities;

The project area is prone to ethnic, religious, political, economic and social conflict.

The National Cohesion and Integration Commission (NCIC) could help in the resolution of these conflicts by:

i) Planning, supervising, co-ordinating and promoting educational and training programmes to create public awareness, support and advancement of peace and harmony among ethnic communities and racial groups;

ii) Promoting equal access and enjoyment by persons of all ethnic communities and racial groups to public or other services and facilities provided by the Government;

iii) Promoting the project GRM framework of arbitration, conciliation, mediation and similar forms of dispute resolution mechanisms in order to secure and enhance ethnic and racial harmony and peace;

iv) identifying and analyzing and recommending to the project proponent (KENHA) factors inhibiting the attainment of harmonious relations between ethnic communities, particularly barriers to the participation of any ethnic community in social, economic, commercial, financial, cultural and development domain.

7.5 WORLD BANK SAFEGUARD POLICIES

The Modogashe – Samatar project is financed by the World Bank. Besides the national legislations, there are guidelines that govern infrastructure developments like roads particularly those tied to conditions on funding road projects. The World Bank has developed guidelines for pollution prevention and abatement measures as well as emission measures that are acceptable to the bank (World Bank Group, 1998).

7.5.1 Environmental Assessment (Operational Policy, OP 4.01)

The objective of this policy is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision making is improved through appropriate analysis of actions and of their likely environmental impacts (World Bank, 1989). It is also used to ensure that potentially affected persons have been properly consulted.

Annex B of the Policy provides a guideline on how to carry out and what to look out for in the assessment of a Category 'B' project such as Modogashe - Samatar.

This policy will be relevant since the project is likely to have potential (adverse) environmental risks and impacts on its area of influence. It will also cover impacts on the natural environment (air, water and land); human health and safety as well as physical cultural resources concerns. It will also be relevant in assessing the project as a Category B and adhering to all the outlined principles.

7.5.2 Natural Habitats (Operational Policy, OP 4.04)

This policy aims to promote environmentally sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.

This policy is relevant since the project has the potential to cause significant conversion (loss) or degradation of natural habitats especially the Lorian Sawmp. Operational phase could impact indirectly through human activities as the area will be opened up.

7.5.3 Bank 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.

The policy is triggered by this project as during the field assessments and public consultation meetings it was observed that a few community resources such as mosques and graves would be affected by the project. Nevertheless, the Contractor is responsible for familiarizing themselves with the following "Chance Finds Procedures", in cases where culturally valuable materials are uncovered during excavation, including:

- Stop work immediately following the discovery of any materials with possible archaeological, historical, paleontological, or other cultural value, announce findings to project manager and notify relevant authorities;
- Protect artefacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artefacts
- Prevent and penalize any unauthorized access to the artefacts

Restart construction works only upon the authorization of the relevant authorities.Places of worship and graves are expected to be preserved during the construction phase of the project and not interfered with.

7.5.4 Involuntary Resettlement (Operational Policy 4.12)

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 at avoiding involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts.

This policy covers direct economic and social impacts that both result from Bank-assisted investment projects. The policy is applicable if there will be;

(a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets, or (iii) loss of income sources or means of livelihood, whether the affected persons must move to another location; or

(b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.

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. It requires that the displaced persons and their communities, and any host communities receiving them, are provided timely and relevant information, consulted on resettlement options, and offered opportunities to participate in planning, implementing, and monitoring resettlement. Appropriate and accessible grievance mechanisms should be established for these groups. In new resettlement sites or host communities, infrastructure and public services are provided as necessary to improve, restore, or maintain accessibility and levels of service for the displaced persons and host communities.

This policy will be triggered as the project causes the involuntary taking (acquisition) of land and other assets resulting in: relocation or loss of shelter, loss of assets or access to assets, loss of income sources or means of livelihood and loss of land.

7.6 OTHER RELEVANT INTERNATIONAL POLICIES

7.6.1 Convention on Biological Diversity, 1992

The convention requires that implementation of development projects to avoid significant adverse impacts on biodiversity. The Convention requires parties to implement ESIA recommendations effectively to avoid or minimize significant adverse impacts on biodiversity. It also introduces the Strategic Environmental Assessment (SEA) to assess environmental implications of policies and programmes particularly for those with major implications on natural resource use.

The project environment has a variety of wildlife species and therefore this convention will apply to help in the conservation of biodiversity within the area and minimizing impacts on the same.

7.6.2 The United Nations Framework Convention on Climate Change, 1994

The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally

to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner." It emphases that parties to the convention carry out control measures to ensure that the emission of greenhouse gases is reduced. The Convention also acknowledges the vulnerability of all countries to the effects of climate change and calls for special efforts to ease the consequences, especially in developing countries which lack the resources to do so on their own. The proponent has commissioned the undertaking of the ESIA to ensure that the anticipated impacts that relate to greenhouse gases emissions are mitigated and prevented by incorporation of control measures in the design phase of the project.

7.7 INSTITUTIONAL FRAMEWORK

7.7.1 National Environment Management Authority

This is the government agency that is responsible for the implementation of all the policies relating to the environment. It was established under the Environmental Management and Co-ordination Act No. 8 of 1999 (EMCA). This agency is responsible for reviewing the ESIA report and verifying the information in the report.

They are also responsible for overseeing and ensuring compliance to the environmental guidelines therein.

7.7.2 Kenya Roads Board

Strengthening the institutional framework is one of the strategies the government of Kenya (GoK) has adopted to improve the road network in Kenya. The Roads Maintenance Levy Fund manages the roads in repair and rehabilitation.

7.7.3 Kenya National Highways Authority

This is an autonomous road agency, responsible for the management, development, rehabilitation and maintenance of international trunk roads linking centres of international importance and crossing international boundaries or terminating at international ports (Class A road), national trunk roads linking internationally important centres (Class B roads), and primarily roads linking provincially important centres to each other or two higher-class roads (Class C roads).

The agency will be responsible for the implementation of the project once the design and funds procurement for the project have been completed.

7.7.4 Kenya Wildlife Service

This is a state corporation that was established by an Act of Parliament (Cap 376), with the mandate to conserve and manage wildlife in Kenya, and to enforce related laws and regulations. The corporation undertakes conservation and management of wildlife resources across all protected areas in collaboration with stakeholders. Its mandate is to work with others to conserve, protect and sustainably manage wildlife resources.

There are wildlife species in the project area and therefore consultations will be necessary to ensure that the species are not adversely affected by the road construction.

7.7.5 The Water Resource Authority (WRA)

This is a state corporation and the lead agency in water resources management. Its responsibilities include; to develop principles, guidelines and procedures for the allocation of water resources; to monitor, and from time to time reassess, the national water resources management strategy; to receive and determine applications for permits for water use; to monitor and enforce conditions attached to permits for water use; to regulate and protect water resources quality from

adverse impacts; to manage and protect water catchments in accordance with guidelines in the national water resources management strategy, to determine charges to be imposed for the use of water from any water resource; to gather and maintain information on water resources and from time to time publish forecasts, projections and information on water resources; to liaise with other bodies for the better regulation and management of water resources; to advise the Minister concerning any matter in connection with water resources.

Construction of the road is water intensive and therefore consultations will be necessary to obtain the relevant permits for abstraction of water.

7.7.6 National Land Commission

This is a commission which was formed under the provisions of Land Act 2012 and had the responsibility to manage public land on behalf of national and county governments, to monitor and have oversight responsibilities over land use planning throughout the country among others.

Consultations shall be made to the National Land Commission especially road completely to ensure land use compatibility and avert future incidents of conflict.

7.8 OTHERS

7.8.1 Integrated National land use guidelines

The guidelines have been developed to ensure that issues of national interest are in harmony with regional and international concerns. The guidelines support a coordinated planning process which facilitate decision making, harmonizes interests and offers economically, socially and environmentally sustainable solutions. They basically provide guidance for land use planning and management in Kenya. They will be important in the implementation phase of the project and especially the following;

- Guidelines on the Protection of Ground Water, Rivers, Lakes and Wetlands
- Guidelines on the Protection of Historic and Cultural Resources
- Guidelines on the Conservation of Biological Diversity
- Guidelines on Management of Invasive and Alien Species
- Guidelines on Mining and Quarrying
- Guidelines for the Resettlement of Refugees / Displaced Persons

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8. GENDER ANALYSIS

8.1 JUSTIFICATION AND APPROACH

The Government of Kenya recognizes that gender disparities in the country must be addressed in order to ensure equal participation of men and women and therefore provide equal opportunities that will guarantee that they benefit equally from development processes. Gender analysis is therefore done before implementation of projects to ensure inclusive development and poverty reduction efforts. This gender analysis is part and parcel of any development projects. It is recognized that women and men differ in the way they respond to and benefit from development. The implication here is that if any development initiative or intervention does not have an in-built specific attention to these differences the result will be exclusion of some segment of society and in most cases, it is the women. This recognition then reaffirms commitment to promote gender mainstreaming as a means of fostering poverty reduction, economic development and gender equality in the development arena.

8.2 FINDINGS

Generally, the following findings emerge from the study's analysis:

1. The ratio of men to women in in the three is almost 1:1.2 in favor of men according the KNBS. Unlike other parts of Kenya, there are more men than women. However, that disparity does not ends there. The social demographic profile reveals that; women have less access to resources and decision-makingavenues; besides they are less educated and therefore less informed than men. Most of the women were married and live within male-headed households. This explains why culturally they have limited decision-making power. There is 50% incidence of polygamy in the region.
2. The Somali Community is the most dominant in all the towns from Modogashe and Habaswein and in the settlements of Skanska, Guticha, Kanchara and Lagdima. The Borana are majority in Isiolo. Among the Somali, there is a definite clan differentiation which seems to inform resource allocation. In Habaswein, the Ajuran and the Ogaden contend for resources even though they are both Somali.
3. The leadership is patriarchal. There were no women chiefs or assistant chiefs and the leadership of all social institutions are men. This is below the country average of at least one woman assistant chief per location.
4. Women head 16 per cent of the households in the county. The basic gender concerns in the county are related to access to economic assets and cultural practices that act against the female population. Women do not participate in major areas of decision making. They are not involved fully in some of the development programmes; most of which affect their lives. Men take the leading role in making most of the major decisions in terms of development activities. This is because cultural beliefs do not give women chances to make decisions and inherit property. Though women are less than men in number and their contribution towards economic growth far much more than that of men, they have little control over resources and decision making. They work tirelessly on land for agricultural production and livestock keeping. Women do not enjoy equal rights to inheritance of assets like land, which could enhance their development. Thus the women are denied economic power such as use of land as collateral for bank loans. There is need for awareness creation on such issues as by law both girl and boy child are recognized and given equal right. Joint ownership of property between

husband and wives should be encouraged to save women from being exposed to higher levels of poverty.

5. Some cultural practises have led to low development for Women in the region. These include early and forced marriages of the girl child thus denying the youth opportunities to advance in education. Female Genital Mutilation (FGM) is at a high rate of 90 per cent. This has exposed the girl child to risks such as HIV/AIDs infection. There is need to advocate and sensitize the population to do away with such negative cultural practices and pursue alternative channels of initiation.
6. Gender roles and responsibilities are thus well defined across all the dominant ethnic communities along the road corridor. Women are generally engaged in home care, and reproductive roles in the households. They are also engaged in other income generating activities – trading along the road corridor, selling and buying merchandise and foodstuff. The biggest chore is travelling upto 15kilometres every day to fetch water.
7. Men on the other hand are the leaders, the owners of capital and the decision makers. While men own most of the valued household assets; women traditionally do not own large assets in the family, neither are they allowed to make decision on the same. Women headed households (which are minimal except for widowed homes) have limited decision-making power especially if the assets are not family –based. These households are very vulnerable as their property is likely to be taken away. This is especially so in case of compensation for lost land or damaged buildings. However, widowed or single women with adult male children are not vulnerable, reinforcing traditional gender roles and power relations. This implies that in the event of compensation or relocation assistance, community structures are pitted against women. The project must thus expressly take cognisance of this and affirmatively ensure women are personally compensated instead of using male intermediaries.
8. The findings were that women travel mostly for economic reasons related to their informal, employment; going to the markets or shopping centres. Since they have fewer work opportunities and transportation choices, in order to be employed, women tend to be based at home as housewives. Polygamy is rife with men having upto 4 wives often in different locations. This again reinforces the traditional private domain for women and public domain for men. The most predominant mode of travel for women therefore remains walking and head loading with less mobility overall. Generally, women make more trips than men; but this mainly on foot, they make shorter commute trips, more non-formal work trips and are more likely to trip chain- one way to and from work to home. As a result, the study found that regular use of public transport in particular was prohibitive, with men spending higher on public transport than women. Generally, men spend more to get to work while women stay closer to home beyond a fixed transport cost threshold. Mobility patterns of women thus relate to domestic, economic and social tasks.
9. According to Social Profile, the chewing of khat or miraa, largely by men has a negative impact on household and gender relations. A study carried out in Ijara in 2006, found that many respondents used more than half of their domestic budgets on khat, but few (28%) perceived this as a waste of resources. Fifty four percent of khat chewers typically started the habit during the day, implying a waste of time for productive work. However, only 40% of the persons interviewed admitted that the drug affected work performance negatively. The khat habit was associated with strain on family relationships, anti-social behaviour and health effects such as insomnia

10. As a result, the study found that regular use of public transport in particular was prohibitive, with men spending higher on public transport than women. Generally, men spend more to get to work while women stay closer to home beyond a fixed transport cost threshold. Mobility patterns of women thus relate to domestic, economic and social tasks.

    Other than using the road to travel and carry out their businesses a large percentage of those women we interviewed said they play little role in the transport sector. Most of the respondents use public transport in the form of bodaboda's (bicycle or motorcycle) or probox saloon cars (public mini vans). It was found that women were more likely to walk to and from their homes top rivers and markets and to the stops designated for public transport. Members of the community have greater positive expectations with regards to the road improvement in terms of better livelihoods, businesses and employment opportunities. For women, there are positive prospects for cheaper fares, faster access to health facilities, schools and business opportunities. However, their fears include among others; loss of their husbands' due to commercial sex workers who are anticipated to follow the labor camps, possible advent of alcoholism in a region which prohibits it and gender based violence due to increased income for the men.

8.3 RECOMMENDATIONS

The following recommendations are made:

Deliberate efforts should be made to inform/consult with women including other vulnerable groups in order to enable them participate effectively and benefit from the project. This may include holding women only meetings where women are more likely to voice their concerns.

1. Resettlement Action Plan (RAP) should take into consideration gender dynamics and inequalities both within the family and in the business sector with regards to decision making, ownership of assets, employment and income. The implementation of RAP should adhere to the principles of the Involuntary Resettlement Policies of GOK and the World Bank OP/BP 4.12 Involuntary Resettlement. In order to address fears entailed in relocation and issues of compensation, women, men, and the youth should be meaningfully consulted in separate groups to address their different priorities, before replacement or costs for loss of livelihood is assessed – with a view to improve their incomes and productive levels. Special attention should be paid to the needs of women, the elderly, children and PWDs.
2. Prior to project implementation, recruitment team should remove barriers to women's participation in the construction of the road by having transparent recruitment procedures; ensuring that women are also part of the recruitment process. PWD should be given special attention.
3. For a user-friendly road for all members of the community – men, women, children, the elderly and PWDs, the design should ensure proper foot paths and cycle tracks, public spaces, junctions, road signs, bus stops and designated places for hawkers and vendors.
4. During implementation, it is suggested that linkages be established by civil society organizations (CSOs) – especially local women's organization such as Kenya Association of Women Contractors (KAWOC), Youth and PWD organizations to in order to ensure that the recommendations in this Gender Analysis Study are adequately implemented.
5. Gender Equality

To ensure gender equality, the proponent should apply the following approaches:

1. Separate meetings with women to get their input, especially on CSR facilities.
2. Affirmatively enforce the 30% gender rule in the project. This will be achieved by reserving certain positions for women. It is recommended that the Community Liaison Officer be a woman, all flag persons should be women. Women should be facilitated to form groups or use existing Groups to provide food and water to employees and around the Camp. Somali women professionals should be hired as an example to the community on the possibilities available
3. Undertake gender mainstreaming at project design, implementation/ construction, operation and decommissioning stages. This means incorporating women facilities in the design - separate ablution facilities, provision of breast feeding crèches for lactating mothers and early breaks from work for women to go attend to their families. The policy against GBV and Sexual harassment in the work place should be strictly enforced in the work place. No employee should hire minors in the camp. A code of conduct should be signed by all employees.
4. Carry out sensitization on women rights and opportunities to the communities reaching out to leaders to involve their women in development projects. This needs to be done sensitively in conjunction with local leaders in this deeply conservative society. Existing institutions and NGO's can be used to carry out sensitization. Specific opportunities should be provided for women to benefit from CSR, such as supporting NGO's that support income generating activities for women. Skills transfer programs are recommended for women for technician jobs. Form 4 girls could be sponsored to undertake 6 month technician training in a college and offered guaranteed employment in the project.
5. Developing the project sustainably by transforming the distribution of opportunities, resources and choices for males and females so that they have equal power to shape their own lives and contribute to their families, communities, and country. The project should consider deliberately providing a kitty to fund Women CSR projects.

8.4 SEXUAL EXPLOITATION AND ABUSE IN THE PROJECT

The influx of workers employed by the construction company, along with those looking for jobs with the construction company, is likely to lead to an increase in sexual abuse and assault of women and girls in the project area. The employees will have higher disposable incomes than the local community and this could lead them to take advantage and promote transactional sex. Women from other parts of the country may also relocate to the project area to commence or continue sex trade which may create opportunity for local women and girls to get into the same.

The influx of laborers will increased opportunities for small scale businesses, which also exposes more women and girls to sexual abuse and assault. Food vending to provide for the needs of road construction workers will create an income generating activity for many women and girls who assist them in the trade often till very late in the night. This situation increases their vulnerability to sexual assault and abuse from the road laborers and other community members.

The community generally has a strict attitude to interactions between non related people of opposite gender. In certain instances, they do not shake hands. However, the migrant community with money may tempt the poor girls and women to break the taboos.

Special note is made of project displaced roadside traders along the corridor who may not have stabilized in their new trading abodes. These are susceptible to sexual exploitation. Among the conservative community, any reports of SEA could lead to fatal flare ups and even terrorism.

Preventing and Fighting Sexual Exploitation and Abuse is thus critical. The Employees code of Conduct is a starting point. Secondly all women displaced in the project must be attended to at compensation. Employees must be sensitized on the danger of SEA. The employees must also be given frequent leave to be with their spouses.

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9. ANALYSIS OF ENVIRONMENTAL AND SOCIAL IMPACTS

9.1 DEFINITION AND CLASSIFICATION OF IMPACTS

An impact in this context refers to any change that is likely to cause change in the environmental or socio – economic setting. The impacts can be either negative or positive. The impacts may also be direct or indirect, localised dispersed or cumulative if they add to the already existing impacts. They may also occur immediately or may be delayed in their timing. Another description used is if the impacts are permanent in their persistence or temporary. The impacts are also described using the phase that they occur in i.e. planning, operation or construction. In this study the Leopold matrix was used for the evaluation of the impacts.

9.2 THE LEOPOLD MATRIX

A matrix 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 will be done.

9.3 IMPACT IDENTIFICATION AND EVALUATION

The Leopold matrix is an effective method of predicting impacts quantitatively. Quantification means using numbers to indicate the impact. It is helpful in presenting information in summary form to give readers an overview of the impact characteristics of the Project and the alternatives to it.

Once the list of impacts or changes on the different elements of the medium has been established they are characterized using the following features and criteria:

- Sign (Nature)
- Type
- Intensity.
- Extension.
- Time.
- Reversibility
- Recoverability
- Persistence.

9.4 DESCRIPTION OF THE TERMS USED

Sign /Nature of the impact: Alludes to the beneficial nature (+), bad (-)

Intensity: It refers to the degree of impact on the factor, in the specific area in which it operates. Ranked from 1 to 3. The three expressed as an almost total destruction of the factor in the area in which the effect occurs.

Type: Refers to the nature of the impact, direct (3) indirect (2) or cumulative (1)

Extension/Location: An area of influence covered by the impact in relation to the project environment. 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 large (3). Intermediate situations are considered as partial (2).

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

three categories according to this time period is zero, up to 2 years, or more than two years, which are called respectively as immediately (3), medium term (2), and long term (1).

Reversibility: It refers to the possibility of reconstructing the initial conditions once the effect. Can be characterized as short-term (1), medium term (2) and impossible (3).

Recoverability: It refers to the possibility of providing or not the corrective measures to avoid or minimize impact. For impacts with positive sign will not express their recoverability.

Duration/ Persistence: Refers to the time that supposedly stays the effect, from the onset of the action in question. Two situations are considered, depending on whether the action produces a temporary effect (1) or permanent (3). It is therefore this generic characterization because spaces are not discrete time course associated with these categories and because in any case, it is very difficult, in the limit, to discern on temporary or permanent effects.

A logical and systematic approach was taken for impact identification. The aim was to take into account all the important environmental/project impacts and interactions, making sure that indirect and cumulative effects, which may be potentially significant, are not inadvertently omitted. Individual environmental issue were also viewed in respect to the different facets of the project.

The rating evaluation will be as follows:

Table 9.1: Key of the Rating Parameters

EVALUATION PARAMETER	RATING	RATING
Nature of impact (NI)	-Positive -Negative -Uncertain	+ - -/+
Type of impact (TI)	-Direct -Indirect -Cumulative	3 2 1
Extent(EXT)	-Disperse -Medium -Localized	3 2 1
Intensity (IT)	-Major -Medium -Minor	3 2 1
Reversibility (R)	-Short term, easily reversible -Long term, partially reversible -Not reversible	1 2 3
Timing (TM)	-Immediate -Medium -Delayed, long term	3 2 1
Persistence (PI)	-Temporary effect -Permanent effect	1 3

EVALUATION PARAMETER	RATING	RATING
Phase	-O -C	Operational period Construction period

9.5 IMPACT MAGNITUDE INDICATORS

As pointed in LEGAL NOTICE No. 101 THE ENVIRONMENTAL (IMPACT AND AUDIT) REGULATIONS, 2003 ARRANGEMENT OF REGULATIONS, SECOND SCHEDULE the following issues may, among others, be considered in the making of environmental impact assessments.

- Impacts on the Physical Environment
- Impact on the Biological Environment
- Impact on socio-economic environment

The Magnitude or Importance impact represents the entity or significance of the effect, includes the degree of incidence and the "form" of that effect, represented by other attributes. Its value is clear from taking the attributes described by the following formula.

Imp = Sign (3Iij + 2Eij +Tmij + Pij + Rij),

Where:

Imp: Importance or magnitude of the impact generated by the action on the project I j element of the medium

Ii: Intensity of the impact generated by the action on the project I j element of the medium.

Ei: Extent of the impact generated by the action on the project I j element of the medium.

Tmi: Timing, the moment of impact generated by the action on the project I j element of the medium.

Pi: persistence of effect, from the onset of the action in question.

Ri: Possibility of reversibility.

In this study only two impact characterization parameters included in the matrix are not considered in the impact magnitude valuation formula, these are the "type" and "recoverability" (WB methodology, 1995).

Table 9.2: Environmental Impact Matrix

Topic	Element	Action	Impacts	NI	TI	EX	IT	R	TM	PI	Phase	MG
Vegetation	*Ground cover*	*Project foot print*	Extent of vegetation clearance required		3	1	1	1	3	1	C/O	10
	Plant species	*Clearance to create space*	Loss of mature indigenous species		2	1	1	2	3	1	C/O	11
		Clearance to meet increased energy requirement	Accelerated degradation of vegetation		2	1	2	2	2	3	C/O	15
	Invasive weed species	*Civil and general works*	Activities likely to aid in proliferation of the weeds identified		2	3	2	2	1	1	C	16
Soil Resources	*Soil Physical properties*	*Civil and general works*	Loss of top soil hence alterations of soil profile		2	1	2	2	1	1	C/O	12
	Soil Erosion	*Civil and general works*	Exposure to erosion agents		3	2	2	1	2	1	C/O	14
Water Resources	*Water Quality*	*Civil and general works*	Contamination of downstream surface water		2	3	1	2	1	1	C	13
	Water Quality	*Civil and general works*	Contamination of ground water sources		2	3	1	2	1	1	C/O	13
	Water Quantity	*Water channelling*	Increased surface runoff and resulting soil erosion from channelled water		2	1	2	1	2	1	C/O	12
	Water Quantity	*Water abstraction for construction*	Alteration of water supply as a result of abstraction		2	3	1	1	1	1	C	12
Air Quality	*Air pollution*	*Civil and general works*	Dust and/or smoke generation during works		3	1	2	1	3	1	C	13
	Air pollution	*Traffic during operation*	Increased CO2 emission from use of fossil fuel		1	1	1	2	1	3	O	11

Topic	Element	Action	Impacts	NI	TI	EX	IT	R	TM	PI	Phase	MG
	Impact on the landscape	*Civil and general works*	Change of visual of visual impacts (features, vegetation removal)		2	1	2	1	3	1	C	13
Noise and Vibrations	*Excessive vibration above ambient*	*Civil and general works and operation*	Consider machine type and extent of vibration during construction		3	1	2	1	3	1	C/O	13
Waste management	*Solid waste*	*waste generation and handling*	Reduction in aesthetics		2	2	2	1	3	1	C/O	15
			Ingestion by livestock and wildlife		1	3	2	2	2	1		17
Mammalian Resources	*Wildlife Habitat Disturbance*	*Project foot print*	Extent of vegetation clearance required		3	1	3	2	3	1	C	17
	Alteration of wildlife population	*Location requirements for infrastructure*	Likely effect on wildlife number, diversity, breeding and eating habits		2	2	2	2	1	3	C/O	16
Avifauna	*Avifauna Habitat Disturbance*	*Project foot print*	Extent of vegetation clearance required		3	1	3	2	3	1	C/O	17
	Alteration of avifauna population	*Civil and general works*	Likely effect on bird number, diversity, breeding and eating habits		2	2	2	2	1	3	C/O	16
Topography	*Material sites*	*Civil and general works and project footprint*	Extent of vegetation clearance associated with quarries		3	1	2	1	3	1	C	13

The impacts have been rated in the above table. The impact rating quantitative figures range from 10-12. These have been categorised into

High	18 and above
Medium	17 - 15
low to insignificant	14 and below

Impact Rating	Element	Action	Impacts
MEDIUM	Wildlife Habitat Disturbance	Project foot print	Extent of vegetation clearance required
	Avifauna Habitat Disturbance	Project foot print	Extent of vegetation clearance required
	Alteration of wildlife population	Location requirements for infrastructure	Likely effect on wildlife number, diversity, breeding and eating habits
	Alteration of avifauna population	Civil and general works	Likely effect on bird number, diversity, breeding and eating habits
	Invasive weed species	Civil and general works	Activities likely to aid in proliferation of the weeds identified
LOW	Soil Erosion	Civil and general works	Exposure to erosion agents
	Air pollution	Civil and general works	Dust and/or smoke generation during works
	Impact on the landscape	Civil and general works	Change of visual of visual impacts (features, vegetation removal)
	Excessive vibration above ambient	Civil and general works and operation	Consider machine type and extent of vibration during construction
	Material sites	Civil and general works and project footprint	Extent of vegetation clearance associated with quarries
	Soil Physical properties	Civil and general works	Loss of top soil hence alterations of soil profile
	Water Quantity	Water channelling	Increased surface runoff and resulting soil erosion from channelled water
	Water Quantity	Water abstraction for construction	Alteration of water availability as a result of abstraction
	Plant species	Clearance to create space	Loss of mature indigenous species
	Air pollution	Traffic during operation	Increased CO2 emission from use of fossil fuel
	Ground cover	Project foot print	Extent of vegetation clearance required

9.6 EXISTING IMPACTS

9.6.1 Soil Erosion

Erosion is evident along some sections of the project road, primarily attributed to surface water runoff and lack of suitable drainage systems. The most common type of erosion being bank erosion and rill erosion. Erosion is prevalent where the road crosses laghas and the Lorian Swamp with the effects evident on the drainage structures along this section.

Photo 9.1: Blocked drainage structure along the Lorian Swamp

9.6.2 Dust Pollution

Due to the gravel condition of the road and dry conditions in the project area movement of traffic leads to increase in levels of fugitive dust resulting in air pollution with effects evident on the vegetation and hamlets bordering the road. The table below shows the settlements/hamlets bordering the road that are being affected by the dust pollution.

Table 9.3: List of settlements along the project road

Settlements/Hamlets	Coordinates
Modogashe	0519110, 0082389
Skanska	0531721, 0091971
Habaswein	0561550, 0114587
Kanjara	0572831, 0125943
Guticha	0580790, 0132073
Samatar	0585243, 0135346

9.6.3 Human – Wildlife Accidents

The existing road has no speed signs, wildlife habitat and crossing signs and no identified wildlife crossing corridors hence posing accident risk to the wildlife in the project area which roam freely. Construction of the road will result in greater traffic volume, road use and both human and wildlife accident risk.

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10. POTENTIAL POSITIVE IMPACTS

10.1 CONSTRUCTION PHASE

10.1.1 Increased Business Opportunities and Improvement of Local Socio-Economy

There will be an increase in business opportunities during the construction of the Modogashe - Samatar road. Small scale business people such as food vendors and kiosk owners will benefit greatly during construction.

10.1.2 Increased Economic Activities and Employment Creation

The project will create numerous employment opportunities for both skilled and unskilled labor alike during the construction phase. Even though most of the project will need skilled labor force for some specialized tasks, unskilled positions will still be plenty. This will lead to stimulation of local economy and creation of employment in market centres and trading centres and indirect employment by those selling goods and services to the road contractors. And other forms of employment associated with provision of goods and services to the project employees during construction.

10.1.1 Transfer of Skills

It is anticipated that local employees will be employed by the project. Those employed will gather skills hitherto unavailable. It is recommended that a deliberate effort be made to ensure transfer of skills and experience by locals during the construction period. This will be done through apprenticeship, internships, training and work experience

10.2 OPERATION PHASE

10.2.1 Improved Access to Essential Services

The road will enable communities to access essential services, these include health, security, education, government services and other social amenities whereby the project road will provide an essential link to these services. School enrolments and retention will increase, as will the amenities ability to hire and retain qualified employees from other parts of the country. This being an area declared as a Vulnerable and Marginalized, this will lead to accelerated development.

10.2.2 Increased Business Opportunities and Improvement of Local Socio-Economy

The road upgrade will increase business and boost the economy of the region. The road also provides an international, national, regional and local links. This will expand the market centres hence expanding and attracting investors and businessmen. This will improve incomes, transportation of goods, commodities and services will be transported everyday along the road as market days are allocated to each of the main trading centres during the week. The new road will also lead to the expansion of various businesses in various towns located along the road. There is high possibility of expansion of petrol stations, hotels and restaurants, shopping malls, etc. due to increased number of motor vehicles (and people) using the route

Construction of the road will reduce the travel time and travel costs of people and goods within the three counties and beyond. It will also lead to an increased number of bus and matatu operators hence making transportation cheaper and efficient. Related to that is the transportation of goods a, produce and livestock to the markets which will be facilitated by the new road. Conveyance of foodstuff

procured from other parts of Kenya will be timely and their price affordable. Livestock farming and modest agriculture is the main economic activity in the project area.

This road will provide an essential link for delivery of agricultural inputs produce and products in the project area;

1. Increased access to markets;
2. Reduced wastage due to spoilage due to lack of access to the markets;
3. Access to value chain centre viz, buying centres, factories and subsequently reducing transport/marketing cost;
4. Easy access by the extension officers to educate farmers on good production practices

10.2.3 Revitalization of Large Scale Livestock production in the Area

The project area is a pastoralist community. The farmers are largely livestock keepers. The area leads in the supply of livestock products in the country. However, the up scaling and growth of this sub-sector has been hindered by the poor transportation network in the region. Therefore, the construction of the proposed road project in the area will offer numerous opportunities for farmers to upgrade their business and hence lead to the improvement of agriculture. There also exists an export business for gums and resins.

10.2.4 Improved Road Safety

Road projects can lead to reduction in accidents when they involve significant improvements in vertical and horizontal alignments, improved carriageway width, junction layout or greater separation of pedestrians, non-motorized traffic and motor vehicles. The improvement of the project road may lead to significantly increased running speeds; the standard speed of the road will be 80 Km/hr - 100 Km/hr and is likely to induce significant generation of traffic. This will shorten the travelling time and transportation cost.

The proposed project design will contribute to improving road safety and the comfort of road users in several ways such as; Sight distance and visibility especially at approaches to bridges will be improved; Road signs (both warning and directional) and road markings will be included in the design; adequate shoulders will be designed throughout its road corridor.

10.2.5 Streamlined Drainage Outfalls

Sections of this road are faced with drainage challenges especially around Lorian swamp due to inadequate and silted drainage structures i.e pipe and box culverts. This makes some sections of the road to be prone to floods during high precipitation periods. The project will provide streamlined drainage outfalls to enhance flow.

10.2.6 Improved aesthetics

The current condition of the road generates a lot of dust with the effect visible on the surrounding vegetation bordering the road alignment. The upgrading of the road to bitumen standards will lead to improved aesthetics of the area.

10.2.7 National Cohesion and Interaction of Communities

The proposed road being an international road, it will promote national cohesion since people from different communities in Kenya will be working together during construction and operation phases of the project. It was however noted that the local community fear possibility of unfair competition by immigrants for jobs and resources, especially in the rural areas It is however an inevitable impact that if well managed by government will lead to greater cohesion and integration of

Kenya as a country. Modogashe and habaswein are already multi ethnic and the road will thus lead to deeper interaction between these communities and nations.

10.2.8 Urbanisation

Inevitably, Modogashe and Habaswein will grow into big towns due to the opening up of the road. Some currently existing market centres such as Skanska, Kanjara and Guticha may rapidly develop in to vibrant town centres to provide support services for the revamped transportation corridors. Such sporadic development may affect designated land use in some urban and other centres. Agricultural land may convert to residential or even commercial.

However increased population in the area due to new opportunities puts pressure on land use, land cover and change in designated land-use which will be managed through urban and town planning by the county Government.

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11. POTENTIAL ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS

11.1 POTENTIAL CONSTRUCTION PHASE ENVIRONMENTAL IMPACTS

11.1.1 Soil (soil erosion and contamination)

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts involve loss of top soil hence alterations of soil profile, exposure to erosion agents and contamination from accidental oil and grease spills
Type of impact (TI)	Direct	Impact to soil hence directly affecting erosion prone areas
Intensity (I)	Medium	The impact can be relatively mitigated in the design and through prudent and efficient construction practices
Extent	Localised	To the affected areas where there are clearance, exposure and excavation of the top soil
Reversibility	Long term and partially reversible	Impacts are restricted to the construction phase and the soils can recover from erosion when proper intervention and remediation measures are implemented
Persistence	Temporary effect	Only restricted to the construction phase

Construction activities have the potential to loosen soils which can be eroded thus causing siltation and blockage of drains. Considering the dominant type of soil in the project area is sandy soil, soil erosion is expected to be minimal due to its characteristics i.e. large pores that allow much of the rainfall to soak into the soil. Sandy soils have good infiltration and drainage. Erosion will be prevalent on the water resources i.e. river crossings but can be mitigated through protection works.

Oil/grease spillages from the garage, workshops, asphalt plant, fuelling station, crusher site, Fuel off-loading sections and construction machineries will result in soil pollution.

Deposition hydrocarbon residuals and accidental spills from the construction machineries will cause soil contamination.

Mitigation Measures

- Soil and gravel should be shaped and compacted immediately after transport to its destination. Spoil from the earthworks should be dumped in a central place and covered
- Maintain spill kits at the contractor’s garage, workshops and those areas experiencing spillages.
- Storage of oil and tar drums should be done on concrete floors to prevent exposure of soil to contamination

- Construction activities should be carried out during the warm seasons. This will aid in compaction of the surface material and reduce the loss of soil and gravel by storm water runoff
- Re-vegetation of excavated areas to ensure ground stability.
- Scour checks and stone pitching should be done on steep sections of the road to minimize erosion

11.1.2 Impacts on fauna

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to habitat disturbance at specific spots resulting from vegetation clearance to give room for construction activities
Type of impact (TI)	Direct	Accidental spills, traffic in the construction area, cutting down of trees, vibrations and noise will directly affect wildlife.
Intensity (I)	Medium	The impact can be relatively mitigated in the design and through prudent and efficient construction practices
Extent	Localised	The impact will be restricted to wildlife habitats and dispersal areas
Reversibility	Short term and partially reversible	The habitats can easily regenerate once the construction activities have ceased when proper mitigation measures are applied
Persistence	Permanent effect	Restricted to the construction phase

Wildlife diversity and population in the project area is quite rich and can be described as a wildlife dispersal area. The following impacts could occur:

Type of impact	Nature of impact	Most vulnerable species
The construction workers can provide a ready market for game meat. The workers may, by themselves, not be involved in hunting game for food, but the local community may entice them with cheap game meat. This could potentially affect the wildlife through reduction in their population.	Indirect impact. Within 5 km radius of construction camp.	Ungulates such as antelopes, gazelles and avian species, notably guinea fowls
Direct impact through blasting at quarries, noise and vibration occasioned by machinery and construction workers can affect their feeding habits and even migration patterns. Some animals can be more aggressive in the face of such sudden noise and vibration.	Direct but sporadic impact. Within 2 km of quarry sites	All species

Type of impact	Nature of impact	Most vulnerable species
Cutting down sanctuary trees (trees above 5 m height with well-developed canopy) along the road to pave way for construction. These trees act as perching and nesting sites for a wide range of bird species. They also provide shade for mammals especially ungulates.	Direct impact and specific to where large trees would be felled.	Birds, especially weaver birds, ungulates.
Death of wildlife occasioned by construction traffic.	Direct, especially in the evenings and early morning. Likely to be very low	Various species
Accidental spills of oil, petroleum products, solvents, bitumen, etc.	Direct impact	Birds, wild dogs, ruminants

Mitigation measures

- The Contractor(s) for the project construction should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
- Awareness creation amongst the local people and the construction workers of laws that relate to wildlife hunting and consumption, and the importance of wildlife as a natural resource and heritage.
- The provincial administration should be involved in creating awareness amongst the local people, that killing game is illegal.
- Empty containers and other waste should be managed carefully to avoid exposing wildlife to possible poisoning.

11.1.3 Impact on water resources

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts will include conflicts over water resources, pollution of water sources from point and non-point contamination.
Type of impact (TI)	Direct	Conflicts, pollution and contamination
Intensity (I)	Minor	Possible sedimentation as a result of soil erosion. The project area is also a water scarce area; hence abstraction may affect the water resources in the area. However incremental impacts are nonetheless expected to be low
Extent	Disperse	Polluted water normally flows downstream, or be drawn by humans and used away from the point of pollution.

Impact characteristics	Rating	Description
Reversibility	Short term and easily reversible	Polluted water can be treated to make it suitable for reuse. Also, most of the water sources are self-regulating and cleaning mechanism hence capability of purifying themselves
Persistence	Temporary effect	The impacts are restricted to construction phase only

Oil / grease spillages from the garage, workshops, asphalt plant, fuelling station, crusher site, Fuel off-loading sections, construction machineries and liquid wastes from the construction camps may result in contamination of surface water bodies especially river Ewaso Ngiro through surface runoff and pollution of ground water through infiltration and percolation of the contaminants to the water aquifers. Water conflicts between the Contractor and the local community due to the scarcity of the resource may also arise. Siting of water points especially in the dry season grazing areas may also affect rangeland management and settlement patterns.

Mitigation measures

- The Contractor should avoid abstraction of water from any community owned water source
- Any water abstracted from the water pans and boreholes created by the Contractor should be shared with the local communities.
- Construction machineries should be serviced regularly and be in good working condition before being utilized for construction purposes.
- Adopt water saving technologies to reduce pressure on water demand in the area during construction. The contractor can also diversify water sources for construction to ease the demand.
- Water points that will be handed over to the community must not be located at community border points,
- Siting of waterpoints should be done in consultation with the communities and local leaders.
- Side drains and mitre drains, required to direct road surface runoff away from the road should be de-silted and unclogged periodically to prevent accumulation of silt and waste and eventual washing up into water bodies.
- Maintain spill kits at the contractor's garage, workshops and those areas experiencing spillages.
- Storage of oil and tar drums should be done on concrete floors to prevent exposure of underground water to contamination.
- The forecourt of the filling station should be banded with a wall to prevent contamination of surface runoff.
- The Contractor must adhere to water quality regulations described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 68 of September 2006.

11.1.4 Impact on Wetlands (Lorian Swamp)

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	The impact is majorly disturbance on wetland ecosystem especially destruction of some parts of Lorian Swamp for the project footprint, reduction of the area under wetland cover as well as possible pollution.
Type of impact (TI)	Direct	Disturbance of the wetland
Intensity (I)	Medium	Wetlands support a very large diversity of flora and fauna and are an ecologically sensitive environment
Extent	Localised	To Lorian swamp
Reversibility	Short term and easily reversible	Wetlands are self-regulating and cleaning mechanism hence capability of purifying themselves
Persistence	Temporary effect	The impacts are restricted to construction phase only

The vegetation of the swamp has three different zones; the upper Cynodon dactylon zone in briefly flooded areas, a zone with Echinochloa spp and Setaria spp on more regularly inundated flood plains and the third zone with aquatic grass and sedge species in the lowest parts of the swamp. The swamp acts as a source of water for humans and livestock. The vegetation also serves as an important range resource for the livestock within the area. The swamp is infested with malarial mosquitoes and fauna present include ostrich, Antelopes, avifauna and crocodiles in the permanently wet areas.

The proposed project road follows an existing alignment that crosses the swamp, therefore, some degree of habitat disturbance and fragmentation of the swamp has already occurred. However, during construction incremental impacts are likely to occur as a result of construction works which may result in increased habitat disturbance, interference with breeding and feeding habits of fauna at specific spots of Lorian swamp. Water pollution arising from contamination runoff and chemical pollutants originating from Contractors camp, asphalt plant and sites of concentrated works.

Mitigation measures

- Adopt water saving technologies to reduce pressure on water demand in the area during construction. The contractor can also diversify water sources for construction to ease the demand.
- Appropriate drainage structures should be constructed along the Lorian swamp section and be desilted and unclogged periodically during the construction and operation phases of the project to allow free flow of water and washing up of wastes into the Lorian swamp.

11.1.5 Impact on Flora

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to vegetation clearance for the project footprint and clearance to meet the energy requirement of the construction workers resulting in loss of mature indigenous species as well as interference with ecologically sensitive areas such as Lorian swamp.
Type of impact (TI)	Direct	Loss of ground cover and mature indigenous trees
Intensity (I)	Minor	The area is semi-arid therefore very little to no vegetation of conservation value that will be interfered with.
Extent	Localised	To the project foot print only
Reversibility	Long term and partially reversible	Permanent loss of vegetation on the paved carriageway. Regeneration of individual tree species may take time due to semi-arid nature of the project area, but is possible over a long period of time in the non-paved part of the project.
Persistence	Partially Permanent effect	Mostly construction phase and the regeneration of the trees may take time due to semi - arid nature of the project area

The project area has minimal vegetation cover and is characterised by scattered shrubs, desert scrubland and grasslands. However, there are a few mature trees along the project corridor that may be cleared for the project footprint. The impact on flora is anticipated to be a direct result of the energy requirement by the construction workers who may require firewood or charcoal for cooking as opposed to clearing of vegetation for construction works.

The local population may supply firewood or charcoal to the workers as an alternative source of livelihood. The project environment is arid and is not conducive for growth of plants therefore the mature trees cleared will take time to grow and naturally regenerate therefore clearance may lead to potential loss of biodiversity and possible disappearance of the species altogether. Birds in the area also prefer tall trees along the road to put up their nests and hence clearance may result in migration of the birds and possible loss of biodiversity.

It is also anticipated that new markets are likely to be identified because of direct accessibility to the project area. Therefore, charcoal burning and selling may thrive in the area and therefore contribute to loss of vegetation. This impact has been rated medium and is anticipated to manifest both during both the construction and operation phases of the project.

Prosopis juliflora is also found within the project environment in some material sites, around Samatar and in some Laghas along the proposed road. Enhanced advancement of Prosopis juliflora invasion is a potential long-term impact. Construction activities may aid in the dispersal of its seeds and consequent

invasion of other areas. The impact of Prosopis will be rampant at all disturbed sites, roadsides and borrow areas if not checked.

Mitigation measures

- Collaboration between KeNHA, KFS so that the species adapted to arid conditions can be selected for afforestation programmes
- The construction workers should be sensitized on the need to use alternative sources of fuel to meet their energy requirement
- Except to the extent necessary for establishing the construction site and carrying out the construction works, vegetation shall not be removed, damaged or disturbed nor should any unauthorized planting of vegetation take place;
- The contractor shall develop a tree planting sub – plan which shall clearly indicate the number of tree seedlings that shall be given to each county
- The clearance of the site for construction purposes shall be kept to a minimum. The use of existing cleared or disturbed areas for the Contractor's Camp, stockpiling of materials etc. shall be encouraged;
- Areas to be cleared should be agreed and demarcated before the start of the clearing operations
- Clearing and removal of vegetation, especially at borrow sites must be carried out in such a way that damage to adjacent areas is prevented or minimised;
- Areas with dense indigenous vegetation are not to be disturbed unless required for construction purposes, nor shall new access routes be cut through such areas
- Environmental rules for contractors, including transparent penalties for noncompliance, need to be incorporated in bidding documents and contracts.
- It is practically difficult to abate the advancement of Prosopis juliflora however control measures can be implemented by constantly monitoring the area to control the advancement.

11.1.6 Air quality

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to the receptors such as schools, health facilities, market centres / towns, offices and places of worship. Anticipated impacts may originate from construction vehicles (dust and CO_2) from machinery and vehicles during the construction phase.
Type of impact (TI)	Direct	Is direct to occupants in the sensitive receptors.
Intensity (I)	Low - Medium	Increased pollution due to dust and emissions are rated low.
Extent	Localized	Relative to the receptor prone areas.

Impact characteristics	Rating	Description
Reversibility	Short term and easily reversible	Impacts are restricted to the construction phase and can be reversed once the works are completed.
Persistence	Temporary effect	For the construction phase.

Aerial emissions from earth moving machines, slow traffic and construction equipment will be significant during construction phase of the project. Air quality is expected to decline as a result of an increase in levels of fugitive dust (PM) from the movement of heavy machinery on earth roads and from haulage activities, excavation works, the stockpiled earth materials and dusty roads during the construction period emissions calling for appropriate watering programs throughout the construction period. The air quality sensitive receptors include learning centres religious centres, health centres and markets interspersed with settlements.

Mitigation measures

- Water sprays shall be used on all earthworks areas. Water shall be applied whenever dust emissions (from vehicle movements or wind) are visible at the site.
- Baseline studies on air quality shall be conducted before the project works commence
- All construction works should be undertaken strictly during business hours.
- The removal of vegetation shall be avoided until clearance is required and exposed surfaces shall be re-vegetated or stabilised as soon as practically possible
- Haulage vehicles delivering earth materials shall be covered to reduce spills and windblown dust;
- Carefully control works close to the listed sensitive receptors such that minimal dust is generated and whenever earthworks are being undertaken, then dust suppression should be implemented continuously
- The contractor should inform the management of sensitive institutions on the days that excess dust is likely to be generated so they can be prepared. The same applies to works along the busy market centres.

11.1.7 Noise and Vibration

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	These refer to noise pollution (noise levels above 60dB(A)) in relation to the sensitive receptors such as learning centres, places of worship, health facilities, offices and market centres.
Type of impact (TI)	Direct	Direct impact on the occupants of the sensitive receptors and hamlets located in close proximity to the road.
Intensity (I)	Low	Despite the relatively low number of sensitive receptors within the project area, incremental noise impacts are anticipated and are rated medium.

Impact characteristics	Rating	Description
Extent	Localized	To the sensitive receptors.
Reversibility	Short term and easily reversible	Impact restricted to construction phase and can be easily reversed with appropriate measures.
Persistence	Temporary effect	Associated with construction traffic and blasting at hard stone quarries.

Movement of heavy equipment during construction, operation of machinery, use of access and haul road and blasting activities in quarries will result in noise and vibration within the vicinity of the site. Construction workers and residents are at risk of hearing impairment, disturbances in sleep, mental health and hindered task performance.

Mitigation measures

- Stipulated operation hours should be adhered to for all activities and actions related to construction of the project road.
- Baseline studies on air quality shall be conducted before the project works commence
- Notify community members about upcoming construction activities that are likely to cause excessive noise and vibration.
- All employees working in areas where there is ongoing works should be provided with personal protective gears
- At commencement of construction works, map all noise sensitive receptors and prepare a construction plan that avoids excessive noise within proximity of the receptors as appropriate
- Avoid loud noise during school hours when working close to the institutions
- Warn residents within 300m of quarries of intention to blast and the exact blasting time. No blasting to be done between dusk and dawn
- To the extent possible, heavy vehicles should not be used at night across inhabited areas especially
- Ensure that construction equipment is operating optimally and with operational noise mufflers where possible.

11.1.8 Construction material sourcing

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts will relate to the borrow pits and quarries used for material sourcing. When not properly rehabilitated remain of poor quality and agriculturally unproductive besides being visually intrusive. Furthermore, they may be a source of accidents

Impact characteristics	Rating	Description
Type of impact (TI)	Direct	Direct to the specific material sites within the project area
Intensity (I)	Medium	With proper mitigation measures the impacts can be averted
Extent	Localized	To the material sites
Reversibility	Short term and easily reversible	The impacts are short term during construction and can be reversed by proper rehabilitation of the material sites
Persistence	Temporary effect	Will be experienced during the construction phase when material is being sourced

During construction of the road a lot of material will be required. These include hardstone and gravel. Most of these materials will be obtained from the project area. Several potential material sites have already been identified within the project area. It therefore follows that if the material sites are not properly rehabilitated they will result in Badlands that are visually intrusive. The pits that are left when filled with pools of water may be hazardous and become potential sites for accidents. Contractor will be required to undertake separate EIAs for gravel borrow areas and observe safety in mining the materials. This impact has also been rated medium and is expected to be manifested in the construction phase of the project. More information can be obtained in volume two of this report.

Mitigation measures

- Environmental Impact assessment study shall be carried out by the contractor prior to the extraction of materials from these sites.
- The material sites should be fenced off to minimize incidents of accident occurring for borrow pits and quarries.
- Rehabilitation of the material sites should be done as soon as extraction of materials from the sites is complete.
- Signs that warn about the hazardous nature of these material sites shall be put up in strategic areas in the appropriate local languages to minimize the accidents.
- Contracts with the material site owners and the contractors should be looked at or verified by the RE, local administrators etc before signing.
- The contractor should avoid exploiting material sites that are on scenic hills and mountains
- The contractor should prepare a borrow pit and quarry rehabilitation and management plan to be used during the construction phase of the project.

- The contractor should keep vegetation clearance to a minimum to reduce interference with the scenic appearance of these areas.
- The contractor should ensure that the detours and access roads to the borrow pits and quarries are marked with warning signs.

11.1.9 Construction water sources

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Provision of water sources would result into water conflicts between community members due to water scarcity Livestock-wildlife-human conflict, disease, salinity and water quality Overgrazing of land leading to further desertification as well as gully erosion at water points.
Type of impact (TI)	Direct	Direct to the community members, wildlife and livestock within the project area
Intensity (I)	Medium	With proper mitigation measures the impacts can be minimised
Extent	Localized	Impacts will only affect the areas around the project road
Reversibility	Long term and partially reversible	The impacts are long term during construction as well as operational phase and can be partially reversed by drilling boreholes that tap deep aquifers and are 20km apart to help solve conflicts, overgrazing and erosion
Persistence	Permanent effect	Will be experienced during the construction phase as well as during the operational phase of the project

Water for construction will be mainly obtained from boreholes along the road. Water is an extremely precious resource in this area. Issues relating to access to water often lead to conflicts between whole communities. Other potential negative impacts include livestock-wildlife-human conflict, disease, salinity and water quality. It is in this regard that any permanent water sources, to be handed to the communities upon decommissioning, should be carefully selected.

Overgrazing of land could be made worse, particularly by handing back to the community wells or boreholes that provide drinking water for livestock throughout the year. Without the rest periods that intermittent water supplies assure, forage conditions can deteriorate around the locations of wells or boreholes.

Another possible effect of water points on the vegetation is the creation of cattle trails and overuse of the surrounding areas as they take water. These trails encourage rill erosion, which later can develop to gully erosion in the event of heavy rains. Sheet erosion may also occur around water points, due to animals loosening the ground surface as they rest before and after taking water. The potential impacts of the provision of water for construction purposes are therefore indirect.

One of the major sources of conflicts in the area is access to water sources. In the dry season, access to water sources located at boundaries between two or more communities or clans often lead to clashes due to scarcity. Locating water sources to be handed back to community is therefore critical.

Mitigation measures

- It is suggested that a procedure be used to select water sources that could be handed back to the community at demobilization, so as not to degrade the immediate vegetation around the water source and avoid causing conflicts between communities. Boreholes that are very close to present permanent water source are suitable. The water source will only improve water supply at an already existing water source, hence no new negative impacts will be associated with it.

Table 11.1: Criteria for selecting water sources to be handed back to community

Site conditions	Suitability
Wet season grazing area	Suitable
At least 5 km from boundary between two or more communities with history of hostility	Suitable
Area with sparse wildlife population	Suitable
Area of moderate to good range conditions	Suitable
Distance to major road > 500 m	Suitable
Near urban areas	Suitable
Near current permanent water sources	suitable
Wildlife migration corridor	Unsuitable
Near community boundary	Unsuitable
Area with saline soils, hence salty or brackish water	Unsuitable
Within 10 km radius of another pan	Unsuitable
Sites already under heavy grazing	Unsuitable
Convergence zone for animals from different regions, except for stock routes	Unsuitable
Directly on laggas	Unsuitable

Other factors to consider before handing back water sources to the community are as follows:

- ✓ Boreholes that are very close to present permanent water source are suitable. The water source will only improve water supply at an already existing water source, hence no new negative impacts will be associated with it.
- ✓ Water sources that are within or close to urban centres are suitable. The borehole(s) will provide additional water supply to the urban centres.
- ✓ The boreholes should be at least 10 km apart. In this way the impact of overgrazing will be spread over a wider area.

The above suggestions on the best way to select suitable and unsuitable water sources are not necessarily mutually exclusive. Wide consultations are required between the various professionals in the region prior to selecting sites. These consultations must also include the community within which the water source is located.

- Water sources that are within or close to urban centres are suitable. The borehole(s) will provide additional water supply to the urban centres.
- The boreholes should be at least 10 km apart. In this way the impact of overgrazing will be spread over a wider area.
- Drilling bore holes that tap deep aquifers requires Government approval, through an abstraction permit from the Ministry of Water development through the Water Resources Management Authority (WRMA), and a license from NEMA. These are required for each borehole that may be drilled. It is important to acquire all the relevant licenses prior to drilling.

11.1.10 Waste Management

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impact involves pollution of the environment caused by both construction generated solid and liquid waste which include waste water, fuels, oils, hazardous substances and other liquid pollutants.
Type of impact (TI)	Direct	Pollution of the project environment.
Intensity (I)	Medium	Large volume of waste is normally generated from excavation of the material sites and carriageway including debris, spoil, general waste (wrapping materials and food waste).
Extent	Localized	To the project area.
Reversibility	Short term and easily reversible	Short term and will only occur during the construction phase and is easily reversible if the appropriate mitigation measures are implemented.
Persistence	Temporary effect	Certain type of waste will only be experienced during the construction phase.

11.1.10.1 Solid waste

There is a wide variety of waste generated during construction. This includes earth spoil generated from excavated material, construction materials such as debris, timber, stones, rock, metals, paper, plastics domestic and human waste, as well as general and office waste such as used toners and cartridges, waste papers, used pen, waste papers, broken equipment etc. therefore proper disposal mechanisms must be put in place to abate the pollution and visual intrusion potential that may occur if the waste is not properly disposed.

Within the project area, the local communities are in dire need of water containers ranging from small cans to large containers used to ferry and store a variety of construction materials ranging from bitumen to paint. Disposal of containers of used oil, lubricants, paint, and other toxic substances, etc. should therefore be carried out with extreme care, so that individuals do not use them as water containers.

Another potential impact would be harm to the livestock within the project area. The local community are pastoralists and heavily rely on livestock as a source of

livelihood. If the livestock ingest the solid waste such as polythene papers, it could result in death of the livestock and caution must be taken to ensure that this is avoided. Similarly, wildlife can be affected in a similar way.

Mitigation measures

- Properly labelled and strategically placed waste disposal containers shall be provided at all the places of work
- The contractor shall prepare a solid waste management plan
- Disposal of waste should be done at approved disposal sites
- Construction workers shall be sensitized on the need for proper waste management
- Provision for responsible management of any hazardous waste generated during the construction works shall be made
- Where feasible construction materials shall be recycled especially containers and cartons.
- For the spoil generated, disposal shall be done on pre-identified sites more than 20 meters from the seasonal watercourses and in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse
- Periodic inspection of waste storage areas and facilities at the construction works sites/camps helps to ensure proper handling of waste materials.
- Contractors should encourage reuse and recycling wherever possible to minimize residual waste.
- A handling protocol, e.g., waste storage away from public view, and provision of retention areas to contain accidental spills of toxic, hazardous, and harmful construction materials, such as caustic and acidic substances, oil, waste oil, diesel, and bitumen, should be prepared and implemented by the contractors.

11.1.10.2 Liquid waste

During the construction phase, various liquid wastes including grey and black water (respectively washing water and sewage), concrete washings, runoff from camp and workshop areas, and various liquid waste streams from washing construction vehicle and equipment washing will be generated. These wastes pose real toxicity and quality threats to the soil and ground water, and the existing wetlands within the area. The water table in the area has also been reported to be high and therefore construction of pit latrines must be avoided and discouraged.

Mitigation measures

- No grey water runoff or uncontrolled discharges from the site/working areas (including washdown areas) to adjacent watercourses and/or water bodies shall be permitted;
- Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills;
- The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies;

- Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;
- Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;
- The Contractor shall notify the RE of any pollution incidents on site.

11.2 POTENTIAL CONSTRUCTION PHASE SOCIAL IMPACT

11.2.1 Displacement of Local Communities and Loss of Property

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to displacements that will result from land acquisition for the project foot print and the road reserve.
Type of impact (TI)	Direct	Direct impact on the occupants of the project area that will be displaced
Intensity (I)	Medium	Despite compensation the lives of the affected can only be restored to a near original state
Extent	Localized	To the affected people displaced and resettled
Reversibility	Long - term and partially reversible	The locals displaced are permanently resettled and impact is partially reversible through the compensations awarded to those affected
Persistence	Temporary effect	Associated with construction traffic and blasting at hardstone quarries.

The proposed project will lead to some land acquisitions causing displacement of people and loss of a few properties along the transport corridor. Members of the public disclosed fear of the compensation not being done appropriately;

It was noted that the project will affect businessness, cultural artifacts and religious houses and persons living in Modogashe and Habasweini towns situated along the corridor. The affected persons will be compensated appropriately according to existing best practices under the GoK and World Bank Policies.

Plate 11.1: Road traversing Modogashe Town

Mitigation

As indicated above there are fears for loss of land to create room for the project along the settlements and trading centers. Compensation for this land was a subject of great concern in all the meetings but especially in Modogashe and Habaswein Towns. The following approaches were suggested to guide the compensation:

- The actual road reserve needs to be clarified since most people do not know they occupy the reserve.
- Compensation may be a challenge because the land is Community Land.
- If the land to be acquired is on the road reserve, no compensation shall be done. Instead, the PAPS will be given resettlement assistance and livelihood restoration in their new place.
- If the road project will need land that is not originally on the road reserve, this shall be assessed, valued and compensated accordingly
- If any burial sites or other amenities are affected will be affected, a discussion will be entered with those affected to decide the best way. The most preferred approach by the communities is to divert the road design away from the graves and mosques

A comprehensive Resettlement Action Plan is to be prepared in a consultative manner respecting the law of Kenya and the World Bank Operating Policies for this project. A separate RAP is thus envisaged.

11.2.2 Disruption and Loss of Businesses

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to disruption and loss of livelihoods
Type of impact (TI)	Direct	Affects those whose businesses are affected by the project especially within the centres along the project road
Intensity (I)	Medium	Despite compensation the lives of the affected can only be restored to a near original state
Extent	Localized	To the affected people displaced and resettled
Reversibility	Long - term and partially reversible	The locals displaced are permanently resettled and impact is partially reversible through the compensations awarded to those affected
Persistence	Permanent effect	The affected people are permanently relocated and resettled

There are roadside traders who seem to have encroached the road reserve to establish businesses in especially in Modogashe and Habaswein. The situation is the same in Kanjara, Guticha and Skanska.

Under World Bank Policies, these people, though lacking title to their business premises, will be entitled to relocation and resettlement assistance to continue their livelihoods. As above, this will be captured in the RAP prepared in tandem with this report.

11.2.3 Increase in the spread of STD, HIV and AIDS

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Influx of employees to the project area and many staying away from their families may lead to spread of and increase in incidences of sexually transmitted diseases
Type of impact (TI)	Indirect	Possibility of new infections hence spread and increase in the incidences of infections
Intensity (I)	Medium	In relation to the huge number of employees into the project area
Extent	Dispersed	When the employees return to their families they can infect their spouses and continue the cycle of infection
Reversibility	Long - term and partially reversible	There are programs that can be implemented to aid in control of the spread of the diseases
Persistence	Temporary effect	Will persist in the construction phase

Large road works inevitably lead to an influx of many youthful employees staying away from their families and partners. The proposed road may thus lead to increase in incidences of sexually transmitted diseases including HIV and AIDS especially during construction of the road. Incidences of transactional sex may increase. It is instructive that the project area has the lowest incidence of HIV/AIDS in the country. The project proponent will need to work jointly with appropriate county and national government public health agencies to come with a comprehensive STD, HIV and AIDs control programme during the construction and operational phases of the project.

Mitigation measures

This should be mitigated as follows: The Contractor should

- Develop a comprehensive STDS, HIV and AIDs awareness and prevention program factored into the entire construction period reaching both males and female.
- Integrate and mainstream HIV/AIDS programming within road construction project
- Enhance the capacity of road construction workers and partner communities to address HIV/AIDS prevention, care and support interventions
- Establish networks with relevant Organizations in the HIV/AIDS management.
- Improve community participation and its capacity to sustain and manage established HIV activities
- Provide Consistent access to essential HIV and AIDS services including VCT and Condoms

A specialized sub-contractor should be engaged to handle this.

11.2.4 Restrictions on the use of the way leave

In Modogashe and Habaswein as well as in Skanska, Kanjara, and Guticha, there are small-scale businesses along the existing road reserve .In the interest of safety, security and efficiency, it is recommended that under a RAP framework, they be given resettlement and livelihoods assistance away from the road reserve.

11.2.5 Disruption of cultural mores and family values

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to disruption of cultural morals and values among the locals
Type of impact (TI)	Indirect	May result in erosion of cultural values and morals
Intensity (I)	Medium	New people in the area could lead to erosion of local culture which is conservative and largely Islamic based. Transactional sex, child labor and alcoholism may be introduced in an area where this is minimal.
Extent	Localized	To the project area
Reversibility	Long - term and partially reversible	The impacts may persist for a long time even when the project has been completed and it may be very difficult to handle. However, the impact can be mitigated through consultations with the local community
Persistence	Temporary effect	Will be more prevalent in the construction phase where interaction between the locals and non-locals is higher

Even though immigration creates diversity which is a positive socio-economic impact, new people in the area could lead to erosion of local culture which is conservative and largely Islamic based. Transactional sex, child labor and alcoholism may be introduced in an area where this is minimal.

It is recommended in mitigation that:

- Consultation with elders, sheikhs and the county government, cultural events be promoted
- the contractor should consult with the community so that he is informed on the critical issues of culture and traditions and these should be respected by all employees
- As much as possible hire local labor
- Have a child protection strategy

11.2.6 Terrorism

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to increase in terrorism incidences
Type of impact (TI)	Indirect	Proximity of the area to the Somalia border may expose construction workers and the locals to terrorists. There are cases of terrorism attacks in the area however incremental impacts may be realized.
Intensity (I)	Medium	The impacts can be partially mitigated through provision of security during the construction phase
Extent	Localized	To the project environment
Reversibility	Long - term and partially reversible	Can be relatively mitigated
Persistence	Temporary effect	Will persist in the construction phase

The issue of terrorism cannot be completely ruled out of the project, since the proposed project is located near the Somali border. Several cases of terrorism have been reported in the past where lives have been lost. It will be prudent for both the County and National Governments to provide adequate security both during the study, implementation, construction and operation phases of the proposed project. This will ensure that terrorism activities have been minimized

Mitigation measures

- Thoroughly screen workers, suppliers and distributors.
- Ensure 24-hour surveillance by engaging the Administration Police services during the day and night.
- Install CCTV cameras in strategic locations in workers' camps,
- Ensure close liaison with the local Police Department.
- Be senstitive to and respect local mores.

11.3 Potential Operation Phase Environmental Impacts

11.3.1 Soil

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	The road acts as a barrier to run-off occasioning concentrated water flow and enhancing scouring of the road embankment and side drains. Occasional torrential rains or storms do occur, and this could result into severe soil erosion especially where ground cover is poor

Impact characteristics	Rating	Description
Type of impact (TI)	Direct	Torrential rain directly affects the soil by causing severe soil erosion. Concentrated water flow directly enhances scouring of the road embankment and side drains
Intensity (I)	Low	The impact can be mitigated in the design and through prudent and efficient construction practices
Extent	Localised	The impact only occurs in areas where the soil texture is very poor and shallow.
Reversibility	Short term and easily reversible	The impacts that come as a result of torrential rain are generally considered short term and easily reversible since they only come during rainy season and through proper mitigation measures in the design stage, they can be mitigated.
Persistence	Temporary effect	The impacts are only experienced during the rainy season

The project area receives very low rainfall, which is erratic in most cases. Ordinarily, therefore, soil erosion is not a regular occurrence in the project area. However, occasional torrential rains or storms do occur, and this can cause severe soil erosion especially where ground cover is poor, as is the case in most of the project area.

The dominant soil type is prone to soil erosion, as they are shallow and generally of light and medium texture. The soils are not well developed due to aridity and constant erosion by water and wind and are often capped by stone mantles.

Soil erosion will manifest itself during the operational phases of the project, however the impacts are expected to be higher during the operation phase when the road acts as a barrier to run-off occasioning concentrated water flow and enhancing scouring of the road embankment and side drains.

Optimized new drainage structures and improved capacities of the new drainage structures should generally improve on drainage and in combination with specific erosion protection works will reduce soil erosion from that currently experienced.

Mitigation measures

This has been mitigated in design

11.3.2 Fauna

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Possibility of high speed motoring along the road leading to road kills. Improved accessibility may result in poaching.

Impact characteristics	Rating	Description
Type of impact (TI)	Direct	High speeding motor vehicles and poachers directly kill wildlife
Intensity (I)	Medium	The impact can be relatively mitigated in the design and through prudent and efficient construction practices
Extent	Localised	The impacts will only be experienced in areas where there are wild animals.
Reversibility	Long term and partially reversible	The impacts that come along with increased accessibility to the wildlife species are considered long term and can be partially reversible if proper mitigation measures are put in place.
Persistence	Permanent effect	Will persist for the road life cycle

The road is an international trunk road that connects Kenya with Somalia. Opening up the area through the international road will motivate criminals to take advantage of rapid transport to engage in poaching of wildlife.

Another potential impact is the possibility of high speed motoring along the road leading to road kills as the wildlife attempt to cross the road in search of water and food.

Some animals are affected by the road acting as a raised platform which may hamper their movements especially elephants. Paved surfaces may also attract herbivores to the open clear road corridor especially in the evenings as a coping mechanism against predators. This could lead to an increase in road kills.

The table below shows the potential threats to the vulnerable wildlife species within the project area.

Key species	Significance of impact	Source of impact	Remarks
Elephant	Low - Insignificant	• Raised surfaces	• Elephants movements are hampered by raised surfaces • Prone to poaching due to their tusks
Giraffes	Significant	• Human activity • Increased traffic	• Poaching • Road kills

Key species	Significance of impact	Source of impact	Remarks
Grevy zebra	Significant	• Human activity • Increased traffic	• Classified as threatened species by IUCN • Prone to poaching • Road kills • Unique to Garissa area
Lions	Significant	• Human activity	• Prone to poaching for their bones and as trophy • Global population has significantly declined
Guinea fowls	Significant	• Increased traffic	• Prone to road kills since they roam on and close to the road
Warthogs	Significant	• Increased traffic	• Road kills
Ungulates (Antelopes, gerenuk, dik dik)	Significant	• Human activity • Increased traffic	• Prone to hunting and poaching for their game meat • Road kills
Ostrich	Significant	• Human activity	• Prone to poaching and hunting for game meat, feathers and their skin which is used for making leather products

The elephants are the most critical wildlife species in the context of this project since they are likely to be affected by raised surfaces. The project design is expected to raise the road by 1.3 – 1.8m. However, the elephants are unlikely to be affected by the project since they do not reside within the project area but rather elephants migrate from Meru National park eastwards to River Tana and not northwards across the project road in search of water and browse.

Mitigation measures

- Considering that there are no defined wildlife corridors within the project area it is proposed that clear wildlife crossing signs should be placed every 10 km to remind motorists of wildlife presence in the area.
- During operation, a programmatic approach is proposed, where greater surveillance by KWS and involvement of local communities is instituted to counteract possibilities for new trade in game trophies, skins and live animals.

11.3.3 Hydrology

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts relate to extreme and intense rainfall occurrences that may result in damages to the cross-drainage structures installed on the road.

Impact characteristics	Rating	Description
		The heavy flooding accompanied with run offs could result into gully erosion that could endanger the road itself, and be a hazard to traffic.
Type of impact (TI)	Direct	Extreme rainfall directly results into heavy flooding and run offs that directly damages drainage and culverts
Intensity (I)	Medium	The impact can be relatively mitigated in the design and through prudent and efficient construction practices
Extent	medium	The flooding water and runoff can flow up to several meters away
Reversibility	Short term and easily reversible	The impacts are only felt during the rainy season and can be mitigated when appropriate measures are introduced at the design stage
Persistence	Temporary effect	The impacts are only felt during the rainy season

The project area has no permanent rivers. The seasonal rivers emerge during the long rains and dry up during the dry season. Lack of permanent rivers is due to unpredictable rainfall pattern as already described in the baseline. These conditions imply that drainage is a seasonal phenomenon. Sometimes the project area experiences extremely intense rainfall over a short period of time, thereby causing heavy run-off and flooding. It would be extremely expensive to design and build drainage structures along the road to cater for all such unpredictable but sporadic extreme weather conditions.

The conventional structures used to drain water are culverts, side drains, meter drains and bridges. Most culverts concentrate flows at their inlets and outlets resulting in localized increased rates of flow, and consequently potential for scouring, especially at the outlets. Such soil erosion could endanger the road itself, and be a hazard to traffic as illustrated in the preceding section. In addition, the water disposed from such concentrated flows could enhance erosion and gully formation.

Mitigation measures

- The design of the upgraded road is largely expected to mitigate, rather than enhance impacts on drainage. On balance, this is a positive impact of the project. No new negative impacts on drainage are foreseen.

11.3.4 Vegetation resources

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Urbanisation and immigration is expected to increase due to opportunities, this will lead to further clearance of vegetation in the project area. This is done so as to give room for business activities and residential

Impact characteristics	Rating	Description
Type of impact (TI)	Indirect	Business opportunities such as tourism, livestock trade and transport that will come up in the area as a result of improved road will lead to direct clearance of vegetation
Intensity (I)	Medium	The impact can be relatively mitigated in the design and through prudent and efficient construction practices
Extent	Medium	The impact may spread over a wider area 5km radius
Reversibility	Long term and partially reversible	The impacts that come along with improved road will lead to cutting down of vegetation for erecting business building as well as residential places will lead to permanent loss of vegetation
Persistence	Permanent effect	Construction of buildings will lead to permanent loss of vegetation.

Urbanization and immigration is expected to increase the population in the area due to opportunities that shall have been opened up, especially livestock trade, tourism, improved transport sector and others. This increase in population, alongside envisaged improved economic wellbeing will place increased demand on cooking energy requirements. It is not easy to estimate demand during operation, but this demand is certainly expected to increase.

Mitigation measures

- The Kenya forest service and the county governments should be engaged to take a pro-active approach to conservation within the project area.

11.4 Potential Operation Phase Social Impacts

11.4.1 Road safety

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts involve road kills to livestock and wildlife within the area as a result of upgrading the road to a design speed of 80 – 100km/h
Type of impact (TI)	Direct	With the upgrading of the road to a design speed of 80-100km/h high speed motoring will be common
Intensity (I)	Medium	The impact can be mitigated in the design and through warning signs along the road
Extent	Localised	Considering the design speed in an area that otherwise had no previous experience of such speed, there is a likelihood of accidents especially across or near villages.

Impact characteristics	Rating	Description
Reversibility	Long term and partially reversible	The impact may persist through the life cycle of the project. However, the impacts can be partially mitigated through erection of both livestock and wildlife warning signs
Persistence	Permanent effect	Will persist through the project life cycle

With the upgrading of the road to a design speed of 80-100km/h high speed motoring will be common. Being a pastoralist zone, regular crossing of the road in search of pasture and water presents a hazard to both motorists and livestock. Further, the presence of wildlife like giraffes, ostriches, gazelles and gerenuk along the project road will also be of road safety concern. Considering the design speed in an area that otherwise had no previous experience of such speed, there is a likelihood of accidents especially across or near villages.

Mitigation measures

This should be mitigated as follows:

- Road humps, rumble strips and signage need to be provided across towns and villages such as Modogashe, Habasweini, Skanska, Kanjara, Legdima and Samatar to reduce incidences of accidents.
- Livestock crossing signs should be provided to warn motorists of livestock crossing the road. It is suggested that the livestock crossing points be provided at the following coordinates
  1. 0536076 - approximately km 27+300
     0102349
  2. 0552314 - approximately km 46+700
     0111213
  3. 0585243 - approximately km 89+800
     0135346

Figure 11.1: Proposed livestock crossing sign points

- Community road safety awareness campaigns should be conducted during the construction period. Due to relatively low literacy levels road safety campaigns should involve use of illustrated materials translated into Borana and Somali languages

- Adopt strict policing to ensure that there is no speeding along the road

11.4.2 Community and Political Grievances

Impact characteristics	Rating	Description
Nature of impact (NI)	Negative	Impacts involve conflicts between the project and the communities before, during and after the road construction
Type of impact (TI)	Direct	Impacts include disputes on resources, labor influx, cultural disputes, benefits sharing among others
Intensity (I)	Medium	The impacts can be sufficiently mitigated through effective consultations
Extent	Localised	The disputes will be more prevalent in the areas of conflicts / disputes
Reversibility	Long term and partially reversible	Conflicts such as boundary issues will continue to persist however with proper consultations these impacts can be relatively mitigated.
Persistence	Temporary / permanent	If the conflicts are resolved they are temporary but if unresolved may be permanent

The project will create jobs for the local community and the country at large and hasten development. It is recognized that there will be inevitable conflicts between the project and the communities before, during and after the road construction. Such conflicts will include disputes on resources, negative impacts of the road, labor influx, employment places, cultural disputes, benefits sharing and other conflicts. Conflicts related to relocation and compensation of PAPS are to be anticipated. In the case of Modogashe – Samatar road, there were historical boundary conflicts that threaten the progress of the project.

Mitigation

- The principal mitigation to avoid conflicts is information and disclosures. It is recommended that the public should be sensitized extensively throughout the project cycle and beyond. Sensitization should be factored into the design. A stakeholder Management Plan is recommended at the beginning of the project. The stakeholders should be involved at every stage of the project.
- It is recommended that a Grievance Redress Mechanism involving local communities be set up. The project should work with the communities in addressing any arising grievances due to the road construction by forming local inclusive committees. Two Grievance Redress Committees are recommended. One which will be part of the Resettlement Action Plan to address issues directly affected those who will be affected and one which be based at every center to address emerging issues related to the project operations. To ensure their success, it was proposed that these committees be planned for and resourced to be effective
- A comprehensive RAP to address all compensation, acquisitions and relocations in the project is recommended. This project anticipates an independent RAP.

- Contractor should obtaining necessary permissions and approvals from the County Governments and paying necessary levies and Ensure that EIAs are conducted for specific project activities such as sand harvesting, borrow pit and quarrying sites.
- Give priority to local labor in the project. A labor Management Plan by the contractor is hereby recommended.
- A clear Resource Sharing and Management Plan be prepared to demonstrate how Water which is a very scarce resources will be managed and shared with the community during the construction of the road project. Quarry Land will also need to be managed.
- Labor Influx management programs proposed for the entire road network. .
- Tree planting programs proposed with the involvement of local communities to ensure sustainability

11.5 DECOMMISSIONING PHASE

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

- Waste generation
- Noise pollution
- Dust and exhaust emissions
- Occupational hazards

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

- Rehabilitation of the whole area
- Employment opportunities

11.5.1 Camp Site and Asphalt Plant

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

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12. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

12.1 GENERAL

The project should adhere to the environmental laws (EMCA, 1999 and associated regulations as well as relevant sectoral statutes) and be acceptable to the majority and ensure minimal effects to the physical environment through review of the design aspects and a sustained monitoring of the roads upon commissioning.

The preceding chapters of this report show that the project poses issues of concern related to environmental conservation. For this reason, a comprehensive Environmental Management Plan (EMP) is necessary on the project implementation. The plan establishes benchmarks for continuous assessment and monitoring of nature and magnitude of anticipated environmental impacts which have economic bearing and affects sustainability of a project. It provides the key environmental concerns, proposed mitigation measures, responsibility for intervention and monitoring, monitoring means and recommended frequency of monitoring.

12.2 ENVIRONMENTAL MANAGEMENT PLAN

Environmental monitoring starts at construction and continues throughout the life of the road project. Monitoring involves the continuous or periodic review of construction and maintenance activities to determine the effectiveness of recommended mitigation measures. Consequently, trends in environmental degradation or improvement can be established, and previously unforeseen impacts can be identified or pre-empted.

In order for the project Contractor to carry out environmental management activities during construction, the Contractor should draw up environmental monitoring plans based on the EMP showing how he will address the mitigation measures during the construction period. The project Supervising Engineer will be responsible for assessing the Contractor environmental monitoring plan. The Client (KeNHA) will oversee the Supervising Engineers to confirm that mitigations are being implemented in the correct manner.

Environmental monitoring allows measures to be implemented in order to prevent or avert negative impacts. Simple monitoring systems should be set up during construction by the Supervising Engineer and Contractor and during operation so that potentially environmentally problematic areas can be detected well in advance and the appropriate remedial action taken. The types of parameters to be monitored may include mitigation measures or design features, or actual impacts.

The ESMP and the monitoring plan are key documents for Environmental Audits that are carried out annually on road projects. These audits assess the relevance, efficiency and impact of any mitigation measures that have been employed. The table below summarizes the Environmental and Social Management Plan for the road. It describes parameters that can be monitored, and suggests how monitoring should be done, how frequently, and who should be responsible for monitoring and action.

Roles and responsibilities:

(i) KeNHA will establish a specific PIU and assign Environment and social staff to be charged with the responsibility of coordinating all matters pertaining to the safeguards implementation in the project. A competent E & S

Consultant will be recruited as part of the capacity enhancement under the project,

(ii) Monitoring activities will be the responsibility of the supervision with the Supervision Engineer being the Leader. Among other staff, the Resident Engineer will have a full-time qualified Environmental officer, Health and Safety and Social officers.

(iii) Among the immediate and follow-up tasks of the Environmentalist, Health and Safety Experts will include;

- ✓ Development of a monitoring checklist based on the C-E.S.M.P and this ESMP and guided by the project design;
- ✓ Daily monitoring the contractors work for compliance with the ESIA/CESMP and providing safeguards monitoring results in the monthly reporting
- ✓ Respond to incidents, non-compliances , review of the C-ESMP and other tasks
- ✓ Updating the ESIA/ESMP as necessary to reflect changes in design
- ✓ Managing instances of non-compliance by the contractor and reporting all instances to the Resident/Supervision Engineer and KeNHA
- ✓ Managing and responding to all direct complaints /incidents received by workers, airport service users as per the GRM
- ✓ Develop a monitoring programme for the works targeting specific project activities and sensitive environment and social aspects,
- ✓ Prepare monthly site meetings to involve the Contractor, Client and Stakeholders
- ✓ Monthly reports in addition to continuous communications to the Contractor, Client, the Authorities and the Stakeholders as situations require,
- ✓ The Supervision Engineer will convene monthly meetings for progress reporting by the Contractor and the Supervision Team. The Client will attend all the meetings. e.t.c.

The Contractor is expected to integrate environmental and social focus in the Project Manager. To ensure effective implementation of the projects impacts mitigation measures, therefore, the contractor will mobilize in-house

Table 12.1: Proposed ESMP of the Project Road

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
Impact on fauna • Natural habitat destruction • Impacts on threatened species • Poaching • Road kills	▪ Time spent around the sensitive bird areas especially should be minimized by adequately planning for the works and avoiding idling time. ▪ Keep site clearance to the project footprint and avoid or minimize clearance beyond the project area. ▪ The proponent to conduct an orientation workshop including the Contractor and relevant stakeholders i.e. NEMA. KWS to educate the Contractor employees on wildlife conservation before commencement of works. Education on wildlife conservation should continue throughout the project life cycle. ▪ Cautionary signage should be placed at suitable places in consultation with wildlife department ▪ All construction vehicles to ply recommended routes to avoid collision with wildlife. ▪ Underpasses to be constructed as per advice of KWS. ▪ Any poaching activities should be penalized heavily.	Contractor Supervising Engineer	KeNHA, KWS, NEMA County Government of Garissa, Wajir	(c) daily/random
Water Resources • Contamination of	▪ Alternative underground water should be sought	Contractor Supervising	KeNHA, WRMA,	(c) during construction and on completion of each drainage structure

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
water sources by liquid wastes from the construction camps, spillages from oil products and soil erosion • Flooding • Water abstraction • Water conflicts with the local communities	▪ The Contractor should avoid abstraction of water from any community owned water source ▪ Any water abstracted from the water pans and boreholes created by the Contractor should be shared with the local communities. ▪ Construction machineries should be serviced regularly and be in good working condition before being utilized for construction purposes. ▪ Adopt water saving technologies in order to reduce pressure on water demand in the area during construction. The contractor can also diversify water sources for construction in order to ease the demand. ▪ Side drains and mitre drains, required to direct road surface runoff away from the road should be de-silted and unclogged periodically to prevent accumulation of silt and waste and eventual washing up into water bodies. ▪ Maintain spill kits at the contractor's garage, workshops and those areas experiencing spillages. ▪ Storage of oil and tar drums should be done on concrete floors to prevent exposure of underground water to contamination.	Engineer, KURA Dept. of Mines &Geology, Land owners (*during drafting of agreement letter with Contractor*)	NEMA County Government of Garissa, Wajir	(o) after each rainy season (c) during rains, during abstraction at sources, and at random intervals

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ The forecourt of the filling station should be bunded with a wall to prevent contamination of surface runoff. ▪ The Contractor must adhere to water quality regulations described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 68 of September 2006.			
Noise and excessive vibration • Construction machineries • Blasting works at material sites • Excavation works • Generated traffic	▪ Stipulated operation hours should be adhered to for all activities and actions related to construction of the project road. ▪ Notify community members about upcoming construction activities that are likely to cause excessive noise and vibration. ▪ All employees working in areas where there is ongoing works should be provided with personal protective gears ▪ At commencement of construction works, map all noise sensitive receptors and prepare a construction plan that avoids excessive noise within proximity of the receptors as appropriate ▪ Avoid loud noise during school hours when working close to the institutions ▪ Warn residents within 300m of quarries of intention to blast and the exact blasting time. No blasting to be done between dusk and dawn	Contractor, NEMA, Dept. of mines and geology, NTSA	KeNHA, Traffic police, NEMA NTSA	(c) daily/random (o) random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ To the extent possible, heavy vehicles should not be used at night across inhabited areas especially ▪ Ensure that construction equipment is operating optimally and with operational noise mufflers where possible.			
Air Quality • Emissions from construction operations, machineries, vehicles and generated traffic • Fugitive dust from road use • Dust from haulage routes, deviations and material sites	▪ Water sprays shall be used on all earthworks areas. Water shall be applied whenever dust emissions (from vehicle movements or wind) are visible at the site. ▪ All construction works should be undertaken strictly during business hours. ▪ The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilised as soon as practically possible ▪ Haulage vehicles delivering earth materials shall be covered to reduce spills and windblown dust; ▪ Carefully control works close to the listed sensitive receptors such that minimal dust is generated and whenever earthworks are being undertaken, then dust suppression should be implemented continuously ▪ The contractor should inform the management of sensitive institutions on the days that excess dust is likely to be generated so they can be prepared.	Supervising Engineer, Contractor	KeNHA, NEMA	(c) Daily/random (c) Monthly (o) Random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	The same applies to works along the busy market centres.			
Impact on flora • Vegetation loss	▪ Collaboration between KeNHA, KFS so that the species adapted to arid conditions can be selected for afforestation programmes ▪ The construction workers should be sensitized on the need to use alternative sources of fuel to meet their energy requirement ▪ Except to the extent necessary for establishing the construction site and carrying out the construction works, vegetation shall not be removed, damaged or disturbed nor should any unauthorized planting of vegetation take place; ▪ The contractor shall develop a tree planting sub – plan which shall clearly indicate the number of tree seedlings that shall be given to each county ▪ The clearance of the site for construction purposes shall be kept to a minimum. The use of existing cleared or disturbed areas for the Contractor's Camp, stockpiling of materials etc. shall be encouraged; ▪ Areas to be cleared should be agreed and demarcated before the start of the clearing operations	Supervising Engineer Contractor Environmental officer Resident Engineer	KENHA NEMA	(c) Daily/random (c) Monthly (o) Random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Clearing and removal of vegetation, especially at borrow sites must be carried out in such a way that damage to adjacent areas is prevented or minimised; ▪ Areas with dense indigenous vegetation are not to be disturbed unless required for construction purposes, nor shall new access routes be cut through such areas ▪ Environmental rules for contractors, including transparent penalties for noncompliance, need to be incorporated in bidding documents and contracts. ▪ The contractor should prepare an invasive weed control management plan ▪ Tree planting sub plans to be incorporated in the bidding documents			
Waste management	▪ The contractor shall prepare a solid waste management plan ▪ Construction workers shall be sensitized on the need for proper waste disposal ▪ No burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted ▪ Provision for responsible management of any hazardous waste generated during the construction works shall be done ▪ Where feasible construction materials shall be recycled especially containers and cartons.		KENHA NEMA	(c) Daily/random (c) Monthly (o) Random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Involve the local community on the removal and disposal of the spoil and solid wastes to approved dumping areas. ▪ For the spoil generated, disposal shall be done on pre-identified sites more than 20 meters from watercourses and in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse			
Liquid waste	▪ No grey water runoff or uncontrolled discharges from the site/working areas (including washdown areas) to adjacent watercourses and/or water bodies shall be permitted; ▪ Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills; ▪ The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies; ▪ Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;	Environmental officer Resident Engineer	NEMA KENHA	(c) Daily/random (c) Monthly (o) Random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted; ▪ The Contractor shall notify the RE of any pollution incidents on site.			
Construction material sourcing	▪ Environmental Impact assessment study shall be carried out by the contractor prior to the extraction of materials from these sites. ▪ The material sites should be fenced off to minimize incidents of accident occurring for borrow pits and quarries. ▪ Rehabilitation of the material sites should be done as soon as extraction of materials from the sites is complete. ▪ Signs that warn about the hazardous nature of these material sites shall be put up in strategic areas in the appropriate local languages to minimize the accidents. ▪ Contracts with the material site owners and the contractors should be looked at or verified by the RE, local administrators etc before signing. ▪ The contractor should avoid exploiting material sites that are on scenic hills and mountains	Environmental officer Resident Engineer	Contractor NEMA	C

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ The contractor should prepare a borrow pit and quarry rehabilitation and management plan to be used during the construction phase of the project. ▪ The contractor should keep vegetation clearance to a minimum to reduce interference with the scenic appearance of these areas. ▪ The contractor should ensure that the detours and access roads to the borrow pits and quarries are marked with warning signs			
Decommissioning of construction facilities • Construction camps • Batching yards • Construction equipment	▪ Clearance of waste, surplus materials, temporary structures and equipment from the camp sites, asphalt plant and crusher plant. ▪ Safety provisions to persons and animals in the adjoining property in process of rehabilitation of construction facilities.	KeNHA, NEMA, DOSHS, County Government	KeNHA, NEMA, DOSHS,	Random inspection after rehabilitation
Rehabilitation of material sites • Borrow pits • Quarries • Material haulage routes	▪ Access and haul road to be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed. ▪ Slope grading to ensure that all unconsolidated materials are in such an angle as to minimize possibility of slides and be consistent with future use of land.	KeNHA, NEMA, DOSHS, Department of mines and	Contractor	Random inspection Reporting to ensure conformity to the material sites rehabilitation plan

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Back filling of the pit with clean or inert fill and cover with the top soil. ▪ Construction of suitable drainage to avoid conditions where small pools of water are likely to gather and become noxious, or foul in the mined area.	geology County Government		
Land use Change	▪ Identify and Consult project affected persons and compensate them as per the laid down policies ▪ Identify and weed out potentially invasive plant/animal species at the earliest	KENHA, Contractor, Ministry of lands National Land Commission		Before commencement of the project
Direct land take	▪ Consult the Project Affected Persons (PAP's) on, and offer choices among technically and economically feasible resettlement alternatives. ▪ Land acquisition to be done before the contractor goes to site. ▪ Compensate those affected according to the laid down policies in collaboration with the National Lands Commission. ▪ Implement an institutional structure or a mechanism for monitoring and evaluating the compensation/resettlement process.	Contractor, Ministry of lands, NLC		Before commencement of the project
Communicable Diseases	▪ HIV/AIDS awareness and prevention campaigns and provision of condoms for road crews and adjacent communities ▪ Health clinics along the roads get high priority, with special attention to danger of HIV/AIDS	Contractor, Supervising Engineer		(c) monthly

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
Construction Crew Camps	▪ Proper siting with a preference for flat sites and standardized layout with adequate and clearly specified pollution safeguards ▪ Careful attention to water supply issues so as not to disadvantage local communities ▪ Consider leaving operational borehole(s) for local communities' use after departure of the road crew ▪ Full clean-up costs incorporated into BOQ	Contractor, Supervising Engineer		Before commencement of the project
Community Health	▪ Local education especially to young people and school children regarding the dangers extra-marital sex with construction staff ▪ Introduction of measures that intercept transmission of dust and other air pollutants likely to be generated to sensitive receptors when it cannot be entirely avoided. For example, Surface dressing to be done on diversion routes and materials handling site routes through populated centres especially if these sites are near sensitive receptors. ▪ Vehicles and construction machinery to be properly maintained and to comply with relevant emission standards. ▪ Construction activities to be scheduled carefully to minimize the impact of noise from construction machinery. Night time's uses of certain noisy machines, such as pile drivers and concrete vibrators, to be regulated.	Contractor Supervising Engineer		(c) daily/random

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Enlighten personnel and community about Malaria and use of mosquito nets including proper hygiene and sanitation, Proper disposal of containers and other wastes that may act as mosquito breeding grounds. ▪ Fence off active construction sites			
Changes in Population Characteristics	▪ Prepare Land acquisition plans ▪ Carry out detailed RAP. ▪ Employing as many people as possible from the locality especially unskilled workforce will help them accept skilled labour from outside. This will promote cohesion and the spirit of the project. ▪ The contractor should source labour from the indigenous communities along the road as much as possible. ▪ Identify workers representative to ensure that all issues are resolved in a timely manner.	Contractor Supervising Engineer		Before commencement of the projects
Changes in Human Settlement	▪ Respective County Governments to monitor such growth and possibly plan for it in physical development plans for respective centres	Supervising Engineer, CEC Lands, Environment and Natural Resources and planning		(c) yearly

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
Social Organization	▪ Give priority of employment to the local people ▪ Grievance Redress Strategy	Contractor, Supervising Engineer		Before commencement of works
Labour	▪ Strict adherence to OSHA standards that prohibit child labour ▪ Child Protection Strategy ▪ Labor Influx Management Plan ▪ Code of conducts for all workers strictly used and monitors ▪ Cultural awareness training for all non local labour. ▪ PSEA activities prohibited	DOSH Contractor Supervising Engineer		(c) random
Improved Access	▪ Increased trade ▪ Journey times saved	Enhancement		
Road Safety and Accident Rates	▪ To reduce accidents, appropriate road signs and road markings to be put in place to warn drivers of safety hazards especially while approaching bends, junctions, bridges, animal crossings, schools and shopping centres. ▪ To reduce the possibility of vehicle and animals' collisions vehicle speeds shall not exceed posted speed limits and animal crossing warning signs shall be installed where appropriate ▪ Training of bodaboda riders on traffic regulations	Contractor, Supervising Engineer		(c) monthly

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Keep surveillance on roadside markets who encroach on the roads and interrupt visibility ▪ Awareness raising at schools and through FM radios.			
Occupational Patterns and Economic Activities	▪ Maintain surveillance on unplanned settlement and encroachment on the road reserve ▪ Training in new skills for business or agriculture as appropriate	Supervising Engineer, KENHA CEC – Lands, Environment & Natural Resources		(c) monthly
Economic Environment	▪ These are enhancements			
Land use Change Some currently existing market centres may rapidly develop in to vibrant town centres	▪ Identify and Consult project affected persons and compensate them as per the laid down policies	Contractor RE KENHA		Throughout project construction period
Direct land take Land will be acquired for roads, markets and by passes	▪ Consult the Project Affected Persons (PAP's) on, and offer choices among technically and economically feasible resettlement alternatives. ▪ Land acquisition to be done before the contractor goes to site.	MoL/NLC Consultant Proponent,		Pre-construction

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	▪ Compensate those affected according to the laid down policies in collaboration with the National Land Commission. ▪ Implement an institutional structure or a mechanism for monitoring and evaluating the compensation/resettlement process.			
Communicable Diseases such as New cases of STI's, HIV & AIDS	▪ HIV/AIDS awareness and prevention campaigns and provision of condoms for road crews and adjacent communities ▪ Health clinics along the roads get high priority, with special attention to danger of HIV/AIDS	Contractor Supervising Engineer		Throughout project construction period
Community Health	▪ Local education especially to young people and school children regarding the dangers ▪ Introduction of measures that intercept transmission of dust and other air pollutants likely to be generated to sensitive receptors when it cannot be entirely avoided. For example Surface dressing to be done on diversion routes and materials handling site routes through populated centres especially if these sites are near sensitive receptors. ▪ Vehicles and construction machinery to be properly maintained and to comply with relevant emission standards. ▪ Construction activities to be scheduled carefully to minimize the impact of noise from construction machinery. Night time's	KENHA , MOH Supervising Engineers, Contractor		(C) monthly

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	uses of certain noisy machines, such as pile drivers and concrete vibrators, to be regulated. ▪ Enlighten personnel and community about Malaria and use of mosquito nets including proper hygiene and sanitation, Proper disposal of containers and other wastes that may act as mosquito breeding grounds. ▪ Fence off active construction sites			
Potential for migration of commercial sex workers and transmission of STDS and HIV-AIDS	▪ Intensify awareness on HIV/AIDS by use of bill boards in market centres, through staff training, community awareness campaigns, multi-media and workshops or during community 'Barazas' along the project road. ▪ Condom dispensers to be located in appropriate locations within the camp and the camp environs such as in public toilets in market centers and the contractor to provide VCT centers along the route in collaboration with the ministry of health.	Contractor , RE, Local NGO's Ministry of Health		Daily throughout construction period
Relocation and resettlement occasioned by the proposed upgrading	▪ Costs of RAP as well as environmental management becomes an explicit part of the project BOQ	KENHA NLC Contractor RE		Pre-construction
In-migration of various other ethnic groups and expatriates	▪ Employing majority locals especially unskilled workforce ▪ The contractor should source rest of labour	Contractor NGO's County		Annually throughout construction and operation

Environmental Concern	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring	Responsibility for monitoring/or maintenance after DLP	Frequency of monitoring (inspection/observation/reporting/Survey) C – Construction O - Operation
	from the local community ▪ Labor Influx Management Plan ▪ Child Protection Strategy ▪ Engagement of local leaders and grievance redress committees to avoid conflicts.	Governments		
Changes in Human Settlement	▪ Respective County Governments to monitor such growth and possibly plan for it in physical development plans for respective centres	KENHA , Supervising Engineers, Contractor		Annually during operation
Social Organization Balancing of the workload between women and men	▪ Give priority of employment to the local people ▪ Implement Gender Action Plan	KENHA , Contractor		Daily
Labour, especially likelihood of child labour	▪ Child Protection Strategy operationalized ▪ Strict adherence to OSHA standards that prohibit child labour ▪ Contractor to work hand-in-hand with local leadership which may report on child labour ▪ Code of Conduct for employees	KENHA , Supervising Engineers, Contractor		(c) Daily
Security and Administration Integrate the county with substantial improvement on the current security situation by aiding patrols	▪ Enhancement	KENHA , Supervising Engineers, Contractor		(o) Annual

12.2.1 Estimated EMP cost

Environmental / social aspect	Description	Indicative Cost Estimate (Kenya Shillings)
Construction material sourcing	Rehabilitating borrow pits and quarries	Contained in the BoQ and use of Best Engineering practices
Air Pollution	Emissions from machinery and construction traffic	-
	Dust suppression at main centres only.	12,500,000
	Provision of dusk masks.	1,750,000
Noise pollution	Best engineering practices	-
Vegetation loss	Best engineering practices	-
Impacts on soils and drainage	Off road environmental mitigation measures	50,000,000
Water resources		No additional cost required
Contractors camp		To be specified in the BoQ
Sanitation	Sanitation	To be specified in construction contract
Workshops		Best Engineering Practices
Solid wastes	Waste disposal sites and their management	4,500,000 The operational costs to be contained in BoQ
Resettlement	Develop and implement land acquisition and resettlement action plans	Estimate cost to be provided under the RAP report
Liquid wastes		Best Engineering practices
Fuels, Oils, Hazardous Substances and other Liquid Pollutants		Best Engineering practices

Environmental / social aspect	**Description**	**Indicative Cost Estimate (Kenya Shillings)**
Asphalt, Bitumen and Paving		No additional cost
Cement / Concrete Batching	Sludge management	No additional cost
Diversion and access roads	Watering and maintenance	Contained in BoQ
Disruption of Access to Property		Standard construction procedures to be followed
Occupational Health and Safety	PPEs	Included in the BoQ
Land use Change		4 Million BOQ
Direct land take		Under RAP costs
Communicable Diseases such as New cases of STI's, HIV & AIDS	HIV/AIDS awareness and prevention campaigns	25 Million
Road Safety and Accident Rates		6 Million (BOQ) For Road Safety Campaign

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13. STAKEHOLDER ENGAGEMENT AND COMMUNICATION PLAN

13.1 INTRODUCTION

The object of this Stakeholder Engagement Plan (SEP) is to ensure that the stakeholders' involvement, participation and commitment in making decision in the project activities is well implemented.

Communication is critical to transmission of clear concise and factually correct information, either through inter-personal communication or communication with a group of persons. Some of the key risks to poor communication for this phase of the project include:

- Reduced community buy-in on critical project needs such as material sources;
- Misinformation on project activities, impacts and outcomes resulting in disagreement and in heightened cases, demonstrations by aggrieved communities;
- Overt Opposition to the project and its staff;
- Increased costs and serious delays in project implementation due to stakeholder and community objections to the project.

The Table below outlines the categorizations of types of communication that informs the development of the SEP for the of the project road.

Table 13.1: Common Types of Communication in Development Organisations

Type	Purpose/Definition	Main Functions
Corporate Communication	Communicate the mission and activities of the organisation mostly for external audiences	Use media outputs and products to promote the mission and values of the institution; inform selected audiences about relevant activities
Internal communication	Facilitate the flow of information within an institution / project. Sometimes this area can be included in corporate communication	Ensure timely and effective sharing of relevant information within the staff and institution units. It enhances synergies and avoids duplication
Advocacy communication	Influence change and the public or policy level and promote issues related to the development	Raise awareness on hot development issues; use communication methods and media to influence specific audiences and support the intended change.
Development communication	Support sustainable change in development operations by engaging key stakeholders.	Establish conducive environments for assessing risks and opportunities; disseminate information; induce behaviour and social change.

Source: *P. Mefalopulos, Development Communication Sourcebook-Broadening the Boundaries of Communication, World Bank, 2008*

This SEP considers communication pathways between the Consultant and the Contractor, as well as the project team (Consultant and Contractor) with stakeholders within the project road corridor section of Modogashe-Samatar Road. All the above categories of communication were therefore considered in the development of this strategy and related sub-plans as presented in this document.

This SEP builds on the previous engagement during Project conceptualization, planning and impact assessment processes. The project has maintained intermittent dialogue with the Communities county governments and other stakeholders.

13.1.1 Objectives and Approach of the Stakeholder Engagement Plan

The goal of this Stakeholder Engagement Plan is to build an informed stakeholder support base, ownership and provide adequate stakeholder participation space and modes of communication for the successful implementation of the project. Key objectives of this Stakeholder Engagement Plan are to:

- Identify project stakeholders and understand their interests, concerns and influence in relation to project activities;
- Provide stakeholders with timely information about the project;
- Give stakeholders the opportunity, through consultation and other feedback mechanisms, to express their opinions and concerns about the project;
- Assist in building strong relationships with the local community and reduce the potential for delays through the early identification of issues to be addressed as the project progresses.
- Document practical engagement strategies, achievements and lessons learnt

13.1.2 Stakeholder Map

IFC's Handbook on Stakeholder Engagement (2007) defines stakeholders as "persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively. The project has identified the following major stakeholder groups;

The Primary stakeholders to be consulted include the following groups:

- Project Affected Persons
- Communities along the road project corridor
- The secondary stakeholders to be consulted include:
- KENHA;
- World Bank;
- Ministry of Transport Infrastructure Housing and Urban Development;
- Ministry of Lands
- Ministry of Health
- National Aids Control Council
- The Children's Department
- Ministry of Labor
- County Government of Isiolo,Garissa and Wajir;
- County Assembly of Isiolo, Garissa and Wajir
- National Land Commission;

- Water Resource Management Authority;
- Provincial Administration;
- Gender and Social services;
- Materials Sites Authority (NEMA/County Government);
- Kenya Wildlife Services;
- Kenya Forest Services
- Civil Societies identified;
- NGOs;
- CBOs;
- Self Help Groups;
- Livestock and Fisheries; and
- Vulnerable groups- Vulnerable or marginalised stakeholders are defined as affected groups or individuals within the Project area of influence who could experience adverse impacts more severely than other stakeholders based upon their disadvantaged or vulnerable status. Such vulnerability may be evident due to factors such as ethnicity / race, national or social origin, gender / sex, language, religion, political or other opinion, property, birth or other status. Vulnerable stakeholders will require an open and inclusive approach to engagement that provides them with suitable opportunities to participate and voice their concerns. Some vulnerable stakeholders will need special attention in this SEP due to the factors that define their vulnerability. Accordingly, differentiated measures may be applied to ensure the effective participation and obtain feedback from vulnerable stakeholders
- The Contractor and the Consulting Engineer – Executors of the Project
- Any other Person of Relevance to the Project.

Once the above stakeholders have been identified on the ground, a further analysis will be done to better understand their relevance and the perspective they offer, to understand their relationship to the project issues and each other, and to prioritize based on their relative usefulness for this engagement.

13.1.3 Approach

Given the particular setting of project operational areas, the identified methods to reach the target audience include, but are not limited, to:

(a) Language

The languages to be used will mainly be Kiswahili, which is well understood. English will be used in formal fora. Where appropriate, the specific dialects of Borana, or Somali will be used For avoidance of doubt, verbal communication will always be followed with written communication in English.

Site procedures for submission and record keeping of letters will be uniformly applied at all times.

(b) Use of Mass Media

Considering the length of the project road as well as the national and regional significance of the project, communication with stakeholders outside the project footprint would benefit from use of mass media such as newspapers (print and electronic), KeNHA website and where necessary use of national television and radio. The reach of registered local radio stations will be used.

(c) Use of Local Public Events

During the stakeholder engagements, we will identify appropriate public events where communication of project related messages can be done. Examples include the World Environment Day and World AIDS Day events that may have been organised by the line ministries on the ground and /or the County Government. These events can also be used for awareness raising if the project staff and support partners wear, display or distribute Information Education and Communication (IEC) materials developed for such purposes.

(d) Capacity Building of the Project Team

Interaction between the stakeholders and the project team will involve all staff, and not just the environmental and social safeguards teams from the contractor's and the consultants team. One of the key contributions by the environmental and social experts therefore will be to share their experiences in stakeholder engagement, in a formalised manner so as to promote internal communication skills. This is also expected to permeate all other mechanisms that require stakeholder engagement such as grievance management and the general management or prevention of negative environment, health, safety and social occurrences / incidents.

Opportunities for KeNHA and the Bank to contribute to such "experience exchange conversations" during missions and site inspections will also be most welcome.

(e) Use of Local Notice Boards

Local notice boards can assist in disseminating information to the local community. We will identify appropriate locations for pining of relevant notices within the government offices and the neighbouring settlements. Messages will be presented in English and Local language in Kiswahili. This media will however be used in consideration of the handicap it presents to persons without the ability to read. It will therefore be supported with use of identified community based organisations, identified community leaders and opinion leaders and issuance of verbal notices at social gatherings such as the chief's baraza and church services.

(f) Public Meetings

The following aspects will be considered when organising for a public meeting:

- Notice for meetings – It normally takes three to five days between a request for a public meeting, at the Chiefs level and when it actually occurs. Information dissemination is usually on critical path – from the chief, to the assistant chief and to the village elders and finally to the households, to ensure that the attendees are informed of the meeting in time;
- Public notices for meetings –Information will be disseminated mostly by word of mouth through village elders directly to the village heads and down to household levels. Supplementary notices will be given through public posters at village social centres;
- Adequate representation of community members – necessary attention will be given during the mobilisation process to ensure adequate representation of various factions of the community, especially of women and young people in the community;
- Recording of proceedings – This will be done through minutes of meeting, photography and recording of attendance (attendance sheets). However, public meetings will be conducted in Kiswahili, but will be recorded in English for reporting purposes.

- Minutes of meeting will be signed and a copy presented to the area chief for future reference by members of the public.
- Contacting them through the market committee officials who exist in each of the market.
- Formal letters of invitation to be prepared inviting all stakeholders
- Open meetings / barazas with residents of the affected communities.
- Face to face meetings with traders, and local NGOs, as needed.
- Simple Brochures, posters, informative leaflets at Trading Centers,
- Text messages to all market committee chairmen

13.2 RESOURCES FOR STAKEHOLDER ENGAGEMENT

13.2.1 Human Resources

Full time site staff who will be involved in stakeholder Engagement will include the Consultant and Contractor staff as presented in the Table below.

Table 13.2: Roles and Responsibilities of Staff Site

Personnel	Roles and Responsibility
Resident Engineer	Overall project management therefore project management aspects and activities that require collaboration, partnership and oversight by stakeholders will be reported back to the RE. These are expected to include: • Oversight of consultant staff roles that relate to (directly and in-directly) with stakeholder engagement; • Supervision of the staff code of conduct especially for project activities that require collaboration, partnership and oversight by stakeholders; • Oversight of contractor activities that that require collaboration, partnership and oversight by stakeholders. The RE will liaise with the relevant contractor management staff; • Key staff in Quality assurance system and procedures to supervise and monitor contractor performance and report progress and pending problems on time; and • Coordinating arrangements among team members, KeNHA, and Contractor, Disbursement schedule.

Personnel	**Roles and Responsibility**
Contractor Project Manager	• Facilitate payment of National, County and Community levies/Revenue; • Facilitate acquisition of road construction materials; • Ensure implementation and signing of code of conduct by all staff; • Enforce implementation of staff code of conduct as required; • Supervise National & Local staff in delivering their task; • Ensure staff signs job cards and implement of activities as per the plan, standards, and design; • Facilitate implementation of the requirements of the stakeholder engagement strategy with regard to labour relations and conduct of activities that require collaboration, partnership and oversight by stakeholders; • Facilitate the sociologist and environmentalist to undertake their tasks as required in the project's environmental and social safeguard documents • Facilitate the implementation of the grievance management mechanism; • Report any challenges in dealing with stakeholders to the RE's Office; • Timely submission of relevant reports to the R.E; Facilitate and attend WB, KeNHA and GoK ministry missions and visits.
Social safeguards expert and community liaison officer And Contractor's Social and Environmental Officer	• Overall day to day implementation of the SEP; • Undertake their tasks as required in the implementation of Social and Environmental Safeguard Plans; • Timely submission of relevant reports to the appropriate supervisor within the Consultants / Contractor's staff; • Organise and manage stakeholders' meetings and engagement; • Attend WB, KeNHA and GoK ministry missions and visits as directed by management.
Consultant field staff including engineers, environmentalist, sociologist, surveyors, foremen, office administration staff	• Comply with the requirements of the stakeholder engagement strategy with regard to labour relations and conduct of activities that require collaboration, partnership and oversight by stakeholders; • Report any complains / grievances received from staff and community as per the grievance management mechanism;

Personnel	Roles and Responsibility
	• Follow the communication protocols for both stakeholder engagement and grievance management; • Report any challenges in dealing with stakeholders to the RE's Office.
Contractor's field staff	• Comply with the requirements of the stakeholder engagement strategy with regard to labour relations and conduct of activities that require collaboration, partnership and oversight by stakeholders; • Report any complains / grievances received from staff and community as per the grievance management mechanism; • Follow the communication protocols for both stakeholder engagement and grievance management; • Report any challenges in dealing with stakeholders to the Contractor's management and operational staff charged with implementation of Environmental and Social Safeguards.

13.2.2 Financial Resources and Equipment

Resources and needs for community engagement will be prepared quarterly for approval by the RE. These are expected to include vehicles, facilitation fees for venues and hiring of tents during community engagement meeting will be provided by the Contractor on site.

13.2.3 Stakeholder Engagement Schedules

There should be stakeholder consultation schedule running through the period of works

13.2.4 Reporting on Stakeholder Engagement

The activities to be conducted under this SEP strategy cannot be viewed in isolation. They are to be imbedded in the social impact management plan and related sub-plans for the project include the stakeholder engagement plan, the grievance redress mechanism, labour and working conditions, HIV/AIDS management and Road Safety Awareness programs.

Monitoring and evaluation of the effectiveness of this SEP will be done at each sub-component level, to ensure that the communication objectives are contextualised and managed effectively. Reporting on stakeholder engagement and communication will also be integrated into the relevant reports as required by the Contract and as proposed in this document.

The reports to be submitted are:

Bi weekly reports will be prepared from site to update the RE on emerging issues. In the event that additional expertise will be required to resolve issues on site, these reports will document and highlight such issues.

Monthly Progress Reports will outline useful information to the SEP including details of site meetings, any special visits and inspections, financial status both for work contract and supervision contract, specific reports on the environmental and social management plan implementation and project risks.

The stand-alone Annual and Quarterly Environmental and Social Monitoring / Audit Reports will highlight implementation, performance as well as monitoring elements of relevance to the SEP. The annual report will also include lessons learnt and corrective actions that should be communicated back to the relevant stakeholders.

The reports will also include a section on the performance and efficacy of the SEP vis a vis budgetary and resource constraints. It will also highlight lessons learnt and propose corrective actions for adoption in the next SEP annual cycle.

13.3 PROPOSED GENDER ACTION PLAN

To realise Gender Mainstreaming objective, the following is the proposed Gender Action Plan be adopted by both the Proponent and contractor

It is recommended as follows:

i) The Gender Office in government carry out sensitization on its own or through NGO's on the gender policy in Kenya. This should be done in a Culturallyy sensitive manner involving local leaders and organizations. The Project Proponent/KENHA should activate this.

ii) The HIV/AIDS Awareness Campaign should be activated providing women only meetings.

iii) Community meetings should be held at the beginning of the project to encourage community to involve women in the project.

iv) Certain positions as suggested above be reserved for Women

v) The RAP Compensation should expressly look out for women interests

vi) Project Personnel should be trained on Gender Concerns in the unique area

vii) Youth forums and Woman forums should be engaged directly to involve their members in the project

viii) All positions in the project should be transparently filled

ix) NGO's and other third party non state actors as well as the Grievance Redress Committees should have a role in monitoring gender mainstreaming.

13.4 GRIEVANCE REDRESS MECHANISM

This section describes the Project's Grievance Redress Mechanism. The overall objective of the GRM is to establish an effective communication channel among the stakeholders for providing a timely and efficient two-way feedback mechanism to address any grievances and complaints against the project from multiple stakeholders and Project Affected. This GRM complies with the Law of Kenya and WB Practices. In the Modogashe-Samatar Road Project, grievances, Complaints as well as Disputes are expected to arise from several stages of the project including design and implementation phase

13.4.1 Objectives of the GRM

The project implementation team will work to prevent grievances through the implementation of proposed mitigation measures as per the ESMP and as identified through the Grievance Redress Mechanism (GRM). Specific objectives of the GRM are:

- To provide community and stakeholders in general with a clear process for providing comment and raising grievances;
- To provide a platform for stakeholders to raise comments and concerns;

- To structure and manage the handling of comments, responses and grievances, and allow monitoring of effectiveness of the mechanism; and
- To ensure that comments, responses and grievances are handled in a fair and transparent manner in line with KENHA internal policies and World Bank's Operational Policies and requirements.

13.4.2 Possible Grievances and Complaints

Examples of grievances expected during the project include:

- Community and stakeholder complaints against environmental, health, safety and social impacts of the project. These may include inadequate dust suppression, noise from construction activities and equipment, accidents and near misses on the carriage way from traffic in active construction areas or project vehicles etc;
- Complaints from persons to be compensated or resettled. These may include complaints about compensation amounts, payment processes, delays in relocation after compensation;
- Community complaints on benefit sharing (or lack thereof) from the project. Project related activities where this may arise include use of construction materials sourced from the project area, employment opportunities for local community members, CSR activities by the project (if any);
- Labour related complaints from both the consultant and contractor staff;
- Complaints arising from community-project staff relations.

13.4.3 Proposed Procedure

For avoidance of doubt, the Chief Grievance Handling Officer is the Resident Officer. Everybody else acts on his behalf and reports to him.

Anyone will be able to submit a grievance to the project, if they believe any practise by the project is having a detrimental impact on the community, the environment, or on their quality of life. They may also submit comments and suggestions on how such issues can be handled or prevented.

Stakeholder sensitisation on the GRM will be undertaken during community and stakeholder meetings scheduled under the project's SEP.

The steps taken for receiving and handling grievances is as follows:

Step 1: Submitting a Complaint

A complaint can be submitted to the Contractor's Social and Environment Officer (SEO), the Consultant's SS Expert or the Community Liasion Officer (CLO) in the following ways:

- During regular public meetings held with the communities;
- Through Consultative Forums with stakeholders;
- During any informal meetings;
- Through communication directly with management – for example a letter addressed to site management, or other operational offices;
- By telephone including use of text messages / short message service (SMS) from cell phones;
- Placing a comment in the community suggestion boxes at the site office; and
- By registering a complaint in the Grievance Log Form at the contractor or consultant's office.

Regardless of the form of submission, the contractor's or consultant's SS Expert/ Community Liaison Officer will be responsible for ensuring that all complaints are

logged in a **Grievance Form**. Where necessary, the specific SS Expert will arrange for a meeting with the concerned parties so as to document the grievance.

All grievances reported to the Consultant will be filed in a dedicated **file stored in the RE's Office.**

The Consultant's SS Experts will also track resolution of grievances filed with the Contractor through regular inspection of the **Contractor's Grievance File and Grievance Log.**

The summary of all complaints (from both the Contractor and Consultant's Grievance File) must also be logged in the Grievance Register upon logging for tracking of the resolution process.

The Register will also be stored in the RE's Office.

All resolutions will be communicated to the affected parties in writing and a copy of the **signed acceptance / rejection of the ruling** by the complainant stored in the Grievance File.

Step 2a: Assess and Assign

On receiving the complaint, the Contractor's Social Safeguard Expert/Community Liaison Officer will carry out the following steps;

1) Verify and establish the communication channels of the grievances by identify mode of communication to be used to communicate feedback and responses.
2) Contact the concerned aggrieved and complainant parties and initiated communication on way forward to commence investigation.
3) Determine the mode and different ways of commencing assessment process.
4) Ensure confidentiality is upheld in most levels of assessment process.
5) Carry out assessment process by identify and reaching out key parties involved in grievances.
6) Cross examine by triangulating issues raised and determine the key factors wanting redress.
7) Assign key informants to specific task during assessment process ensure credibility of information is up to required standard.
8) Ensure documentation of all data and information is secured and protected.
9) Ensure each party commit to their words by signing the documents and assessment materials for authentication process.
10) With each party, carry out validation process of information to ensure acceptance and commitment of each party in assessment process.

Step 2b: Providing the Response /Acknowledgement

For general grievances, a resolution must be communicated to the complainant within 5 working days of logging of the grievance. However, grievances will first be categorized for resolution based on validity and priority level by the SS Expert with full knowledge of the RE, as below:

- High-Resolved / Actioned within 2 working days;
- Medium-resolved / Actioned within 4 working days;
- Low-Resolved / Actioned within 5 working days.

Prioritisation will be based on the risks as determined by the environmental and social safeguards for the project as defined in the ESMP, the project licence, Kenyan EHS policies and World Bank OPs and the WB E&S framework.

Where no immediate corrective action is possible, the complainant will be notified in writing within two working days of logging of the grievance on what the next steps are.

Step 2c: Investigating the Grievance

If the grievance has to be investigated, then the SS Expert will aim to complete investigation within one week after the grievance first log-in. Depending on the nature of the grievance, the approach and personnel involved in the investigation will vary.

With the full involvement of the RE, the SS Expert will then co-ordinate the constitution of the investigative team and the participants of the grievance hearing. The Investigation Report will at a minimum outline the approach taken, the participants, evidence collected and recommendations of the investigations.

A hearing will then be held within two working days of the submission of the investigation report and a resolution given.

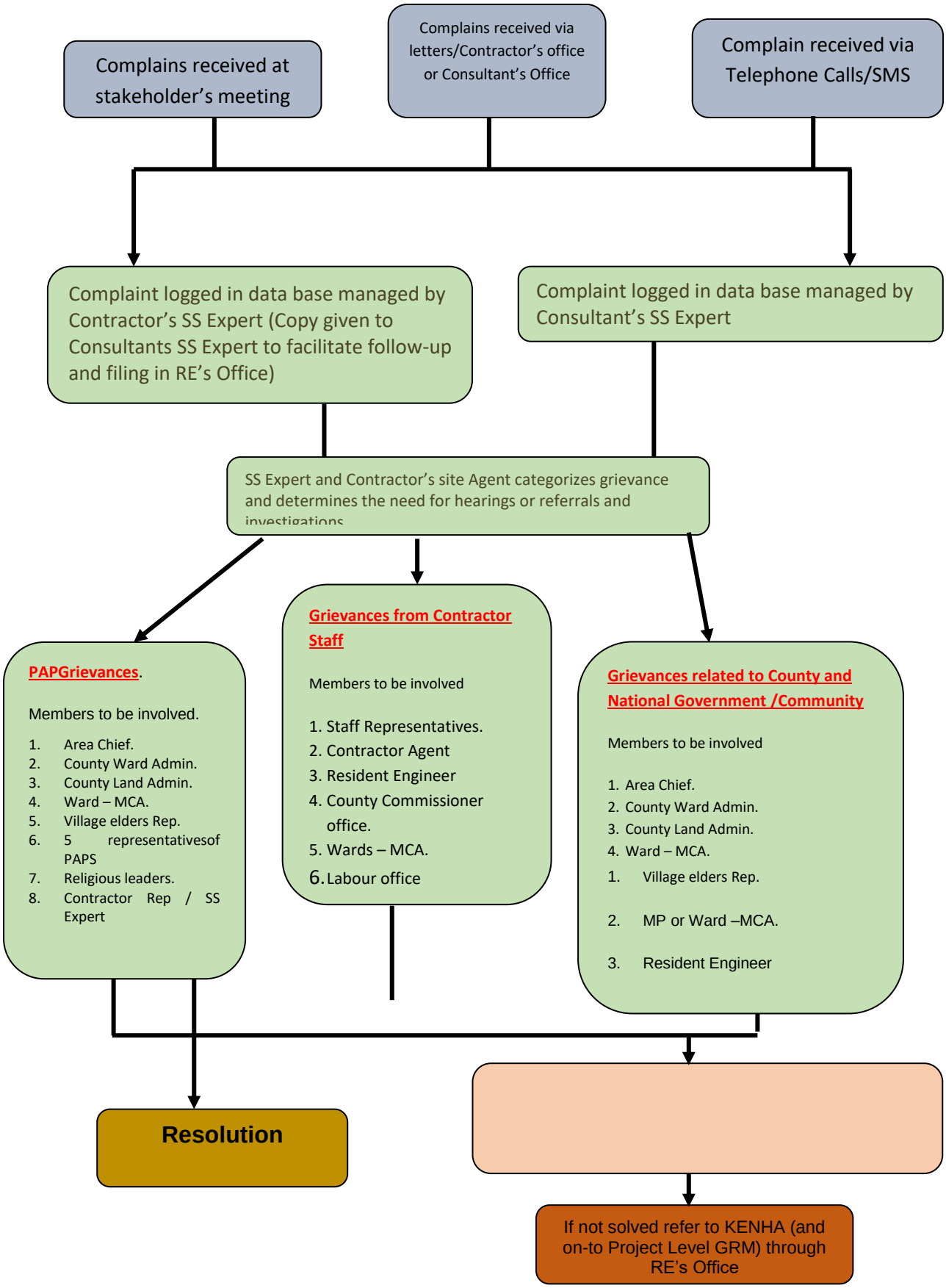
Step 3: For Unresolved Grievances

If resolution is not met, it will be escalated to relevant external parties such as the officers of the Deputy County Commissioner on the ground, or any other relevant authority. However, in such a case, KeNHA will be notified prior to involvement of these external parties for a no-objection.

In accordance with the laws of Kenya, parties have the right to go to the court system including the Land and Environment Court. This will be the next option if all else fails.

However, the main principle of this mechanism is to deal with complaints as soon as is practicable, expeditiously and in a transparent manner so as to avoid complainants deferring to the justice System.

The Figure below outlines the grievance management flow chart.


Complains received at stakeholder's meeting
Complains received via letters/Contractor's office or Consultant's Office
Complain received via Telephone Calls/SMS
Complaint logged in data base managed by Contractor's SS Expert (Copy given to Consultants SS Expert to facilitate follow-up and filing in RE's Office)
Complaint logged in data base managed by Consultant's SS Expert
SS Expert and Contractor's site Agent categorizes grievance and determines the need for hearings or referrals and investigations
PAPGrievances.
Members to be involved.
1. Area Chief.
2. County Ward Admin.
3. County Land Admin.
4. Ward – MCA.
5. Village elders Rep.
6. 5 representativesof PAPS
7. Religious leaders.
8. Contractor Rep / SS Expert
Grievances from Contractor Staff
Members to be involved
1. Staff Representatives.
2. Contractor Agent
3. Resident Engineer
4. County Commissioner office.
5. Wards – MCA.
6. Labour office
Grievances related to County and National Government /Community
Members to be involved
1. Area Chief.
2. County Ward Admin.
3. County Land Admin.
4. Ward – MCA.
1. Village elders Rep.
2. MP or Ward –MCA.
3. Resident Engineer
Resolution
If not solved refer to KENHA (and on-to Project Level GRM) through RE's Office

Management of Grievances under the Project RAP

The grievance mechanism for the resettlement process was developed during the ESIA and RAP Studies. The key aspects of the mechanisms are presented below:

Proposed Grievance Framework
Proposed Grievance Framework Grievances related to any aspect of the MPLRI Project will be handled through negotiations, which will be aimed at achieving consensus following the proposed procedures outlined below: 1. Grievances will be filed by the person affected by the project with the Local Grievance Committee, who in consultation with the relevant Local Compensation Committee and the consultant's representative (in all likelihood, the socioeconomic survey valuer), will act within 15 days after receipt of the grievance. 2. If no understanding or amicable solution can be reached, or if the affected person does not receive a response from the Local Grievance Committee within 15 days after receipt of the grievance, s/he can appeal to the Commissioner of Lands through the auspices of the local Ministry of Lands officer who is to act on the grievance within 15 days of its filing. 3. If the affected person is not satisfied with the decision of the Commissioner of Lands (or his delegate), s/he, as a last resort, may submit the complaint to a court of law. All grievances received in writing (or written when received verbally) will be documented. Source: Environmental and Social Impact Assessment Report for Marich Pass-Lodwar Road, KeNHA, January 2014.

We are liaising with KeNHA to form the Local Grievance Committees and identify the Local Compensation Committee and facilitate their functionality as directed by KeNHA.

Logistical arrangements and facilitation of administrative costs related to the functions of these committees will also be discussed with KeNHA for harmonisation prior to activation.

NB- all grievances are handled by different committees. Grievances of SEA will be handled outside the project GRM framework and may involve third party actors.

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14. CONCLUSIONS AND RECOMMENDATIONS

The project will have varying and sometimes potentially high impacts on the environment, social and economic aspects of the project area, both positive and negative. The project will lead to improved living standards and poverty reduction due to increased incomes associated with the socio-economic development activities related to the projects. However, the study also showed that the project will lead to negative impacts on the bio physical environment. The impacts identified ranged from medium to low in magnitude. The impacts rated medium include impacts on vegetation, Fauna, livestock resources and land resources within the project environment while those rated low include impacts on water resources, soil, air quality and noise and vibrations. The identified impacts can be sufficiently avoided or mitigated if the mitigation measures proposed in the report are implemented.

Recommendations

- All the material sites should be cordoned off when extraction of construction material commences. The Contractor should obtain a NEMA license for each material sites identified for excavations and develop a rehabilitation plan once exhausted.
- The project area being rich in fauna; all Contractors employees should adhere to the provisions of the Wildlife Conservation Management Act, 2013.
- The Contractor should avoid unnecessary clearance of vegetation and should stick to the project footprint. Consultations with KFS to be conducted before the reforestation program commences to ensure selection of tree species which have a high survival rate.
- Cautionary signages must be placed at strategic points along the road to alert motorists of the presence of livestock and wildlife which are prevalent in the project area.

The social and cultural impacts will be manifested in changes in land use along the road corridor, new developments, changes to community social structures, education, health, employment and labor markets, sources and distribution of income, cultural/religious sites and properties, vulnerable groups and indigenous populations. Settlement patterns and demographic composition informs the nature of the Project Affected Persons (PAPs) and other vulnerable characteristics. Issues of HIV/AIDS, traditions and values may also be impacted thereby disrupting their lifestyles.

There are some deep seated suspicions between the communities living within the project area which might jeopardize progress especially in regards to the actual alignment, location of facilities such as boreholes, contractor's camps. The principal mitigation to avoid conflicts is information and disclosures. It is recommended that the public should be sensitized extensively throughout the project cycle and beyond and sensitization should be factored into the construction process. A stakeholder Management Plan is recommended to be implemented at the beginning of the project and the stakeholders should be involved at every stage of the project.

It is further recommended that a Grievance Redress Mechanism involving local communities be set up and operationalized to address grievances due to the road construction by forming local inclusive committees.

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SUMMARISED MINUTES OF PUBLIC CONSULTATIONS

The Public Consultations were held in locations agreed on with the Client and in consultation with the stakeholders. Local leadership was largely relied upon to mobilize the participants. These locations were; Modogashe (Lagdera), Modogashe (Sericho), Skanska, Habaswein, Kanjara, and Guticha.

a) Participation:

Project information was presented in Kiswahili and Borana and/or Somali since most of the stakeholders understood both. The Consultant organized the public hearings, presented the technical details of the planned project describing the social, economic and cultural status of the project area. The project proponent representative also gave a clear guidance of KeNHA roads so as to ensure that the communities' understood their mandate. The forums also were addressed by the project environmentalist who was present in all the meetings. Their views were sought, and furnished with the requisite replies/information to the questions/ issues that arose during the hearing and kept records of these meetings.

The participants included:

i. Sub County administrators
ii. Chiefs and Sub-chiefs
iii. Community leaders (from all locations to be studied)
iv. Livestock farmers' representative
v. Businessmen representative
vi. Transport groups' representative
vii. A woman representative
viii. Indigenous and other vulnerable groups representatives
ix. Representatives from various government Institutions as:

- Kenya National Highways Authority
- Ministry of Health
- Water Resources and Management Authority
- Kenya Wildlife Service
- Kenya Power and Lighting Corporation
- Ministry of Lands
- Ministry of Education, Youth and Social Welfare
- Ministry of Transport, Roads, Public Works and Housing
- National Environmental and Management Authority
- Kenya Forest Service, etc.

1. HIGHLIGHTS OF PROCEEDINGS AND FINDINGS:

a) B**ackground**

There were meetings held in all the key trading and settlement centers along the road corridor. Specifically, public consultative were held in Modogashe, Skanska, Habaswein, Kanchara and Guticha/Samatar Centers. As is noted below, two different meetings were held in Modogashe which happens to bestride two Counties, Two Constituencies and is claimed by two Communities .Modogashe lies in Lagdera Sub County/Constituency of Garisa County. This side is inhabited mainly by the Somali Community. The Other Half of Modogashe is based in Garbatula Sub County/Isiolo South Constituency of Isiolo County. This side is inhabited mainly by the Borana Community. There is a historical tiff about the boundary between these two communities which threatens the project.

b) Meetings:

Structure and Sensitization

All the meetings were structured in similar manner. The Client took the opportunity to sensitize the communities on the project first, before the consultations were carried out. The meetings were moderated by the Assistant County Commissioner or his delegate in all the venues. Each meeting kicked off with prayers and then introductory remarks on the project by the representative from KeNHA and the Assistant County Commissioner, (ACC).KeNHA informed the people about the project and the respective roles of each stakeholder in the process. It was emphasized that public participation was key. The ACC informed his people that the project can only go on with their full participation and most importantly, if there was peace in the region. Security issues related to the project were pointed out by the ACC.

The KeNHA representative gave a project overview and briefed the public on their mandate in regard to the road project. One of their roles was to sensitize the public on the upcoming road construction and public participation of those who will be affected was vital. He also introduced the consultants who were present and that they were there to fulfill that part of the project phase.

c) Public Engagements

The Social Safeguards Expert then proceeded to make a presentation by guiding the public to discuss their relationship with the proposed road project. It was reiterated that this part of the process was important so as to disseminate information, receive feedback and recommendations from them. Each meeting begun with an identification of stakeholders to ensure a comprehensive participation. The meetings were translated to the local language by a local person to ensure clarity and participation by all. Meetings took on average three to four hours.

At the beginning of each meeting the following approach was adopted by common consensus.

i. Sensitization of the Public on the Road Project
ii. The potential impacts of the road (Positive and Negative)
iii. Environmental concerns
iv. Mitigation measures
v. Recommendations
vi. Grievance Redress Mechanisms (GRM)
vii. Proposed Social Amenities
viii. Plenary session

RAP AND COMPENSATION

It was noted that there are fears for loss of land to create room for the project along the settlements and trading centers. Compensation for this land was a subject of great concern in all the meetings but especially in Modogashe and Habaswein Towns. The following approaches were suggested to guide the compensation:

- The actual road reserve needs to be clarified since most people do not know they occupy the reserve.
- Compensation may be a challenge because the land is Community Land.
- If the land to be acquired is on the road reserve, no compensation shall be done. Instead, the PAPS will be given resettlement assistance and livelihood restoration in their new place.
- If the road project will need land that is not originally on the road reserve, this shall be assessed, valued and compensated accordingly.
- If any burial sites or other amenities are affected will be affected, a discussion will be entered with those affected to decide the best way. The most preferred approach by the communities is to divert the road design away from the graves and mosques

A comprehensive Resettlement Action Plan is to be prepared in a consultative manner respecting the law of Kenya and the World Bank Operating Policies for this project. A separate RAP is thus envisaged.

2. GRIEVANCE REDRESS MECHANISM:

It was recognized in the consultative meetings that there will be inevitable conflicts between the project and the communities before, during and after the road construction. Such conflicts will include disputes on resources, negative impacts of the road, labor influx, employment places, cultural disputes, benefits sharing and other conflicts. Conflicts related to relocation and compensation of PAPS were also flagged out.

In all the towns, it was recommended that a grievance framework involving local communities be set up at every major center to be traversed by the road. It was reiterated that the project should work with the communities in addressing any arising grievances due to the road construction by forming local inclusive committees.

Two Grievance Committees were suggested. One which will be part of the Resettlement Action Plan to address issues directly affected those who will be affected and one which be based a t every center to address emerging issues related to the project operations. To ensure their success, it was proposed that these committees be planned for and resourced to be effective.

3. THE MODOGASHE CHALLENGE:

a) Background

Modogashe Township bestrides two Counties (Garisa and Isiolo) and is inhabited by two prominent communities- the Somali and the Borana. It is the divisional headquarters of Lagdera (Garisa) and Sericho (Isiolo) Divisions. The road traverses the middle of the town. It would seem that the road traversing the town is a source of conflict between the Somalis and Boranas.

A successful community consultation forum was held on 2nd of October 2017 at Lagdera Sub County of Garisa County. The meeting comprised mainly members of the Somali Community and fully welcomed the project. They took active part in the deliberations and expressed intention to fully participate in the project. The meeting in Lagdera was thus successful as it was attended by close to 200 people.

Since Modogashe is one town, It was initially planned to hold a joint meeting for both Lagdera and Sericho Divisions but on the morning of 2nd October 2017, the Assistant County Commissioner, Sericho requested that the meeting be deferred to another date and that a separate meeting be held for Isiolo County. It was agreed to hold another meeting on Thursday and Friday of the same week on the Sericho side of Modogashe Town.

The meeting for Isiolo side took place on 5th October 2017. The community had demanded that only government officials from Isiolo be involved. The expressly asked that Garissa KeNHA does not take part. The Regional Manager of KeNHA in Isiolo thus sent

representation to the meeting which was chaired by the Assistant County Commissioner, Sericho Division.

b) Deliberations in the meeting:

The meeting was attended by a broad representation of the community among them being the community Sheikhs, Elders, Women groups, Youth representatives, Persons with disability, Civil Society Actors, The National and County Government Officials.

From the start, the community expressed support for the project and listed the benefits and disbenefits as they saw them. These mirrored the impacts listed earlier from other venues.

However, they declared nonsupport of the road proceeding through the present alignment within Modogashe town. They said that there was an earlier route which the road followed and which should be reverted to. The alleged that the present route was imposed on them by the leadership of the neighboring community to create a new boundary taking away their land. According the community elders present, the boundary dispute has been simmering for over 30 years and has been the cause of violent confrontation between them and their neighbors. They alleged that previous leaders of their neighbors had used their proximity to the national government to move the boundary.

They alleged political and economic marginalization by the government in Isiolo and Nairobi which they believe favored their neighbors at their expense. KeNHA representative from Isiolo attempted to explain the rationale for the road's present alignment but they vehemently opposed the explanation.

To move the process forward they demanded as follows:

i) That the original road be reverted to. They went ahead to show KeNHA and the Consultant where the road followed.

ii) They demanded that the Governor Isiolo, The County Commissioner, and all political leaders i.e. Member of Parliament for Isiolo South, The Member of County Assembly for town Ward, The Woman Representative, The Chiefs affected, and Community Elders be invited to one meeting to resolve the matter. They declared that only then would the project proceed.

iii) They also demanded greater participation by the County Government in all decisions.

iv) They alleged existence of a road map within KeNHA which contained the original alignment of the road to be followed.

v) They demanded that all survey work stops until the proper road had been agreed upon. In the alternative, they agreed that survey work can proceed on the old road.

c) Way forward

In the circumstance, the meeting was brought to a close without community consenting to design and survey work to be completed. It was resolved to consult with the client to take up the issues and provide access for design work to proceed.

The Assistant County Commissioner and other security leaders urged the community to keep the peace as the matter was being pursued. KeNHA representatives undertook to follow up the matter and urged peace.

A meeting was proposed for a later date in Isiolo for Modogashe leaders alone to try and resolve the boundary issue and clear the path for the project to proceed.

d) Post script:

Further to the meeting, the survey team attempted to map out the "old road" as proposed in the meeting. Towards the end, they met resistance from the Somalis who insisted that the current road be followed.

The meeting proposed for Modogashe leaders is still outstanding and the client may have to engage them directly to clear access for the road to be designed and ultimately built. At present, survey works have not been carried out within Modogashe Town.

4. CONCLUSIONS AND RECOMMENDATIONS:

a) As reported above, the road was highly welcomed in the greater part of the road corridor. The negative impacts identified will be properly captured in the ESIA study and mitigation measures proposed.

b) The issue in Modogashe needs to be resolved. A forum comprising only leaders from Modogashe needs to be convened to resolve the matter. Leaders from both the Garisa side and the Isiolo side need to be engaged. It was resolved in the meeting that KeNHA as the client would convene this meeting as part of providing access for the design and ultimate road construction to proceed.

c) A comprehensive RAP will be carried out after the detailed survey maps to take care of those who will be affected by the road. This will comprise substantially of those in Modogashe Town.

NB- The actual signed minutes of each of the meeting will be in the subsequent version of this report. Attendance lists are annexed.

KEY HIGHLIGHTS OF PROCEEDINGS AND FINDINGS –HIGHLIGHTS OF MINUTES

The meetings were kicked off by prayers and introductory remarks by the lead experts from KeNHA and the sociologist's team, and from the Assistant County Commissioner, (ACC) Lagdera. The ACC informed his people that the project can only go on with their full participation and most importantly, if there was peace in the region.

KeNHA - Mr. Obop Michael, the Kenha representative gave a project overview and briefed the public on their mandate regarding the road project. One of their roles was to sensitize the public on the upcoming road construction and public participation of those who will be affected was vital. He also introduced the consultants who were present and that they were there to fulfill that part of the project phase.

Sociologist - Mr. Barno, informed the participants that this part of the process was important to disseminate information, receive feedback and recommendations from them.

He highlighted the objectives of the meeting to include:

i. Sensitization of the public
ii. The impacts of the road (Positive and Negative)
iii. Environmental concerns
iv. Mitigation measures
v. Recommendations
vi. Grievance Redress Mechanisms (GRM)
vii. Proposed Social Amenities
viii. Plenary session

QUESTIONS AND RESPONSES:

Question No 1: Mr. AbdiNassir Ali: What happens when the road must pass through someone's house or land?

Response (KenHA): Mr. Michael Obop – The road will stick to the original alignment. We have original designated road reserves that have been set aside by the government. If one happens to be on the road reserve, he/she will need to move. If the road should affect property that is away from the reserve, then evaluation will be done and compensated accordingly. There are surveyors currently on site to show the road boundaries and once their report is complete we shall be able to know the individuals who will be affected by the road construction.

Question No 2: Mr. Mohammed Abdi Hure: How about burial sites and graves?

Response (Sociologist): Mr. Julius Barno – Consideration will be made to divert the road; Engage the community elders how to go about grave yards.

Question No 3: Mr. Muhumed Osman: Will our people be employed in the construction of the road?

Response (Sociologist): Mr. Julius Barno – unskilled laborers will all be recruited from the community. They will be given first priority in skilled laborers. Community is encouraged to welcome the others. Also to seek skills in the meantime.

Question No. 4: Chief (Guticha) - When is the road scheduled to start?

Response (Sociologist): - Very soon. Hopefully by end of 2018. Studies and designs will be completed by December 2017. We are doing the best we can to expedite the study process to inform the due plan of implementation of the road. The design stage will be completed in December 2017.

Question No. 4: Mr. Kulo (Guticha) - How far is 30M on either side of the road?

Response (KenHA): The surveyor is currently on the ground and is in the process of demarcating the boundaries and shall avail the margins as soon as possible. Most importantly, the road construction is going to be done on the already existing road reserve as it is not a new road.

Question No. 4: Mr. Kulo (Guticha) - Miss Ajab Mohammed wondered if this road was going to be constructed because according to her, it has only been a political tool for every five years.

Response (Sociologist): It is our privilege to inform you that this road is very unique as it comes at a time when the government has already acquired funds for it. Previously, roads were proposed and then funds are sought later but this road has money already set aside for its construction and we affirm that implementation will begin as soon as possible.

Question No. 5: Chief (Kanjara) - There is a dam that was not filled up because of some construction that was done previously. Why does KeNHA not consider this hazard affecting the residents? It has been a major source of conflict especially because the contractor even came from another location.

Response (KenHA): We have a safety standards team who are responsible for checking these issues because once a blasting site is no longer in use it should be covered well. We shall revisit that area as a team and address the issue.

Question No. 5: Elder (Habaswein) - One of the elders wondered whether this was being used as a political tool. He reported a situation when the previous regime has given an instruction many years back for these roads to be constructed but as soon as the machines arrived, the project was withdrawn within a month and taken to other parts of the country. He said they were tired of hearing these roads to which they can only see in movies.

Response (Sociologist): This is a road that is lucky to have already been funded before completion of design. One of the objectives of government now is to open the Northern and North-Eastern region and construction of roads in one such approach. Construction is already ongoing along the same road on different sections, so you can be assured that it is not a political tool.

Question No. 6: Mr. Said Shiekh (Modogashe - Sericho) - We do not have faith in the engineers seated here as they do not involve the locals in every step they take. The road design is already a problem to us, yet they do not want to take our concern into consideration. What's the way forward?

Response (KenHA): I, Mr. Obop Michael come from the Garissa side and my colleagues here are from Isiolo side of KeNHA. We are all working under the same government office but in different regional jurisdictions. The reason you see me here more often than my

colleagues is because of the vicinity of the project area to my office as opposed to Isiolo office. It does not mean that they are strangers nor am I an intruder. Our mandate is the same and soon I may also be deployed to Isiolo. Kindly do not fear them and allow us to work together for the success of the road.

Question No. 7: Mr. Abdi Bicao (Modogashe - Sericho) - We love the idea of a tarmac road BUT there are many issues of boundary conflicts here. If you say the engineers present here today are from Isiolo, how come we have never seen them? They should be the ones always being on the ground giving the necessary information. Why do we insist on constructing the road at Modogashe, yet all the other roads have not been done? Is it a tactic to push Sericho people away from their settlement?

Response (Sociologist): - This road project starts from Isiolo to Mandera and it has been partitioned into small sections under different consultants. Our section here today is between Modogashe to Samatar i.e. the junction after Guticha center. The engineers present here today are all under KeNHA which is a national body and therefore covering many other parts of the country's road network. You can also be sure that work has already commenced in the other sections of the road.

Question No. 8: Mr. Ibrahim Khalake (Modogashe - Sericho) - I would like to know this Modogashe-Samatar road, where does it pass? The only place we know is the Garissa Bridge.

Response (KenHA) - This road begins in Isiolo, to Modogashe via the bridge, through the town and onwards towards Samatar and onwards to Mandera.

Question No. 9: Fatuma Said (Modogashe - Sericho) - There is a lot of tension here in this place. We had reserved land for a road on the other side, but another community has come to put a settlement there and they now call themselves North Eastern. We need the original road map to be provided to us from KeNHA offices. Elevating a road from B9 to A13 is good as it will come with many benefits but without the resolve of boundary issues it's going to be a problem here. We need the KeNHA engineers to be become proactive so that some of these disputes can be solved faster. Why not involve our leaders?

Response (KenHA) – Eng Kibiti Patrick form KeNHA Isiolo indicated that roads managed by their body traverses' counties and even countries. He promised the participants of more presence of their office employees on the ground to follow up on issues that would cause conflict on the road. He promised to consider the previous designs in the old records and that they would return together with the leaders from the region who would clarify boundary issues to both communities. He asked the participants to be patient as they continue addressing their concerns but also asked for their full cooperation so that the road construction can begin without any hiccups.

Question No. 10: Mr. Mohammed Madera (Modogashe - Sericho) - There are people who had absolutely no idea of where a reserve has been set aside for the road. What happens to them?

Response (Sociologist): - Issues of resettlement and/or compensation will come up as soon as the surveyors will be through with their work. We shall have another forum where we can look at individual cases of encroachment based on the history of this town. A resettlement Action Plan will follow shortly and all affected shall be consulted

Question No. 11: Elder (Habaswein) - Employment issues often arise when it comes to employment of locals on the project. When our young men are taken to another section it usually brings conflict of interest with the youth from those regions. How can this be addressed?

Response (Sociologist): - We will take this concern into consideration with the client and when the time comes, we shall recommend that only the skilled workers can be employed on all parts of the road implementation process, but the casual labor should as much as possible be locals

Positive comments:

- At **Skanska** center, the chief said that it was a great gesture to carry out the community sensitization as the issue of peace is vital to both stakeholders. The curiosity and suspicion had then been taken care of. They thanked the government for this incredible step of planning to construct a tarmac road in this region. They said that they will be able to provide the needed labor and subsequently cooperate for the success of the road.
- At **Habaswein,** one community elder reported that he had lived in the area since independence (1963) and that they have never seen a road. They have lived with the corrugation and what they are hearing now is just the usual hearsay. He said that they did not want to believe in it but if and when it will be done it will be a good thing to the community.

Further, they expressed their interest in the process and said that they need the road construction to begin as soon as possible. They affirmed that they have great security in the area and therefore any person working on the study or construction should not have anything to worry about.

Mr. Gedi Abdi said that if indeed this road is constructed then it will open u the region to the rest of the country and they would feel proud as being part of the other citizens. He made a light statement to the effect that their region was only one meant to decorate the map of the country (sic) but they do not feel like they are in Kenya. "We say here that we come from those places that beautify the Kenyan map".

Mr. Dakane Hassan, the senior chief, said that they were closed from the other parts of Kenya because of roads. The project would therefore open business to other parts of Kenya thereby boosting the economy in the area.

He went ahead to highlight the issue of their region being one of the leading places in meat supply but due to lack of roads it was difficult to be able to deliver their animals in time. The only meat collection center was Kenya Meat Commission (KMC) in Athi River.

One of the peace leaders reaffirmed their support for the road and said that they were ready to support the project a hundred percent. He said that they were lagging in this country and all they have is dust around them. He gave a reassurance that their place was totally peaceful and that there are no incidences of conflicts. He prayed that this would not just be a dream, but a reality and he kindly asked the government not to let them down,

Mr. Gedi Abdi further said that the construction of this road would demystify several myths namely;

a) That this was an operation area for criminal activities (terrorism)

b) That people who live here were poor

c) Open investments and promote tourism. It would also break the historical barriers that have prevailed in the region.

d) It will also be a political score; a confidence building measure.

Miss Hamima Abdi, the women representative on behalf of all women groups in Habaswein, and the chairlady at Chiko Women Group, said that living in this place was unpredictable. When one goes to bed at night, he/she doesn't know what would happen the next day. Each day comes with its own emerging issues, but she was glad to be part of this sensitization forum. She said that the people in this community are very rich, but their wealth cannot be seen. The vehicles which they invest in cannot last for more than two years due to the bad condition of the road.

On women, she said that many of them experience a lot of difficulty when they are expectant and most of the times are not able to access adequate health services and resort to traditional medicine. During delivery, many of them are never lucky when trying to get to hospitals and end up delivering along the way. She pleaded with the government to expedite

this road improvement and to make health services come closer to the people. She also reported to have been a victim of demolitions twice before on similar road programs, but she was still willing to move if the benefits she will get will surpass her troubles of a bad road.

The following suggestions were made during the public consultations and house-to-house interviews: -

- Work Campsites should be built closer to established villages so that the community benefits from services like water and clinics that will be available. This will also discourage the mushrooming of new villages.
- The environment and health of the public should be protected from degradation.
- Schools for children, clinics, boreholes and water pans should be constructed for the communities or as part of Corporate Social Responsibility (CSR).
- Foot bridges, underpasses and pedestrian crossing points should be provided to enable convenient accessibility to either side of the road at strategic points. The design of the proposed road should have strategic underpasses at intervals where the animals and humans (including school children, pedestrians) can easily find them and access either side of the road.
- The proponent should ensure fair compensation of all displaced persons regardless of their position on the road reserve.
- The proponent should involve KWS Scientists and Engineers and other key stakeholders at all stages of the project including design stage to ensure that the impacts to the protected and other wildlife areas are minimal.
- The proponent should ensure that all the stakeholders (including KWS, Water, Roads), are involved especially from the design stage of the proposed road to ensure that other infrastructures are considered to minimize disruption. This can be done to ensure integrated planning of infrastructure.
- To avoid flooding during rainy seasons the road should be raised and big box culverts should be constructed in flood prone areas.
- Security of the wildlife should be ensured to protect them from poaching especially during the construction period as many people are expected to move to the area to work on construction of the road
- The Mosques along the road corridor should not be interfered with during the construction.
- Where possible and necessary the developer should install speed bumps and rumble-strips for example in towns, near schools etc. Other structures also should include: bus stops in all the villages along which the road traverses.
- The developer should come up with a proper drainage mechanism along the road and in major towns.
- Graveyards that are along the road reserve should be not be interfered with whatsoever. The design of the road can be made in such a way as to circumvent the graveyards if possible.
- Women should be considered for office jobs and all other available jobs during construction.
- Public consultation should be continuous throughout the project.
- Every settlement area and towns should have bumps on the roads to check vehicle speeds.
- They are bordered by Isiolo South and they have boundary conflicts (Isiolo side did not attend the public hearing for the same reasons). They recommended a

joint meeting that must be planned for both sides of the communities to address these issues.

- ❖ It was said that most of the roads in the area emerged due to people settling in the place and they did not have any signs to show where the road network had been reserved. They therefore recommended that compensation should be done to all persons affected whether on the road reserve or not.
- ❖ Trees should be planted in every place where there is a settlement and water should be provided for their nurturing. There will be no need to plant trees and then left to die due to lack of water.

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 03/10/2017
COUNTY: WAJIR
SUBCOUNTY: ~~[illegible]~~ WAJIR West
VENUE: Gyracha

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Hindia Mohamud	Pastrolist	0705467675	
3.	Nuria Issack	Pastrolist	0706765275	
4.	Jamila Mohamed	Nadam Nomadist	0708248285 09	
5.	Isha Abdulahi	Nomadist	0707197286	
6.	Khadija Hussein	Nomadist	0722431349	
7.	Rukia Issacic	Nomadist / trader	0741045343	
8.	Nunay Abdi	Nomadist	0729323821	
9.	Rukia Mohamed	Nomadest	0719535741	
10.	Uwah Ali	Nomadist / trader	0724828318	
11.	Fatuma Mohamed	Nomadist	0710969791	
12.	Kafia Abdi Mohamed	Nomadist	0727107334	
13.	Halima Mohamed	Nomadrist	0704225098	
14.	Habiba Adan	Nomadist	0708171512	
15.	Amina Sharif	Nomadist	0742195044	
16.	Saadia Mohamed	Nomadist	0715238878	
17.	Shamsa Ahmed	11	0718654008	
18.	Fajaba Mohamed	11	07	
19.	Habiba Noor	11	0729488621	
20.	Suldana Hussein	11	0724116954	

List of Participants

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 02/10/17
COUNTY: GARISSA
SUBCOUNTY: MODOGASHE
VENUE: LAGDERA SOCIAL HALL

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	OBOP M.O	RM (Ropies.) Kenha	0722644975	
3.	DOUGLAS IRERI	ACC	0712178387	
4.	BISHAR OSMAN	AP COMMANDER	0722461530	
5.	Peter Ndaka	OCS Sericho	0721634985	
6.	Isaiah Ngetich	DCIO-LAGDERA	0722699532	
7.	BENARD MAKOKHA	MIS -LEGBERA	0722263977	
8.	BAHATI KATANA	OCS MODOGASHE	0710382200	
9.	EVANS OTIENO	Environmentalist ITEC	0723610270	
10.	SELLAH ODERA	" "	0723433935	
11.	BEATRICE MUTHONI	Sociologist	0729 693 240	
12.	FARAH M HILOWLE	ASS/CHIEF	0728813487	
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 02/10/17
COUNTY: GARISSA
SUBCOUNTY: MODOGASHE
VENUE: LAGDERA SOCIAL HALL

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	ABDI AHMED		0727744909	
3. x	SHALE YARE ABDI	Senior chief Gumsa	0718658444	
4. x	AHMED M FARAH	CHIEF	0722563935	
5. x	MOHON DAUD	CHIEF GARSE	0703660610	
6. x	ABDI H ADAN	CHIEF	0722-745055	
7. x	YUSSUF M. SHEIKH	CHIEF	0722768383	
8.	HUSSEIN ABDILLE	YOUTH	0701669549	
9.	Abdinasir Ali Y	DISable	0729069980	
10.	Abdirahim Imm	Elder modogash	0729427262	
11.	ADEN KORANE	& Peace chair	0719445079	
12.	SOMANE SALAN	Peace chairman Muslim	0715148726	
13.	BALE DUROW	ELDER'S		
14.	NUH OSMAN	ELDER'S	0704115798	
15. x	FARHAN DIGAG	CHAIRMAN TANS NG	0723675130	
16.	SULEIMAN OMAR	ELDER'S	0725018465	
17.	AHMED IBRAHIM	ELDER	0704639579	
18.	ABDI MOHAMED	ELDER	0725529707	
19.	AHMED MOHAMED	YOUTH	0722405 88	
20.	MOHAMED WALI	ELDER'S	0700736438	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
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DATE: 3rd 9-10-2017
COUNTY: WAJIR
SUBCOUNTY: WAJIR WEST
VENUE: CHUTICHA

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	YUSSUF HASSAN ALI	PASTROLIST	07	
3.	MOHAMED ADAN	" "	0702409808	
4.	MUBARAK KULOW	" "	0720413042	
5.	ADAN ALI	" "	0728620545	
6.	AHMED ISSACK	" "	0705269696	
7.	AZINOOR ABDI	CHIEF	0728231533	
8.	UWES A. MURSAL	HEADTEACHER	0727834159	
9.	BILLOW MOHAMED ALI	PASTORALIST	0726153993	
10.	ALI ADAN	"	0725871325	
11.	MOHAMED ABDULKAR	"	0720592545	
12.	KULOW Maalim	"	0705857240	
13.	ALI-yow Hassein	"		
14.	ABDISHAKUR AHMED	"	0721983495	
15.	HASSAN ADAN	"	0713117112	
16.	MOHAMED HUSSEIN	"	0700869191	
17.	ABDULLAHI ABDI	"	0722759565	
18.	OSMAN ADEN	"	0720327748	
19.	KULOW MOHAMED	"	0796103221	
20.	MUKTAR ABDI	FORM 4 LEAVER	0724828331	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
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DATE: 2/10/2017
COUNTY: GARISSA
SUBCOUNTY: LAGDERA
VENUE: SOCIAL HALL

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
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3.	HUSSEIN H. ADAN			
4.	ADAN ABDIKARIM ABIKA			
5.	Abdullahi IBRAHIM		0725964655	
6.	Abdullahi ADDI K		0723915286	
7.	Abdirahman HUSSEIN		0707834655	
8.	NURA MOHAMED		0742863902	
9.	ABDI AZIZ HUSSEIN		0742863898	
10.	MOHAMED ALI		0700800885	
11.	SIYAT ADEN	TAXI Driver	0723263475	
12.	ADEN YUSSUF	Elder's	0730894429	
13.	Hire OMAR	Elder	0727017070	
14.	MOHAMED A. MAALIM	Chief	0728256382	
15.	HUSSEIN ALI	Sheikh	0714018692	
16.	ADEN ISMAIL			
17.	Abdullahi Hasan Hodi	Chief	0726213380	
18.	YUSSUF FARAH	OAP	0724337156	
19.	HUSSEIN DUBOW	Youth	0726791906	
20.	MOHAMED NURIYE	ELDER	0722207984	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 2/10/2017
COUNTY: Garissa
SUBCOUNTY: LAGDERA
VENUE: Social Hall

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	MUHUMED OSMAN	Driver/Operator	0720359861	
3.	ABDINASIR DUBOW	ASSISTANT CHIEF	0725910903	
4.	ABUKAR HAJI	Business	0720791356	
5.	SALAT BORE	Business	0707007272	
6.	MOHAMED ALI	elder	0710667540	
7.	DAHIR AHMED	Youth	0708649054	
8.	ABDIRIZAK Abdullahi	Youth	0708430749	
9.	ABDIWALI Mohamed	Imam	0728433335	
10.	YUSSUF Mohamed	Youth	0724086073	
11.	JAMA HUSSEIN	Business	0712429643	
12.	ALI DUH	Driver	0729041020	
13.	YUSSUF HASSAN	Youth/Boda boda	0724361538	
14.	JACOB MBAE		0724322802	
15.	ISAAC ICHABERIA		0724326506	
16.	SAMUEL KAMAMI		0717730803	
17.	MASLAH HUSSEIN	Youth	0724644873	
18.	MOHAMED SALAH	Youth	0742 095290	
19.	GUINE ABAB	Business	0712664885	
20.	AHMED GUDLE	Business	0713659988	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 2/10/2017
COUNTY: GARISSA
SUBCOUNTY: LAGDERA
VENUE: Social Hall

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	ADEN ISSACK	ELDERLY	0710937067	
3.	HABON MAHIBUB	WOMEN		
4.	MOHAMED IBRAHIM	YOUTH	0724607926 86	
5.	FATHATHO BURGAL	BUSINESS	0722208064	
6.	~~KAMILA~~ ZEINAB SIYAT	WOMEN GROUP		
7.	MARIAM SHEIKH	BUSINESS	0727201137	
8.	FALHATHO BURALE	BUSINESS	0727201137	0729857097
9.	AMINA HUSSEIN	BUSINESS	0726543475	
10.	KAMILA DUBOW	BUSINESS	0725707818	
11.	LUL ADEN MOHAMED	BUSINESS	0725082627	
12.	HABON SANBUR	BUSINESS	0728719774	
13.	LUSA KALIF RAGE	YOUTH	0720592709	
14.	MOHAMED ABDI BAR	~~CHAIRLADY~~	0707756242	
15.	HARIRA ADEN	CHAIRLADY	0726094473	
16.	QAYASA GURE	MAENDELEO WANEDANCE	0711843748	
17.	HARIRA ALI	CHAIRLADY		
18.	FARDOSA HASSAN	MADOGASHE SUB-COUNTY	0720244826	
19.	MOHAMED HILOW	YOUTH	0701153864	
20.	MUHUMED SATHE	ELDER	0729720365	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
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DATE: 02/10/17
COUNTY: GARISSA
SUBCOUNTY: MODOGASHE
VENUE: LAGDERA SOCIAL HALL

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	ABDI ALI ADEN	ELDER	0716301649	
3.	HUSSEIN RASHID	ELDER	0713285625	
4.	HUSSEIN YUSSUF	YOUTH	0701669695	
5.	FATUMA GLASIF	WOMEN	0704086659	
6.	MUSE ABDI KADIDI	YOUTH	0702936276	
7.	IBRAHIM K-HILOWLE	ELDER	0721224638	
8.	Ibrahim R. Dunte	BUSSINESS	0721111172	
9.	~~MOS~~ Mohamed Ibrl	Youth	0710531740	
10.	ALI ADAN SIDI	BUSSINESS	0726555537	
11.	SIYAT NUR	Elder	0720883007	
12.	SADIK ISSACK	Youth		
13.	AHMED ABDI	BUSSINESS	0717328453	
14.	OMAR M. YARROW	Personal assistant	M.P - 0724410893	
15.	AHMED JIRE AHMED	R.O LAGDERA	0726486208	
16.	MAHDI MATHEW H-	BUSINESS MAN	0726237282	
17.	HIRE ABDI HYRE	YOUTH	0727256888	
18.	MOHAMED Abdirahman	Youth	0716634678	
19.	AHMED ISARE	YOUTH	0711846452	
20.	Abdisitar Hassan		0707737220	

ISIOLO COUNTY

MODOGASHE (SERICHO)

ATTENDANCE REGISTER

NO.	NAME	DESIGNATION	CONTACTS (TEL)	SIGNATURE
1.	MOHAMED ISAAC ARAGALA	ASST CHIEF KOMOR-BULLA	0720472686	
2.	MUSA OAUDI	ASST CHIEF BURQUDE	0723 155223	
3.	ABDI LICHO ARERO	Chair Makanisa	0713166205	
4.	HABIBA HALAKE	BUSSNESS	0726 137 88	
5.	HADIJA HUKA	BUSSNESS	0713 105781	
6.	Zeinab Qufy	BUSSNESS	0712841003	
7.	Zeinab Bom	Business	0796234491	
8.	ADAN ALI	BUSSNESS	0717 34 36 12	
9.	ABUBAK OSMAN	BUSSNESS	0729020409	
10.	KHALIF ABDI	Bodaboda	0726489385	
11.	SULEIMAN Abdi	Taxi driver	0724003924	
12.	Fatuma Said	BUSSNESS	0707 522 122	KENYATTA
13.	HASSAN BORE	BUSSNESS	0715 95 25 05	
14.	Mohamed Dido	Business	0724170908	
15.	Ahmed Mohamed Hassan	Peace Member	0724744267	
16.	DABASO GUYO	BUSSNESS	0790569189	DUBOSO

ATTENDANCE REGISTER

ATTENDANCE REGISTER

MODOGASHE (SERICHO)

No.	NAME	DESIGNATION	CONTACT (TEL)	SIGNATURE
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2.	OBOP MICHAEL O.	RM (REP.) KENHA	0738573140	
3.	IDRIS GOLICHA JARSO	WARD ADMINISTRATOR	0723336225	
4.	STEPHEN. K. CHIRCHA	NIS I/C SERICHO	0722296800	
5.	TOLBERT O MOSOTI	P/SECURITY	0721581726	
6.	ABDULLAHI O. HASSAN	P/SECURITY.	0716435343	
7.	IP DAVID M. KILII	I/C P/SECURITY	0720070632	
8.	PATRICK M. KIBITI	ENG(R) – REP D. DIRECTOR NETWORK M/CE	0727342451	
9.	GEORGE A. OKUMU	SUPT.(R) - KENHA-U/E	0722275659	
10.				
11.				
12.				
13.				
14.				
15.				

MODOGASHE (SERICHO)
ATTENDANCE REGISTER.

No.	NAME	DESIGNATION	CONTACTS (TEL)	SIGNATURE.
1.	ABDI AMANI ALI	SHEIKH (IMAM)	0713642171	
2.	HUSSEIN TACHANA	ELDER	0718241120	
3.	Abdullahi Diba	Elder Modogashe	0729942301	
4.	IBRAHIM H. DIBA	Elder Modogashe	0712357808	
5.	Mohamed Burow Adan	Elder	0725229815	
6.	MOHAMED MADERA	Peace chairman	0724342291	
7.*	ABDIKADIR ABDULLAHI	CHIEF Komor-bulla	0722179535	
8.	Mohamed Koke	Mfanyi Biashara	0729347711	
9.	HUSSEIN H. BORU	Sub chief Mlgata	0728460762	
10.	YUSSUF A ABDUBA	chairman MYU		
11.	HUSSEIN Buro	Elder	0728062962	
12.	HULUFO ABDI	~~Elder~~ youth	0720095983	
13.	MOHAMED KHER ABDI	youth	0725801109	
14.	ABDI DIDA	Ass chief Modogashe North	0722606056	
15.	IDRIS Gorecha	WARD ADMINISTRATOR	0723336022	

ATTENDANCE REGISTER

MODOGASHE (SERICHO)
ATTENDANCE REGISTER

No	NAME	DESIGNATION	CONTACTS (TEL)	SIGNATURE
1.	OMAR SHANO	BUSSNESS	0720424558	[signature]
2.	IBRAHIM ABDIKADIR	TEACHER	0716223567	[signature]
3.	Abba Adi	Youth	0741724524	[signature]
4.	Asha Arero	BUSSNESS	0724124352	[signature]
5	Abdijabar mohamed	Youth	0728 547 2336	[signature]
6	MANZUL HASSAN JARSO	Youth	0712010618	[signature]
7	SAHARA Abdirahman	NILL	0723305703	Sahara
8	ABDUBA MAMO	YOUTH	0713959855	[signature]
9	ABDIRASHID WARIO	YOUTH	0729173829	[signature]
10	SAID GODANA	YOUTH	07	[signature]
11	MOLU HUKA	WATER CHAIRMAN	0728719711	
12	ASNA GODANA	BUSINESS	0727331185	[signature]
13	Dido Qotto	BUSSNESS	0728910540	DIDO
14	KASHANE MOHAMED ABKHEIR	BUSSINESS PROFESIONAL	0741729535	[signature]
15	ISMAIL Ibrahim	KeNHA Consultant (bwlsadi)	0714388370	[signature]
16	Abdullahi Billow		0726063526	[signature]
17	MUSTAFA	BUSSINESS professional	0716163521	Must

MODOGASHE (SERICHO)

ATTENDANCE REGISTER

No.	NAME	DESIGNATION	CONTACTS (TEL)	SIGNATURE
1.	AKI GOLLO	MODOGASHE - YOUTH LEADER	0717712530	
2.	BORU DAUD	MODOGASHE	0728908327	
3.	MOHAMED IKUNO	MODOGASHE	0701371559	
4.	Fatah Huka		0718450302	
5.	Kabale Garisa			
6.	Abdirahman Mohamed	Modogashe Youth	0720094982	
7.	Abdullahi Abdulla		0705248804	
8.	Mohamed Abdullahi	Modogashe South youth	0741878796	
9.	Hussein Dida	modogashe Youth	0705952650	
10.	Mohamed Bashir	modogashe Youth	0720885110	
11.	Billow Kerow	Modogashe Youth -	0717504655	
12.	Ibrahim Mollu			
13.	Ramadhan Abdi	Boda Boda	0723783273	
14.	Gubaro Dida Jardess	Bussness	0727507988	
15.	Halima Dokicha	Bussness	0728471590	

MJOOGASHE (SERICHO)

No.	NAME		DESIGNATION	CONTACTS (TEL)	SIGNATURE
1.	Suleiman	Osman		0722503513	
2.	Somo	DABASSO		0714550582	
3.	Hassan	mohamed		0705499364	
4.	Adan	Guyo		0795387187	
5.	Mohumed	Issa		0700244283	
6.	Abdi	Abduba		0702386504	
7.	RamaShan	Rashid		0723414261	
8.	ALI	Guyo		0725 16844	
9.	Ramadhan	Abdi Hajji		0725955443	
10.	SAFIA	TURO			
12.	ABDULLAHI	MOHAMED	ASST CHIEF	0720434894	
12.	SHINDA	ISSACK		0723928445	x
13.	Abdiqadir	KOSI		07	
14.	MUKTAR	Hajji		0713897188	x
15.	ABDIKER	WAKO		0728460962	
16.	Ibrahim	Hulake	RAP	0721411695	
				0725005083	

ATTENDANCE REGISTER

MODOGASHE (SERICHO)

ATTENDANCE REGISTER

No.	NAME	DESIGNATION	CONTACTS (TEL)	SIGNATURE
1.	Adan Qanchora	Boda Boda	0729547966	
2.	Salad Bore	Boda Boda	0707007272	
3.	Dera Quntullo		0721605341	
4.	Hulufo Abdi	Taxi driver	0720095983	
5.	Hussein mohamed		0700370040	
6.	Wacco Koto		0712082224	
7.	Hussein Abdullahi		0729942308	
8.	Ibrahim Bidu		0713041913	
9.	Mohamed Halake		0711869993	
10.	Hussein Hassi Boru	Senior chief		
11.	Mohamed sala wario			
12.	Farah Adan		0712167600	
13.	Ali liban		0708727640	
14.	Abdi Marlow		0702360093	
15.	Abdiaziz Abass		0701250212	
16.	Hussein maalim		0713423972	
17.	Ahmed Abdi		0711798929	

18. Mohamed Noor Mamo		0726977600	MAMO
19. IBRAHIM DIKA		0703263385	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 02/10/2017
COUNTY: Isiolo
SUBCOUNTY: Garbatulla
VENUE: Kone (Skansk)

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	HASSAN MOHAMED		0704157525	
3.	MOHAMED HAJI		0711999065	
4.	ABDI BEIDO		0720657908	
5.	ABDI HASSAN		0717838130	
6.	RASHID OSMAN		0716839841	
7.	ABUKAR FARAH		0726361601	
8.	MAKAIL RASHID		0710880934	
9.	OMAR ARGEY		0723836237	OMAR
10.	FARHAN RUTHUL		0719736867	
11.	JELLE HUSSEIN		0719625861	
12.	MOHAMED MAALIM		0721712130	
13.	ABDI MOHAMED		0716015487	
14.	DUKEY GURE		0726324959	
15.	RAFULA NURIE		0705407838	
16.	MALAY DUBOW		0723036120	
17.	FATUMA SAMBUR			
18.	JEHEN GURE		0717343943	
19.	AMBIYA RASHID		0729575766	AMBIA
20.	RASUA IBRAHIM		0714240517	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 03/10/2017
COUNTY: Isiolo
SUBCOUNTY: Garba Tulla
VENUE: Kone (SKSNSKS)

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	HINDIYA ABDI		0724328904	
3.	DEKOW DUBA		0716863830	
4.	ALI ABDI		0717336177	
5.	OMAR SHEIKH		0728558817	
6.	MATHAITHA DUBOW		0795912712	
7.	SALIMA SARAH		0720203693	
8.	ADOW ADAN		0708855994	
9.	SAHARA MOHAMED		0704840024	
10.	SADIA SAFIAL			
11.	SADIA MOHAMED		0778798457	
12.	FARDOWSA MOHAMED		0724733696	
13.	SAKURA HUSSEIN		0702119326	
14.	BARKEY OSMAN		0703908682	
15.	NASRI ADEN		0701504104	
16.	SAADI JOHYARE			
17.	HUSALA MAALIM		0782568883	
18.	KAMILA AHMED		0718913447	
19.	SAHAN HASSAN		0708139716	
20.	HINDIA ITO			

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD

PUBLIC CONSULTATIONS FOR ESIA STUDIES

ATTENDANCE REGISTER

DATE: 03/10/2017

COUNTY: Isiolo

SUBCOUNTY: Garbatulla

VENUE: Kone (Skawska)

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	ABDI HASSAN		0710453674	ABDI
3.	MOHAMED SHIDOW		0711759294	KA
4.	FATUMA MUHAMMAD		0716831787	FA
5.	KUSEY KARIF		0706129742	K
6.	DONIA SALAH		0799960795	D
7.	HIBI HOLLOW		0711412336	H
8.	NAHA YABOW		0713566023	W
9.	JAMAA GURE		0720337903	J
10.				
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DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD

PUBLIC CONSULTATIONS FOR ESIA STUDIES

ATTENDANCE REGISTER

DATE: 04/10/17

COUNTY:

SUBCOUNTY:

VENUE: Kanjara

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Mohamud Abikar	Pastoralist		
3.	Shukri Ali		0705574980	
4.	Abdi Shale		0713825263	
5.	Mohamed Abdullahi		0729994908	
6.	Dubow Hilowle		0712083158	
7.	Wainguru	doctor	0724883149	
8.	Hassan	cheif	0716275508	
9.	Bashir Maow		0727030669	
10.	Mukhtar Muhumed		0725040764	
11.	Hussein Ibrahim		0712904626	
12.	Abdi Dilsow		07259455554	
13.	Marale Abdi		0720348969	
14.	Maalim Dahir		0729059962	
15.	Kusow Abikar		0705941004	
16.	Adan Malhey		0713670729	
17.	Hassan Mohamed		0712959410	
18.	Ahmed Noor		0726244092	
19.	Abdi Khamis		072[illegible]0488	
20.	Dilsow Noor		0707836269	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD

PUBLIC CONSULTATIONS FOR ESIA STUDIES

ATTENDANCE REGISTER

DATE: 04/10/17

COUNTY: ……………………………………

SUBCOUNTY: ……………………………………

VENUE: Kanjara

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Abdirahman Hassan	Chief	0728754021	
3.	Hassan Jalafow	Student	0715276161	
4.	Abdirashid Muhow	Student	0725959410	[signature]
5.	Mukhtar Gabow	Businessman	0720068694	[signature]
6.	Ibrahim Bare		0724549009	[signature]
7.	Bishar Bare		0727508287	[signature]
8.	Adan Mohamud		0725942335	[signature]
9.	Ahmed Nure		0791235015	[signature]
10.	Hassan Abdille		0714736477	[signature]
11.	Ahmed Gabow		0724379115	[signature]
12.	Issa Salat	Student	0727342864	[signature]
13.	Abdi Abikar		0724157215	[signature]
14.	Ahmed Arab		0717457752	[signature]
15.	Ibrahim Muhumed		0729718674	[signature]
16.	Mohamud Dugow		0725945003	[signature]
17.	Jelani		0725946003	[signature]
18.	Mohamud Aligow		0720959322	[signature]
19.	Osman Khalif		0700500072	[signature]
20.	Abdi Khalif Osman	DH: teacher	0714959440	[signature]

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD

PUBLIC CONSULTATIONS FOR ESIA STUDIES

ATTENDANCE REGISTER

DATE: 04/10/17

COUNTY:

SUBCOUNTY:

VENUE: KANSARA

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Zeinab Abdi			
3.	Habiba Yussuf			
4.	Safia Mohamed			
5.	Saadia Salat	0723772746		[signature]
6.	Fatuma Abdikadir	0705476404		[signature]
7.	Nbalu Noor	0725945012		
8.	Halima Mohamed	07255634405		
9.	Luki Osman	0718258211		
10.	Gerfa Hassan	0714531322		[signature]
11.	Bishara Adan	0741246789		
12.	Duba Ahmed			
13.	Habiba Mohamed			
14.	Nima Bare	0727562809		
15.	Khadra Abdi			
16.	Nasri Roble	0720232041		
17.	Zeinab Abdullahi	072330574 06		[signature]
18.	Shindi Balkal	0715202451		
19.	Roble Nuno	0791235945		
20.	Timira Hussein	0726524883		

ADAN ABDI (DHOEF) 0723764377 [signature]

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 04/10/17
COUNTY: .....
SUBCOUNTY: .....
VENUE: Kanjara

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Sagal Gobow	Pastrolist	0717590328	
3.	Adan Mohamed	Pastrolist	0718844437	
4.	Shure	Pastrolist	0719116278	
5.	Dayow Noor		0721400324	
6.	Abdi Ali		0713457987	
7.	Zeinab Hassan		0715276104	
8.	Zeinab Abdi		0725949510	
9.	Rukia Hassan		0720959156	
10.	Saadia Bishar		0720957496	
11.	Zeinab Gabow		0729084953	
12.	Dowley mohamed		0703501734	
13.	Mukhtar Sheikh		0705061750	
14.	Omar		0711259627	
15.	Haretha M. Noor		0711964481	
16.	Lul Osman		0718258211	
17.	Glenys		0729054910 56	
18.	Dubai		0719462895	
19.	Magala Abdi		0729405867	
20.	Abdia		0729545675	

KANJARA

No.	Name	Phone No	Signature
1	Hasna Elmi	0710433792	
2	Suldan Sanay	0723177862	
3	Muslima Shido	0708632283	
4	Dahira Abdirazak	0710459041	
5	Hindi Abdi	0726316895	
6	Gedi Mohamed	0716929425	
7	Habiba Mohamed	0708414335	
8	Abdi Muhumed	0729173023	
9	Fatuma Shale	0701510716	
10	Fian Khalow	07289477169	
11	Saadia Ahmed	0728	
12	Nuria Muhumed	0703317818	
13	Oley Ooble	0719535096	
14	Asha Hassan	0798003992	
15	Hawa Jeilow	0791502813	
16	Saadia Ali	07417537[illegible]	
17	Dahabo Yussuf	0741190119	
18	Malaa Abdi	0727796233	
19	Ubey Shankahara	0708090728	
20	Madhina Adan	07[illegible]507079	
21	Timiro Dayow	07	
22	Arfun Omar	07[illegible]50122	
23	Abdia Ali	0714822280	
24	Saadia Kenan	0725312492	
25	Khadija Abdullahi	0714554170	
26	Sowda Abdinoor	0717905964	
27	Nuria Omar	0720231858	
28	~~Hafi~~ (Hadija) Mohamed	0727024426	
29	Nimca Mudey	0724953565	
30	Kaltuma Mohamud		
31	Fatuma Adan		
32	Dahira Abdi	0728178852	

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 04/10/17
COUNTY: .....
SUBCOUNTY: .....
VENUE: KANJARA

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Habiba Hassan	0720076990		
3.	Samira Gilmal	0710785991		
4.	Saadia Bishar	0709012581		
5.	Fadima Hassan			
6.	Mumina Bare	0721458470		
7.	Asli Kaynan	0743115978		
8.	Shudi Abdi	0724575848		
9.	Nimco Mohamed	0741887506		
10.	Abdia Mohamed	0722430447		
11.	Dahaba Abdi			
12.	Rukia Bishar			
13.	Dega Ahmed.			
14.	Mumina Gulow	0728640546		
15.	Duba Bare.			
16.	Saadia Abdi			
17.	Sanjab. Mohamed	0707836458		
18.	Nuria Nunow	0792982115		
19.	Halima Salat	0741531329		
20.	Dahir Mohamud	0708214859		

KANJARA

No.	Name		Occupation	Contact	Signature
1	Ahmed	Ibrahim	Teacher	0701571530	Ahmed
2	Yussuf	Abdi	Teacher	0724072271	[illegible]
3	Abdi	Bare	Pastoralist	0727229796	[illegible]
4	Ahmed	Adan	Pastoralist	0713642907	A
5	Maalim	Issack		0707550823	A
6	Ogas	Ali		0720406377	
7	Abdinoor	Hassan		0707447233503	
8	Issa			0729344574	
9	Abdi	Shale		0726235413	
10	Rukia	Bisher		0713532699	
11	Jella	Noor		0726754022	
12	Ragow	Abdullahi		0728993345	
13	Magala	Hassan		0725223541	
14	Amran	Mohamed		07[illegible]41633	AH
15	Dahaba	Hassan		0728349639	[illegible]
16	Oley			0704655970	
17	Maryan	Sainey		0723708578	
18	Khadija			0717852241	
19	Nunay	Abdi		0792982115	
20	Mustima	Bisher		0725941055 6	
21	Ragow	Abdullahi Gudow		0728961692	

	Name	Phone no	Signature
37	Nimca Ali Hassa		
(38)	Duba Ali Hassan		
(35)	Rukia Jinale		
(36)	Halima Maow		
(37)	~~Arfon~~		
(37)	Nurai Abdule		
(35)	Dubey Omar		
(39)	Abdia Hassan		
40	Habiba Hassan		
(41)	Samira Hassan		

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 04/10/17
COUNTY: WAJIR
SUBCOUNTY: .....
VENUE: HABASWEIN LIBRARY

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	AROW JUBAS	PUBLIC HEALTH OFFICER		
3.	MUHUDIN ABDULLAHI			
4.	HUSSEIN KATTIN		0714209748	
5.	AHMED ASSACK ADAN		0718413170	
6.	ABDIWAHAB DAHIR			
7.	AMINA ADAN		0721392447	
8.	ADAN ABDI MADAY	SNR CHIEF	0723764377	
9.	ALI HASSAN	YOUTH	0720452616	
10.	ABDULLAHI	AAMED FARAH	0720394195	
11.	Felix Mgasic	Xec	0728807573	
12.	HANDI A. ALI	WARD ADMIN	0727923709	
13.	DAVID K. TANUI	OCS HABASWEIN	0721973542	
14.				
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HABASWEIN

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 04/10/17
COUNTY: WAJIR
SUBCOUNTY: HABASWEIN
VENUE: COMMUNITY LIBRARY

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Gedi Abdi Hussein	DAGCO/Disab. rep.	0727089381	
3.	Habiba Iman Abdi	Isiko chair	0708183447	
4.	SARAH AHMED HUSSEIN	ELDER	0711989109	
5.	HARET A. MATAN	ASS/CHIEF	0720083055	
6.	IBRAHIM A. DIRROW	ASS/CHIEF	0726929218	
7.	Issak Ibrahim Hussein	Elder	0725150399	
8.	MOHAMED AHMED	ELDER	0711916564	
9.	KHALIF S. FARAH	Snr chief	0728028718	
10.	IBRAHIM DAGANE	SNR CHIEF	0714009608	
11.	ALI ABDI OGLE	SECURITY CHAIRMAN	0728447585	A.A OGLE
12.	Mohamed Abdullahi	chief	0704313269	
13.	MOHAMED HAJI ABDI	Sub-County Agric officer	0711135826	
14.	Julius Mwangi Kienji	Sub-County Livestock officer	0710219192	
15.	SHEIK SIYAT BUNOW	RELIGIOUS LEADER	0714971444	
16.	NUNOW ABDI ABDULLAHI	ELDER	0728531452	
17.	MOHD MOHAMED ABDI	ELDER	0722155450	
18.	HARROW ADAN TARABI	ELDER	0712760015	
19.	ALI ABDI	ELDER	0722729725	
20.	MUKTAR SAMBURU	ELDER	0780686496	

Invited

Attendance List 4/9/2017

1. Salah Ahmed
2. Mohamed Khalif
3. Ibrahim Jabase
4. Ali Ali Agle
5. Mohamed Din Abdullahi
6. Mohamed Mohamud
7. Nunow Abdi Abdullahi
8. Sheikh Siyat Bunow
9. Farrow Adan Farah
10. Ali Abdi Hussein
11. Mukhtar Sambul
12. Ibrahim Billow
13. Ward Adm
14. Livestock Officer
15. Chief Ibrahim of Ndege
16. Habiba Iman
17. Gedi Abdi Hussein
18. Isaack Jama
19. Agriculture Officer
20. I.Bow Issack Abdi
21. Shukri Bashir Fuel
22. DCC
22. Adan Abdi Maday, chief L.Bima
23. Hareth Ahmed Adayow - Assistant Chief
24. Mohamed Bare - Assistant Chief.
24. Chief Ali Dumal - Chief
25. Amina Adan Issack - women Rep
26. OCS Hulugho Police Station

DESIGN REVIEW, ESIA, RAP FOR THE MODOGASHE-SAMATAR ROAD
PUBLIC CONSULTATIONS FOR ESIA STUDIES
ATTENDANCE REGISTER

DATE: 04/10/17
COUNTY: WAJIR
SUBCOUNTY: .....
VENUE: HABASWEIN LIBRARY

1. No.	NAME	DESIGNATION	CONTACTS/TEL NO	SIGNATURE
2.	Ali Dubow	Youth	0711D454627	
3.	Mohamed Ibrahim	Youth	0710724[illegible]4	
4.	Ahmed mohamed	YOUTH	0725744531	
5.	Abdiwahab mohamed	YOUTH	0728395559	
6.	mohamed bishar	youth	0724263427	
7.	Muhumed Mahat	YOUTH	0707[illegible]2357	
8.	ALI GALIYE	Youth	0725[illegible]6966	
9.	ABDI SUGAL	Disable	KNA	
10.	OMAR ABDI HIRSI	YOUTH	0720325024	
11.	ADAN NURQU	youth	0702145270	
12.	AMINA ADAN	Women	0724392447	
13.	ABDI NATHIR	MZee	0717259933	
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ANNEX 2

PUBLIC CONSUTATIONS PHOTO GALLERY

The plates below show some of the engagements during the Stakeholder Engagement and Public Participation meetings conducted at some of the venues:

Plate 1: Social Expert explaining about the Project to the Modogashe I (Lagdera) community members.

Plate 2: A woman at Modogashe II (Sericho) giving her views.

Plate 3: Habaswein public consultation workshop

Plate 4: Women at Skasnka Center

Plate 5: Focus Group Discussion at Kanjara Center

SOCIAL AMENITIES PROPOSED BY THE PUBLIC

Proposed Social Amenities

1. Modogashe (Lagdera) – Garisa County

a. The Community in Lagdera indicated that water was their biggest challenge. They thus requested that a major Bore hole and Water Pan be considered as part of the Project. They proposed that at the Community be consulted to determine the actual location of the proposed borehole.

2. Modogashe (Sericho/Garba Tula)- Isiolo County

There was a community grievance at the Borana side of Modogashe Town. As a result they did not even propose preferred social amenities.

They indicated that they have a historical boundary dispute with the Somalis of the Lagdera side of the same town.

3. Skanska

a) Priority should be given to boreholes as the water available is salty. Clean drinking water is presently obtained from Habaswein which is 30km away by use of Water bowsers. A 20 litre can of water costs sh. 100.

b) They also proposed construction of a dam to promote irrigation on land set out. The actual site to be identified consultatively.

4. Guticha / Samatar

Two presentations were made by the two different Constituencies through which the road traverses: The Centre is based in Wajir West and Wajir South Constituencies and proposals were made according:

a) Wajir West

- Health Centre to be upgraded from its present rudimentary state.
- Classrooms for the semi-permanent primary school the only one in the location
- An irrigation borehole proposed.

b) Wajir South

- A borehole at a location to be identified by Community
- A primary school as there is none present.

5. Kanjara

The community prioritized their projects as follows:

a) In Wajir West a school fence and upgrading of existing school infrastructure was requested.
In Wajir South there are children who are currently learning under a tree in a new established primary school. A complete school was requested.

b) There was request for fencing of an existing dam which was an accident hazard.

c) Water kiosks and roadside markets were also requested on both sides of the trading centre.

5. Habaswein

Two major communities identified themselves along the two Constituencies of Wajir West and Wajir South. The Communities were Ajuran and Ogaden respectively. The proposed projects were as follows:

a) Community Borehole for each side
b) Livestock Market Improvement with a cattle dip
c) Equipping the Health Centre in the Township
d) Loop roads to Government Offices, Library and Health Centre

INSTRUMENTS FOR SOCIAL DATA COLLECTION

CONSULTANCY SERVICES FOR THE DESIGN REVIEW OF MODOGASHE - SAMATAR ROAD, KENYA (IDA FUNDED)

SOCIAL IMPACT ASSESSMENT INSTRUMENT:

GENERAL LOCATION DATA:

1: COMMERCIAL CENTERS CHECKLIST OF SOCIO-ECONOMIC ISSUES:

1. NAME OF MARKET/TRADING CENTER ……

A. LOCATION/ADMIN. CONTEXT

(a) County……. (b) Constituency ……..

(c) Sub-County/District…… (d) Ward ……..

(e) Location ……..…… (f) Sub-Location……

2. CURRENT MARKET SITUATION

Describe the Market: In Relation to the Road Project: Location of spread; Infrastructure; Buildings; Type; Economic Activities; Admin Functions:

……..……..……
……..……
……...……..……
……..……
……..……
……
……
……

3. MARKET ORGANIZATION: STRUCTURE & FUNCTION

(a) Market Committee……..

(b) Business Associations ……

(c) Cooperative Societies …….

(d) Transport Associations……

(e) Others (Specify) ……..

4. AGRICULTURAL and LIVESTOCK PRODUCTION:

(a) Main Income Earning Commodities
……
……
……..……..

(b) Market Outlets of Main Income Earning Commodities at the Center (Stores; Open air Dealers; Brokers; Collection Center)

……..……
……
…….

5. PRICES OF THE MAIN INCOME EARNING LIVESTOCK

(a) ……

(b)……
(c) ……
(d) ……

6. TRANSPORT SERVICES

(a) Types of Passenger Public Service Vehicles/Traffic Volume: ……
……
……

(b) Types of Goods Transport Vehicles/Traffic Volume: ……
……
……

7. FINANCIAL INSTITUTIONS/SERVICES

(a) Commercial Banks: ……

(b) Microfinance Institutions (MFIs)……..

(c) SACCOs……

(d) Microcredit Organizations ……

(e) Others (Specify) ……..

8. EDUCATIONAL INSTITUTIONS

(a) No. of Public Primary Schools …….
(b) No. of Private Primary Schools ……
(c) No. of Public Secondary Schools ……..
(d) No. of Tertiary Education Institutions (Colleges) ……
(e) Others Specify……

9. HEALTH FACILITIES (Hospitals; HCs/Disps; Clinics; Chemists; Medical Labs)

(a) Types/No. of Public Health Facilities……
……..

(b) Types/No. of Private Health Facilities……
……..

CONSULTANCY SERVICES FOR THE DESIGN REVIEW OF MODOGASHE - SAMATAR ROAD, KENYA (IDA FUNDED)

BASELINE STUDY/ SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE:

INSTRUMENT 2: HOUSEHOLD SURVEY QUESTIONNAIRE

1.2 CONFIDENTIALITY AND CONSENT:

I'm going to ask you some personal questions with regard to how the proposed road project will affect your family and property. Your answers are completely confidential. It is important that you answer all questions as accurately as possible. The purpose of asking these questions is for us to share background information that will help in the implementation of the project, so as to help identify, document impacts while mitigating and or correct the negative impacts. The interview will take about 45 minutes and I will appreciate your help in responding to these questions.

Would you be willing to participate?

Signature of the interviewee: _____Date: _____(Indicating that an informed consent has been given verbally by the respondent)

1.3 Instructions to Enumerators:

This questionnaire will be administered to either the owner or the non-owner user of the land for which you will obtain a detailed description, including the land registration number, the list of owners, and a drawing of the land. If the person you meet is not the owner or not familiar with the owner, please clearly note the problem on the interview form, thank him or her and discontinue the interview.

Please record the answers as given to you. Also remember that area has to be given in Hectares, and when answers are given to you in acres, please make an accurate conversion. All questions should be answered; questionnaires with unanswered questions will be rejected. Multiple answers will only be allowed for questions which accept multiple answers. A household comprises those people who share the same cooking and eating arrangements regardless of whether they sleep under the same roof or not.

NAME OF ENUMERATOR:……SIGN:…….. **DATE:**/…..…/……

TELEPHONE: ……...

DATE OF INTERVIEW…… SIGN: ……..

SUPERVISOR'S NAME……SIGN……DATE……

PART 1: LOCATION IDENTIFICATION

NAME OF TRADING CENTER: …… SUB-LOCATION: ……

DISTRICT: ……. CONSTITUENCY: ……..

PART 2: INFORMATION ON THE RESPONDENT

NAME: ……..……TELEPHONE: ……..……

Heading Household? YES 1 ☐ NO 2 ☐

House ownership: Owner ☐ Tenant 2 ☐

No. of persons living in the household ……..

PART 3A: EDUCATION, OCCUPATION AND INCOME LEVELS OF HOUSEHOLD MEMBERS (ENTER CODES INDICATED: 1-8)

	Name of Household Member	**Relationship to Head of HH** **1. Head** **2. Spouse** **3. Child** **4. Grandchild** **5. Worker** **6. Others (Specify)**	**Education Level** **0. None (Adult)** **1. Adult Literacy** **2. Primary** **3. Secondary** **4. Tertiary (College, University)** **5. N/A (<5yrs)**	**Occupation** **0. Unemployed(Adult)** **1. Farmer** **2. Self-Employed** **3. Trader** **4. Artisan** **5. Casual Laborer** **6. Salaried** **7. Student** **8. N/A (<5yrs)**	**Monthly Incomes Ksh P.M** **0. None (Adult)** **1. Less Than 3,000** **2. 3,000-5,000** **3. 5,000-10,000** **4. 10,000-20,000** **5. 20,000-30,000** **6. 30,000-40,000** **7. Over 40,000** **8. N/A (<5yrs)**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

PART 3B: SECONDARY OCCUPATION/SOURCE OF INCOME (ENTER CODES INDICATED: 1-4)

	Name of Household Member	**Relationship to Head of HH** **1. Head** **2. Spouse** **3. Child** **4. Grandchild**	**Main Occupation**	**Secondary Occupation**	**Monthly Incomes (Ksh. P.M)**
1					
2					
3					

	Name of Household Member	**Relationship to Head of HH** **1. Head** **2. Spouse** **3. Child** **4. Grandchild**	**Main Occupation**	**Secondary Occupation**	**Monthly Incomes (Ksh. P.M)**
4					
5					

PART 4: HOUSEHOLD AGRICULTURAL PRODUCTION AND PRICE LEVELS

	Income Earning Commodity	**Unit of Measure**	**Quantity Produced P.A**	**Estimated Loss of Production Quantity P.A**	**PRICE Farm Gate**		**PRICE Collection center**	
					Unit of measure	**Price Ksh**	**Unit of measure**	**Price Ksh**
1								
2								
3								
4								
5								

PART 5: EMPLOYMENT AND INCOMES FROM MODOGASHE-SAMATAR ROAD PROJECT:

Has any member of this Household been employed in a road project in the area, during the last one year?

Tick: YES: …….. NO: ……..…

If yes, please provide the following information:

	Name of Household Member	**Age Years**	**Sex M,F**	**Job Position Employed**	**Duration Years Months**	**Wages Paid per month**	**Remarks**
1							
2							
3							
4							
5							

PART 6: ENTERPRENEURSHIP

1. Are there any members of the Household who own Business Enterprises in the area?

Yes: …..…… No: ……

If yes, give details here below:

BUSINESS OWNERSHIP							
	Name of Household Member	**Relationship to HH**	**Age**	**Sex**	**Occupation**	**Type of Business owned**	**Income Earned per Month-Ksh**
1							
2							
3							
4							
5							

TOURISM AND CULTURAL ARTIFACTS IN THE ROAD ZONE OF INFLUENCE

	Available Amenities	Cultural	Tourism	ii) Accessibility	iii) Utilization	iv) Condition	v)
	Cultural Shrines						
	Monuments						
	Animal Parks						
	Nature Trails						
	Tourist Hotels						
	Private conservancies						
	Public Cemeteries						

HEALTH AND NUTRITION:

Do members of this household get enough food to eat?	Yes No		If NO, how do you cope?	Skipping a meal Eating less Borrowing food Scavengin	01 02 03 0	What is the most common meal taken for breakfast in this household	Tea only Tea/Toast/Mandazi Porridge Last night's food remains None	01 02 03 0

				g Sending children to ask for hand outs Other (specify) ----	4 05 06 07	d?	Other (specify) ---- 	4 05 06
							Write In	
What is the most common meal taken for lunch in this household?	Githeri Ugali Chapati Rice Chips Porridge None Other (specify) ---	01 02 03 04 05 06 07 08	How frequent do you eat Meat/fish/chicken in this household?	Daily At least Twice a week At least Once a week	01 02 03	What is the nearest health facility and how far?		
Do you sometimes miss a meal in this household? How often do you miss a meal in this Household?	Yes No Very frequent Frequent Not frequent rarely	 1 2 3 4	Please tell me in your own opinion, which are the leading health problems in your Village?	HIV/AIDS Malaria Typhoid TB Respiratory Tract infections Skin diseases Diarrhoea Kwashiorkor Eye Infections STDs Dental problems Others	01 02 03 04 05 06 07 08 09 1	Do you often get medicine in the health Facility that you frequent?	Yes No	

				(specify) --	0 1 1 1 2			
How would you describe the cost of Medicine ? Is it free, cheap, expensive or Very expensive?	Free Cheap Expensive Very Expensive	1 2 3 4	IF DOES NOT GET MEDICINE FROM THE HEALTH FACILITY THEY VISIT ASK, where do you get it?	Shops Chemists Public dispensaries/ hospitals Private Clinics/ hospitals hospitals Traditional medicine-men Others (Specify) ---	0 1 0 2 0 3 0 4 0 5 0 6 0 7	In your opinion how serious is the problem Of HIV/AIDS in your village?	Very serious Serious Not serious Not a problem Don't know	1 2 3 4 5

SOCIAL AMENITIES IN THE ROAD'S ZONE OF INFLUENCE

	Available Amenities	**Yes**	**No**	**ii) Adequacy**	**iii) Accessibility**	**iv) Utilization**	**v) Condition**
	Schools (public)						
	Schools (NGO, CBO, Religious, private etc.)						
	Health facilities (public)						
	Health facilities (private, NGO, CBOs, religious, etc.)						
	GoK offices						
	SCC offices						
	Police(security)						

	Available Amenities	Yes	No	ii) Adequacy	iii) Accessibility	iv) Utilization	v) Condition
	NGO/CBO offices						
	Water points						
	Sanitation/drainage facilities						
	Rural Access Roads						
	Telephone Coverage						
	Electricity in home						
	Shops						
	Banks						
	Social halls						
	Technical training facilities						
	Places of worship						
	CULTURAL SHRINES						
	MONUMENTS						
		Yes=1, N0=2		***1 Adequate 2 Not Adequate***	***1 Easily accessible 2 Not accessible***	***1 Fully utilized 2 Not fully utilized***	***1 Good condition 2 Poor condition***

INSTRUMENT 3

SOCIO ECONOMIC BASELINE SURVEY

FOCUS GROUP DISCUSSION GUIDELINE

1. General comments on the project. Warm-up question where participants briefly state their opinions about the project, including their expectations of the project.
2. Introduction of the project. How was the project introduced? What information were they given about the project? What issues are unclear?
3. Please list positive impacts you would associate with the project?
4. Do you think there will be negative impacts that the project will create? Please cite.

5. What is the place of women in the road corridor? How do you think they will be affected by the project? Are there women headed households?
6. What benefits do you think the project will bring to the community? Any disbenefits?
7. Recruitment of workers: Information on what steps are in place to decide which people / HH will be employed, and what guidelines are in place to decide which workers will be retrenched when there is a reduction in the work load.
8. Alternative employment. Discussion on the alternative employment opportunities in the community which could be generated by the project
9. Positive and Negative Impacts of the Project as seen by the FGD. Proposals for Mitigation
10. What suggestions do you have for Contractor engagement with Community?
11. How do you propose any community grievances arising from the project be handled?

A SUMMARY OF THE SOCIO-ECONOMIC STATUS OF MODOGASHE-SAMATAR AREA

This report provides a summary of the socio-economic status of Modogashe-Samatar Area with more distinction of Modogasge and Habaswein area.

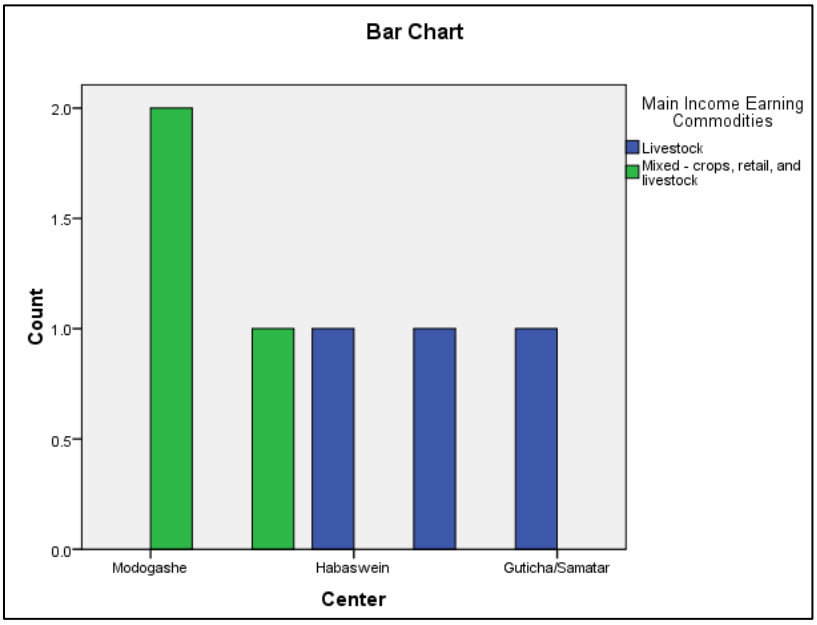
6.3.2 Agriculture – Crop Production

The people along Modogashe-Samatar road practice mixed livelihoods as well as livestock keeping only as shown in the table below. Specifically, Habaswein, Kanchara and Guticha/Samatar practice livestock keeping as a means of livelihood whereas Modogashe and Skanska practice mixed farming (keeping livestock and crops production) as well as trade.

Center * Main Income Earning Commodities Cross tabulation				
Count				
		Main Income Earning Commodities		
		Livestock	Mixed - crops, retail, and livestock	Total
Center	Modogashe	0	2	2
	Skanska	0	1	1
	Habaswein	1	0	1
	Kanchara	1	0	1
	Guticha/Samatar	1	0	1
	Total	3	3	6

6.3.3 Livestock Keeping and Aquaculture

The people along Modogashe-Samatar road practice mixed livelihoods as well as livestock keeping as shown in the figure below. Specifically, Habaswein, Kanchara and Guticha/Samatar practice livestock keeping as a means of livelihood whereas Modogashe and Skanska practice mixed farming as well as trade.



6.3.4 Tourism

When asked of the types of tourism and cultural artifacts in their trading centers, only Modogashe indicated they had some form of tourism and cultural artifacts. Private conservancy and two public cemeteries were considered by respondents as tourism and cultural artifacts in their center as shown in the table below.

Center * Which tourism and cultural artifacts are in your trading center? Cross tabulation				
Count				
		Which tourism and cultural artifacts are in your trading center?		
		Private Conservancies	Public cemeteries	Total
Center	Modogashe	1	2	3
	Total	1	2	3

6.3.5 Trade and Industry

Majority of the leaders in Modogashe-Samatar area do not have any form of occupation, and could easily be classified as dependent on others. Of all the 53 respondents who answered the question on their occupation, 37 said they did not have any occupation while 4 of them (2 in Skanska and 2 in Habaswein) said they were farmers. Majority of the respondents in Modogashe said their occupation was self-employment. One respondent each in Habaswein, Kanchara, and Guticha said their occupation was self-employment. Skanska had only one respondent who said occupation was in trading.

Center * Occupation Cross tabulation						
Count						
		Occupation				
		.00	Farmer	Self employed	Trader	Artisan
Center	Modogashe	13	0	4	0	2
	Skanska	9	2	0	1	0
	Habaswein	7	2	1	0	1
	Kanchara	7	0	1	0	1
	Guticha/Samatar	1	0	1	0	0
	Total	37	4	7	1	4

Individual respondents in the area under study indicated they were working in salaried jobs while half of it said they engaged in casual jobs as shown in the table below. Modogashe had the majority of people working in salaried jobs while half of respondents from the center work in casual jobs. Similar scenario also found inHabaswein center where five of respondents work in salaried jobs while 2 work in casual jobs. Kanchara center had the highest population of salaried workers than casual workers compared to any of the other four centers.

Center * Occupation Cross tabulation					
Count					
		Occupation			
		Casual Laborer	Salaried	N/A (Under 5 years)	Total
Center	Modogashe	5	10	2	36
	Skanska	1	1	0	14
	Habaswein	2	5	2	20
	Kanchara	2	8	0	19
	Guticha/Samatar	2	6	1	11
	Total	12	30	5	100

Very few people indicated they had worked in a road construction project as shown in the table below. Majority of them; 44 out of 51 said they had not worked in a road construction job. Specifically, Modogashe had only 4 respondents out of 17 who said they had worked in a road construction job while Habaswein center had almost half of respondents; 3 out of 7 who said they worked in a road construction job.

Center * Has any member of HH been employed in a road project in the area during the last one year? Cross tabulation				
Count				
		Has any member of HH been employed in a road project in the area during the last one year?		
		Yes	No	Total
Center	Modogashe	4	17	21
	Skanska	0	4	4
	Habaswein	3	7	10
	Kanchara	0	10	10
	Guticha/Samatar	0	6	6
	Total	7	44	51

6.3.6 Mining and Mineral Development

There is no indication that there were any mineral and mining economic activities in the Modogashe-Samatar area from the analysis of the survey. There will be need to re-look into the questions to see if this question was well addressed to capture the status of the mining and mineral exploration in Modogashe-Habaswein area.

6.3.7 Education and Literacy

There are quite a few primary schools in Modogashe-Samatar area as indicated in the tables below. These schools are public, private and religious schools. Two

respondents from Modogashe provided two different number of public primary school. One said there were two schools while another one said there were 4 public schools. This need to be look at to confirm for sure how many public primary schools are there in Modogashe. The other four centers—Skanska, Habaswein, Guticha, and Kanchara had each one public primary school.

Center * Number of Pub Primary Schools Cross tabulation					
Count					
		Number of Pub Primary Schools			
		1.00	2.00	4.00	Total
Center	Modogashe	0	1	1	2
	Skanska	1	0	0	1
	Habaswein	1	0	0	1
	Kanchara	1	0	0	1
	Guticha/Samatar	1	0	0	1
	Total	4	1	1	6

Only Modogashe and Habaswein centers had private primary schools. The table below indicates that Modogashe had 3 while Habaswein had 6 private primary schools.

Center * Number of Private Primary Schools Cross tabulation				
Count				
		Number of Private Primary Schools		
		3.00	6.00	Total
Center	Modogashe	2	0	2
	Habaswein	0	1	1
	Total	2	1	3

There were only 6 public secondary schools in the area as shown in the tables below. Modogashe center had 2 public secondary schools while Habaswein had four public secondary schools. Habaswein is the only center with a private secondary school. There is only one private secondary school in Habaswein center as shown in the second table below.

Center * Number of Public Secondary Schools Cross tabulation				
Count				
		Number of Public Secondary Schools		
		2.00	4.00	Total
Center	Modogashe	2	0	2
	Habaswein	0	1	1
	Total	2	1	3

Center * Number of Private Secondary Schools Cross tabulation			
Count			
		Number of Private Secondary Schools	
		1.00	Total
Center	Habaswein	1	1
	Total	1	1

In addition to the public and private primary and secondary schools, there were also three other institutions in Modogashe and Habaswein, all of them religious schools as shown in the table below. Modogashe center had 2 religious education institutions while Habaswein had only one.

Center * Other Education Institutions Cross tabulation			
Count			
		Other Education Institutions	
		Religious schools	Total
Center	Modogashe	2	2
	Habaswein	1	1
	Total	3	3

Majority of the people in Modogashe-Samatar Area are illiterate compared to those with primary and secondary literacy levels as shown in the table below. 24 of all the survey takers did not indicate their literacy level. 18 of them said they were illiterate adults while 29 said they had adult literacy level. Equal number—15 said they had primary and secondary literacy levels respectively.

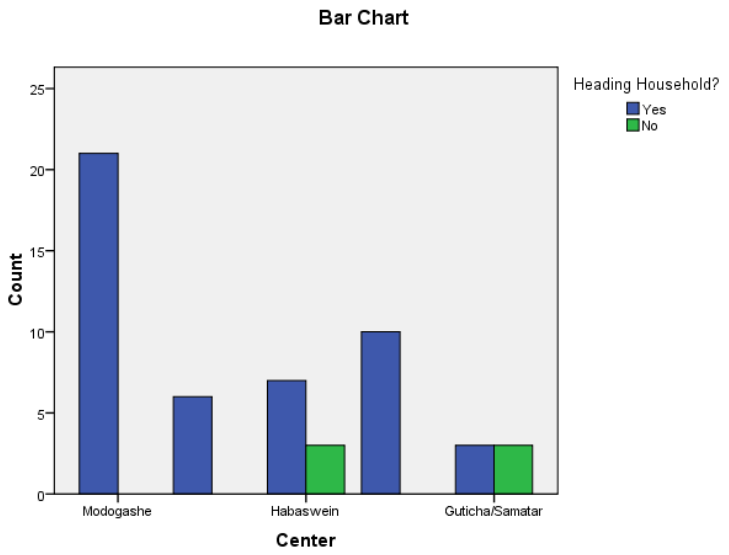
Center * Education Level Cross tabulation						
Count						
		Education Level				
		.00	None (Adult)	Adult Literacy	Primary	Secondary
Center	Modogashe	9	9	13	3	4
	Skanska	3	4	2	2	3
	Habaswein	2	4	3	4	5
	Kanchara	8	0	7	3	2
	Guticha/Samatar	2	1	4	3	1
	Total	24	18	29	15	15

Out of 107 of those who indicated whether they have tertiary education or not, only 6 of them said they did as shown in the table below. Three out of 41respondent from Modogashe said they had tertiary level education while Habaswein had only 2 out of 20. Guticha had only one out 12 respondents with tertiary level of education.

Center * Education Level Cross tabulation			
Count			
		Education Level	
		Tertiary (college, university)	Total
Center	Modogashe	3	41
	Skanska	0	14
	Habaswein	2	20
	Kanchara	0	20
	Guticha/Samatar	1	12
	Total	6	107

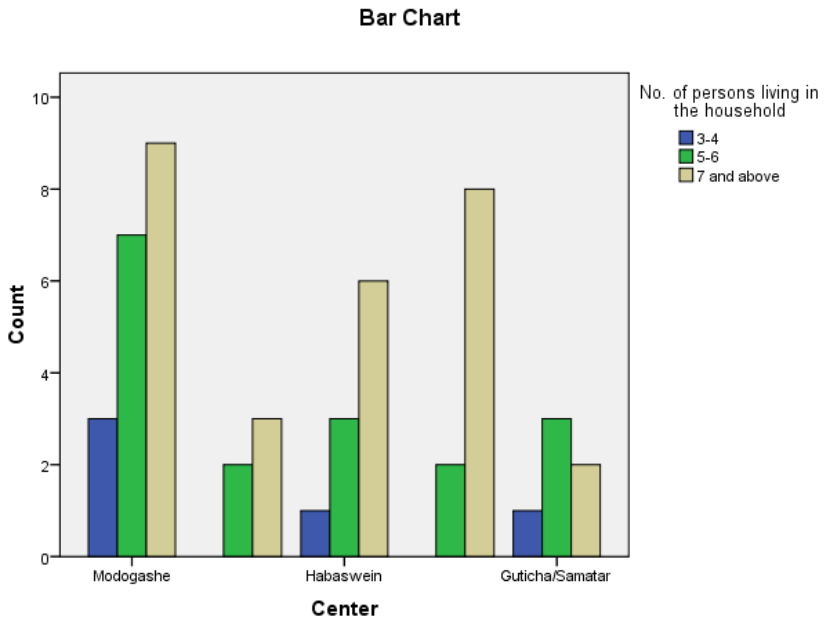
6.3.8 Vulnerable Persons, the Elderly and Widows

Majority of the leaders of each of the trading centers along Modogashe-Samatar area responded that they were heads of households as shown in the figure below. All of the individual respondents from Modogashe-Samatar area except one were all owners of their own houses as shown in the table below. There is no indication from this analysis to indicate there were people with disabilities. This may require a new follow-up question to address this aspect of the centers under study.



Center * House Ownership Cross tabulation				
Count				
		House Ownership		
		Owner	Tenant	Total
Center	Modogashe	20	1	21
	Skanska	6	0	6
	Habaswein	10	0	10
	Kanchara	10	0	10
	Guticha/Samatar	6	0	6
	Total	52	1	53

Majority of the households in Modogashe-Samatar area have 7 or more people living in the same house as shown in the figure below. Only in Guticha center where the majority of the households had households with people living in the same house ranging between 5 and 6.



The table below indicates the relationship of the respondents in this study to the head of the household (HH). Majority of the respondents in this study were the children of the head of the household. Of all the respondents, there were 19 of them who were heads of households while 16 were the spouses and 64 were the children.

Center * Relationship to Head of Household Cross tabulation							
Count							
		Relationship to Head of Household					
		Head	Spouse	Child	Grandchild	Others	Total
Center	Modogashe	7	7	23	1	3	41
	Skanska	3	3	8	0	0	14
	Habaswein	3	3	13	1	0	20
	Kanchara	4	2	14	0	0	20
	Guticha/Samatar	2	1	6	1	2	12
	Total	19	16	64	3	5	107

6.3.9 Health-Community/Public

There were two respondents in Modogashe, one said there was only one public health facility while the other respondent said there were two of such facilities. This needs to be followed up to verify exactly the number of these health facilities. On the other hand, there Habaswein center had three public health facilities while Kanchara center had only one.

Center * Number of Public Health Facilities in the center Cross tabulation					
Count					
		Number of Public Health Facilities in the center			
		1.00	2.00	3.00	Total
Center	Modogashe	1	1	0	2
	Habaswein	0	0	1	1
	Kanchara	1	0	0	1
	Total	2	1	1	4

The, respondents were also asked about the number of private health facilities. Modogashe had two respondents; one said there were four such institutions while the other said there were only two. Kanchara is the other only center with private health facility as shown in the table below.

Center * Number of Private Health Facilities in the center Cross tabulation					
Count					
		Number of Private Health Facilities in the center			
		1.00	2.00	4.00	Total
Center	Modogashe	0	1	1	2
	Kanchara	1	0	0	1
	Total	1	1	1	3

Food is one aspect contributing to the health of the person. Respondents were asked about their consumption of food. Majority of the respondents said they got enough food to eat each of the days compared to those who did not get enough as shown in the table below. However, more people in Guticha did not get enough food compared to those who got enough. Every respondent from Habaswein said they got enough food to eat. Modogashe had more than double the number of respondents who said they got enough food compared to only 6 out of 21 who said they didn't have enough food.

Center * Do members of this household get enough food to eat? Cross tabulation				
Count				
		Do members of this household get enough food to eat?		
		Yes	No	Total
Center	Modogashe	15	6	21
	Skanska	4	1	5
	Habaswein	10	0	10
	Kanchara	9	1	10
	Guticha/Samatar	2	4	6
	Total	40	12	52

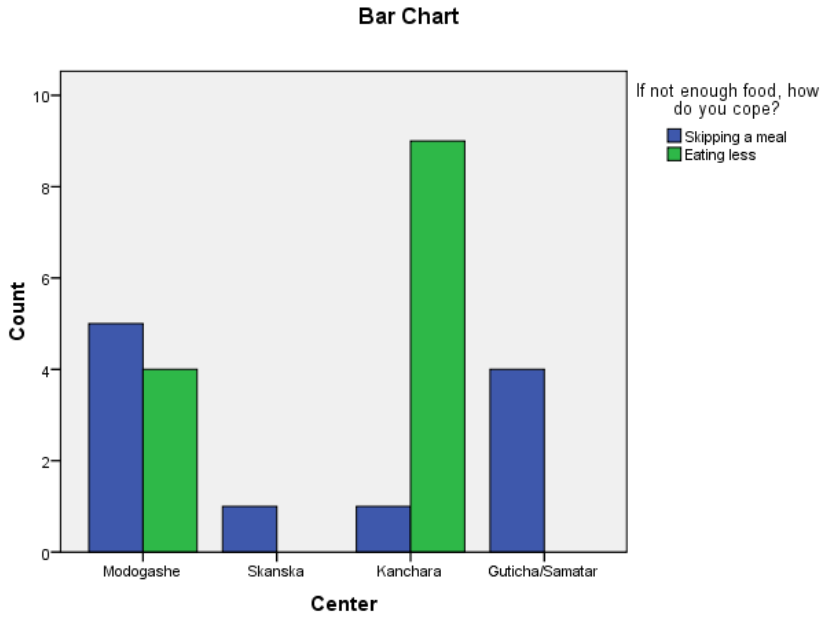
The most common meal for breakfast in the area covered by Modogashe-Samatar road is Tea accompanied by mandazi or bread. Very few took tea or porridge only for breakfast respectively. In Modogashe, equal number—5 each of the respondents said they took tea only or porridge only for breakfast.

Center * What is the most common meal taken for breakfast in this household? Cross tabulation					
Count					
		What is the most common meal taken for breakfast in this household?			
		Tea only	Tea and Mandazi or Toast	Porridge	Total
Center	Modogashe	5	10	5	20
	Skanska	0	5	0	5
	Habaswein	0	10	0	10
	Kanchara	1	9	0	10
	Guticha/Samatar	0	6	0	6
	Total	6	40	5	51

The table below shows that the main stable food for lunch in the Modogashe-Samatar area is Rice, followed by Githeri. Chapati is very rare food in the area. However some of the food types overlap in each of the centers.

Center * What is the most common meal taken for lunch in this household Cross tabulation						
Count						
		What is the most common meal taken for lunch in this household				
		Githeri	Ugali	Chapati	Rice	Chips
Center	Modogashe	3	2	0	14	0
	Skanska	0	0	0	5	0
	Habaswein	0	0	1	8	1
	Kanchara	3	3	0	4	0
	Guticha/Samatar	2	1	0	3	0
	Total	8	6	1	34	1

When the food is not adequate, majority of the respondents said they coped with that problem by either skipping food or eating less. Majority of the respondents in Modogashe, Skanska, and Guticha skipped a meal while majority in Skanska said they ate less.



Majority of the respondents said they ate fish/meat/chicken at least once a week, followed by those who said they ate at least twice a week as shown in the table below. Modogashe center has many people eating the protein foods more frequently while Skanska has less people eating proteins more frequently.

Center * How frequent do you eat meat/fish/chicken in this household Cross tabulation						
Count						
		How frequent do you eat meat/fish/chicken in this household				
		Daily	At least twice a week	At least once a week	4.00	Total
Center	Modogashe	1	9	10	1	21
	Skanska	0	0	5	0	5
	Habaswein	2	4	4	0	10
	Kanchara	0	9	1	0	10
	Guticha/Samatar	0	1	5	0	6
	Total	3	23	25	1	52

Most of the trading centers had a health center within less than 5 Kilometers from their homes as shown in the table below. It is only Kanchara and Skanska that had health facilities over 20 Kilometers away from their homes. Respondents from Skanska said they had health centers over 25 Kilometers away from their homes. 17 respondents out of 20 said they had health centers within less than 5 Kilometers from their homes while all 10 in Habaswein center said they had health facilities within less than 5 kilometers.

Center * How far is the nearest health center from your home Cross tabulation						
Count						
		How far is the nearest health center from your home				
		Less than 5Km	5-10Km	11-15Km	21-25Km	26-30kM
Center	Modogashe	17	2	1	0	0
	Skanska	0	0	0	0	4
	Habaswein	10	0	0	0	0
	Kanchara	0	0	0	7	0
	Guticha/Samatar	0	0	0	0	0
	Total	27	2	1	7	4

The table below indicates that there is a challenge with drainage in the area covered by Modogashe-Samatar road. 44 of all the 50 respondents said drainage and sanitation facilities in their area were not available. Only one of all the 18 respondents in Modogashe said sanitation/drainage was available. All the respondents in Habaswein said sanitation/drainage were unavailable as shown in the table below.

Center * Availability of sanitation/drainage Cross tabulation				
Count				
		Availability of sanitation/drainage		
		Yes	No	Total
Center	Modogashe	1	18	19
	Skanska	0	6	6
	Habaswein	0	10	10
	Kanchara	0	10	10
	Guticha/Samatar	5	0	5
	Total	6	44	50

6.3.10 HIV/AIDS

Majority of the people in Modogashe-Samatar area said HIV/AIDS is not a serious issue, while 11 of all the 40 respondents said it was a very serious problem as shown in the table below. Kanchara had the most serious problem with HIV/AIDS while Modogashe said HIV/AIDS was not a serious issue. There was no information about the issue of HIV/AIDS in Guticha.

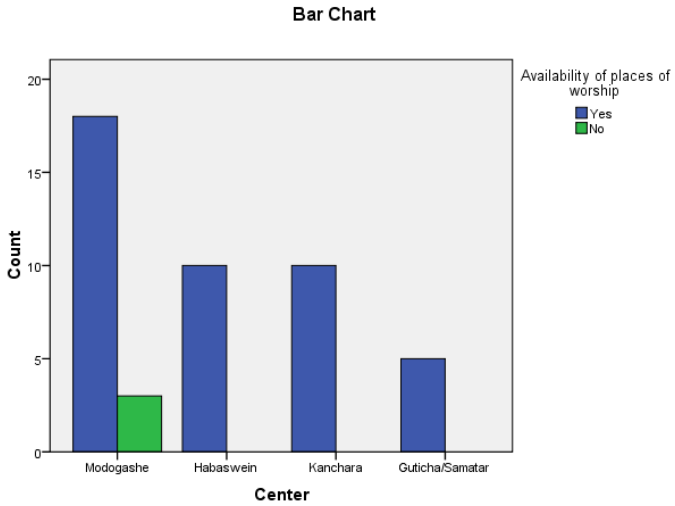
Center * How serious is the problem of HIV/AIDS in your village Cross tabulation					
Count					
		How serious is the problem of HIV/AIDS in your village			
		Very serious	Serious	Not serious	Not a problem
Center	Modogashe	0	1	18	1
	Skanska	1	4	0	0
	Habaswein	1	0	3	0
	Kanchara	9	1	0	0
	Guticha/Samatar	0	0	0	0
	Total	11	6	21	1

6.3.11 Cultural Heritage/Values, Archeological or Historical Treasures

Availability of cultural shrines and places of worship were the only key cultural heritage facilities in the area under study. There were no indications of archeological and historical sites.

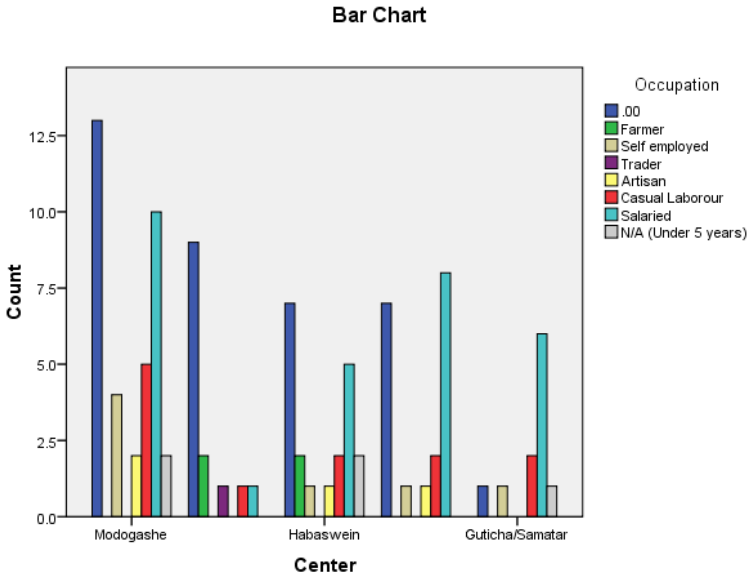
Center * Availability of cultural shrines Cross tabulation				
Count				
		Availability of cultural shrines		
		Yes	No	Total
Center	Modogashe	1	19	20
	Skanska	0	6	6
	Kanchara	0	3	3

Center * Availability of cultural shrines Cross tabulation				
Count				
		Availability of cultural shrines		
		Yes	No	Total
Center	Modogashe	1	19	20
	Skanska	0	6	6
	Kanchara	0	3	3
	Total	1	28	29



6.3.12 Main types of Businesses

The main types of businesses in the area under study are transport, retail trading, and trading livestock. This can as well be treated as a mixed livelihood. Majority of the people in the area under study do not engage in any business as shown in the figure below. Majority of these people earn more than Ksh. 20,000 as shown in the figure below.



Center * Monthly Income in Ksh. Cross tabulation						
Count						
		Monthly Income inKsh.				
		11000-20000	21000-30000	31000-40000	Over 40000	Total
Center	Modogashe	1	3	1	3	37
	Skanska	0	0	0	0	12
	Habaswein	1	1	1	2	19
	Kanchara	1	1	0	0	17
	Guticha/Samatar	1	1	0	1	11
	Total	4	6	2	6	96

6.3.13 Health Status (Common Diseases)

Malaria is the leading common disease in the area covered by Modgashe-Samatar road as shown in the table below. The next leading common disease is Typhoid. Malaria was found to be more prevalent in Habaswein than in any other trading center. Guticha trading center had both Malaria and Typhoid prevalence than any other center.

Center * Leading health problems in your village Cross tabulation						
Count						
		Leading health problems in your village				
		Malaria	Typhoid	Respiratory Tract Infection	Kwashakor	Eye infection
Center	Modogashe	0	0	0	0	0
	Skanska	0	0	1	1	0
	Habaswein	7	1	0	0	0
	Kanchara	0	0	0	0	0
	Guticha/Samatar	3	2	0	0	1
	Total	10	3	1	1	1

MATERIAL SITES ENVIRONMENTAL APPRAISAL

1 INTRODUCTION

This report is a rapid environmental assessment of the material sites that were identified at the design stage. The report is a quick environmental appraisal of these sites. Therefore, it is strongly recommended that the appraisal shall be used for purposes of advising the contractor. Pursuant to the EIA regulations 2003 and EMCA 1999 (Amendment 2015) the contactor is required to conduct independent Environmental Impact Assessments for the sites that he shall adopt. It is therefore important to note that this report does not exempt the contractor from complying with the statutory regulations.

Material extraction is an intensive activity which is likely to impact the environment. Some of the impacts identified include Disturbance of the faunal habitats, continued land disfigurement, vegetation clearance, enhanced soil erosion and sedimentation, potential sites for accidents, reduction of grazing land among others.

A total number of 6 borrow areas were identified and assessed. All the borrow areas were found to be existing and were found to be suitable for material extraction. The most important issues on the sites assessed was disturbance of faunal habitat, vegetation clearance as well as soil erosion.

A borrow site is an area set aside for material sourcing. The material extracted is gravel/laterite. Gravel is used extensively in road construction especially in preparing the sub-base and backfilling.

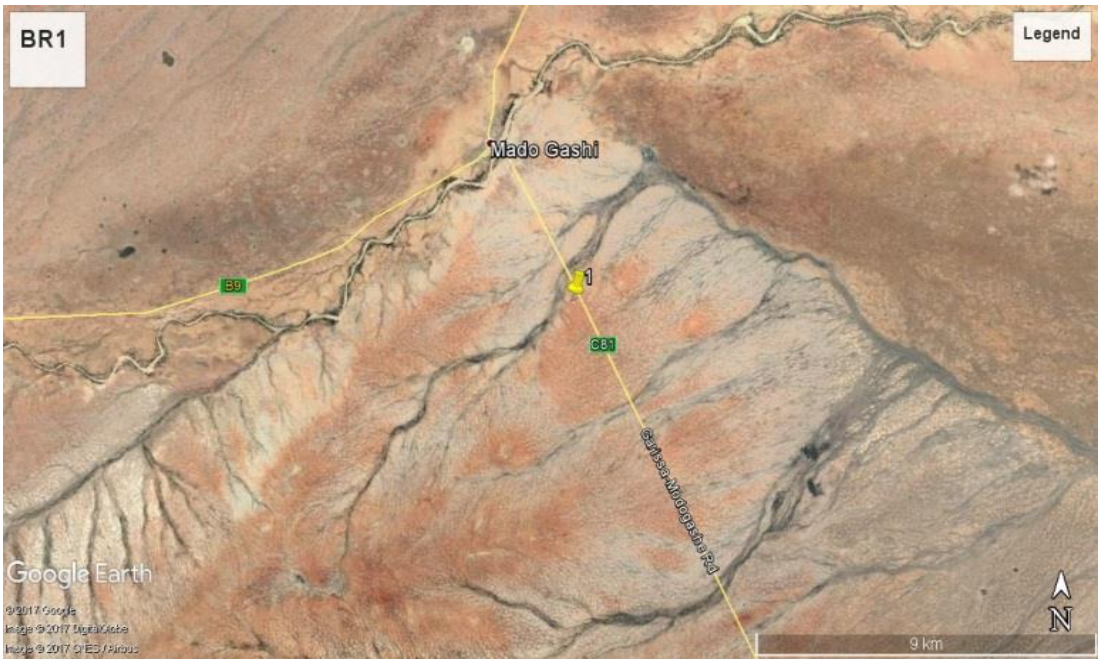
The process of mining borrow sites includes;

- *Identification of the borrow areas;* involves soil tests.
- *Site evaluation* which involves assessing the sites, identify potential impacts and developing mitigative measures.
- *Acquisition of site;* involves the contractor either buying the land or leasing the land for a specific period
- *Site preparation* involves construction of access roads, land clearing and stripping.
- *Mining* involves the actual extraction of gravel from the site, offloading into haulage trucks and transporting to construction site.
- *Decommissioning* means cessation of exploitation
- *Rehabilitation* involves restoring the site to a condition acceptable to the land owner and NEMA and to be approved by the resident engineer.

The borrow sites assessed in this report were identified at the design stage and the contractor will have the liberty to use them or identify alternative sources if the material meets the engineering standard. If the contractor identifies alternative sources he should ensure an environmental and social impacts assessment is done and findings communicated to the resident engineer.

It is recommended that the report should be read in context with the main ESIA report for the project.

2 BORROW AREA 1



Google Earth image for borrow site 1

2.1 Location and Description:

The proposed borrow area is in Lagdera subcounty, Garissa county. It is located at an elevation of 265M a.s.l. The site is on the left - hand side (LHS) and 225m west of Garissa - Modogashe road C81 (37N 0521334, 0076858). The site is 4.5km from Modogashe town.

2.2 Climate:

The mean annual temperature range between 24-30^{0}C. The area is very hot. The proposed borrow site is on the lowlands of Kenya.

2.3 Site Conditions

State of the site: The proposed borrow site is an existing site that has been exploited in the recent past.

Slope and soils*:* The area generally has a gentle slope, sloping from west to east with an altitude difference of 1m in 1km. The main soil type is sodic/saline solonetz soils that are reddish to light brown in colour and sandy in texture. There is evidence of erosion on site.

Plate 1: Reddish to light brown sandy soils with evidence of erosion

Vegetation: The proposed borrow site is comprised of mainly desert scrub vegetation that has an estimated 5% vegetation cover. Most of the vegetation is dry. The dominant species within the site is *Commiphora spp.* Potential for plant growth in this area is extremely low due to the low rainfall that averages between 150-350mm annually. It was also noted that due to the prolonged drought season most of the vegetation was found to be dry.

Plate 2: Desert scrubland vegetation found on site

Fauna: There were no mammalian fauna identified on site. However lower-class arthropods such as ants, earthworms may be available on the site. The project area is also a wildlife dispersal area and therefore the presence of wildlife around the area cannot be discounted.

Air quality: Due to the rural setting of the area very little dust or other air pollutants are present. Furthermore, there are no sensitive receptors present within 1 km radius of the proposed site.

Land Use: The proposed borrow site is a dormant material sourcing site, apart from the existing borrow area the whole area is a desert scrubland with no inhabitants.

Infrastructure: There is a road 225m from the site and a powerline

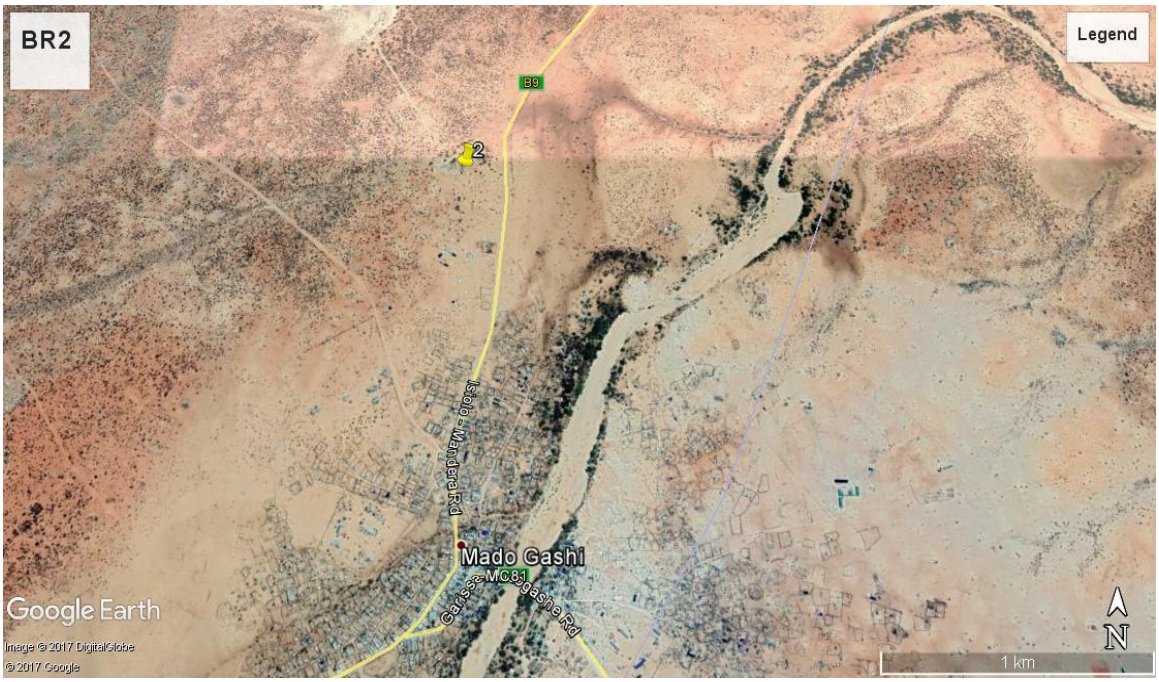
Elements	**Issues of concern**	**Mitigation measures**
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance by expanding the pit vertically as opposed to horizontally
Fauna	Habitat disturbance Noise and vibration from machinery may scare the animals. Excavation and vegetation clearance may also result in habitat disturbance	• The earth spoil excavated from the pit should be stockpiled around the material site to act as a noise barrier • Material extraction should be carried out during the day when ambient noise levels are generally high • The pit should be expanded deeper and less horizontally

Elements	Issues of concern	Mitigation measures
	Poaching and hunting The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Land resource	Continued extraction of material from the site will lead to continued landscape disfigurement	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers

2.4 Recommendation

This is an already active site and has been exploited. The main issues include vegetation clearance, faunal habitat disturbance, poaching and illegal hunting of wildlife, continued landscape disfigurement and exposure of the workers to health risks. However, the issues can be sufficiently mitigated by implementation of the measures suggested. This site is therefore recommended for further exploitation.

3 Borrow Area 2



Google Earth image for borrow site 2

3.1 Location and Description:

The proposed borrow area is located in Lagdera Subcounty Garissa County at an elevation of 259M a.s.l. (37N 0519110, 0082389). The site is 200m (LHS) of Isiolo-Mandera road B9 and 1.6km from Modogashe town.

3.2 Climate

The proposed borrow site is on the lowlands of Kenya. The mean annual temperature ranges between 24-30^{0}C. The area is very hot. The area receives an average annual rainfall of 320mm.

3.3 Site Conditions

State of the site: The proposed borrow site is an existing site that was exploited in the recent past.

Plate 3: Existing borrow site

Slope and soils*:* The area generally has a gentle slope, sloping from South west to North east with an altitude difference of 1m in 400m. The main soil type is sodic/saline solonetz sandy soils that are light brown in colour. The soil particles are loosely placed.

Vegetation: The proposed borrow site is mainly desert scrub vegetation that has an estimated 8% vegetation cover. Plant species identified within the site include *Acacia spp.* The vegetation within the area is homogenous. Potential for plant growth in this area is extremely low due to the low rainfall that average between 150-350mm annually. Due to the prolonged drought season, most of the vegetation within the site is dry.

Plate 4: *Acacia spp* dominant on the site

Fauna: There were no megafauna identified on site. However, the project area is rich in fauna and possible presence of wildlife within or around the site can certainly not be discounted. About 1km from the site and along the project road, dik dik, mongoose and girraffes were spotted.

Air quality: Due to the rural setting of the area very little dust or other air pollutants is present. The site is located 400m from Sericho secondary school and a hamlet that had been abandoned.

Land Use: The proposed borrow site is a dormant material sourcing site, apart from the existing borrow pit the whole area is a desert scrubland with settlement at Modogashe approximately 400m from the proposed borrow site. However, the site is sometimes used as a grazing field for livestock. When it rains the nearby borrow sites are used as watering points for animals as evidenced by footpaths and cow dung on site

Infrastructure: the only infrastructure on site is the Isiolo Mandera road

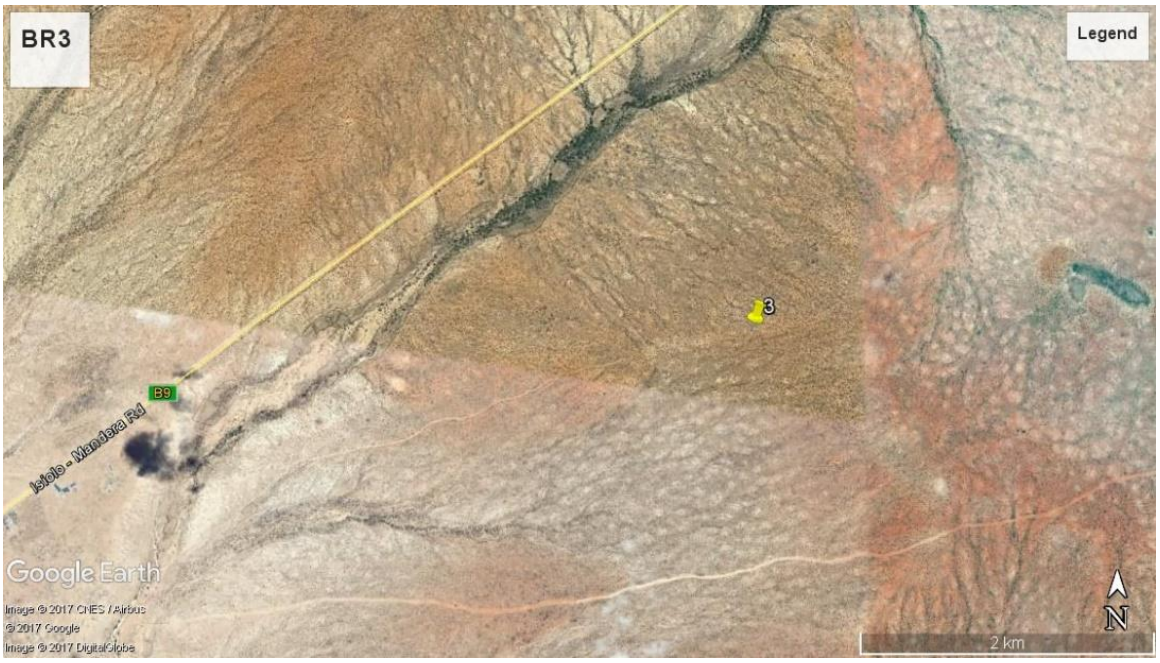
Elements	**Issues of concern**	**Mitigation measures**
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance
Fauna	Habitat disturbance Disturbance of wildlife habitat as the machinery used may be loud enough to scare them	• Excavation works should be carried out during the day when the ambient noise levels are generally high • Earth spoil excavated from the pit should be stockpiled around the pit to act as a noise barrier

Elements	Issues of concern	Mitigation measures
	Poaching and illegal hunting The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers
Sensitive receptors	Air pollution especially from particulate matter from dust	• The proposed site should be expanded northwards and not eastwards, southwards and westwards to prevent • Considering the environmental prevailing conditions of the area using dust suppressant mechanisms such as praying of water is practically impossible.
	Noise and excessive vibrations from machinery	• Earth spoil excavated from the pit should be stockpiled around the pit to act as a noise barrier
Land resource	Continued scarring of the landscape leading to landscape disfigurement and visual intrusion is likely to occur with continued material extraction	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed

3.4 Recommendation

The main impacts anticipated from material extraction from this site include air pollution, noise and excessive vibrations, vegetation clearance, poaching, illegal hunting and faunal habitat disturbance. However, all the impacts identified can be sufficiently mitigated by the mitigation measures proposed above. It is also recommended that the contractor prepares a rehabilitation plan for the site which shall be approved by the resident engineer. Therefore, the site is recommended for further use.

4 Borrow Area 3



Google Earth image for borrow site 3

3.5 Location and Description:

The proposed borrow area is located in Wajir South subcounty, Wajir County at an elevation of 252M a.s.l. (37N 0561550, 0114587). The site is 2Km East (RHS) of Isiolo-Mandera road C81, 7km from Habaswein town.

3.6 Climate:

The mean annual temperature range between 24-30^{0}C. The area is very hot. The proposed borrow site is on the lowlands of Kenya. The area receives very low rainfall 300-320 mm annually.

3.7 Site Conditions

State of the site: The proposed borrow site is an existing borrow site that is currently active and is being used for extraction of gravel for construction of the Nuno – Modogashe road.

Plate 5: Existing proposed borrow area

***Slope and soils**:* The area generally has a fairly flat terrain because it is located on a sedimentary plain. The main soil type is sandy soils (Arenosals) that are light brown in colour and loosely placed. There is evidence of erosion within the site. The main type of erosion is gulley erosion. Sheet erosion is also common within the area.

Vegetation: The proposed borrow site is mainly desert scrub vegetation that has an estimated 10% vegetation cover. Most of the plants are dry. Plant species identified within the site include acacia spp and Panicum spp. Potential for plant growth in this area is extremely low due to the low rainfall that average between 150-350mm annually.

Plate 6: Desert scrubland vegetation

Fauna: There were no megafauna identified on site. However, the project area is rich in fauna and possible presence of wildlife within or around the site can certainly not be underscored. Macrofauna, mesofauna may also be found within the soils in the area.

Air quality: Due to the rural setting of area very little dust or other air pollutants is present. There are no sensitive receptors present 4 km from the proposed site.

Land Use: The proposed borrow site area is a desert scrubland with no inhabitants.

Infrastructure: Isiolo – Mandera road

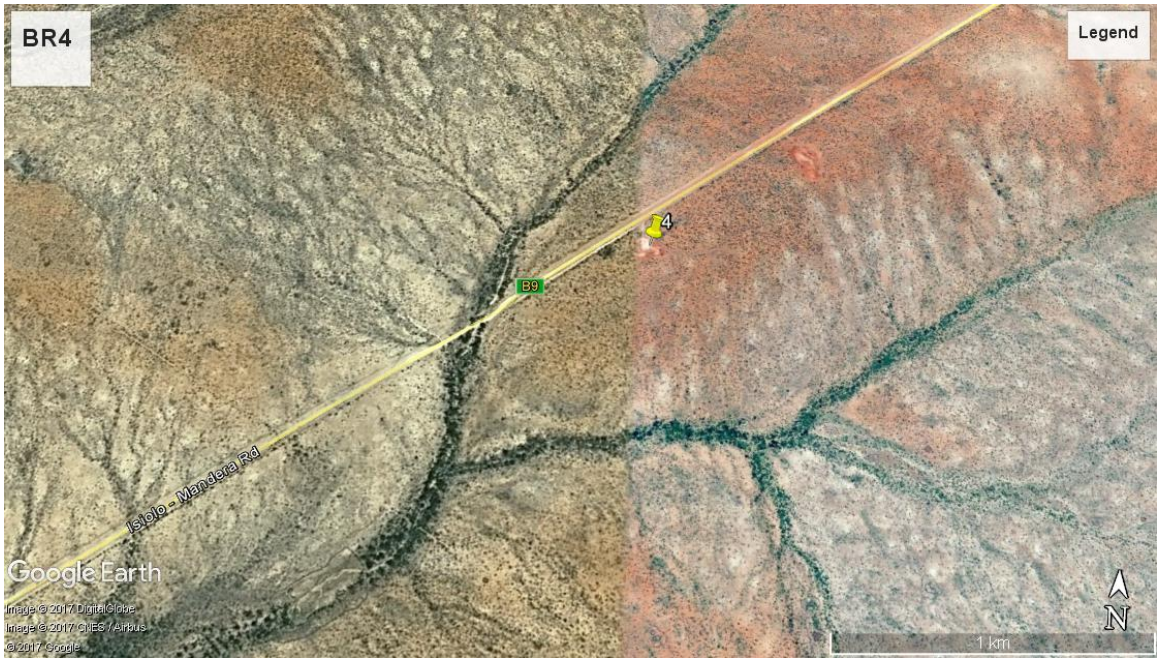
Elements	**Environmental concerns**	**Mitigation measures**
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance
Fauna	Disturbance of wildlife habitat as the machinery used may be loud enough to scare them	• Excavation works should be carried out during the day when the ambient noise levels are generally high • Earth spoil excavated from the pit should be stockpiled around the pit to act as a noise barrier • Digging deeper into the pit to extract material rather than expanding the site horizontally for the pit to act as a noise barrier

Elements	Environmental concerns	Mitigation measures
	The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers
Land resource	Continued scarring of the landscape leading to landscape disfigurement and subsequent visual intrusion is likely to occur with continued material extraction	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed

3.8 Recommendation

The concerns for this material site include disturbance of wildlife habitat, possible poaching and illegal hunting, continued scarring of the landscape and vegetation clearance which can be sufficiently mitigated by the measures proposed above. The contractor should also prepare a rehabilitation plan which will be approved by the resident engineer. Therefore, the material site is recommended for further exploitation.

4 Borrow Area 4



Google Earth image for borrow site 4

4.1 Location and Description:

The proposed borrow area is located in Wajir West subcounty in Wajir County at an elevation of 248M a.s.l. (37N 0562402, 0117853). The site is 100m East (RHS) of Isiolo-Mandera road B9, 9km from Habaswein town.

4.2 Climate

The mean annual temperature range between 24-30^{0}C. The area is very hot. The proposed borrow site is on the lowlands of Kenya.

4.3 Site Conditions

State of the site: The proposed borrow site is an existing borrow site

Plate 7: Existing borrow site

Slope and soils*:* The area generally has a fairly flat; being on a sedimentary plain. The main soil type is sodic/saline; solonetz soils that are light brown in colour and sandy in texture

Plate 8: Sandy soils that are light brown in colour

Vegetation: The dominant vegetation is desert scrub vegetation that has an estimated 10% vegetation cover. Plant species identified within the site include *Acacia spp.* and *Panicum spp*. Potential for plant growth in this area is extremely low due to the low rainfall that average between 150-350mm annually.

Plate 9: Dry vegetation on site due to prolonged drought season

Fauna: There were no megafauna identified on site. However, the project area is rich in fauna and possible presence of wildlife within or around the site can certainly not be underscored. Macrofauna, mesofauna may also be found within the soils in the area.

Air quality: Due to the rural setting of the area very little dust or other air pollutants is present. There are no sensitive receptors present 8 km from the proposed site.

Land Use: The proposed borrow site area is a desert scrubland with no inhabitants. There were no settlements identified around the site

Infrastructure: the main infrastructure is the Isiolo – Mandera road

Elements	Issues of concern	Mitigation measures
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance
Fauna	Machinery used for material extraction may be loud enough to scare any wildlife within the area.	• Regularly service the machines • Works should be carried out during the day when the ambient noise levels are generally high • The site should be expanded vertically by digging deeper into the site instead of being expanded horizontally for the pit to act as a noise barrier • Unserviceable material excavated from the pit should be stockpiled around the pit to act as a noise barrier
	The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers
Land resource	Continued scarring of the landscape is likely to occur with continued material extraction	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed

4.4 Recommendation

This is an already active site and has been exploited. The main issues include vegetation clearance to pave way for expansion of the pit, disturbance to faunal habitat, poaching and illegal hunting, landscape disfigurement as well as health risks to the workers. However, the issues can be sufficiently mitigated by implementation of the measures suggested. Further, it is also recommended that the contractor prepares a Rehabilitation plan that shall be approved by the Resident Engineer. This site is thus recommended for further exploitation.

5 Borrow Area 5

Google Earth image for borrow site 5

5.1 Location and Description:

The proposed borrow area is located in Wajir subcounty in Wajir County at an elevation of 251M a.s.l. (37N 0562962, 0118278). The site is 100m (RHS) of Isiolo-Mandera road B9, 10km from Habaswein town.

5.2 Climate

The mean annual temperature range between 24-30^{0}C. The area is very hot. The proposed borrow site is on the lowlands of Kenya.

5.3 Site Conditions

State of the site: The proposed borrow site is an existing site that was exploited in the recent past.

Plate 10: Existing site

Slope and soils*:* Generally, *t*he area has a relatively flat terrain. It is located on a sedimentary plain. The main soil type is sodic/saline; solonetz soils that are reddish brown in colour and sandy in texture. The site is erosion prone as evidenced by erosion within the site.

Plate 11: Reddish brown sand soils with evidence of erosion

Vegetation: The proposed borrow site is mainly desert scrub vegetation that has an estimated 15% vegetation cover. Plant species identified within the site were mainly *Acacia Spp.* Potential for plant growth in this area is extremely low due to the low rainfall that average between 150-350mm annually. Some vegetation has been cut down to pave way for material extraction.

Plate 12: Vegetation previously cut down to pave way for material extraction

Fauna: Whereas there were no megafauna identified on site, the project area is rich in fauna hence possible presence of wildlife within or around the site cannot be discounted. Macrofauna, mesofauna may also be found within the soils in the area.

Air quality: Due to the rural setting of the area very little dust or other air pollutants is present. However, the air quality pollutants within the site may be exhaust fumes from the vehicles and fugitive dust from the Isiolo – Mandera road. There are no sensitive receptors present 9 km from the proposed site.

Land Use: The proposed borrow site area is a desert scrubland with no inhabitants.

Infrastructure: the only infrastructure present is the Isiolo – Mandera road used to access the site.

Elements	Issues of concern	Mitigation measures
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance
Fauna	Disturbance of wildlife habitat as the machinery used may be loud enough to scare them	• Excavation works should be carried out during the day when the ambient noise levels are generally high
	The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Land resource	Continued extraction of material from the site will lead to continued landscape disfigurement	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers

5.4 Recommendation

This is an already active site and has been exploited. The main issues include vegetation clearance to pave way for pit expansion, disturbance of wildlife habitat, poaching and illegal hunting as well as exposure of workers to respiratory health risks because of fugitive dust. However, the issues can be sufficiently mitigated by implementation of the measures proposed. In addition, it is proposed that the contractor prepares a Borrow pit rehabilitation plan for the site that shall be approved by the Resident Engineer. This site is therefore recommended for further exploitation.

6 Borrow Area 6

Google Earth image for borrow site 6

6.1 Location and Description:

The proposed borrow area is located in Wajir West Subcounty in Wajir County at an elevation of 259M a.s.l. (37N 0564299, 0119632). The site is 155m (LHS) of Isiolo-Mandera road B9, 12km after Habaswein town.

6.2 Climate

The mean annual temperature range between 24-30^{0}C. The area is very hot. The proposed borrow site is on the lowlands of Kenya. The area receives very low rainfall 300-320 mm annually.

6.3 Site Conditions

State of the site: The proposed borrow site is an existing site that was exploited in the recent past. The extent of excavation is about 20%

Plate 13: An existing borrow site that has been exploited in the recent past

Slope and soils*:* The area generally has a fairly - flat; being on a sedimentary plain. The main soil type is sodic/saline; solonetz soils that are light to reddish brown in colour and sandy in texture.

Plate 14: Exposed slopes of the site susceptible to erosion

Plate 15: Sodic soils

Vegetation: The proposed borrow site is mainly desert scrub vegetation that has an estimated 10% vegetation cover. Potential for plant growth in this area is extremely low due to the low rainfall that average between 150-350mm annually.

Fauna: Impala and crows were identified within the site

Plate 16: Impala found on the material site

Air quality: Due to the rural setting of the area very little dust or other air pollutants is present. The most important air quality pollutants would be particulate matter from fugitive dust as well as exhaust fumes from the few vehicles that ply the Isiolo Mandera road.

Land Use: The proposed borrow site area is a desert scrubland with no inhabitants.

Infrastructure: Isiolo – Mandera road

Elements	Issues of concern	Mitigation measures
Flora (vegetation and habitat)	Clearance of the scrub vegetation on the proposed borrow site leading to continued habitat loss.	• Minimize the area of disturbance or vegetative clearance
Fauna	Habitat disturbance during material extraction	• The earth spoil excavated from the pit should be stockpiled around the material site to act as a noise barrier • Material extraction should be carried out during the day when ambient noise levels are generally high • The pit should be expanded deeper and less horizontally
	Poaching and illegal hunting The workers may engage in poaching and hunting of the wildlife in the area	• The workers and everyone involved in material extraction should be sensitized on the laws that relate to wildlife hunting and the need to protect the wildlife as a resource • The Contractor(s) should develop a code of conduct to ensure that their workers do not consume game meat from the area, whether supplied by the locals or killed by themselves.
Health risks to the workers	Fine dust particles may affect the respiratory health of the workers who will be working on site.	• The contractor should provide a respirator to each of the workers involved • Due to the high temperatures, experienced makeshift shades should be provided for the workers to use while on break. • Allow breaks between works • Portable water sources should be provided for the workers
Land resource	Continued scarring of the landscape is likely to occur with continued material extraction	• The borrow pit should be backfilled with earth spoil and compacted • The contractor should properly rehabilitate the material sites one material extraction has been completed

6.4 Recommendation

This is an already active site and has been exploited. The main issues include vegetation clearance, landscape disfigurement, faunal habitat disturbance, poaching and illegal hunting and health risks to workers. However, the issues can be sufficiently mitigated by implementation of the measures suggested. Further the contractor shall be required to develop a Borrow pit rehabilitation plan which shall be approved by the resident engineer. This site is therefore recommended for further exploitation.

7. Conclusions and Recommendations

Material extraction from the environment often lead to landscape degradation which, if not rehabilitated can remain permanent. The environmental appraisal carried out indicates that all the material sites identified are existing and can be further exploited. The main environmental concerns are reduction of grazing land, air pollution and noise and excessive vibration at one site, and faunal habitat disturbance. However, the impacts identified can be sufficiently mitigated by the measures proposed for each site. In case the contractor decides to adopt any of the sites proposed then he shall be required to carry out independent Environmental Impact Assessments for the sites. He is however at liberty to suggest other sites because this appraisal is for advisory purposes. It is also important to note that the responsibility of reinstating or rehabilitation of the sites upon cessation of material extraction shall be the responsibility of the contractor. In instances where the contractor decides to adopt the existing sites he shall be required to fully rehabilitate the sites when he completes material extraction. To achieve this, the contractor will be required to prepare a borrow pit rehabilitation plan that should be approved by the resident engineer.